HOUSING

THE CONTINUING PROBLEM

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DECEMBER 1940

NATIONAL RESOURCES PLANNING BOARD

HOUSING MONOGRAPH SERIES

HOUSING
THE CONTINUING PROBLEM

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TECHNICAL MONOGRAPHS ON HOUSING
PREPARED FOR THE
INDUSTRIAL COMMITTEE
OF THE
NATIONAL RESOURCES COMMITTEE

The National Resources Planning Board assumes no responsibility for the views and opinions expressed herein

A NATIONAL RESOURCES COMMITTEE PUBLICATION RELEASED BY THE
NATIONAL RESOURCES PLANNING BOARD

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EXECUTIVE OFFICE OF THE PRESIDENT
NATIONAL RESOURCES PLANNING BOARD
WASHINGTON, D. C.

May 21, 1940.

The PRESIDENT,
The White House.

MY DEAR MR. PRESIDENT:

We have the honor to transmit herewith a report on housing, which was undertaken in accordance with your request. This document summarizes and reproduces a series of technical monographs on varying aspects of the problem. Except for the Summary, these technical papers have been published at intervals during the last 2 years, and in each case the author assumes full responsibility for the views expressed therein.

We hope that these materials will prove helpful to those both in public and in private positions of responsibility who are engaged in supplying adequate housing for our people.

Sincerely yours,

FREDERIC A. DELANO, *Chairman.*

CHARLES E. MERRIAM. GEORGE F. YANTIS.

EXECUTIVE OFFICE OF THE PRESIDENT
NATIONAL RESOURCES PLANNING BOARD
WASHINGTON, D. C.

June 10, 1940.

Mr. FREDERIC A. DELANO,
Chairman, National Resources Planning Board,
Washington, D. C.

MY DEAR MR. DELANO:

The Industrial Committee transmits herewith the fourth and last of the series of monographs on housing prepared, at the request of the President, by numerous collaborators and agencies and assisted by a technical staff. A study in this field was originally undertaken in the spring of 1938 in connection with larger problems of the construction industry.

The Industrial Committee recommends the publication of this Summary at this late date because it gives some perspective to the materials already made available in the earlier technical monographs. While technicians will gain little from those parts of this Summary which deal with their specialties, they may find some advantage in a review of other technical fields which are intimately related to material with which they are familiar.

The work has been reviewed by the Industrial Committee. The author, of course, assumes responsibility for all statements in the monograph.

Sincerely yours,

THOMAS C. BLAISDELL, Jr.
Chairman, Industrial Committee.

CORWIN D. EDWARDS — LEON HENDERSON — WILLARD D. THORP
MORDECAI EZEKIAL — ISADOR LUBIN — HARRY D. WHITE
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INTRODUCTION

The National Resources Planning Board Interest

The National Resources Planning Board and its predecessors has issued numerous reports dealing with our national resources and their utilization, both present and potential. Keeping constantly in mind the fact that there is an abundance of natural resources to supply all the population with a good living, the Board is continually impressed with the need for integrating our abilities and activities in such a way that the people of the United States may succeed in getting the good things of life.

Among these good things of life which we all want are good homes, yet the failure to supply this need greets us on every hand. Slums and worn-out neighborhoods, scattered subdivisions which never grew up, luxury apartments and barrack flats, mill villages and garden suburbs, marching files of row houses and spacious mansions are all part of the picture of the contrasting ways in which we have housed ourselves.

The generally recognized need for houses is sometimes expressed statistically as so-and-so many hundreds of thousands. Sometimes the figure is given in millions. So great is the need that during the depression years of the past decade we have again and again looked to the housing industry to "pull us out" of the slump. But the automatic mechanism by which need is supposed to call into being the goods to supply that need has failed to function. Various methods have been tried, both by private industry and by government, to get more and better houses built. But the problem is still with us and, from any practical viewpoint, appears likely to be with us for some time.

Public and private efforts to meet our housing needs have involved many different approaches to the problem and, consequently, many varied attempts at solution. The diversity of the resulting activity led the National Resources Committee to undertake a study of the housing field in an effort to define the problems, delineate those lines of attack on which there was substantial agreement, and bring out some of the differences of opinion in the hope that they might be resolved through clarification.

Variety of Opinions

Experts in the several Federal agencies concerned with housing were asked for technical discussions of specific aspects of the problem, together with expressions of opinion based on their experience in and knowledge of the field. The reports which they prepared relate to the economics of residential building activity, choice of site, site planning, building regulations, legal problems, building materials costs, labor costs, and small-house design.

For the use of technicians, certain of these studies have been published by the Committee under the following titles:

No. 1. Residential Building.
No. 2. Legal Problems in the Housing Field.
No. 3. Land, Materials, and Labor Costs.

These publications are not comprehensive, yet they contain an amount of material sufficiently large and diverse to warrant summarization. This, the present document attempts to do.

There are serious omissions both in this summary and in the original publications. There is practically no attention given to the peculiar problems of rural housing. An understanding of how to deal with these problems is not well developed, nor is there discussion of the problems of housing management. Much has been learned in recent years concerning the ways in which large-scale projects can be efficiently administered. These subjects have not been explored and hence are omitted in this discussion.

The studies in this series of housing monographs are linked together only in the sense that each of the contributors has written on a particular phase of the housing problem. However, since no one aspect of the problem is entirely separate and distinct from its other aspects, each contributor, in discussing his topic, has touched upon other topics as well. No attempt has been made to delete repetitious material in these monographs or to reconcile contradictory views. Each study has been presented simply as an expression of individual, though expert, opinion.

Out of these published expressions, certain definite points of agreement and disagreement appeared. The Board was not surprised to find opinion at variance. It was surprised, however, to find the variance so marked in the face of a remarkable degree of agreement on basic points.

The difference of opinion would seem to have arisen over the placing of the emphasis in a housing program. There appears to be no thought but that the housing problem is a composite one which must be attacked from many angles if it is to be solved. There is no apparent disagreement over what the various points of attack must be. The conflict in views arises over which of these is the most important—over which point, or points, calls for concentration of effort, particularly insofar as the activities of the Federal Government are concerned.

Agreement and Controversy

There seems to be agreement, for instance, among all of the housing agencies of the Federal Government that many more houses and dwelling units are urgently

needed, particularly for people in the lower income groups. Although the rate of population increase is slowing down, the number of families is still increasing quite rapidly. The family is, of course, the unit of demand for housing. Serious deficiencies have to be corrected in the character of much existing housing. Other deficiencies arise from the slow rate of residential building in recent years. There is a difference of opinion, however, as to what proportion of these new houses should be owned by the occupiers and as to how far rental housing should be encouraged. Each side of this argument has its vigorous partisans; and, while they agree that both types are needed, they have not been able to state the relative emphasis to be given each type of ownership.

Another question of relative emphasis arises in regard to the financing of housing. Everyone is apparently in agreement that some sort of governmental aid is necessary to finance good housing for people in the lower income groups, but there is not agreement on how this aid should be apportioned as between subsidized rents in public housing projects and assistance to private housing enterprise. There is also much discussion as to the relative merits of different types of machinery for governmental aid. There are protagonists of outright cash subsidies, insured mortgages, and low interest rates. Others argue well for strengthening building and loan associations, or commercial banks, or mortgage associations.

There is general agreement, apparently, among those concerned with housing problems that the control of land use and the cost of acquiring and developing sites are special problems requiring new techniques and fresh points of view. Although the shortsightedness and folly of overcrowding the land in residential districts is generally condemned, there is as yet little agreement as to what pattern of residential development combines in the best proportions attractiveness and livability with economy of management and public utility servicing. The public generally does not yet appreciate the significance of these problems which appear of vital importance to the experts.

There is also general agreement on the necessity for zoning or other control of the whole neighborhood or community in which any housing development is projected. Not only do these studies agree on the need for zoning control, but they urge more realistic allocations of urban land to different use zones and more effective zoning administration as essentials of comprehensive local housing programs. The advocates of better housing facilities are fully aware that housing is only a part of other complex problems of neighborhood and community development. They cannot be treated in separate compartments.

None of the experts doubt the need for enforcing certain minimum standards of safety, sanitation and decency by State and municipal governments. However, they unite in condemning attempts to misuse restrictive ordinances to favor private interests when these ordinances are unrelated to the minimum standards.

The experimentation on which progress in housing design depends in large part requires continued careful study by competent architects and engineers as well as more flexible building codes under which newer materials will be allowed if they can meet specific tests of fitness. As to the details of design and its regulation, minor and technical differences of opinion exist. There is no reason to believe, however, that they would constitute a serious obstacle to a vigorous housing program if the essentials that are agreed upon could be put into practice.

The legal situation in regard to housing represents an agreement as to desired ends but a conflict as to method. Housing laws are now in a chaotic state. The recent development of interest in housing has led to a great variety of local, State and Federal laws. The legal problem is, however, not only to introduce some order into this great variety of established authorities and procedures but also to simplify and speed up legal action, to facilitate the acquisition of land, to safeguard investments, and to promote new construction.

Building materials and labor costs have been looked upon as a common problem faced not only by the housing group but by the whole construction industry. As is well known, the construction industry lacks integration and is peculiarly subject to severe fluctuations in activity. There seems to be agreement that some method must be found for adjusting the price of building materials to other price movements, and to provide greater security to labor and greater stability for the construction industry, if costs are to be materially reduced.

For some years there has been full agreement upon the tremendously important place that housing has in the construction industry and, in turn, that the construction industry has in the whole national economy. Any report on the housing situation which failed to recognize the significance of housing in the larger economic picture would be incomplete

These points of agreement and controversy, as has been stated, arise out of the various technical discussions in the series of monographs referred to above. As a means of orienting the reader in his approach to the several documents, it was felt that the three technical monographs might well be summarized as to content. Then, on the basis of such a factual summary, a presentation of the outstanding findings and conclusions might serve both to re-emphasize certain important points and to place them in proper perspective.

HOUSING—THE CONTINUING PROBLEM

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SUMMARY AND FINDINGS

By Thomas C. Blaisdell, Jr.*

SUMMARY

What is Needed

For the millions in our cities who live in houses and tenements that are dilapidated, unsanitary, and overcrowded, there are no other living quarters available at a price which they can afford to pay. A part of our population has always been adequately housed—that part which offers the incentive of a profitable market to private-building enterprise. But for the lower income groups we need more houses; we need better houses; and we need houses at the lowest possible cost.

This new housing must provide houses for both owner occupancy and rental. A large percentage of people now live in rented houses and apartments and will probably continue to do so.

Home ownership for everyone is not a feasible objective. Under many circumstances home ownership is more costly than renting, and the risks are great. Under existing conditions, there are the dangers to be faced of property and neighborhood deterioration, of buying a poorly built house, of being unable to meet the long-time obligations involved. Moreover, there are people who prefer, or whose circumstances make it advisable for them, to rent rather than to own their living quarters. There are those whose present financial position is good but whose future is not assured, those who have been unable or do not wish to save, those who wish to invest their savings in other ways, those whose place of employment is likely to change, those whose occupation demands frequent absences from home or a central urban location, those who are old and who do not wish the responsibility of a home of their own, and those who are young and need only small quarters. For all these people rental housing must be provided.

It is obvious that different kinds of housing are necessary to meet different needs. Small inexpensive but well-designed and well-constructed houses must be built for owner occupancy or rental. Although actual experience in rehabilitating old dwellings for low income families is meager, it is possible that under certain types of financing, economical housing can be provided in this way for a small proportion of low-income families, particularly the larger families in this class. Large-scale rental housing projects offer, perhaps, the most promising means for meeting the current need of better housing for those whose finances and tastes are not favorable to home ownership. The centralized ownership, control, and management of a large housing project allows the maximum efficiency and economy in construction and maintenance. Furthermore, the large housing project offers the greatest resistance to obsolescence, which lowers not only property values but living standards as well. The single house or apartment building is too small to resist a downward trend in the character of the neighborhood. The large-scale project, on the other hand, may do this quite successfully, especially if it is large enough to constitute, in itself, a coordinated neighborhood entity.

The Economics of Housing

Unless subsidized, the construction of new housing is not ordinarily begun until such activity promises a profit. The prospect of profit appears when the return from existing properties is more than the cost of building and maintaining new dwelling units with equivalent advantages and accommodations. The return from existing properties reflects in a general way the current relationship between the demand for living quarters and the supply.

The demand for dwellings is determined by the number of families to be housed in a given area, the size of their incomes, and the portion of these incomes that they are able and willing to spend on shelter. Thus, even though the number of families increases during a period of falling incomes, the demand for housing may decrease as the families "double up" to save money. Similarly, an increase in the cost of such an essential as food or a widespread preference for spending money on automobiles or summer holidays rather than for living quarters may decrease the amount

*Thomas C. Blaisdell, Jr., is an Assistant Director of the National Resources Planning Board. When this manuscript was prepared, he was Chairman of the Industrial Committee of the National Resources Committee and in charge of the housing study. Mr. Baisdell was assisted in the preparation of this summary by Coleman Woodbury of the National Association of Housing Officials and by Virginia Fox Shepherd.

of money families can or desire to spend for shelter and, therefore, the demand for housing.

Now, any decrease in the demand for housing in relation to a given supply results in vacancies and, therefore, in lower returns on existing investments in housing and a consequent falling off of construction activity. Conversely, when during a period of steady or rising incomes, the number of families to be housed increases and no disproportionate demands are made upon their incomes by other needs or desires, more houses are called for as families seek separate and more comfortable quarters, and gradually, as vacancies disappear, rents and property values rise. As soon as this rise is sufficient to make the construction of new housing profitable, additions to the existing supply of dwelling units will be begun.

How high rents and property values must be to stimulate new building will depend on the cost of housing to the property owner, that is, on the cost of land, of improvements, of building, of financing, of taxes and assessments, of maintenance, of the loss due to obsolescence and depreciation, and on such supplementary costs as utility service charges, those for transportation and for community services not adequately provided by public agencies. All these costs must be met by the owner-occupant or, insofar as they can be passed on to him, by the renter. Unless rents and property values are sufficiently high to cover these costs and yield a profit, there is ordinarily no incentive for investment in new housing.

High land values, high building and maintenance costs, high financing charges, and high taxes all make the cost of new housing high and discourage its construction. In order to encourage the building of more and better houses, we must try, on the one hand, to increase the demand for houses by raising the general level of family incomes among the lower income groups and, on the other, to increase the supply by lowering the cost of housing to meet these incomes. It is generally estimated that the average low income family cannot afford to pay more than one-fifth of its monthly income for shelter. For those whose incomes are so low that this one-fifth cannot possibly buy for them decent housing provided by private enterprise, we must build with the aid of public funds. A large proportion of the housing for this section of the population will require, for the present at least, public grants or subsidies.

Land

Choice of Site

Land, ready to use, that is, improved, constitutes from 15 to 35 percent of the total cost of housing. One way of reducing the cost of housing is by a careful selection of the building site. Land values in the center of a city are high since they reflect the profits from the most favorable industrial or commercial use to which the land may be put. If this land is used for housing purposes, it is necessary to construct on it living quarters for as many people as possible in order to reduce the cost of the land per family. With industry and commerce moving to the suburbs and with the transit facilities of the modern city, it is no longer necessary to crowd people together in the center of the city. The reduction in livability that results from such crowding is apt to be much greater than the reduction in cost to the occupant, since land is only one of the items for which he must pay. A less obvious but important result of land overcrowding is to increase materially the operating expenses of housing. When the type of physical structure makes impractical a large degree of operation and maintenance by the tenant, either rents must be greatly increased to provide for these services or the standard of the housing will deteriorate rapidly from inadequate upkeep and faulty operation. Greater comfort and economy may be attained by building on cheaper land in outlying districts, which improved transportation facilities have made readily accessible.

Land values in occupied slum districts are, in many cities, too high to make these sites practical for new low-cost housing projects. Satellite cities or suburbs are often the most desirable type of development where a large building project is contemplated, and a small project can best be placed in the outlying districts of a central city or of its suburbs.

The actual cost of the land, however, is not the only housing cost which the choice of site for a new development may affect. The monthly charge for electricity, water, gas, garbage collection, and similar services varies in different locations. So do taxes and assessments and general community costs. The costs of materials and of labor vary somewhat with location owing to different building regulations, delivery charges, and wage rates. Obviously, transportation costs to and from places of employment are not uniform regardless of location. In selecting a site for a new low-cost housing project, all these factors must be taken into consideration and carefully weighed from the standpoint of relative cost.

The locations selected for new metropolitan housing projects designed to accommodate families in the lower income ranges, at a price they can afford to pay and in accordance with at least the minimum standards of health and comfort, should be within convenient reach of major employment areas, and of adequate schools, playgrounds, and local shopping facilities, existing or to be provided as part of the housing project. The sites chosen should be easily accessible to good and reasonably priced water supply, sewer, and electric facilities; and the cost of the land itself should be sufficiently low to preclude any necessity for over-

crowding. The neighborhood stability should be such as to minimize the risk of neighborhood deterioration and hence, to justify the lowest interest and amortization rates.

The difficulty is that in our crowded metropolitan regions, much, and in some cases almost all, of the desirable land for house building has been ruined by unplanned and unrestricted subdividing. This means wasteful platting, distorted land values, unpaid purchase contracts, and delinquent taxes and assessments. To ameliorate this difficulty, steps must be taken to correct the tax-delinquent situation, even if this necessitates the reversion of tax-delinquent lands to the local governments, and to make the pooling and replatting of individual holdings compulsory in aggravated cases of unwise subdividing.

A metropolitan land reserve, that is, land bought in advance of need, is a valuable instrument of control. It is useful to combat speculation, for public parks, forests, parkways, highways, and watersheds, and, in many cases, it has been invaluable in making sites available, at low cost and without delay in assembly and purchase, for new housing enterprises. Such land reserves, however, can hardly be developed without careful and far-sighted metropolitan regional planning.

Site Planning

The cost of housing is affected not only by the general location of the site selected for development but also by the arrangement of buildings on the ground. Wherever and whenever possible, the land being considered for new housing should be carefully studied in relation to the type of development contemplated before that land is purchased or construction started.

The type of development and its cost will to some extent be decided by whether the new housing is to be sold to different owners or kept under one ownership and control and rented. The greatest economies in site planning can be effected under the latter condition.

The topography of a site will determine not only the most suitable landscaping and architectural design but also the cost of preparing the land for use and of installing the utility systems. Arrangement of buildings in conformity with prevailing winds and natural sunlight while it increases livability, may also increase the costs of site development. Careful judgment must be exercised to determine whether this increase in livability is sufficient to warrant the additional expense—whether through skillful design of buildings the same degree of comfort and convenience might not be achieved. Whenever this decision is close, the benefit of the doubt should go to the better site plan. Apparently clever ideas in building design are often less effective than their originators believe them to be. They may also become obsolete quickly, but sound site planning for air and sunlight has never gone out of fashion.

The way houses are grouped on the land affects street, yard, and park improvements, and public-utility costs. Careful study must be made of the comparative cost of developing a site to which existing water, sewerage, utility and transit systems may readily be extended or one for which new facilities must be provided. The alternative methods of furnishing heat and light must be studied with respect to cost. Account must be taken of the necessity for providing adequate school and recreational facilities, either by utilizing neighboring schools and parks or building new ones, and consideration given to variations in building codes, zoning ordinances, and other regulations which may affect housing costs.

The comparative efficiency, first cost, and cost of maintenance and operation of alternative plans for new housing developments must be carefully weighed in order to obtain the maximum convenience and comfort at the minimum cost. Economies in space, materials, and workmanship must stop short of the point where they may increase the ultimate cost of housing by increasing the cost of operation and maintenance.

The careful selection of the general location for new housing and the careful arrangement of buildings on the land are both important considerations in reducing the cost of housing and, together, constitute the best guarantee against the loss of social and financial value through deterioration.

Cost of Construction

Building Materials

The cost of construction is naturally an important factor determining the total cost of housing, and construction costs are admittedly high. Building materials account for roughly from 55 to 70 percent of total construction costs, and construction costs average from 65 to 85 percent of the total cost of a house, exclusive of sales and promotional expenses. The prices of these materials, therefore, have an important influence on the final cost of construction and on the total cost of housing. If these prices are high in relation to the prices of other commodities, the cost of building will be relatively high, and construction will be discouraged.

The prices of building materials did not decline between 1929 and 1933 as much as did the prices of other commodities, and in 1933 they rose much more rapidly. The result was to discourage construction. In 1934 and 1935, as the relative cost of building materials decreased with the rise in other prices, the construction industry began to show signs of recovery. During late 1936 and the first months of 1937, building material prices again rose sharply, and immediately thereafter, incipient recovery in the residential building industry

was reversed. Not until late in 1937, when prices again moved downward, did the volume of residential construction move upward. Moreover, from the summer of 1937 to the spring of 1938, building material prices did not decline as rapidly or as far as other prices.

The failure of building materials prices to keep pace with the fall in general prices between 1929 and 1933, despite the fact that demand decreased to almost negligible proportions, and their subsequent disproportionate rise suggest that these prices are not arrived at under conditions of free competition, but are controlled or "managed." In certain important industries, such as steel and cement, volume of production falls off when demand does, while prices tend to remain the same or to show little decrease. In a competitive market, production would not drop if prices remained steady, and the normal reaction to a fall in demand is a lowering of prices and a subsequent pickup in demand at the lower price level.

The prices of these same materials have often risen rapidly with increase in demand, even when this increase is not sufficient to put any strain on the productive capacity of the industry and, thereby, to warrant such a rise. Increased labor costs cannot satisfactorily account for a rapid rise in building materials' price. While labor and other production costs have risen noticeably in some cases, such increases did not occur exclusively in the areas or in the plants producing the building materials which rose most in price. Moreover, labor costs do not constitute in most cases a sufficiently large proportion of total costs to make a 20 or 30 percent rise in wages mean more than a 4 or 6 or 8 percent increase in total costs.

While these data indicate that material costs are significant in relation to the volume of housing construction, it would be a mistake to conclude that a reduction in these costs would have maintained the volume of construction during the depression years. While a decline in materials and other costs doubtless would have had some influence on volume, there are numerous other factors involved. Some of these are of a long-time importance; others have "cyclical" characteristics.[1]

The inefficiency of wholesale and retail distribution of building materials also accounts to an important extent for their cost. The multitude of dealers involved in this process compounds the expenses of competition. More efficient organization of the industry is needed; but the trade associations which manufacturers and dealers have formed in an effort to bring some degree of organization into the building materials industry have done a great deal to prevent the development of new and more economical methods of distribution and to make the prices of building materials rigid.

The cost of construction cannot be materially reduced so long as the prices of the more important building materials are artificially maintained, the supply restricted, inefficiently and even wastefully distributed, and assembled and utilized without benefit of the economies which would result from the integration of the building process or from large-scale building operations.

To reduce the cost of building materials and equipment in order to secure lower housing costs and, therefore, more houses requires an increase in the efficiency of production and distribution, standardization of commodities and methods, a higher degree of competition within the materials industries, and the maximum economies in the purchase of materials.

A vigorous enforcement of the antitrust laws and the modification of the tariff schedule might, in some instances, reestablish competitive conditions. Public buying policies might be brought to bear on construction costs. Cooperative buying by governmental units and the adoption of related practices might result in lower prices. On the basis of a detailed examination of each individual industry, devices such as changes in tax policies, readjustment of freight charges, manufacture and distribution of building materials for low-cost housing by relief labor, decreasing of wholesale and retail expenses by factory-to-site operations, and the like might be found effective in reducing costs.

The greatest economy, however, can probably be realized through large-scale construction operations, which would permit savings in buying and transporting materials and better organization of the various craft operations on the site. Only through such projects can efficient purchasing come about. This, however, requires not only a far larger investment per contractor than is now generally feasible but also that the contractor be able to operate in one tract or neighborhood. At present, in this country, such large-scale, low-cost housing projects can only be undertaken by special organized groups.

Labor

The high cost of construction is frequently attributed in large measure to the high cost of on-site labor. The effect that wage rates can have on total construction costs is limited, of course, by the fact that direct labor costs constitute only from, roughly, a third to less than a half of total construction costs. The high wage rates complained of exist in limited areas and under depression conditions are often nominal. Moreover, to determine whether wage rates among the building-trades workers are disproportionately high, it is necessary to compare these wages rate with those in other industries using highly skilled labor.

[1] *Cf.* Chawner, L. V., *Residential Building.* National Resources Committee, Housing Monograph Series, No. 1, 1939.

An analysis of comparative wage rates shows that while hourly rates for skilled workers in the construction industry are admittedly high, when contrasted with the hourly rates of pay for semiskilled and unskilled labor in the manufacturing industries where mass production by machine is possible, they are not out of line with the wages paid other highly skilled workers. Furthermore, actual annual earnings of skilled construction workers are in reality lower than annual earnings of similarly qualified workers in the manufacturing industries, when the amount of unemployment and underemployment from which the building-trades workers normally suffer is taken into account.

In 1936, an average of only 46 percent of the workers in the building trades were fully employed, the average for all trades being 68 percent. Seasonal and other interruptions in the construction industry caused by weather conditions mean irregular employment for the building-trades worker. The continuity of employment with any given contractor is normally of comparatively short duration. Moreover, while all industries suffer from occasional break-downs in the organization of production, the construction industry, because of its lack of integration, suffers much more frequently from such delays; for example, from the failure of material to arrive on time.

Unemployment from such causes as these, which are peculiar to the industry and from which all building-trades workers suffer at one time or another, must be taken into consideration in estimating the average annual wages in the construction industry. When this is done, the wages of the building-trades workers do not appear high.

The employment regulations imposed by the building-trades unions on contractors have also been held responsible for the high cost of on-site labor. Such requirements as these unions have made relative to apprenticeship, union membership, restrictions on output, the use of labor-saving devices, the number and type of men to be employed on given processes, they justify on the grounds of protecting the workers.

The status of the building-trades worker is one of great and constant insecurity, and he is warranted in trying to protect himself. Some labor union policies are well designed to give this protection. Some of them, however, stand in the way of reasonable innovations within the industry. Insofar as they raise prices and increase the risks of building, they curtail the housing market and increase instead of lessen the workers' insecurity. Moreover, jurisdictional disputes between unions are conducive to delay and waste.

To the extent that these restrictive practices cannot be justified by considerations of health and safety, the economy of the industry demands not only their elimination but also the elimination of the conditions of insecurity which called into being these restrictions, as well as the high hourly wage rates. To the extent to which high hourly rates are justified by irregular employment, the industry must be able to give a guarantee of reasonable job and income security to its workers before wage rates can be reduced. As the building industry is now organized, no unit is able to give such guarantees.

To give this guarantee, the construction industry must stabilize employment among the building-trades workers. This calls for reduction of seasonal unemployment to the minimum. The winter season offers a serious obstacle only with regard to the completion of concrete work, and this difficulty is not encountered in all sections of the country. Moreover, many of the difficulties of winter construction can be eradicated by artificial heating and other such arrangements.

The severe long-run periodic fluctuations in residential building activity create even more serious problems. More accurate estimates of demand for housing, based on population trends and estimated changes in family incomes and costs of ownership, may be of some assistance in this regard. The failure to anticipate changes in demand for houses has resulted in overbuilding after the peak and underbuilding after the low point in demand have been reached.

Finally, such a guarantee calls for a greater degree of organization within the industry itself. If the construction industry in any locality were concentrated in the hands of larger-scale operators, who, in turn, were able to conduct their building operations on a larger scale, it would be possible for each contractor to employ his workers on a more continuous basis. Eventually, the construction industry might be reorganized on a basis which would enable the individual contractors to employ their workers on the equivalent of an annual salary basis. When so reorganized, with adequate capital and able to plan its production program over a period of years, the construction industry will find it possible greatly to reduce its labor costs, even with high hourly rates. Several unions, in fact, already maintain differential wage rates for employees engaged on a monthly or annual basis.

The only other method of reducing labor costs is by increasing efficiency in the utilization of the workers' services. Simplification and standardization of designs, materials, and processes would produce many more economies, by increasing the efficiency of the worker, than reductions in wage rates. It would also permit large-scale, on-site production of certain standard units used in the building process. Careful organization and management of the labor force, accurate timing of the delivery of materials to fit into the construction schedule would produce still further economies.

It has been suggested that "prefabrication," or the

transfer of many of the jobs now performed on the building site to the factory, thus making possible the use of machinery and the elimination of the need for highly skilled labor, would bring about the greatest reduction in labor costs. Experience has not yet proved, however, that "prefabrication" is actually less expensive than on-site construction. Some students of the subject are convinced that savings in the neighborhood of 15 percent of the cost of the structure are all that can be anticipated from "prefabrication." Savings of this size are equally possible within the traditional framework of building. It might, however, be possible to take advantage of some of the economies of prefabrication in conjunction with those resulting from better organization and superintendence of conventional building methods.

The present disorganization within the construction industry is such that a reorganization along more rational lines can only be effected over a period of years.

Building Regulations

It is frequently argued that the various building regulations, that is, building codes, zoning ordinances, housing, electrical, elevator, plumbing, and boiler codes and other ordinances relating to such matters as fire protection and health, are a major cause of the excessive cost of construction.

These building regulations have been enacted, usually by municipalities, to make the buildings in which people live and work healthful and safe. By and large, the necessity for these regulations is recognized. The dangers in faulty construction, in inadequate plumbing, in careless electric wiring are obvious. However, there is some truth in the charge that existing regulations retard the introduction of desirable new building materials and methods of construction and, through their requirements, raise the cost of construction unduly.

This is because existing regulations show no uniformity and often do not keep pace with current developments in the construction field or reflect the best technical knowledge. Too many of their provisions have been influenced by the special interests of materials or labor groups. To be an aid and not a hindrance to better and more economical housing, building regulations must be based on scientifically determined facts and not on the consideration of individual preferences and interests. They must allow for the testing without prejudice of new materials and methods in relation to accepted standards of health and safety.

The machinery for determining sound basic requirements is already set up and functioning in such public and private agencies as the United States Bureau of Standards, the Department of Commerce, the American Standards Association, the American Society of Civil Engineers, and many others. Though these basic requirements once determined upon scientifically may call for slight modifications in response to special regional, and sometimes even local, conditions, there is no reason why each new building material should have to be tested in each individual city and town, nor why manufacturers should have the expense of meeting innumerable local specifications, each slightly different from the others.

Therefore, it might be well for the States to establish general building requirements, based on nationally accepted standards but allowing for regional variations and leaving to the municipalities the power to supplement these in handling matters of purely local concern. Moreover, to ensure proper enforcement of the building code once enacted, the community must be willing to pay for a trained personnel, in order to obtain intelligent and impartial administration under no pressure to make concessions to special interests.

Design and Construction Costs

The small house is the most important single form of dwelling in the United States. The Real Property Inventory made in 1934 found that in 64 representative cities, about 8 out of 10 residential structures were single-family dwellings, nearly 90 percent of which were valued at less than $7,500. The design and construction of the small house, therefore, are important considerations in any housing program.

The designer of the modern small house must take into account the space requirements of the families he seeks to serve and the cost limits within which he must work. Otherwise, the new houses will either not meet the needs of those who are now inadequately housed or will be beyond their financial reach.

Efficient space arrangement is of obvious importance in attempting to reduce costs without decreasing the quality of construction or the usefulness of the house. Simplicity of structural form should be preserved if construction costs are to be controlled. In order to reduce costs, stock dimensions of lumber should be adhered to so far as possible. Special orders are expensive. Plumbing and heating should be planned for maximum economy of space, labor, and materials. Careful and coordinated planning is necessary to simplify materials demands. The risk to which the local materials dealer is subject in attempting to carry a complete and varied materials list results in considerable cost increase which is detrimental to all and beneficial to none.

The Federal Housing Administration, the Tennessee Valley Authority, the Farm Security Administration, the Department of Commerce, and the Home Owners' Loan Corporation have all attempted to reduce the cost and increase the efficiency of the small house through encouragement of the intelligent use of materials and rational designs.

An essential part of the insured mortgage system under the National Housing Act has been the establishment of minimum physical standards for properties which are offered as mortgage security. These standards, which are generally recognized as being obtainable without increasing costs and as conforming to good building practice, stress the fundamentals which assure substantial and durable structures, adequate light, ventilation, sanitation, privacy, convenience, efficiency in arrangements, and protection against overcrowding and the disintegration of neighborhoods.

The Tennessee Valley Authority has experimented with variations in size and form in relation to costs. The Farm Security Administration, in constructing homes in rural communities, set definite cost limits; and to keep within these limits, design has been simplified and integrated with construction, building techniques on the site have been organized, and a degree of prefabrication introduced. Standard materials have been used, every unnecessary beam, gable, and rafter eliminated, lumber for a large number of houses precut at a central point, and windows and door frames prefabricated.

The construction of Public Works Administration Housing Division projects was supervised with meticulous care. Although the responsibility for supervision of developments assisted by the United States Housing Authority lies properly with the local authorities, Federal representatives will be on the job during construction. The Federal Housing Administration has a system for periodic checking of the construction of houses on which it insures mortgages. The Federal Home Loan Bank Board, in September 1936, approved the Federal Home Building Service Plan, a device to encourage local cooperation between the home-financing agencies and architects in order to make advisory and supervisory service available to prospective small-home builders.

Trade associations and private corporations in the fields of construction and building materials are giving increasing attention to these problems. The results of this work are beginning to be felt.

Heretofore, insufficient attention has been paid to the problem of small-house design. Architects have not been able to afford to specialize in this field, and contractors and materials dealers have tended to build from stock plans without technical advice or supervision. Architects, contractors, and materials dealers must work together if well-designed small houses are to become the rule rather than the exception. Well selected, low-cost stock designs will often suffice to meet average needs, provided only that the home builder can be guided and advised in his selection by qualified technicians who will also provide the degree of building supervision necessary to insure good results. It is both possible and practical to develop a series of base plans to meet the needs of different-sized families. These base plans could then be adapted by competent local architects to conform to local conditions and usages.

Only through such measures as these to provide the small-home builder with a well-designed and well-constructed house, suited to the site and neighborhood, can the home builder be assured of dollar for dollar value, the lender of a good loan, and the industry of a house that will encourage, rather than discourage, families contemplating home building.

Governmental Activities

The preceding discussion has indicated the broad framework within which many governmental activities have been undertaken. Specifically, the Federal Government has given most attention to seeing that adequate financing is available for housing purposes. Emergency action has been taken to make past investments in housing more secure; improved mechanisms have been provided to make private housing undertakings more attractive; home ownership has been promoted at the same time that private building for sale and for rental has been encouraged; there has been direct Federal building for the improvement of slum conditions in both cities and rural areas; and finally Federal loans and grants have been made available to local public housing authorities for slum clearance and direct building for low income families.

The Federal Home Loan Bank System, including 12 regional Federal Home Loan Banks, was set up in 1932 to provide for mutual home financing institutions, a central source of credit similar to that available to commercial banks under the Federal Reserve System. The establishment of a system of Federal savings and loan associations was authorized to make loans, at the lowest possible rate of interest and according to the most approved lending procedure, to people interested in building homes, and to offer the public sound institutions in which to invest savings. The Home Owners' Loan Corporation was created in June 1933 to refinance distressed home mortgages. This agency saved the homes of over a million people and refinanced over 3 billion dollars worth of mortgages.

The Federal Savings and Loan Insurance Corporation was created to restore and strengthen public confidence in institutions of the savings and loan type. The Corporation assures those whose savings are lodged in insured associations of the building and loan type (insurance is voluntary for State-chartered institutions, compulsory for Federal savings and loan associations) that their accumulated savings up to $5,000 will not be impaired in the event of the default or insolvency of the institutions.

The Federal Housing Administration was created to

insure long-term mortgages on homes, and on large-scale limited-dividend housing projects for rental, in addition to insuring character loans made for repair and modernization of homes and other buildings and to charter national mortgage associations. These activities have played a large part in drawing new funds into residential building operations, particularly from banks. Beginning with the insurance of modernization loans, the insurance of long-term mortgages has become a steadily increasing part of the work of the Federal Housing Administration and now vastly overshadows the earlier work.[2]

Through these measures, an effort has been made to remedy the defects in our mortgage structure by bringing about the adoption of the long-term amortized mortgage, by expanding credit facilities and making mortgages more liquid, by protecting savings, and by encouraging the adoption of uniform lending procedures.

Direct Federal building programs have been carried out in urban areas by the Housing Division of the Public Works Administration and in rural areas by the Subsistence Homesteads Division of the Department of the Interior, and the Resettlement Administration. The work of these last two agencies, which has been taken over by the Farm Security Administration, was particularly valuable in the development of methods for building low-cost farm houses and of methods for caring for migratory workers. The Resettlement Administration also carried out a pioneering job in its three "Greenbelt" communities. At the time of their development, they were the largest undertakings in the United States to be "planned" as communities from the time of their inception.

The United States Housing Authority has taken over the management and disposition of the housing developments of the Public Works Administration. Furthermore, it has undertaken the administration of loans and grants to local housing authorities for slum reclamation and building of houses for low-income families. The program anticipates building in rural areas in addition to continuing the work in urban areas.

Changes in State Law

In order to make more effective the program of Federal aid to private housing, many changes in State law are necessary. The mortgage and foreclosure laws of the various States should be changed to provide more simple, uniform, inexpensive, and expeditious procedures. These laws, as they stand in many States, have hampered mortgage lending, increased the operating expenses of mortgage institutions and, at the same time, imposed burdens on borrowers by increasing the charges and decreasing the amount of the loans on the security of properties. Their lack of uniformity has impeded the flow of mortgage money from one State to another.

The foreclosure laws of many of the States today interfere with the realization of the program to encourage the long-term, amortized, single-mortgage loan as opposed to the short-term, lump-sum, multiple mortgage loan. Furthermore, the reduction in down payment from approximately 20 to 10 percent allowed under the National Housing Act of 1938 is not feasible in those States where the cost of foreclosure and the cost of the delay to the mortgagee in securing title to the property are greater than the minimum down payment required. Finally, national mortgage associations can conduct their business by buying and selling mortgages on a nationwide scale much more easily if the various State laws are uniform, simple, expeditious, and inexpensive.

Similarly, the adoption of a standard mechanics' lien act would simplify and improve the existing mechanics' lien procedure of the various States, eliminate many of the uncertainties now inherent in such legislation, and afford greater protection to those who perform labor upon or furnish materials for the construction of building, as well as to the owner of the completed building. In addition, uniformity in mechanics' lien legislation would better enable those contractors and material men who now operate on a national scale to carry on their business.

Those systems of title examination and proof which involve a search of the public records are cumbersome, costly, and time-consuming and increase the initial cost of mortgage lending. They do not necessarily afford an absolute guarantee as to title; and the search of public records is often not exhaustive, since it is frequently limited to local records which do not always record Federal liens. It is believed that a land title registration system, based on the Torrens system, can be developed which would materially reduce the cost of proving title in the purchase, mortgage, or sale of real estate, provide a reliable system under which there would be no risk of loss through defective title in such transactions, and make for better and more stable title to real estate.

There is not in all cases sufficient State supervision over State-chartered savings and loan associations and other financial institutions making home mortgage loans. Legislation in this field should be reviewed and possibly revised in the light of recent experience.

The financing of apartment-house construction and other large-scale, commercial housing developments has been one of the most difficult problems in the entire housing field. Few individuals, groups of individuals, or corporations have had sufficient capital to meet the initial cost of such projects. The usual practice has

[2] By April 30, 1940, the F. H. A. had accepted for insurance under Sec. 303, National Housing Act, 634,581 mortgages amounting to $2,675,953,200.

been to charter a corporation and sell its stock or bonds to the public. There has been little State supervision of these corporations, and there is great need of more stringent regulation of their corporate structure and financing methods in order to protect public participation and encourage investment in this type of housing.

Excluding State governments, there are in the United States 182,000 taxing jurisdictions. This large number is due to the fact that, in most States, real property taxes are collected through small local units, and to the fact that, where the local unit is large enough to levy more than one kind of tax, there is often a separate collector for each tax. The multiplicity of tax collection agencies, resulting in overlapping or coterminous jurisdictions, makes collection costs unnecessarily high, thereby increasing the burden borne by home owners as well as by all real estate owners. In addition, such decentralization makes it more difficult to ascertain whether all taxes and assessments on a given piece of real estate are paid when due. Centralization of tax and special assessment collection is therefore highly desirable.

A centralized system would not only reduce the cost of tax collection but would be far more efficient and convenient to the taxpayer. Furthermore, if notice is given mortgagees and other interested parties of tax and special assessment delinquencies and of pending foreclosure sales, the cost and inconvenience of mortgage lending would be considerably reduced, and greater protection would be afforded both owners and lienors of property.

Depression conditions brought an insistent demand for alteration in the system of general property taxation. It has long been known that personal property escaped assessment to a much larger degree than real property. As between different types of real property, it was found that in some jurisdictions homes bore a relatively larger proportion of the real property tax burden than did business and commercial properties. In other jurisdictions, this situation was reversed. Emergency conditions did not result in agitation for more equitable assessment under existing legislation but in action leading to arbitrary limitations on property tax rates and exemptions of certain types of real property. The swing toward exemption of homesteads from taxation has been the principal development in property taxation of interest to home owners. Opinion as to the effects of such exemption differs. Advocates say that it will cause home values to rise, encourage new construction and home ownership. Opponents argue that it penalizes the renter and that the same amount of taxes is usually paid in some other form. An exhaustive study of our tax system in its relation to home ownership and the provision of low-cost rental housing is needed before recommendations for its reform can be formulated.

City planning tends to stabilize property values as well as to prevent the future development of slum areas. A Standard City Planning Enabling Act was published in 1928 by the Advisory Committee on Planning of the Department of Commerce. This model has been followed in varying degree by the legislatures of 16 States in the enactment of 33 different planning acts or amendments of planning acts. Thirty-eight States now have enabling acts in one form or another, authorizing city, town, township, village, borough, and county or regional planning.

As of January 1937, there were 1,073 town or city planning commissions. Of these, at least 933 were known to be official agencies. In addition, there were 128 commissions with powers restricted to zoning.

Unless these commissions are official bodies with responsibility for comprehensive planning of municipal development and with sufficient authority to bring their influence to bear on municipal undertakings, they are likely to be ineffective. Although some unofficial, advisory commissions have done effective work, they are too often disregarded; and when the commission realizes its ineffectiveness, it generally loses interest in its work.

The planning commissions vary greatly in the scope and effectiveness of their work. Some commissions simply attempt to protect existing municipal development, others consider only problems of current development, and still others concern themselves with the formulation of a definite plan for the future development of their city. Although each of these steps is worthwhile and although the number and the effectiveness of planning commissions are increasing, it is essential that comprehensive plans for municipal development be available for use in the location of housing. The Federal Government by research and clearing-house activities is in position to assist the local agencies in establishing planning commissions with suitable powers. Proper enabling legislation by the States is necessary to make effective, comprehensive planning possible, and the State planning boards can encourage and assist in the establishment of city and county planning agencies in those communities which now lack such bodies.

The development of the long-term, amortized, single mortgage has made zoning even more essential than heretofore for the protection of both the lender and the borrower. Good zoning ordinances, consistently enforced, can be an effective means of insuring the orderly development of cities and protecting residential neighborhoods.

As a result of the activity of the Advisory Committee on Zoning in the Department of Commerce,

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which drafted a Standard State Zoning Enabling Act, and of the increasing realization on the part of cities of the need for zoning, comprehensive enabling legislation authorizing the control by municipalities of the use, height, and area of buildings is now in effect in 48 States and the District of Columbia. On January 1, 1937, zoning ordinances were in effect in 1,474 municipalities, metropolitan areas, districts, counties, townships, and unincorporated areas.

Zoning ordinances are based on the police power of the States; and the courts have upheld these ordinances, requiring only that there be a valid State enabling act and that the regulations in the ordinances be reasonable and based on consideration of the health, safety, morals, or on the general welfare of the community concerned.

Public Housing

Continued Federal and State cooperation with private agencies is required if a larger number of families are to own their own homes, if more houses are to be built for rental, and if the money invested in homes, from whatever source the funds may flow, is to enjoy greater security. State and Federal efforts to extend public aid to private housing, through tax exemptions, the exercise of the power of eminent domain, and loans to limited-dividend housing corporations, however, have demonstrated the difficulties of providing dwellings within the financial reach of the lowest income groups without the aid of Government subsidies.

It became evident from State and Federal experience that private enterprise could not be depended on to provide adequate housing for persons at the low income levels.

In 1934 the Public Works Administration stopped making loans to limited-dividend corporations and decided that the remainder of the funds then available under the National Industrial Recovery Act should be used only for public low-rent housing and slum clearance. The National Industrial Recovery Act permitted two approaches to this problem: either construction by local public agencies with the aid of Federal loans and grants, or direct construction by the Federal Government. Because of the absence in many States of adequate laws authorizing local public bodies to engage in housing activities, the Public Works Administration turned to direct Federal construction. Fifty-one projects were undertaken, providing approximately 21,770 dwelling units for an estimated total of 87,000 persons.

This was the first real attempt to correlate slum clearance and the construction of new dwellings and was the first intensive public housing program in this country. It stimulated the States to enact enabling housing laws; it gave impetus and direction to the long-existent demand for a Nation-wide housing program; and it provided a practical and legal background for the development of such a program.

Legal difficulties relative to the power of the Federal Government to condemn for housing purposes and the realization that housing, in many respects, is a local problem prompted the development of a program which limits the Federal Government's activity to financing and advising. The increase in the number of States having local enabling housing legislation pointed the way to the decentralized housing program embodied in the United States Housing Act of 1937, setting up the United States Housing Authority as a permanent corporation in the Department of the Interior.[3]

The United States Housing Authority is authorized to make loans and grants to public housing agencies undertaking low-rent housing and slum-clearance programs, on condition that the local public housing authority raise at least 10 percent of a project's cost, that the political subdivision in which the project is located contribute in the form of cash, tax exemptions or tax remissions at least 20 percent of the Federal annual contributions, and finally, that at least one substandard dwelling be demolished, closed, or repaired in the locality for each newly constructed dwelling provided under the project. Moreover, there is a definite limit placed on the per room and per dwelling-unit cost. The wages and fees prevailing in the locality must be paid. Finally, the project must be available only to families of low income who cannot afford to pay enough to cause private enterprise to build decent, safe, and sanitary dwellings for them, and a definite limit is placed on the net income of the families at time of admission.

As of October 1938, 33 States and the territories of Hawaii and Puerto Rico had enabling legislation permitting them to participate in this program. Although there is no uniformity in the various laws, nearly all of them have one common feature: Local housing authorities are set up or their creation authorized. Usually, they are corporate entities, eligible for financial assistance from the State and municipal governments and to participate in the Federal program under the United States Housing Act. They are corporate entities with limited powers, separate and distinct from the State itself and from the counties and municipalities within the State, to finance, construct, and operate low-rent housing projects. They cannot levy taxes or exercise the police power. They do have, however, the power of eminent domain. They must depend for their revenues on Federal and other governmental subsidies and on

[3] Under the President's Reorganization Plan No. 1, the United States Housing Authority was transferred to the new Federal Works Agency, effective July 1, 1939.

income which the housing project may produce. They have the power to issue bonds to finance their projects, but these bonds are not obligations of the State or municipality in which the authority operates.

In addition, other local governmental units and public bodies have been authorized, under the housing authority law or under separate housing cooperation laws, to assist the local housing authorities, in order that they may be able to fulfill the requirements for Federal aid.

The new public housing program raises certain legal problems. First, there is the question of the constitutionality of the United States Housing Act. On the basis of previous Supreme Court decisions, it seems probable that the public housing program can legitimately be brought under the general welfare clause; that the tenth amendment presents no barrier, since there is no regulation of local housing authorities but only conditions imposed incidental to the receipt of Federal funds; and that there is no improper delegation of legislative authority, since standards and limitations are set forth in great detail.

The fundamental legal questions which have arisen in connection with the local housing authorities relate to (1) low-rent housing and slum-clearance as a valid public purpose, (2) the authority as a legal concept, (3) State constitutional debt limitations, (4) the validity of State and municipal assistance to local housing authorities, (5) the validity of tax exemption for public housing purposes, (6) elimination of unfit dwellings by way of the police powers, and (7) low-rent housing and slum clearance as a public use for the powers of eminent domain.

In the increasing number of favorable court decisions relating to housing, there is a strong precedent being established for the legality of public housing. The legal future of public housing will depend, however, on the character of State housing laws and related legislation and on a farsighted approach to the problem by the courts.

FINDINGS AND CONCLUSIONS

The Housing Need

We need more houses. It was estimated in 1937 that 800,000 nonfarm homes should be built for each year for the next 5 years if we were to catch up with the deficit which had accumulated up to that time. But in 1937 about 300,000 were provided, in 1938 about 350,000, and in 1939 about 450,000.

We need better houses. Satisfactory housing has always been supplied for part of our people. However, even during the years when housing was most plentiful, there have been thousands of homes in our urban centers which failed to measure up to the minimum standards established in those communities.

We need more good houses in stable and livable communities. Housing has come to represent the dominant factor in community life. Those who have the means to choose their homes look for good communities fully as much as they look for good structures. This is another way of saying that we need better cities.

Thus, in meeting the housing need, it would seem that two tasks emerge. The first is essentially one for the construction industry. It consists of building a sufficient supply of good shelter. The second task is the community task of setting the stage for the functioning of the industry. It means establishing the standards of workmanship, the standards of community life, and then the controls over those standards that will ensure good houses being built in good communities.

The Housing Problem

The housing problem is not one problem, but a combination of interrelated problems. Land values, building codes, tax rates, materials costs, labor costs, legal problems, adequate financing, zoning and site planning, housing management and the effective administration of the necessary private and public agencies are all problems in themselves, and taken as a whole they constitute the housing problem.

The Approach to the Problem

The solution of the housing problem, therefore, cannot be found in any single or simple formula. Panaceas, often advocated, tend to delay rather than expedite solution because they raise false hopes. The many specialists in the various phases of the work will contribute most by solving their own problems in relation to the other specialists' fields. But they must not fall into the error of blaming others, who are working on equally difficult problems, for their own failures to solve their own problems.

Immediate or quick solutions are not possible. On the other hand, time alone will not solve these problems. A continued attack in many sectors, often on a trial and error basis, will work toward a better situation.

Simple reliance on the swings of the building cycle or the business cycle to solve the problems of housing

would seem to hold little hope, if historical developments are any indication. Both of these concepts are useful analytical devices, but the business cycle corresponds to the building cycle neither in amplitude nor in length. Both result from the impact of a series of forces. While these forces are related as all economic phenomena are related, confusion results when a close correlation is assumed. However, if a major degree of stability at high levels of economic activity is to be achieved, more attention must be given to the long-time swings of the building cycle.

Since no single, immediate, or automatic solution of the housing problem can be anticipated, joint action on the part of the industry, the community, and the State and Federal governments is required.

The Realm of Industrial Action

Like the housing problem, the construction industry is also a complex of loosely related parts. It builds not only houses but commercial and business structures, highways, bridges, and dams. It uses a wide variety of materials. It is highly specialized in some aspects and generalized in others.

In facing the question, "Why does not the construction industry build a sufficient supply of houses?" the usual answer is that "The wages of labor are too high" or "Taxes are too high." Such answers do not satisfy those who have given more thought to the problem, and they will speak of mortgage costs, of high land values, and the disorganized state of the industry. Those who have given still further attention to the matter will talk about the building cycle, marriage rates, family incomes, and subsidies.

Nevertheless, we are faced with the paradox that, in spite of many of the difficulties which are said to interfere with house construction at the present time, there have been times when a large volume of residential construction did take place. High costs, disorganization, and other limiting factors were equally present at the time when construction was swelling in volume. These difficulties were overcome so effectively that some students have referred to the late 1920's as a time when housing was being overproduced. The paradox of a great need which has not been met by the construction industry has been peculiarly striking in recent years. In the thinking of many students, it has been linked directly with the general condition of depression in industry which existed to a greater or less extent from 1930 to 1938. The general demand for more housing has been buttressed with a demand from business that something be done which would stimulate the durable goods industries in general. There has been the conviction that these industries have lagged behind the other industries in revival from deep depression and have thereby hampered the recovery of all other industry.

To a certain extent, the demand for governmental action which would stimulate business has added impetus to the demand for more housing. To a certain extent, it has also prevented attention being directed to the specialized problems which are characteristic of residential construction. It is, however, impossible to separate the questions of general business activity from those which have to do with supplying housing, since construction activity does make up a considerable share of our economic life.

The Long-Time Factors

In exploring the difficulties with which the industry is faced, it is only natural that we should turn to certain of those factors which have important long-time significance. Among these factors the more important are: population, national income, the demand for services which compete with housing, the organization of the construction industry, and the physical and economic setting established by the building of our cities in their present form.

First and foremost are the considerations of population.[4] How many people are there, and how many are there going to be? How many families are there? How large are the families, and are there changes in size of family? The number of housing units needed will have a direct relation to the number of families.

The second group of factors centers around the national income.[5] How much is it, and what families get it, and how much do they get? To what extent is the construction of houses directly related to the size of the national income? Can we have a high level of national income without building houses? Does the amount spent for housing have anything to do with the amounts spent for other commodities? Does size of income have anything to do with the way in which income is divided among various goods and services?

The third set of factors is established by the growing supply of new services which people want in addition to good housing. If good housing is proportionately more expensive than the automobile, more automobiles will be called for and less housing. Likewise, there are many other services which become attractive as their costs decline. Unless good housing can keep pace in terms of cost with these other services, the amount of housing which people will buy tends to be reduced to a minimum.

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[4] See *Problems of a Changing Population*, National Resources Committee (Government Printing Office), May 1938.

[5] See *Consumer Incomes in the United States*, National Resources Committee (Government Printing Office), August 1936, and *Consumer Expenditures in the United States*, National Resources Committee (Government Printing Office), June 1939.

A fourth set of factors closely related to these data is that group of influences which arise from the organization of the vast sprawling construction industry. This industry covers the country as do few others. Furthermore, the products of many other industries are used by the house builder. The industry is an assembling industry. It utilizes materials and equipment in variety, direct labor, municipal services, financial services. And, once built, the house must be kept in repair and be properly serviced by the industry, if it is to continue to fulfill its function.

The varied problems which face this sprawling industry have called for combination and organization of many parts of it, physical evidence of which is seen in trade and manufacturers' associations as well as in trade unions. The principal object of all these developments has been to secure some sort of simplification and integration of their own relationships which can operate with some predictability of result. But combination must be directed to a better performance of function rather than protection of firmly established interests.

Finally, the industry must face the problems which arise from the physical lay-out which our cities have already created.[6] Local governments—State, county, and municipal—as well as local property owners are all caught in the web of problems which are reflected in old slum properties, premature and overdeveloped subdivisions, antiquated site plans, speculative holding of undeveloped land, the competitive uses to which land can be put, and the related tax problems. While most of these difficulties can be solved adequately only by action of public authorities, if they are to be satisfactorily solved the housing industry has a large contribution to make.

The Problem of Costs

In describing the hindrances to the development of housing construction, it has seemed wise at times to expand the picture so as to include the whole industry and, at other times, to narrow our consideration and focus on particular problems. By and large, however, the problems have been looked at as specific difficulties which have interfered with the building of houses either because they increase the costs of the final product or because they complicate the problem unnecessarily and thus discourage building.

It is no new discovery that building costs have remained high while the costs of many other commodities have been reduced. Even when many of the component parts of a house have been reduced in price, the total figure remains high. It is no satisfaction to fall back on the position that a better house is now being built than was built formerly (if this is true), since the total cost to those who would buy or rent remains high.

In the economic problem of building houses, the statement of costs forms a convenient method for summarizing the relative significance of various elements in house building. While construction costs vary from city to city and area to area and with various types of construction, it is possible to establish some norms for thinking about the various factors which enter into construction. The following rough averages may be used as bench marks:

A. On a primary capital outlay basis for owner-built houses:

1. Land ready to use, percent		15–35	100
2. Building construction, percent		65–85	
(*a*) Labor costs, percent	30–45		
(*b*) Materials costs, percent	55–70	80–85	100
(*c*) Overhead and profit, percent		15–20	

B. On a monthly outlay basis for owner-built and occupied houses:

1. Financial charges, interest, and amortization (which corresponds to primary capital outlay in sec. A), percent	50–65
2. Taxes, percent	10–20
3. Maintenance, replacement, and insurance, percent	10–20
4. Water, electricity, and heat, percent	10–15
5. Transportation to and from work, percent	0–10

The Meaning of "Costs"

In the foregoing tabulation, the emphasis is on elements of cost of an owner-built-and-occupied house. The owner-builder is concerned with his immediate outlay which is represented in the first table. Likewise, the speculative builder is interested in this set of costs. But when the home owner comes to pay for his house, these first charges are transmuted more often into charges which are paid on a monthly or on an annual basis. The house must be paid for continuously. The monthly payment is the cost which he can never forget. Even when he has paid in full for the structure, he has an investment to be accounted for.

If the owner has bought his house ready-built, his monthly outlay is still the important item. And it should be noted that the sum on which he pays financial charges, interest, and amortization may have little or no relation to the original cost of building. The purchase price will reflect the current market price of houses, a market on which play the full forces of present supply and demand, the cost of building new structures, customs, fashions, the accidents of season, and the personal equation. At times, the owner will pay more than the original "cost" of the house in which he is living, and at times, he will pay less.

However, a large percentage of our population rents its housing. Again, the usual practice is to make monthly payments. The owner of a multifamily dwelling also has management costs in addition to mainte-

[6] See *Our Cities, Their Role in the National Economy*, National Resources Committee (Government Printing Office), June 1937.

nance and repairs. These costs are minimized in single-family dwellings. For rental housing, water, light, and heat are sometimes included in the rent, and sometimes not. By and large, the rental price will correspond to the monthly payments of the owner-occupier. However, the rent which he pays is subject to the same forces which determine the price of the house which is sold. It has little relation to the original cost of production. Sometimes the renter will pay more than is necessary to cover the landlord's costs; sometimes he will pay less. The renter takes advantage of periods of declining rents, and the landlord takes advantage of periods of rising rents.

Such a brief description of the elements of "cost of building" and the "cost of owning or renting" gives an idea of the many factors which must be considered when "costs" are discussed. It is evident that "low-cost housing" does not necessarily mean low capital outlay. Cheap construction may mean highest cost when translated into monthly outlay. An extended list of repairs and running expenses may easily outdistance monthly capital charges on sound construction.

Reference has just been made to capital charges, to management, repairs and replacements, and water, electricity, and heating costs. Two other elements should also be kept in mind. The first of these is transportation, and the second is taxes. Too often, the home buyer and renter may forget the first, and the renter forget the second.

Since the average worker must get to and from a job, he should always consider the transportation element in the cost of his housing. Suburban living may cost as much as living in the town if transportation costs are added. Often a decrease in transportation costs will reflect itself directly in increased land costs. The item is important also in its broader social significance, for the development of transportation facilities may completely change the character of neighborhoods and thus affect tangible land values as well as intangible neighborhood values.

Costs as reflected in taxes are doubly significant. The prevalent system of taxes on real estate forms a direct link between housing and the supplying of community services. The modern American is accustomed to a series of items in community living which seem to come "free." Police and fire protection, streets and roads, schools, parks, the basic plans for community development are all paid for by taxes. They are not paid for by the individual every time he uses them but by general levies. A large part of these levies is against residential real estate. However, it must not be overlooked that business properties, both industrial and commercial, also contribute a large portion of the revenues collected from real estate. In a real sense, these taxes are payments for services received. But it is impossible to allocate their costs in any accurate sense to various recipients either as individuals or groups of individuals. The renters who forget all about taxes tend to overlook the fact that part of the "rent" which they pay ultimately lands in the tax collector's hands. Owners of homes are apt to forget that they receive values for taxes paid. Landlords often overlook the extent to which they serve as tax collectors even when tax payments have been fully discounted at the time when the property was purchased.

Reduction of Costs; Improvement of Quality

Lowered costs of housing are important for the long run as well as for the immediate situation (1938–39), in order to increase the relative availability of good shelter as compared with the other products of our economy. To bring about these lowered costs at the same time that the quality of available housing is improved requires certain developments coming within the sphere of industrial action.

It has long been recognized that coordination of the building process would be desirable in order to take advantage of management efficiencies. Furthermore, the building of multiple-unit structures or multiple-unit communities requires larger scale operations than are generally found in the industry. A few such organizations (building and development corporations) have been successfully developed, and others are to be anticipated. Such organizations will introduce more evenly balanced competition between the buyers and sellers of land, labor, and building materials, in addition to the other production efficiencies which will be developed. However, in those areas in which individual units will still be built, the small contractor-builder will often retain certain advantages and may continue to be the most efficient operator.

Prefabrication has been looked upon as a panacea without which little progress in lowering the costs of housing can be made. The savings to be achieved through prefabrication have probably been overemphasized. The *methods* upon which prefabrication rests carry promise of contributions to lowering costs. The probability of preassembly of equipment and parts of houses (which has made considerable progress already) as well as of better organization of work on the site carries considerable promise.

Housing must be designed to meet the needs of lower-income groups. Historically, structures have been designed for the more well-to-do, and second-hand housing has been relied on for supplying the lower-income groups. At an early stage of the deterioration of this housing, it has given good value but has tended eventually to become slum property. With the exception of the typical mining and mill towns, which

have their own glaring weaknesses, most of the properties designed originally for low-income families have been dominated by "barracks" ideals and have been unsatisfactory from the beginning. The growing interest in small-house design and better multiple-unit dwellings should produce higher quality for the lower-income groups. Within a limited group of structures, better designed renovations will be of material aid in supplying better housing.

New materials and equipment can constantly improve the character of living quarters. Certain old materials, however, still have virtues which have not been surpassed by the new. Well-established skills and customs in the construction trades limit the rate of introduction of new materials but should not be permitted to prevent the spread of their use. For some time to come, the combination of old skills and well-known materials will probably continue to supply most of the shelter.

In spite of the improvements in the realm of financing of housing made in recent years, there is still need for more efficient operation and a better organization of the investment market. Mortgage investment has not been integrated with other investment, nor has the mortgage market itself been integrated.

While the interest rate or the charge for mortgage funds is supposed to establish the price relationship with different types of capital, those acquainted with the actual functioning of the market are aware of its inadequacy. Excessive rigidity in rates established on the basis of custom, interferences with the "free flow of funds," the inclusion in the "interest rate" of various types of service charges all distort any analysis of the costs of money and the costs of financing In many cases, low "interest rates" have not been reflected in lower financial costs. Continued effort for the improvement of the banking machinery as well as the efficiency of the institutions involved is called for.

High construction costs are the result of a multitude of customs, habits, and procedures in the industry, most of which can be defended by some logic. However, viewed from the standpoint of results, changes in the operation of the industry must be made. Combinations and customs which prevent the advantages of competition must not be permitted to block the reduction of materials prices. Trade-union practices must be modified wherever they introduce unnecessary rigidities and conflicts. Management practices which fail to take advantage of acknowledged better methods must be changed for the benefit of the builders as well as the buyers of housing.

The Realm of State and Local Action

Every tenant, be he owner or renter, is continually buying a share of his community when he buys or rents a house. He buys not only a piece of land and a house but also its relation to other houses, to streets, to schools, to parks, to permanency of character, to lay-out—in short the whole warp and woof of community life.

Land and Community Controls

The building of houses on the traditional American pattern has rested on a basis of individual land holdings. It is obvious that the way in which any individual uses his land influences his immediate neighbor and often a whole neighborhood. Under the police powers, however, the rights of the individual property owner have slowly been abridged until he is now hedged about by numerous restrictions. The building line, the character of structures permitted, zoning regulations, city plan and revised city plan have both detracted from and expanded the "property" which lies theoretically bounded by lines and is described in detail in the public records.

Studies of the location of housing, the way in which sites are planned, and the restrictions which have been placed on building in the names of health, safety, and public morals emphasize the continued flux of the meaning of "property." The owner of a "house" in a restricted subdivision owns a series of valuable considerations other than his house and lot. The owner of a fine house in an area which has been blighted has had his "property" largely destroyed irrespective of anything he may do. The value of the house and home is dependent on community regulations, restrictions, and limitations, which create values impossible without such restrictions and which operate for the benefit of all persons living in the community. So important have these controls become that they are considered by the people and the courts to be matters of public concern. The preservation of the basic social character of the community depends upon them.

Zoning laws and building regulations are already widespread. Their administration and modification as conditions change must be a continuing concern of the proper authorities. They must be related to plans which are developed for cities and regions. Authorities can make their plans more effective by the use of such devices as the acquisition of sites larger than are needed for particular housing developments. Thus, community values created by community activities can be conserved to the community.

Tax Policies

Tax policies of the State and municipalities can both hinder and aid any governmental program worked out to encourage the construction of housing. In the realm of taxes, the system of real property taxation is so firmly established that its modification would require

major shifts in the fiscal structure of the States and local jurisdiction. In the small communities, other revenue sources are scarce. In addition to this governmental problem, it should be noted that present land and other real property values have taken the tax burden into account. If the taxes were removed, it would modify that value structure.

The incidence of the taxes on real property raises other questions. Does the tax on real property hinder or stimulate development? The argument can be made both ways as there are conflicting currents. Ownership of real property does measure in a rough way "ability to pay." Since the ownership of small homes often rests on a small equity, however, the legal status does distort the picture of ability to pay.

The incidence of taxes on rental properties further complicates the problem. Just as in the case of the small home owner, the owner of the rental property may be loaded with mortgage debt and his "ability to pay" overestimated. The owner's ability to pass on the tax burden to the tenant is slight in periods when rentals are low. The reverse is, of course, true when there is a shortage of rental units.

No discussion of tax problems should fail to point out the lowering in governmental costs which is to be achieved by unification of the machinery for collecting taxes and special assessments in jurisdictions in which overlapping machinery now exists.

The advocates of exemption of investment in housing from taxation must face all these problems in addition to others. Attempts to apply differential rates to land and buildings create other problems. Likewise, the creation of differential rates on properties of different values (homestead exemption) runs into difficulties.

As a question of public policy, the tax problem would seem to be: To what extent would modification of taxes if adopted act as a stimulant to residential building? A corollary is the question of alternative taxes. The steady growth of demand for community services means that increased tax revenues are needed. The method of collecting the cost of these services must be faced.

Public housing for low-income families has come face to face with this question. For most of the Federally built experimental projects, arrangements have been made for the payment of service charges in lieu of local taxes. Some cities have waived all charges or contributions from these developments. Tax exemption or substantial reduction as a method of subsidy for low-rent housing is being used in the current program. Although this form of subsidy has been questioned by groups in some cities, the overwhelming majority of the municipalities taking part in this program have considered it the most practical form of local contribution and have seen clearly that it is, in fact, a contribution by the taxpayers for which they stand to get substantial returns, both direct and indirect. Many cities have given complete tax exemption, and the payments in lieu of taxes agreed upon elsewhere have been small.

So far reaching are the implications of major modifications and exemption that we refrain from making suggestions at this time. We do emphasize the necessity of further analysis and study of as widespread a character as possible.

Needed Legislation

There is need for simplification of procedures relating to the transfer of property. The variety of provisions of State laws which control foreclosures and registration of titles creates unnecessary confusion and costs. The creation of national systems of mortgage guarantees and supervisions of local lending agencies has emphasized the need for clarification. In order for national legislation of these types to be effective, changes in local laws have become imperative.

Need for the type of legislation which will enable municipalities, housing authorities, and State authorities to work together and with the Federal Government is obvious. Particularly difficult are the relationships involved in the rural housing field. No hard and fast rules can be suggested as to the division of authority. The extent to which various jurisdictions will move will have to be determined by various circumstances, such as the existing powers of the jurisdictions, their financial resources, and the ways in which public opinion makes itself felt in pressing for the solution of the problems.

The Realm of Federal Action

The widespread nature and persistence of the problems of housing have thrown the Federal Government into a position of leadership in the development of public housing for families of low income. In the fields of both urban and rural housing, the Federal Government has done a small amount of actual construction. Valuable as this has been, new methods of dealing with the problem are needed. There are no dogmas either of administrative jurisdiction or constitutionality which limit the ultimate functions of the Federal Government in this field. The relationships must be subject to continued revision, and no vested bureaucratic interests either local or Federal should be permitted to stand in the way of changes as the jobs are worked out which various governmental jurisdictions can perform effectively.

In the field of private finance, the need for Federal Government supervision and control of housing investment has been thoroughly demonstrated. The Federal Housing Administration and the Federal Home Loan Bank Board have had broad, healthy influences in the field. However, the main drive of these agencies

has been to increase the security of investments in housing. Government guarantee of mortgages and insurances of the accounts of lending agencies constitute public assumption of risks formerly carried by investors. Likewise, the study by these Government institutions of location of housing and improvement of quality and design is significant in protecting investment. On the other hand, these last items are also of service to the borrower of money and user of the property. The activities of the Federal agencies have also been influential in removing many of the confusing and often discreditable practices of agencies which loan money to builders.

When Government funds are used for subsidy purposes, the terms and standards for subsidy should be developed so as to bring about improved conditions rather than to perpetuate known deficiencies or inefficiencies either in housing standards or in the working conditions of the construction industry. This principle has long been applied in the policy of "matching grants" to the States for various purposes such as road building, agricultural education, and public assistance. It is contained in the United States Housing Act, which prescribes the terms for loans and subsidies to local authorities for the construction of housing for low-income workers. Due to the broad range of problems over the country, flexibility was provided in the administration of the law. It is possible to use this administrative leeway to press toward many of the ideals of better municipal planning, better land control, better industrial organization, all of which are intimately related to public housing Viewed in this light, subsidy might become an encouragement toward efficiency and high standards rather than an incentive to continuation of practices which have become outmoded and no longer satisfy the community's demands. Unless operated on this basis, subsidy can be a support for major inefficiencies both in industrial operation and community organization.

Administration of subsidy has long been recognized by Federal agencies as an art. The art consists in moving toward new goals of public policy as fast as present goals become generally acceptable.

Federal agencies should encourage the adoption of new policies of land control by municipalities. For many years, municipalities have purchased land for public buildings, schools, and playgrounds in advance of any immediate need. Likewise, many local governments have established official bodies to develop city and regional plans. Carrying out such plans calls for broadened programs of land control, including zoning, revision of subdivision, and the acquisition of land reserves for future housing development.

The multi-state character of many of the problems of the metropolitan areas as well as their similarity calls for increasing national scope in the pooling of information and the study of methods and procedures. The techniques in this field are growing, and contribution of the Federal Government to their development is needed.

The research activities of the Federal Government in the field of housing are inadequate at a time of urgent need. The National Bureau of Standards has done much technical work in the field of physical standards. The Public Works Administration, the Farm Security Administration, and the Tennessee Valley Authority have done valuable research work in actually building houses. For control and administrative purposes, all agencies have had to collect data on housing. The Department of Commerce and the Department of Labor, the Federal Housing Administration, and the Federal Home Loan Bank Board have collected much valuable information. It is clear, however, that the work in this field needs to be broadened and integrated. More adequate statistical collections, better designed programs in the field of materials and equipment, further study of financing methods, wider study of community controls—all of these and many others call for continued and improved research.

Progress can be achieved only by the constant review of public policies toward supplying our housing needs. This has been particularly true during the past few years, although the history of public policy in relation to housing is filled with examples of slow development and change. The rapidity of development, however, during the past few years has been accompanied by much trial and error, and much has been learned. There are dangers in changing newly formulated policies too rapidly, but constant vigilance and willingness to face the questions which necessarily arise will facilitate sound solutions. What is the place of continued Government assistance to private residential building? What are the limits to public housing activities? What are the limits of subsidy to be paid for proper housing for the lower income groups? What should be the basis for establishing building codes? Of zoning limits? Of advance planning of subdivisions? To what extent are historic tax policies helpful or detrimental to the development of good housing? Such questions only touch the surface of the many problems of public policy in this complicated field, but continuous critical review is one requirement for their solution.

Toward Solution of the Housing Problem

When controlled private activity cannot produce the necessary housing, public initiative is called for. It is now generally accepted that it is impossible for a large portion of our population to achieve the minimum

standard of housing which the public conscience demands. Hence, the program of public building with subsidy for the lowest income groups has been written into Federal and State law.

In striving to meet our housing needs, we have several lines of approach. We move for lower costs of construction within certain minimum standards of health and decency. We strive to develop our public controls so that neighborhoods will be protected and community standards raised, while cities are prevented from developing in ways which will later need drastic revision. Finally, we build with public funds under public initiative for those who otherwise cannot have decent homes.

Stated thus, it would seem that we have a complete program. But all that we really have are some lines of approach which are not sharply defined and which merge into each other. Costs will be a problem for years to come. The habits of industries must be changed. Standards will need refinement. Zoning and city planning are still in their infancy. A program of public building is only begun. The frank acceptance of these and numerous other approaches will bring us closer to the solution of our problems.

THE RESIDENTIAL BUILDING PROCESS: AN ANALYSIS IN TERMS OF ECONOMIC AND OTHER SOCIAL INFLUENCES

By Lowell J. Chawner [1]

Introduction

The marked fluctuations which have characterized residential building in the United States over the entire period for which reliable measures are available may appear at first glance to be erratic and fortuitous. Fundamentally, however, it is believed that the production of domestic shelter is susceptible to rational analysis in terms of measurable economic and other social influences.

The number of families, levels of family income, the cost of competing items of expenditure, and the number of available units influence the price paid for the use of shelter. Rent levels and occupancy on the one hand and building costs, financing costs, taxes, and other costs of ownership on the other hand largely determine the volume of new building in any given year. Several new statistical series measuring these influences, and some fundamental relationships between them are developed in the following section.

Houses, to be sure, differ in several respects from many other commodities, particularly with regard to their pronounced durability. The annual production of houses is thus relatively small when compared with the number of existing structures. Only in a very few years has it been as high as 4 percent of the standing supply even in a country growing as rapidly as was the United States up to recent years. However, as a branch of current industrial activity, residential construction in good years is quite large and has involved the erection of nearly 900,000 family units in nonfarm areas in a single year (1925) at an expenditure of possibly 4½ billions of dollars.

Single causes are rarely adequate to explain economic processes even for the most rudimentary purposes. In the production and use of domestic shelter, it will be discovered that many varied economic and other social conditions play a highly important part. Marriages and migration, family income, and the competing claims upon income of other items of expenditure as well as building costs and interest rates, site costs and taxes, and similar influences must be carefully appraised in arriving at an understanding of the fluctuations in this industry.

The statistical materials used in this analysis are stated largely in terms of nonfarm areas. The data necessary in a measurement of the economic factors related to residential building are more satisfactory during the period since 1920 than for earlier years. Some measures are available, however, over the period from 1900 to date. For example, as a part of this investigation there have been compiled beginning with that year a series showing the annual increments in the physical needs for dwelling units in terms of the net increase in families and a series showing the estimated number of units upon which construction was started annually in nonfarm areas in the United States.

Analysis of Fluctuations

This study of residential building involves two principal stages. First, an analysis is made of the market for shelter, principally from the point of view of the fluctuations in demand. In terms of these demand changes and the changes in the total available supply, an expression is formulated for the price of shelter as measured by rent.

Second, an analysis is made of the factors which influence additions to the supply of available units. These factors are outlined broadly in terms of conditions in the market for shelter, measured by rents and vacancies, and conditions influencing the costs of ownership such as purchase price, financing charges, and taxes. As will be noted later, new construction, unless subsidized by public grant or by private philanthropy, tends to occur only when the economic demand for shelter advances to such a point that the return from existing property, either in the form of rental income or of satisfactions to an owner occupant, is in excess of the annual cost of ownership of new units which may be constructed, having equivalent location, facilities, or other conveniences.

[1] Mr. Lowell J. Chawner is chief of the Division of Economic Research of the Bureau of Foreign and Domestic Commerce, Department of Commerce. The author is greatly indebted to the following members of that Division for assistance in compiling the statistical series included in this section: For the estimates of increases in the number of families, Esther Wright Staudt; for the estimates of the distribution of families by income groups and the direction of the calculation of the regression equations, Dorothy Smith Coleman; for the estimates of the number of dwelling units annually from 1900 to 1915, Robert Sherman and Harold Wolkind.

The Economic Demand

Three principal elements influence the economic demand for shelter: the number of families in a given area, the income of these families, and the competing claims which other items of consumption such as food, clothing, automobiles, and recreation make upon family income.

Increase in the Number of Families

An increase in the number of families in a given area is not necessarily followed immediately by a period of active construction. Expenditures for new buildings may be postponed several years, and a more intensive use of standing structures always is possible. Such an increasing intensity of use is frequently made in periods of declining income or in periods of increasing costs of ownership. "Doubling-up" in 1933, in excess of that experienced in 1928 or 1929, apparently reduced the occupancy of dwelling units in nonfarm areas in the United States by as many as 500,000 units.[2] Notwithstanding these limitations, the rate of increase in families is a fundamental element in the changes in demand.

The physical needs for dwelling units in terms of families are essentially local in character, but with suitable allowances for migration may be stated in terms of national totals. It is, consequently, possible to express changes in the physical needs for dwelling units, for example, in nonfarm areas in the United States during a given period, in terms of marriages, plus net immigrant families, minus dissolutions of families by death and divorce, minus customary "doubling-up" of newly married or aged couples with relatives, plus or minus internal migration of families, especially from farm to nonfarm areas. Estimates of the annual increases in families in the United States calculated in this manner are shown in table I.

Trends and Distribution of Family Income

The economic demand for houses is a function of family income quite as much as it is of the number of families requiring shelter. As a matter of fact, the postponable character of new construction and the ready possibility of doubling or undoubling as the result of moderate changes in income add special importance to trends in income as they relate to building. The character of the market for houses is also greatly influenced by the number of families in the various income groups in different parts of the country or at different periods of time.

Figure 1 indicates that the most numerous income classes, including approximately 10,000,000 nonfarm households, had incomes in 1929 of between $1,000 and $2,000 annually. In 1933, the number of households in these income classes had declined to some 7,500,000. The number of nonfarm households having incomes greater than $1,000 annually fell from more than 20,000,000 in 1929 to about 12,000,000 in 1933. This shifting of several millions of households into lower income classes greatly reduced the economic demand for shelter and is clearly reflected in the decline in rents over this period.

TABLE I.—*Annual net increase in number of families*[1] *in the United States, 1900–1934*

[Thousands]

Year	Net increase in nonfarm families	Net increase in farm families[3]	Net increase in total families	Year	Net increase in nonfarm families	Net increase in farm families[3]	Net increase in total families
1900	239	66	305	1918	269	−17	252
1901	255	66	321	1919	451	20	471
1902	330	65	395	1920	632	−4	628
1903	350	66	416	1921	578	−25	553
1904	295	66	361	1922	596	−80	512
1905	361	65	426	1923	650	−25	625
1906	434	66	500	1924	532	34	566
1907	472	66	538	1925	546	−11	535
1908	291	65	356	1926	558	−36	522
1909	425	66	491	1927	481	45	526
1910	363	60	423	1928	434	50	484
1911	348	52	400	1929	490	36	526
1912	393	42	435	1930	[2] 275	163	[2] 438
1913	451	29	480	1931	[2] 207	165	[2] 372
1914	430	13	443	1932	[2] 91	208	[2] 299
1915	410	−4	406	1933	[2] 351	57	[2] 408
1916	451	−6	445	1934	[2] 515	27	[2] 542
1917	486	−35	451				

Source: Construction and Real Property Section, Division of Economic Research Bureau of Foreign and Domestic Commerce.

[1] A precise definition of the term family has proven very elusive. The year-to-year changes in the above table are determined by the increments in natural groups such as: man and wife (with or without children and other dependents), and widower, widow or divorcee (with or without dependents). The year-to-year fluctuations in single person "families," i. e., single individuals occupying a dwelling unit are disclosed only to a very limited extent in the above figures. Since the unadjusted year-to-year changes in marriages less dissolutions, etc., involve substantial assumptions, it was necessary to adjust the year-to-year changes to the decennial increments in private "families" as indicated by the census reports. The census enumerations disclose only the number of housholds, i. e., groups of persons living as an economic unit for the most part boarding together at the same table. However, in view of the fact that all decennial censuses from 1900 to 1930 were taken at periods of fairly comparable economic activity, it is not believed that the above figures involve any considerable trend in doubling or undoubling arising from changes in family incomes. They may, however, reflect some trends in doubling arising from changes in social custom.

[2] In some years farm families show a net decrease due to migration of farm families to nonfarm areas in excess of families added in farm areas. The number of farm "families" in 1935 was assumed to equal the number of occupied farm dwellings reported in the 1935 *Census of Agriculture*. A number of indications lead to the conclusion that this figure for 1935 may be too high, but no statistical data appear to be available as a basis for arriving at a more nearly correct figure. The net increases for the years 1930 through 1935 were derived in the same manner as those for earlier years. Farm "families" might more properly be designated farm "households."

[3] The total number of families for Jan. 1, 1935 was determined directly from the number as indicated by the annual increments from 1930 to 1935 in marriages, plus net immigrant families, minus dissolution of families by death and divorce. Over the period 1920 to 1930 increments obtained in this manner were 5.3 percent larger than the differences in the census enumerations of private families (with certain corrections to secure comparability). This same correction, 5.3 percent, was applied to the increments just described to give the figures shown in table 1. These figures are considerably larger than the number of independent households added each year during this period due to the doubling up of families as the result of reduced income. In January 1935, the total number of families is estimated to have been 300,000 more than the number of households.

[1] Statistics on the number of "extra families" are included in the *Federal Real Property Inventory, 1934*, U. S. Bureau of Foreign & Domestic Commerce. No measure of the year-to-year changes or of temporary as contrasted with normal or permanent doubling-up is available. Vacancy statistics which are available for a number of cities during the period mentioned are the basis for the estimate indicated above (see fig. 9).

It is important to recognize in any analysis of the housing market that the number of households by income classes should not be related to the *new units* built but to the *total number of existing units* corresponding to the total number of households. It is manifestly impossible for economic society to supply all families or the increases in families in all income classes with *new* units. In nearly all cases, families of low income can be housed more adequately in old but sound units having sufficient space and other facilities for comfortable living than in small and otherwise inadequate structures having the sole advantage

Summary of methods: The compilation of this series involved considerable estimation which, however, in nearly all cases was based upon reliable quantitative measures. The data used were: marriage and divorce statistics compiled by the Bureau of the Census for the years prior to 1933 and by Samuel A. Stouffer and Lyle M. Spencer for the years 1933-35 ("Marriage and Divorce in Recent Years," *The Annals of the American Academy of Political and Social Science*, November 1936, pp. 56–69); immigration statistics obtained from the files of the Immigration and Naturalization Service; statistics on deaths obtained from the Bureau of the Census; statistics upon farm to city migration obtained from the Bureau of Agricultural Economics for the years 1920–36; and other materials.

The annual increments in the total number of families (farm and nonfarm) were determined first. As noted below, these annual increments were adjusted in each decennial period to equal the ten year increments in private families (more properly "households") as determined from the census reports. These totals were then broken down to show separately the annual increments in the number of farm and nonfarm families. In arriving at the estimates, essentially the following calculations were made.

Marriages.—A considerable number of marriages are contracted by persons who already have homes, particularly widowed or divorced persons who remarry. Based upon the number of widowed and divorced persons who, according to the Census of 1930, were heads of families and the estimated number of such widowed and divorced persons who remarry, it has been estimated that 20 percent of marriages are contracted by persons who already have homes. Consequently, 80 percent of marriages each year were assumed to represent a potential need for new family units.

Divorces.—According to the 1930 Census, approximately one third of all divorced persons in the United States are heads of families. Similar data were not collected in other years. Thus, out of every 100 divorces (or 200 divorced persons), it was assumed that 67 "families" remained and that a decrease of 33 "families," or one-third of the original number of families, occurred.

Immigration and Emigration.—All data collected by the Immigration and Naturalization Service pertain to individual persons rather than to families. After studying the available data, it appeared that the best measure of year-to-year immigration or emigration of families was the total number of married females entering or leaving the United States.

Throughout the history of the United States until the past few years, immigration has been substantial. For the past three decades, in terms of the above measure, immigrant families have accounted for an increment in families, averaging approximately 50,000 annually until 1924. During 1906 and 1907, this number was more than 100,000 families annually. Since the passage of the Quota Act of 1924, the number of admissible quota immigrants has been restricted to slightly more than 150,000 *persons* annually. Consequently, under present conditions even with allowances for nonquota admissions, the number of families added from this source is not likely to exceed 30,000 in any year. For the decennial period from 1930 to 1939, there may be a very slight increase by net immigration averaging possibly 5,000 families annually.

Deaths.—An estimate of the year-to-year fluctuations in families dissolved by death has been made as a part of this study. This estimate is based upon the approximate percent of married, widowed, and divorced persons of each sex who are heads of families, and an assumption as to the percent to which the deaths of individual persons in each of these groups has resulted in the dissolution of families. The annual number of deaths of each sex in each marital status was estimated for the years 1900 through 1934, using the age specific differentials in mortality between married, widowed, and divorced persons and the total population as computed by Walter F. Willcox, *Introduction to the Vital Statistics of the United States, 1900 to 1930*, Government Printing Office, Washington, 1933.

The decade increments in marriages, plus net immigration, less families dissolved by death and divorce, as outlined above, were in fairly close agreement with the decennial increments as calculated from the reports of the Bureau of the Census (with proper allowances to maintain comparability from decade to decade in the use of the term "families" and in the differences between census dates). The greatest difference, 14 percent, was for the decade 1910 to 1919. Finally, in arriving at the figures shown in the above table, the decade increments in families as reported by the Bureau of the Census, with the adjustments just indicated, were prorated according to the annual increments obtained from the estimates of families as outlined in the immediately preceding paragraphs.

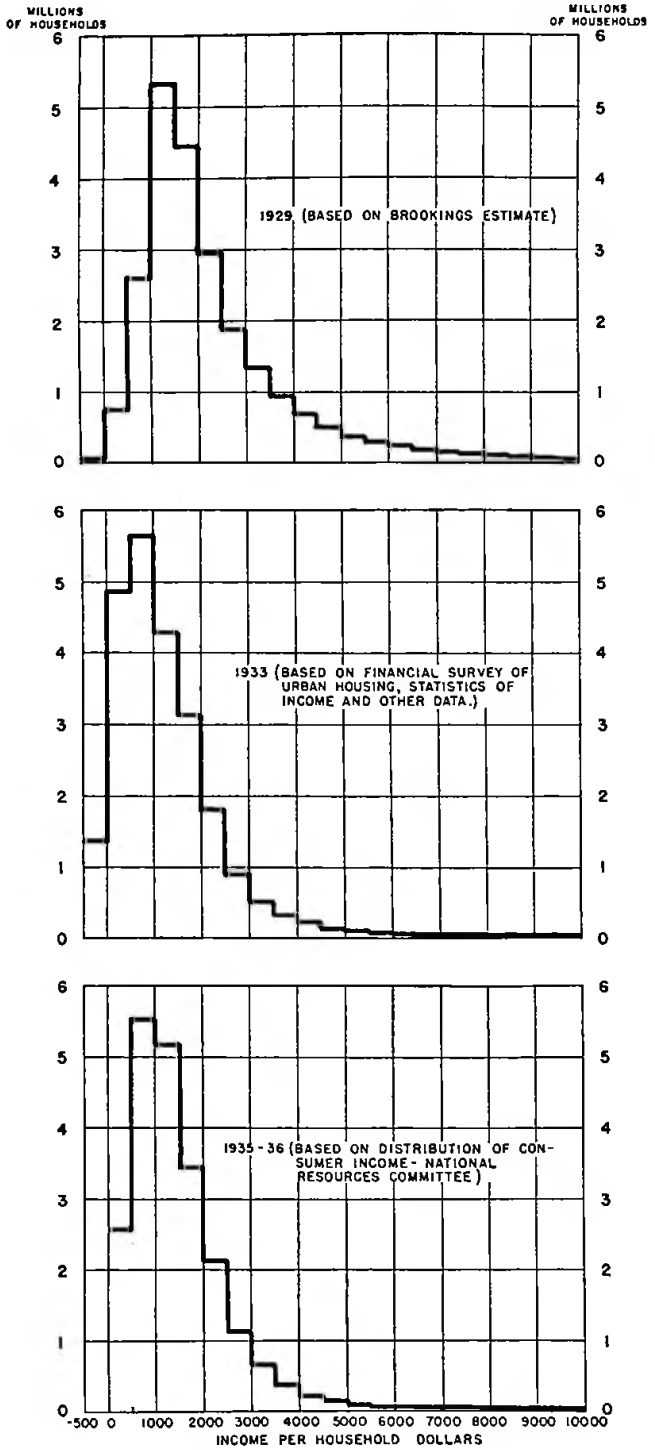

FIGURE 1.—Distribution of the number of nonfarm households by income classes, 1929, 1933, and 1935–36.

Sources:

The distribution of nonfarm "families" by income groups in 1929 was derived from an estimate by the Brookings Institution, *America's Capacity to Consume*, table 37, p. 227. As shown on the chart, "families" include unattached individuals operating independent households as well as two or more family groups living together as one household and thus correspond with the census total of "families" or, more properly, households.

The distribution of nonfarm households by income groups in 1933 is based on the percentage distribution reported in the *Financial Survey of Urban Housing*, United

of being new. The market for existing units, however, clearly bears a close relation to the distribution of households by income classes. Increases or decreases in income and the consequent shifting of households to higher or lower income groups tend to increase or decrease rents in the various classes of property. These shifts in rents, in turn, tend to influence the trends in new building construction.

For earlier years, the distribution of households by income groups is not available in as great detail as is shown in figure 1. The average family income each year, however, may be computed and enters into the index of family income shown in figure 2, for the year 1909 and subsequent years. These figures are calculated in terms of actual family groups without regard to changes in doubling and are thus properly described as rates of income per family.

Competing Claims of Other Items of Expenditure

Improved housing may be considered from time to time more or less desirable by the people of a given community than are automobiles, radios, entertainment, and other items of expenditure. Consumer preferences are not readily measurable, however, in specific terms, and they vary considerably among households at different levels of income. They depend, in part, upon varying prices of commodities and services as well as upon changing social custom. Necessaries of life such as food make strong claims upon income. Increasing costs of such commodities thus in an important degree influence the family income available for other items of expenditure including shelter. The cost of shelter similarly influences the demand for other commodities.

Summary of Demand Factors

A graphical showing of two of the demand factors, the number of families added and average family income, appears in figure 2. With allowances for a lag of 1 to 2 years, the general correspondence between these measures of trends in the demand and the trends in the number of units upon which construction was started may be clearly observed. Some of the major exceptions in the correspondence between demand factors and building will be noted later at various points in the discussion of costs of ownership. A conspicuous exception occurred in the decline of building in 1920 in spite of an increasing number of families and increasing family income available for shelter. This development appears to have been largely influenced by the rapidly advancing costs of property ownership during 1919 and 1920.

The changes wrought by the World War disturbed in an unusual degree the adjustments which might otherwise have been expected. A detailed year-to-year discussion of the demand changes over these years is not practicable and can be more adequately stated in a quantitative formulation of major economic influences (pp. 10–12). It may be observed, however, that the sharp increase in families after the World War due to postponed marriages, farm-to-city migration, and substantial immigration from other countries, resulted in acute housing shortages in many cities in the United States. The number of families added in nonfarm areas which had been fairly steady at about 300,000 to 450,000 annually for the years from 1902 to 1917 suddenly dropped to slightly more than 250,000 families in 1918, and immediately after the World War advanced to approximately 450,000 in 1919 and to more than 600,000 in 1920 and 1923. The number of families added each year in nonfarm areas then declined almost without interruption from an increment of 650,000 in 1923 to 90,000 in 1932.

Family income available for shelter (total income less allowances for food and other living costs) was well maintained over the period from 1923 to 1929. It declined sharply thereafter and did not show a substantial increase until 1936, the first year of any considerable volume of construction since 1930 and 1931. A substantial increase in the number of families added during the years 1934 and 1935 did tend to enlarge the demand during these years. However, just as in the immediate postwar years, it was not until family income and costs of ownership were favorable that substantial increases in construction occurred. As has already been stated, nearly all economic activity results

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States Department of Commerce, 1934, and related data from the Statistics of Income, United States Department of the Treasury. The number of nonfarm households in the United States in 1933 was first distributed according to these percentages. (The average number of nonfarm households in 1933 (23,260,000) was estimated using the 1930 census data (see table VII) and the annual increases shown in table I together with allowances for doubling in that year.) The resulting frequencies gave a total nonfarm income slightly less than that indicated by the statistics of national income paid out (*National Income in the United States, 1929-35*, U. S. Department of Commerce, 1936), with allowances for agricultural income, for the income of individuals living in hotels, boarding houses, labor camps, and for net capital losses, dividends to insurance policy holders and similar allowances. "Family" incomes under $5,000, the distribution of which was based upon the *Financial Survey of Urban Housing*, were adjusted upwards by 5 percent in such a manner that both the number of households and the aggregate of all incomes were in agreement with the statistics mentioned above.

The distribution of nonfarm households by income groups in the period 1935-36 was derived from *Consumer Incomes in the United States*, National Resources Committee. The basic data used in that report were obtained during the years 1935 and 1936 jointly by the Department of Agriculture and the Department of Labor. (The National Resources Committee report shows the income distribution of nonrelief families separately for farm and nonfarm families, but a similar break-down is not reported for relief families or for total families.) The distribution shown on the chart was derived by subtracting the number of farm "families" (relief and nonrelief), which are estimated to have been in each income class, from the total in each income class as shown in *Consumer Incomes in the United States*.

Important differences with regard to the definition of income not fully covered in these notes exist between the distributions shown in figure 1. For example, in the distribution for 1935-36, income is defined from the point of view of expenditure and includes only the income received in a given year which is available for expenditure during that year.

Differences also exist with regard to the definition of "families." For example, in the above figure, in 1929 and 1933, single persons operating independent households were included, whereas in 1935-36 they were excluded. The 1929 nonfarm households include all families whose heads are not farmers; the 1933 nonfarm households represent all households other than those on farms.

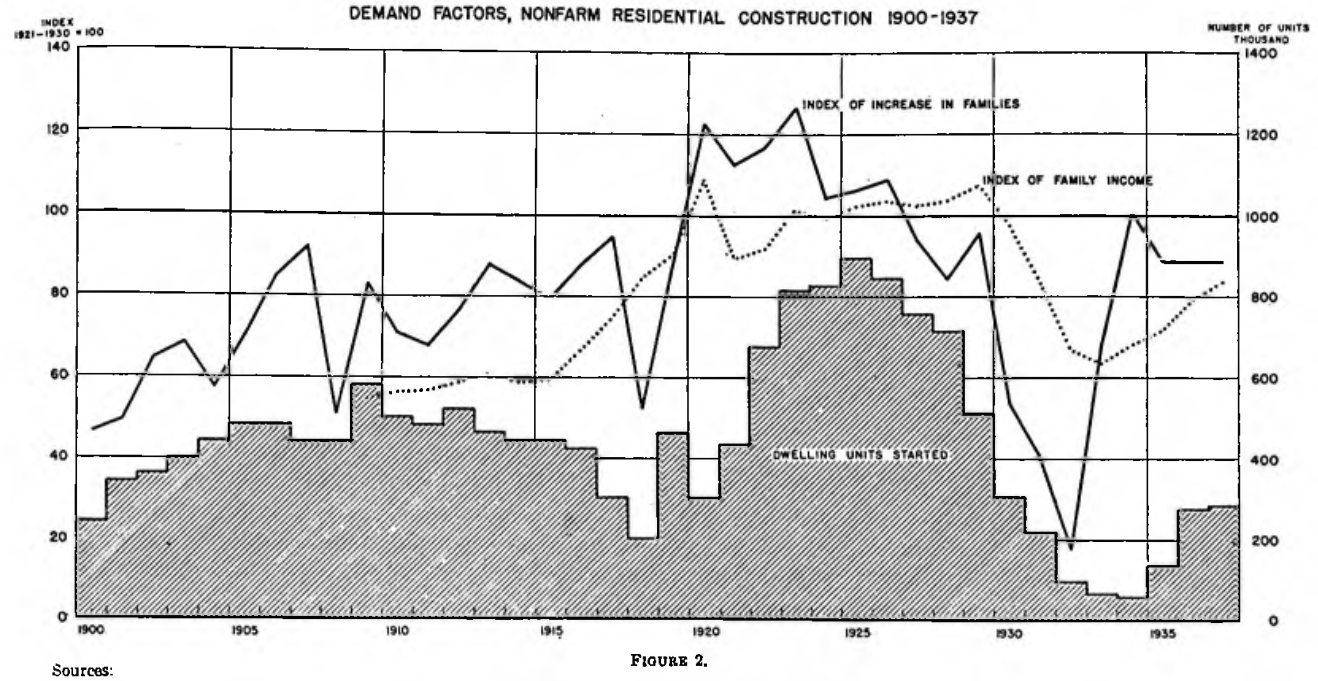

FIGURE 2.

Sources:

The number of nonfarm dwelling units upon which construction was started annually and the index of the net increase in nonfarm families are based on estimates made by the Construction and Real Property Section, Bureau of Foreign and Domestic Commerce. The data used in making the dwelling unit estimates for the years 1921 to 1937 are the building permit reports compiled by the United States Department of Labor. The income data are derived from National Bureau of Economic Research, *Bulletin 66; America's Capacity to Consume*, Brookings Institution; *Survey of Current Business*, February 1938, Bureau of Foreign and Domestic Commerce; and from Dr. Wilford I. King's estimates, *Income in the United States, Its Amount and Distribution, 1909-19*.

Estimates of number of dwelling units started in 1934, 1935, 1936, and 1937 were revised slightly, subsequent to preparation of chart. See table IV for correct figures.

from multiple rather than from single causes, and the only satisfactory analysis that can be made is in terms of the aggregate effect of these influences.

The Determination of Rent

An aggregate measure of changes in the several elements in the demand, together with the corresponding measures of the supply of available units, may be demonstrated to possess a close relation to the trends in rents. An *a priori* analysis indicates that the trends in rents logically are a function of changes in the total number of families to be housed, the number of available units, family income and the competing claims of other items of consumption, particularly those of relatively inelastic demand. An analysis in quantitative terms of the behavior of economic society in the United States from 1913 to 1937 discloses a close correspondence between the trends in the underlying elements and trends in rents.

It is realized that the data over this period for all of the variables mentioned above, particularly for years prior to 1920, are not entirely satisfactory and may be greatly improved in the future by more adequate reporting. Also, the actual determination of rent is essentially a local problem. The second qualification, in view of the economic interdependence of the various parts of the United States and the resulting similarity in the trends in these measures throughout the entire country, is actually less important than it might first appear to be.

The most widely used indexes of rents are those compiled by the National Industrial Conference Board and the United States Bureau of Labor Statistics. Both refer to rents paid by wage earners' families. Resulting from the manner of its compilation, the National Industrial Conference Board index tends to be a measure of the rates at which new rental contracts are made, and the Bureau of Labor Statistics series an index of the changes in rents paid for dwellings of approximately the same facilities, age, and location from period to period. The former tends to lead the latter in the timing of its fluctuations by slightly less than a year. Both of these indexes with proper allowances for timing are believed to be closely related to the trends in average rentals actually paid for dwelling units of all types but do not directly measure such payments.

The analysis described here attempts to measure, using the best data available for the nonfarm areas of the United States as a whole, the relationships which logically appear to exist between rent and the total number of families, the number of available units, family income, and the relative cost of competing items of expenditure. These relationships are finally expressed in an equation of the type:

$$X_R = a + bX_O + cX_I + dX_F$$

The first independent variable in this equation is expressed as an index of the ratio each year of the total number of families in nonfarm areas in the United States to the total number of available housing units in nonfarm areas in the United States. The second independent variable is expressed as an index of income per nonfarm family in current dollars each year. The third independent variable was not clearly revealed in the *a priori* analysis. After a careful study of the net influence of the several variables upon rent using graphical methods, it appeared that the cost of living other than for shelter was not significantly correlated with rent, but that the cost of food did evidence a negative correlation which is believed to be significant. Consequently, in the above expression, the third independent variable is an index of the ratio of the cost of food to the cost of the items in the cost of living other than food and shelter.

The degree to which rent appears to be explainable in quantitative terms as a function of logical related influences is quite close. This fact gives added force to the general observation made earlier in this section, that residential rents and construction activity are determined not by chance but by measurable economic and other social influences.

Graphical methods of analysis were used first in determining the net influence of each of the independent variables upon the dependent variable, rent. In each case the relation was so closely linear that an expression of simple linear type appeared appropriate. The constants in an expression of this type were calculated by algebraic methods[3] yielding the following equation:

$$X_R = -216.155 + 2.540X_O + 0.778X_I - 0.167X_F.$$

The data used in these calculations are shown in table II. The character of the residuals between the National Industrial Conference Board index of rents and the values derived from the estimating equation suggests that the latter might be improved slightly if a curvilinear relation were assumed between some of the dependent variables and the index of rents.

It was discovered that a higher degree of covariation existed with a lead of 9 months between the independent variables and the dependent variable rent than that calculated for a simultaneous occurrence of these variables; that is, rent apparently is influenced by occupancy, income, and the cost of food 9 months prior to the period to which the rent measure applies. The most satisfactory period of lead, however, has not been fully explored in this analysis. The graphical methods indicate that a more satisfactory correlation could be obtained for a lead of one year for occupancy and 9 months for income.

[3] See Mordecai Ezekiel, *Methods of Correlation Analysis.*

TABLE II.—*Data for calculation of indexes of rent*

[1921-1930=100]

Year	X_O—Index of ratio of families to available dwelling units [1]	X_I—Index of income per family [2]	X_F—Index of ratio of food costs to other items in cost of living [3]	X_R—Calculated index of rents [4]	National Industrial Conference Board index of rents	Residuals [5]
1914	96.84	60.25	120.46	56.5	59.0	+2.5
1915	96.98	58.87	120.04	55.9	59.0	+3.1
1916	97.12	61.06	118.00	58.3	59.9	+1.6
1917	97.46	68.73	125.81	63.8	61.9	−1.9
1918	98.20	76.99	132.81	71.2	69.4	−1.8
1919	98.75	85.79	123.30	80.8	76.4	−4.4
1920	99.53	94.60	116.60	90.7	91.2	+.5
1921	100.96	103.71	106.73	103.1	99.9	−3.2
1922	102.34	89.75	92.56	98.1	98.0	−.1
1923	102.88	94.16	94.03	102.6	102.2	−.4
1924	102.59	100.80	96.14	106.8	108.7	+1.9
1925	101.45	100.23	97.53	103.2	106.4	+3.2
1926	100.13	102.46	104.45	100.4	103.5	+3.1
1927	98.88	103.34	106.33	97.6	100.0	+2.4
1928	97.69	102.58	103.58	94.4	95.8	+1.4
1929	96.69	104.73	103.61	93.6	94.0	+.4
1930	96.33	105.42	103.89	93.1	91.5	−1.6
1931	96.01	95.13	96.34	85.6	84.2	−1.4
1932	95.92	79.01	82.86	75.1	74.0	−1.1
1933	95.80	64.52	76.38	64.8	65.2	+.4
1934	96.74	62.65	77.11	65.4	66.2	+.8
1935	98.61	68.97	83.64	74.0	71.9	−2.1
1936	100.35	73.62	89.27	81.1	79.6	−1.5
1937	101.57	81.36	90.72	89.9	88.4	−1.5

Preliminary extension of equation derived from data for period 1914–1937 gives the following figures for 1938 for the six columns above: 102.35, 84.49, 89.86, 94.5, 88.9, −5.6, respectively.

[1] The ratio of total nonfarm families to the total dwelling units in nonfarm areas based on estimates made by the Bureau of Foreign and Domestic Commerce. Shown for annual period 9 months prior to that shown for rent.

[2] The income per nonfarm family based on income data compiled by the National Bureau of Economic Research (Wilford I. King, 1909–18, and Simon Kuznets, 1919–28) and the National Income Section, U. S. Bureau of Foreign and Domestic Commerce, for the period 1929 to 1937. Includes adjustments for agricultural income and for direct relief payments. Shown for annual period 9 months prior to that shown for rent. Base period refers to series before application of lead.

[3] The ratio of food costs to all items in the cost of living, excluding food and rent, based on the National Industrial Conference Board. Shown for annual period 9 months prior to that shown for rent. Base period refers to series before lead.

[4] Based on the equation $X_R = -216.155 + 2.540X_O + 0.778X_I - 0.167X_F$.

[5] The difference between the actual rent indexes and the values derived from the estimating equation.

Using the above equation, calculated values of the index of rents were determined. The actual and calculated indexes are shown in figure 3. The maximum discrepancy between the calculated and actual indexes is 4.4 points in the index of rent for the year 1919. Lesser discrepancies occur in other years. In view of the limitations which may exist in the data, the degree of covariation between the calculated and the actual indexes of rent is remarkably close. The substantial period of lead of the independent variables also may prove very useful in appraising future trends in rent in terms of related influences. The agreement between the actual index of rents shown in figure 3, and the values derived from the estimating equation fitted to these data, particularly in view of the assumption of linear covariation in simplest terms, is closer than might usually be expected in quantitative measures of this character and should not be taken as indicating the reliability of the particular formula shown above for pur-

poses of estimation.[4] It does illustrate, however, the possibility of the scientific measurement of certain aspects of economic behavior with a degree of precision highly useful for many practical purposes.[5]

Economic Conditions Influencing Additions to Supply of Residential Units

The economic process by which new units are added to the standing supply of available shelter is not essentially different in basic theory from that of other commodities. A number of important distinctions, however, must be observed with regard to residential building. The production of nondurable commodities on the supply side may be stated largely in terms of costs of production in the sense of costs of fabrication. The production of durable commodities such as residential building must be stated in much broader terms with the added consideration of such elements as interest and other financing charges, loss of value arising from obsolescence and depreciation, taxes, maintenance and other costs of ownership. A relatively small change in the standing supply of any durable commodity also may result in substantial expansion or contraction of credit and consequent large effects upon general purchasing power. Some of these points will be discussed more fully in subsequent paragraphs, particularly costs of ownership in their relation to building activity.

Differences in Time Periods

The customary distinctions of classical theory between current market, short-term, long-term, and secular trend conditions in the supply are also helpful in the analysis of fluctuations in residential building. This arises in part from the capacity of the basic demand to change substantially, in terms of the net annual increment in families, as well as to expand or contract greatly by doubling and undoubling, thus placing the requirements for new residential building from time to time under substantially different conditions.

During certain limited periods, even substantial changes in costs of ownership do not appear to influence appreciably the volume of building activity. In other periods, as economic demand increases, cost of property ownership very soon plays an important part in determining the volume of construction of new units. In this case, *short-term* conditions, in which productive capacity is somewhat limited by available labor, materials, or investment funds, may in an important degree

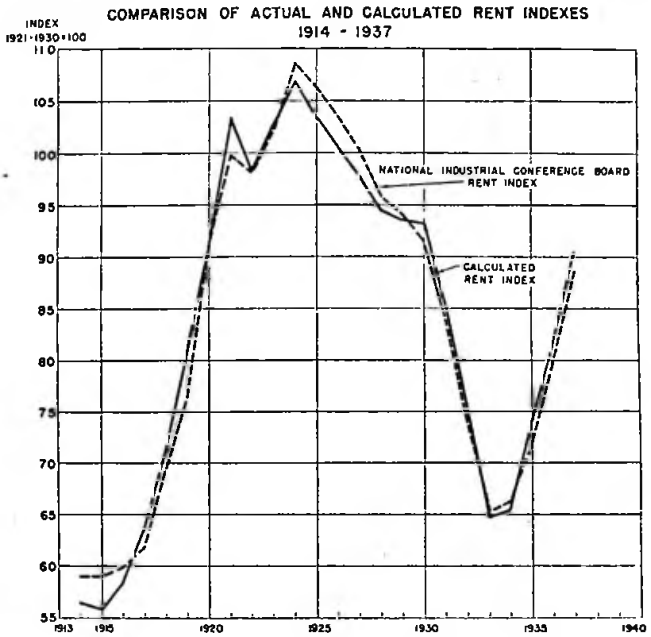

FIGURE 3.

Source: See table II.

influence the number of units which may be built. The immediate post-war period illustrates clearly the short-term influences of cost upon the production of dwelling units. Such conditions were particularly marked in 1919 and 1920 and were repeated in 1937 and 1938. *Long-term conditions* in the supply permit certain adjustments in the number of workers and in the prices and production of necessary materials as well as in investment funds and business organization in the building industry. *Secular trends*, in building technology, in types and practices of lending institutions, and in living customs, e. g., from single-family to multiple-family units (see fig. 7), also result in important changes in production. The effects of such trends upon year-to-year production, however, are likely to be obscure and are not readily amenable to analysis in general terms. The quantitative measures of economic relationships developed in correlation functions shown later in this section reflect these changes in time periods, not as entirely separable experiences but as stages in a continuous process.

Costs of Ownership

The more important elements entering into the annual cost of property ownership are the cost of building and other improvements, the purchase price of land, interest rates and other financing charges, annual taxes and assessments upon land and improvements, and the annual loss of value due to obsolescence and depreciation. Supplementary costs, such as those for transportation and community services (refuse collection, recreational facilities, schools, and so forth) not adequately provided by public agencies, also enter

[4] The coefficient of multiple correlation $\bar{R}_{1.23\ldots}$ is 0.99 indicating that 98 percent of the variability ($\bar{R}^2$) over the period covered by this series is accounted for by the estimating equation. The significance of the regression coefficients is not precisely calculable for time series. Such tests as have been made, however, assuming each year to be a separate event, indicate that all of the regression coefficients including that of X_F are significantly different from zero, i. e., the likelihood of chance occurrence of a coefficient of the magnitude calculated is less than 1 case in 100.

[5] In other fields, particularly agriculture, such methods have been used extensively. See Ezekiel, *op. cit.*, pp. 337-340 for a list of correlation studies.

into any comparisons of the annual costs in different areas.

Building Costs.—Improvements in the facilities included in houses have been substantial during the past two decades. Changes in residential building methods, however, have been very slight, and the technique of fabrication of houses has been one of the slowest of the arts to respond to the widespread technical progress of recent times. The result has been that a moderately rising long-time trend in the prices of building materials, accompanied by a much steeper trend in wage rates in the building trades, has resulted in a substantial increase in building costs during the past two or three decades. The failure of residential building to share in the technological developments which have made possible both high wages and lower costs in many types of manufacturing production has seriously hindered the improvement of housing conditions which would have followed substantial technical improvements and consequent reductions in the purchase price of dwelling units.

Land Costs.—The costs of land and necessary improvements such as streets, water supply, and sewage disposal systems vary greatly in relation to the cost of building. These site costs are influenced by many factors, such as transportation facilities, zoning regulations, and prospective uses of land other than for residential purposes.

Financing Costs.—Interest rates and other financing charges, and the rate of retirement of invested capital made necessary by depreciation, obsolescence, and other loss of value, are also of major importance in any discussion of the production and supply of domestic shelter.

Figure 4 provides a more direct comparison of the effect of interest rates and amortization upon various investments in housing which could be sustained by a given annual outlay for such purposes. This chart is a graphical representation of the mathematical relationship which exists between a capital expenditure, interest rates and periods of amortization, and the annual payment required to sustain that expenditure. It may be observed that equal annual payments of $240 for 20 years will sustain a capital expenditure of approximately $2,700 when interest rates are 6½ per-cent, and that the same annual payments over 30 years with interest rates at 4½ per cent will sustain a capital expenditure of approximately $3,900. Taxes,

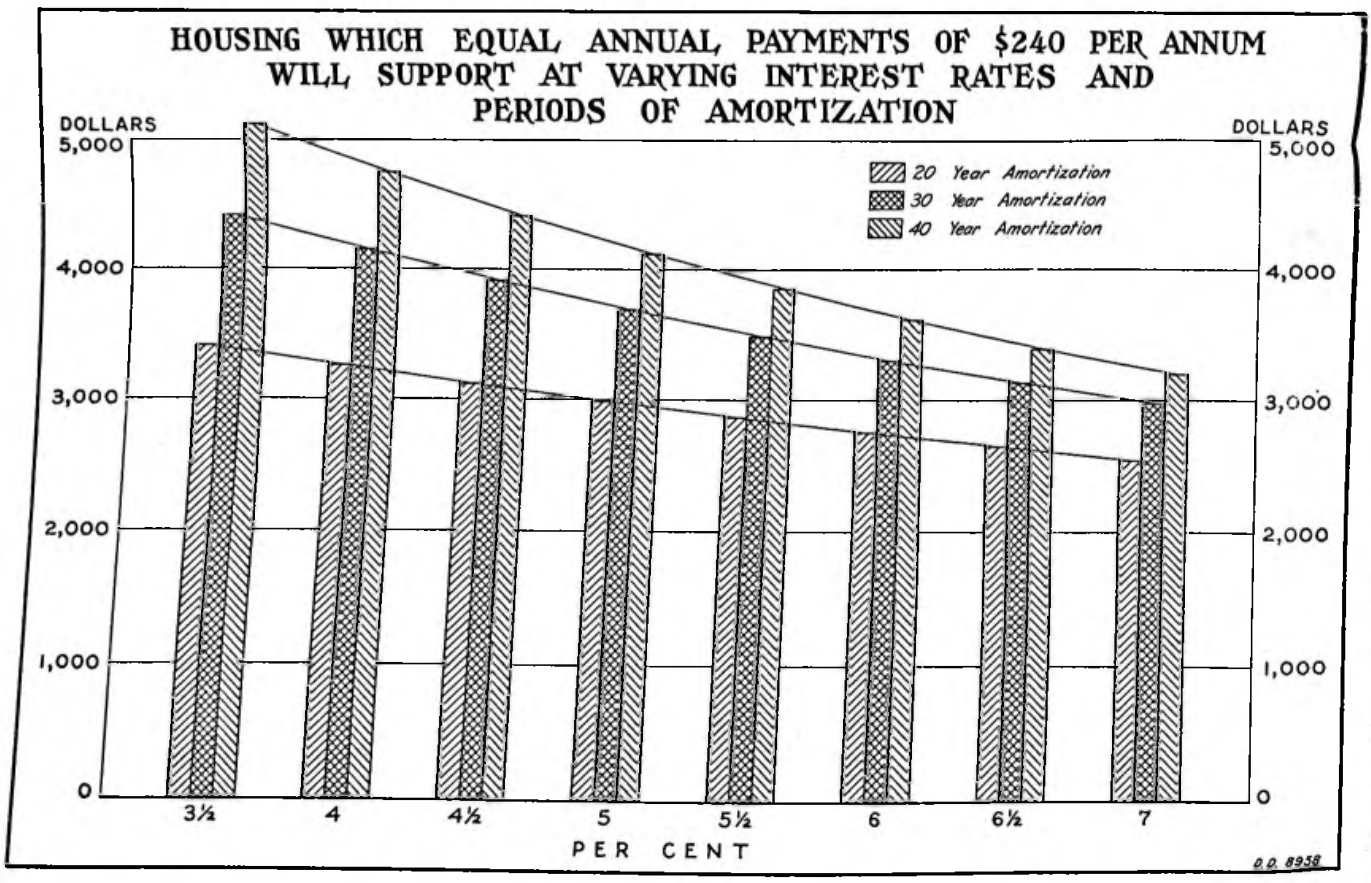

FIGURE 4.

Source: Construction and Real Property Section, Division of Economic Research, Bureau of Foreign and Domestic Commerce.

insurance, and other costs would, however, tend to be heavier under the larger capital expenditure.[6]

Taxes.—Taxes upon residential property, for the most part, are consumption taxes upon the users of domestic shelter. This is true not only for the 46 percent of the occupied nonfarm dwelling units in the United States occupied by the owners thereof, but also in all but a few cases, for rented properties, through the process of the shifting of the tax burden in the form of rental payments.

Based upon a tax rate of $20 per thousand dollars of true value[7] and an estimated value of residential property of 90 billions of dollars in 1937, the total amount of this tax paid in the United States may be estimated to be of the order of 2 billions of dollars annually. It may be alleged with some justification that these taxes, which are a large and important part of the revenue of local government units in the United States, are equitable charges for community services supplied by these government units. There are, however, notable exceptions to this observation.

Although a tax may be levied solely for purposes of revenue, its broader effects are inescapable. The final incidence of taxes levied upon residential property may be stated in part as follows:

(1) When a shortage of available units exists, new building is not likely to occur until the rental income from rented property (or the imputed income on owner-occupied property) rises to such a level as to exceed total costs of ownership including taxes. Under such conditions, taxes may be said to be shifted from the owner to the tenant. However, when the number of units available for use is considerably in excess of the current needs in a community, an increase in taxes cannot be entirely shifted by a property owner to the tenant. An increase in taxes upon real property under such conditions merely tends to reduce net income available from property, thus resulting in a reduction in an owner's estimate of value based upon the capitalization of net income.

(2) The incidence of taxes in a given area is also influenced by the differences in the tax rates in different parts of that area; for example, within and outside municipal boundaries. In immediately adjoining properties of equal desirability, it may be said that a tax placed upon one of the properties and not upon the other can not be readily shifted from the owner to the tenant.

(3) In the event that taxation is universal and uniform upon residential property over a given area, the tax burden will tend to make property ownership more expensive. This will tend to reduce new building until, with increasing demand, the return to property is adequate to cover taxes as a part of the cost of ownership.

Recognizing the effect of taxation of residential property upon home ownership, a number of States during the past few years have provided varying degrees of relaxation of the tax burden upon residential property, the most specific of which is designated as "homestead exemption." Other things being equal, any reduction in costs of ownership such as taxes will make home ownership more attractive and under certain circumstances will tend to encourage new building.

Other costs.—In addition to purchase price, financing charges, and taxes, a number of other costs such as those for repairs and other maintenance, and for insurance, supplementary expenditures for transportation and community services, as well as annual losses in value due to obsolescence and depreciation enter into the cost of home ownership. Purchase price, financing charges, and taxes, however, appear to be the dominant factors.

Summary of Supply Factors

The immediate postwar years illustrate clearly the effect of changes in building costs and financing charges upon residential construction. (See fig. 5.) During the latter part of 1919 and the early part of 1920, the costs of building materials moved up particularly rapidly, increasing 70 percent from April 1919 to the same month one year later, but declined equally abruptly, reaching a temporary low point in September 1921. Wages in the building trades advanced sharply in 1920 and increased somewhat during the following year but declined in 1922. Interest rates also advanced rapidly during 1920 and declined somewhat thereafter. In spite of an active demand during this period, a sudden rise in building costs and interest rates in 1919 and 1920 appears to have been largely responsible for the reaction in the volume of residential construction which occurred in 1920. In 1922, a year which experienced an astonishing increase in building activity, the aggregate of the major elements of cost was at a moderate level in comparison with immediately preceding and following years.

The trends during the years 1936 and 1937 also illustrate the effect of increases in building costs upon building activity. Both skilled labor and common labor wage rates in the building trades which had been fairly steady during 1935 began to increase rather sharply in March 1936 and continued their steady advance to January 1938, after which they appear to have declined slightly.[8]

The prices of building materials as reported by the Bureau of Labor Statistics, after showing little change

[6] For a further discussion of financing costs, see sec. V.

[7] *Facing the Tax Problem*, Carl Shoup and Associates, 20th Century Fund, Inc., 1937. Dr. Shoup states that the property tax rate based on actual values "would probably exceed 1½ percent in the majority of cases." The estimated true tax rate based upon the unweighted average of the rates in a number of cities over the period 1929–36 as calculated by C. E. Rightor and Rosina Mohaupt varied from $24.26 per thousand dollars in 184 cities in 1929 to $26.30 per thousand dollars in 230 cities in 1936, *ibid.*, pp. 526–527

[8] Wage rates reported as actually paid by building contractors in 20 cities; cover common labor and 6 skilled building trades.—*Engineering News-Record.*

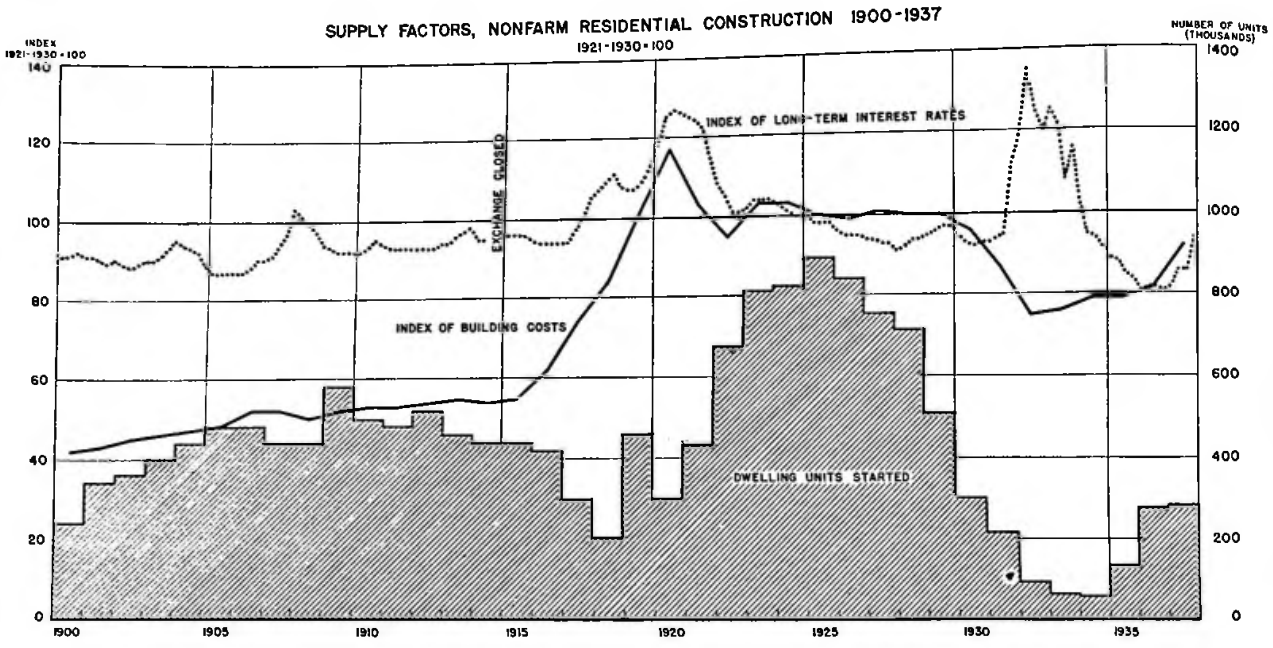

FIGURE 5.

Sources:

The number of family units upon which construction was started annually was estimated by the Construction and Real Property Section, Division of Economic Research, Bureau of Foreign and Domestic Commerce. The basic data used in making these estimates for the years 1921 to 1937 are the building permit reports compiled by the United States Department of Labor. The index of building costs is based on selected items from railroad construction cost indexes published by the Interstate Commerce Commission from 1915 through 1937, extended to the years prior to 1915 using the trends in construction costs of wood, frame, and brick structures as reported by the American Appraisal Co. The index of long-term interest rates was based on the yields of 60 high-grade bonds as reported by Standard Statistics Co.

Estimates of number of dwelling units started in 1934, 1935, 1936, and 1937 were revised slightly, subsequent to preparation of chart. See table IV for correct figure.

for more than 2 years, also increased sharply in July 1936 and continued to advance until June of the following year. The substantial increase in building activity in 1936 and in the first few months of 1937 from the very low levels of preceding years was clearly arrested by the sharp increases in building costs and wage rates which began during the middle of 1936.

On figure 5 are shown the fluctuations in interest rates and building costs, together with the number of dwelling units upon which construction was started over the period from 1900 to 1937. During periods of active demand the chart discloses that nearly all of the year-to-year fluctuations in building were in substantial agreement with theoretical expectation as regards the manner in which cost operates upon production. A more satisfactory composite measure of these fluctuations than is possible in the above terms is described in the following paragraphs.

The Production of New Dwelling Units

The economic conditions which appear to influence the volume of residential building have been outlined briefly in the preceding discussion. It is possible to carry this analysis farther and to express the relations between the volume of building and the related economic influences in terms of an estimating equation. The method of multiple correlation used in arriving at this equation was mentioned briefly in the preceding discussion relating to the determination of rent (see pages 5–7). The number of units built in a given period *a priori* appears to be influenced principally by the increments in the number of families in nonfarm areas, the average income of nonfarm families, the costs of ownership (particularly building costs, interest rates and taxes), and the condition of the market as measured by rents and the percentage of occupancy. The formula shown below is only one of the possible mathematical expressions for the relationships between these data but it expresses the relationship more satisfactorily than any of the others which have been developed as a part of this study.

$$\text{Log } X_U = -1.4162 + .01352\,X_M + .00428\,X_N + .01620 X_C$$

The independent variables entering into this equation are:

X_M—a series measuring the *conditions in the market* for existing units derived by taking the product of the occupancy ratio and an index of rent changes for the annual period immediately preceding by 3 months that shown for the number of units upon which construction was started.

X_N—a measure of the *number of families added* during the year immediately preceding that shown for the number of units upon which construction was started.

X_C—a measure of the *ratio of income per family to costs of ownership* for the annual period immediately preceding by 3 months that shown for the number of units upon which construction was started. In this ratio, cost of ownership is a consolidated figure derived by multiplying the sum of interest rates and taxes by an index of building costs. (See footnotes to table III.)

In the analysis of rent changes (p. 6), a good fit was obtained using an estimating equation of linear type. The analysis of building activity suggested that a better expression could be secured using an equation of semi-logarithmic type as indicated above. This equation accounts for 93 percent of the variation (coefficient of multiple correlation squared) in the number of units upon which construction was started annually over the period from 1914 through 1937. In view of the complex nature of the variables and the extensive intercorrelation between the several variables, care should be used in evaluating the significance of this function.[8a]

It is possible to translate changes in the independent variables into corresponding changes in the number of new units derived from the estimated equation. In view of the logarithmic character of this equation a change in the independent variables has a different effect at different levels in the magnitude of the variables. In terms of the 1921–30 average, a 10 percent increase in the index of conditions in the market (rent times occupancy) may be expected to be accompanied by a 37 percent increase in the number of new units started annually (the other independent variables assumed to be constant). Similarly, a 10 percent increase in the ratio of income per family to the costs of ownership may be expected to be accompanied by a 45 percent increase in the number of new units started, and an increase of 10 percent in the index of the number of families added, by a 10 percent increase in the number of new units.

In figure 6 are shown the values derived from this estimating equation compared with the number of residential units actually built. As may be observed in this chart, the two series are in close agreement with the exception of the years 1918, 1919, 1930 and 1931. During 1918, a strong effort was made by the Government to discourage construction not directly required in the prosecution of the war. Consequently, the number of units started in 1918 is notably less than that which would have been expected had this restraint not existed. In 1919, with the relaxation of governmental war efforts, a reversal of these influences occurred and building volume was considerably larger than otherwise would have been expected. There is no clear reason for the discrepancy in 1930 and 1931.

[8a] See footnote 4, p. 6.

TABLE III.—*Data for calculation of new family dwelling units started*

Year	X_M Index of conditions in the market [1] (1921–30 = 100)	X_N Number of families added [2] (1921–30 = 100)	X_C Ratio of income per family to cost of ownership [3] (1921–30 = 100)	X_U Calculated new units started annually [4] (thousands)	New units started annually (thousands) [5]	Residuals [6] (thousands)
1914	57.01	71.98	128.4	374	440	+66
1915	57.11	82.60	128.4	417	440	+23
1916	57.90	78.75	129.0	421	420	−1
1917	59.77	75.09	119.7	304	300	−4
1918	64.94	82.60	113.7	307	200	−107
1919	72.38	89.01	102.2	269	460	+191
1920	87.04	49.27	99.1	256	300	+44
1921	100.21	82.60	91.2	399	432	+33
1922	100.47	115.75	92.8	591	676	+85
1923	102.21	105.86	97.9	684	814	+130
1924	109.32	109.52	96.9	853	827	−26
1925	108.13	119.05	99.8	1,006	894	−112
1926	103.79	97.44	103.3	809	841	+32
1927	99.68	100.00	102.5	709	757	+48
1928	94.68	102.20	103.9	653	713	+60
1929	91.54	88.10	106.4	566	510	−56
1930	89.97	79.49	102.5	428	303	−125
1931	83.19	89.74	96.2	303	219	−84
1932	73.14	50.37	88.8	114	94	−20
1933	63.07	37.91	84.6	63	64	+1
1934	62.86	16.67	87.9	58	62	+4
1935	68.82	64.29	94.6	142	149	+7
1936	76.83	94.32	101.9	321	300	−21
1937	85.93	83.33	98.3	335	327	−8

Preliminary extension of equation derived from data for period 1914–1937 gives the following figures for 1938 for the six columns above: 89.24, 83.33, 93.1, 303, 360, +57, respectively.

[1] The product of the National Industrial Conference Board rent index and the occupancy ratio. The occupancy ratio prior to 1930 is based on the ratio of total nonfarm families to total available nonfarm dwelling units, adjusted so that ratio never exceeds 100. After 1930 the occupancy ratio is based on actual vacancy surveys conducted by real estate boards and other local organizations. Shown for the annual period 3 months prior to that shown for new units started. (See table II and fig. 9.)

[2] The annual net increase in nonfarm families. Shown for the year immediately preceding that shown for new units started.

[3] The ratio of income per nonfarm family to the cost of home ownership. The income per nonfarm family is based on income data compiled by the National Bureau of Economic Research (Wilford I. King 1909–18 and Simon Kuznets, 1919–28) and the National Income Section, Division of Economic Research, U. S. Bureau of Foreign and Domestic Commerce for the period 1929 to 1937. Includes adjustments for agricultural income and for direct relief payments. The cost of home ownership is the product of the residential building cost index and the sum of the weighted average interest and tax rates. The residential building cost index is based on Interstate Commerce Commission building cost reports for construction projects similar to residences. The mortgage interest rate is that published by Mr. Roy Wenzlick in the *Real Estate Analyst* for May 1937. The tax rate is computed from data published in the *Financial Statistics of State and Local Governments*, published by the Bureau of the Census. Shown for the annual period 3 months prior to that shown for new units started. (See table II and fig. 5.)

[4] Based on the equation $\text{Log } X_U = -1.4162 + .01352 X_M + .00428 X_N + .01620 X_C$.

[5] See footnote table IV.

[6] The difference between the calculated and actual new units.

Although a decline in income late in 1937 and during the first part of 1938 suggested a decline in the number of units added during 1938, the number actually added during this year was slightly larger than the number added in 1937. This is doubtless due in part to the substantial changes in provisions for insuring loans by the Federal Housing Administration upon a higher percentage of value and at lower interest rates than those prevailing in 1937. This analysis can be further improved by the compilation of more representative statistics for nearly all of the variables; the calculation of regression coefficients in terms of quarterly data, and the careful determination of the optimum lead for each of the independent variables

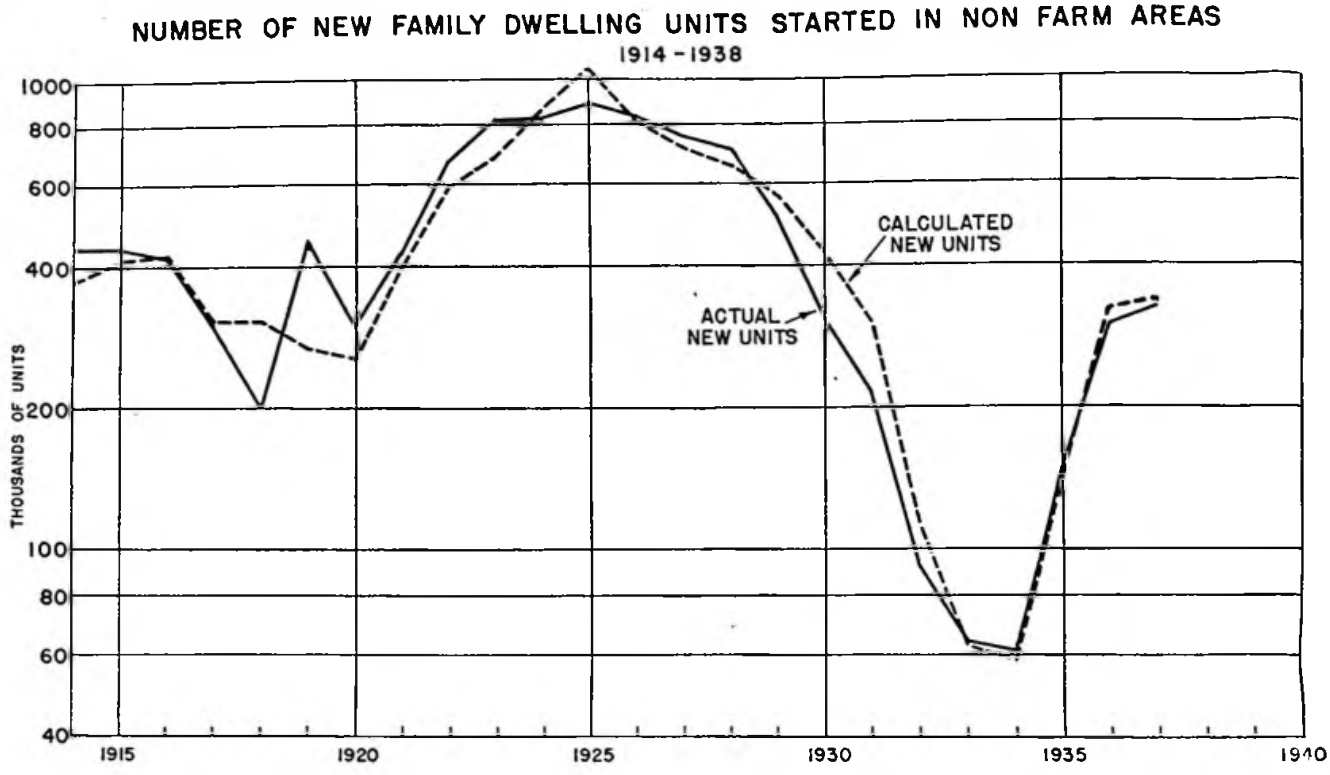

FIGURE 6.

Sources: See table III.

Adjustment of Supply of Houses to Current Demand

Although new residential building in all but the most inactive years is a large and highly important branch of industrial activity, it stands in relation to the total housing supply as a comparatively small increment in the number of available units. Even in the peak years of 1909 and 1925, as has already been indicated, the number of new units added only slightly exceeded 4 percent of the then existing supply, and in 1933 and 1934, it fell to less than 0.3 percent of the standing supply.

Residential Building Activity in the United States

Estimates of the number of nonfarm family units upon which construction was started annually in the United States over the period from 1900 through 1938 are shown in table IV. Although satisfactory reports are available as far back as 1900 for only a very few cities, by using considerable care in the weighting of these data it is believed that a fairly reliable measure of the number of dwelling units upon which construction was started has been secured. Based upon the estimates shown in table IV, and with allowances for demolitions and other losses and for conversions, the net increase in dwelling units over the period from 1900 to 1909 is calculated to have been 3,679,000 units. Over this same period using the Census statistics of families and the most likely figure for vacancies in 1900 and 1910, it would appear that the net increase in units should have been approximately 3,664,000. Similar figures for the period from 1910 to 1919, inclusive, were as follows: 4,014,000 units added by building and other changes in the supply and 3,993,000 units as indicated by Census statistics of families and assumed vacancies in 1910 and 1920; and for the period 1920 to 1929, inclusive, as follows: 6,494,000 units added by building and other changes, and 6,585,000 units as indicated by Census statistics of families and assumed vacancies in 1920 and 1930.

Estimates of the dollar value of the annual expenditures for new residential construction over the period 1900–1937 and for the maintenance of residential structures over the period 1915 to 1937 are shown in table V. In comparing the magnitude of the expenditures over the entire period, it should be observed that building costs in 1915 and prior years were roughly half of similar costs during the 1920 to 1930 decade and roughly two-thirds of the costs during the years 1932 to 1936 inclusive. It should also be observed that the number of nonfarm families in 1900 was less than half of the corresponding number in 1930.

TABLE IV.—*Number of family units upon which construction was started annually in nonfarm areas in the United States, 1900–1937*

[Thousands]

Year	Family units	Year	Family units
1900	240	1919	460
1901	340	1920	300
1902	360	1921	432
1903	400	1922	676
1904	440	1923	814
1905	480	1924	827
1906	480	1925	894
1907	440	1926	841
1908	440	1927	767
1909	580	1928	713
1910	500	1929	510
1911	480	1930	303
1912	520	1931	219
1913	460	1932	94
1914	440	1933	64
1915	440	1934	62
1916	420	1935	149
1917	300	1936	300
1918	200	1937	327

Preliminary figure for 1938 is 360.

Source: Construction and Real Property Section, Division of Economic Research, Bureau of Foreign and Domestic Commerce.

The estimates shown in table IV for the number of family units upon which construction was started annually in nonfarm areas in the United States from 1900 through 1914 were obtained from a compilation based upon published municipal reports for individual cities and upon the returns from questionnaires sent to a large number of cities. In this manner, data showing the dollar value of residential construction separately were obtained for 24 cities in the United States from 1900 to 1905; 31 cities over the period from 1905 to 1910; and 40 cities over the period 1910 to 1915. Using these data and making proper allowances for differences in geographic divisions and city size, an index of the dollar value of residential building was calculated for the period from 1900 to 1915, inclusive. This index was deflated for price changes using the American Appraisal Co. index of cost of wood-frame construction which was the type predominantly built over this period. Previous estimates of the number of dwelling units built in the United States for the year 1915 were extended to earlier years using the year-to-year changes indicated by the index arrived at in the above manner. The basic data used in making these estimates for the years 1921 to 1937 are the building permit reports compiled by the United States Department of Labor.

A discussion of the method used in arriving at these estimates for the period 1915 to 1937 appears in an article by the author on "Economic Factors Related to Residential Building," *The Annals of the American Academy of Political and Social Science* March 1937, pp. 24–36. Similar estimates covering the period 1920–36 have also been compiled by David L. Wickens and Ray Foster, *National Bureau of Economic Research Bulletin No. 65.*

TABLE V.—*Expenditures for residential construction in nonfarm areas in the United States, 1900–1937* [1]

[Thousands of dollars]

Year	New construction		Maintenance	Total
	Private	Public		
1900	$350,000		(2)	
1901	470,000		(2)	
1902	560,000		(2)	
1903	620,000		(2)	
1904	700,000		(2)	
1905	880,000		(2)	
1906	990,000		(2)	
1907	980,000		(2)	
1908	920,000		(2)	
1909	1,130,000		(2)	
1910	1,150,000		(2)	
1911	1,010,000		(2)	
1912	1,160,000		(2)	
1913	1,110,000		(2)	
1914	1,010,000		(2)	
1915	989,000		$340,000	$1,329,000
1916	1,108,000		350,000	1,458,000
1917	943,000		370,000	1,313,000
1918	717,000	$28,000	380,000	1,125,000
1919	1,599,000	14,000	400,000	2,013,000
1920	1,609,000		420,000	2,029,000
1921	1,759,000		450,000	2,209,000
1922	2,832,600		480,000	3,312,600
1923	3,757,400		510,000	4,267,400
1924	4,300,100		560,000	4,860,100
1925	4,583,600		610,000	5,193,600
1926	4,590,600		660,000	5,250,600
1927	4,288,600		710,000	4,998,600
1928	3,961,400		760,000	4,721,400
1929	3,423,700		820,000	4,243,700
1930	2,195,100		840,000	4,035,100
1931	1,395,600		570,000	1,965,600
1932	641,000		420,000	1,061,000
1933	313,900		370,000	683,900
1934	271,800	1,000	450,000	722,800
1935	533,000	9,000	580,000	1,122,000
1936	1,101,300	61,000	760,000	1,922,300
1937	1,393,000	93,000	800,000	2,286,000

Preliminary figures for 1938 are: 1,285,000; 50,000; 800,000; 2,135,000.

[1] For the years 1915–37 see, *Construction Activity in the United States, 1915–37*, Bureau of Foreign and Domestic Commerce, U. S. Government Printing Office, 1938. The difference between the number of family units upon which work was started and the expenditures for residential construction is explained fully in that bulletin.

[2] Data not available.

For residential building alone, adequate statistics are not available for years prior to 1900. However, total building permits in a number of urban areas since 1830 are available and appear to have experienced cycles of large amplitude and with durations of 16 to 22 years similar to those shown in table IV for residential building.[9]

In figure 7 there are shown estimates of the percentages of dwelling units in one-, two-, and three-or-more-family structures upon which work was started annually in nonfarm areas corresponding to the totals in table IV.

In view of the limited data available for the years prior to 1920, implicit reliance should not be placed upon the estimates for any particular year prior to that time. They are based, however, upon actual reports for several cities in each year and upon a detailed study of relationships between the characteristics in cities of various size groups in the years for which more complete data are available. The chart is thus believed to disclose with sufficient reliability for all practical purposes the long time trends over the entire period.

The percentage of one-family units shows a clear tendency to decline from nearly 80 percent in 1900 to less than 60 percent in 1916 followed by an interruption during the war and immediate postwar years and only slight changes from 1922 to 1928. Since the latter year, the increasing proportion of single-family units is conspicuous, indicating that the greatest rate of decline in building during the years of declining volume from 1928 to 1934 was in other than one-family structures. In 1936 and 1937, the family units in new one-family structures represented approximately 75 percent of all units built in nonfarm areas in those years. The percentage of units in two-family structures increased fairly steadily from 1900 to the war period and has

[9] John R. Riggleman, "Building Cycles in the United States, 1875–1932," *Journal of the American Statistical Association*, June 1933, pp. 174–183. Further unpublished investigations which Mr. Riggleman has very kindly made available indicate that similar fluctuations also occurred in earlier years.

declined fairly steadily since that time. The percentage of units in multi-family structures increased from 10 percent in 1900 to more than 30 percent in 1928; then declined to approximately 5 percent in 1932; and was approximately 20 percent during 1936 and 1937, years of moderate building revival.

Conversion, Demolition, and Other Changes in the Supply

Changes in the available supply of housing depend not only upon new building but also upon such factors as the conversion of large single-family houses to multi-

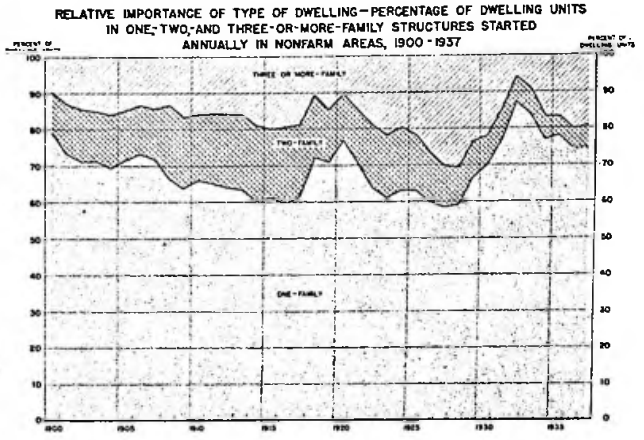

FIGURE 7.

Source: Construction and Real Property Section, Division of Economic Research, Bureau of Foreign and Domestic Commerce.

For the number of new dwelling units started annually to which these percentages apply, see table IV of this section.

For the years 1920 to 1937, inclusive, the percentages of dwelling units in one-, two-, and three-or-more-family structures were estimated from the Bureau of Labor Statistics permit data covering most of the cities over 25,000 population and in recent years for an additional number of smaller cities. The cities for which reports are not available were assumed to have the same percentage distribution as reporting cities of the same size. The percentage distribution in the small towns and villages (for which reports have not been made until quite recently) was based on the 1930 percentage distribution of occupied dwellings by types in small towns and villages, as reported by the Bureau of the Census. It was assumed that the several types of construction in the small towns and villages bore the same ratio to these types of construction in the smallest cities reporting permits as that which existed between occupied dwellings by types in these two size groups of cities in 1930. Prior to 1920 the number of reporting cities is small but believed to be fairly representative. Over this period the reporting cities were weighted according to size and geographic location, and adjustments were made for the fact that identical cities did not report every year. The percentage distributions by type of structure prior to 1920 were linked to the estimates for later years on the basis of a comparison with the years 1920 to 1923, inclusive.

ple-family dwellings, the conversion of residential structures to other forms of use, principally to stores and offices, and the withdrawal of structures from use by demolition and by destruction through catastrophes such as fire, flood, and tornado. Statistics indicating the net change in the housing supply resulting from conversions are available for only a few cities.[10] It is frequently assumed that the number of family units added by the conversion of large houses to apartments is approximately equal to the number taken out of use by the conversion of residential buildings to other purposes. Such information as is available, however, indicates that there was an appreciable net increase in units by this process over the period covered by these statistics, averaging possibly 50,000 units annually over the period 1920 to 1930 and some 30,000 units annually in 1934 and 1935.

The demolition of residential structures in the United States in the past has been at a very low rate and over the period from 1920 to 1930 probably did not average more than 30,000 family units per year in all nonfarm areas.[11] In the majority of cases during this period, demolitions occurred in connection with changes in land use from residential to commercial or other purposes. Only infrequently (prior to the last few years) have submarginal structures actually been taken down solely because they were no longer in demand. During the past four or five years, the rate of demolition has been substantially increased through the action of municipal authorities in prohibiting the occupancy of structures unsafe or otherwise unfit for use. In 1934 and 1935, this number averaged possibly 60,000 units annually, or twice the number taken out of use annually in the period from 1920 to 1930. The assistance of the Federal Government in the removal of such structures without cost to their owners has also accelerated the rate of demolitions.

Withdrawal from use as the result of fire, flood, tornado, or other catastrophe may be estimated at approximately thirty thousand family units annually in nonfarm areas over the period from 1920 to 1929.[12]

Up to the present time in the United States, average net changes by conversion, demolition, and other withdrawal from use have thus been small in comparison with the number of new units built annually. During the decade from 1920 to 1929, the number of units

[10] The Bureau of Labor Statistics in its annual reports on *Building Permits in the Principal Cities of the United States* published the number of families affected by alterations that changed family accommodations each year in the period 1921 to 1927, inclusive. The number of cities included in these reports varied from 35 to 67. Conversion figures have also been published for Philadelphia by the Philadelphia Housing Association in its bulletin *Housing in Philadelphia, 1932* for each year from 1923 to 1932 inclusive. The number of family units created by remodeling were determined in *The Real Property Inventory of the Cleveland Metropolitan District* by Howard Whipple Green for Cleveland and its environs from 1932 to 1936, inclusive. These three sources were the bases for the estimates of conversions.

[11] Demolition rates estimated for the purpose of this chapter vary from 2.5 units per 10,000 population in 1926 and 1928 to 6.0 units per 10,000 population in 1935. Frank J. Hallauer of the United States Forest Service uses a demolition rate of 5.0 units per annum per 10,000 based upon 1920 population for his computation covering the period 1920-30: "Population and Building Construction," *Journal of Land and Public Utility Economics*, Feb. 1934, pp. 35-41, and Feb. 1936, pp. 12-18.

Demolition data were obtained from the following sources: A Bureau of Labor Statistics survey in 1937 covering more than 100 cities over the period 1929 through 1935 and annual reports for 32 cities over the same period; the Philadelphia Housing Association in its bulletin *Housing in Philadelphia, 1932* for each year, 1923 through 1932; the Annual Reports of Tenement House Department of the City of New York, covering multi-family units in New York City from 1918 through 1936; and the *Real Property Inventory of the Cleveland Metropolitan District*, for 1932 through 1936.

[12] *Report of the Committee on Statistics and Origin of Fires*, National Board of Fire Underwriters, New York, May 28, 1936, p. 5; "American Homes Unnecessarily Sacrificed to Fire," *Fire Prevention Yearbook*, 1925, p. 7.

withdrawn from use by all causes probably did not exceed 10 percent of the number of new units built.[13]

A year-to-year comparison of the net increase in the number of families and the net increase in the supply of dwelling units resulting from building, demolitions, and other withdrawals from use and from conversions is given in figure 8. The corresponding number of total nonfarm families and total available nonfarm housing units at the beginning of each year are shown in table VI. This table indicates that adjustments in the number of units, as might be expected, occur rather slowly. Following the peaks in the number of families, the additions to the number of available units (largely due to new building) tend substantially to exceed the current needs. This phenomenon of over-building in periods of declining demand may be clearly observed in figure 8. Building reached a peak in 1910, 3 years after the largest increase in families in that period. The peak in actual building in 1926 also occurred 3 years after the peak in the annual increase in families in 1923.

Similarly, after the turning point in the increments in demand in terms of families in 1918 and 1932, building failed to respond immediately. The ratio of families to available housing units continued to increase in the earlier period for 5 years and, more recently, in 1938 was still increasing after an interval of 5 years. This delay in the adjustment of building to changes in the annual increments in families arises in part from excess vacancies which have to be worked off in such periods, and in part from the slowness with which property owners and builders fully realize that changed conditions exist. The latter was true in 1919 through 1921 and was equally true in 1938. One of the most important measures that can be taken to improve this adjustment of additions in the supply to meet changes in demand is the development of adequate statistical measures of vacancies in all cities of any considerable size in the United States. The development and prompt analysis of these vacancy statistics should prove extremely helpful in lessening both the shortages and over-building which appear to have occurred fairly regularly in the United States for more than one hundred years and appear to be characteristic of building in many other countries. Vacancy data and demographic statistics such as those for marriages, divorces, and migration are particularly inadequate in the United States at the present time.

Vacancy statistics, although available in only a very limited number of cities, have been developed increasingly, particularly since 1930. Using only the cities for which vacancy surveys have been made in two or more consecutive years, there has been compiled the

[13] For a careful discussion of this subject see George Terborgh, "Present Situation of Inadequate Housing," *American Economic Review*, March 1937, pp. 169-174.

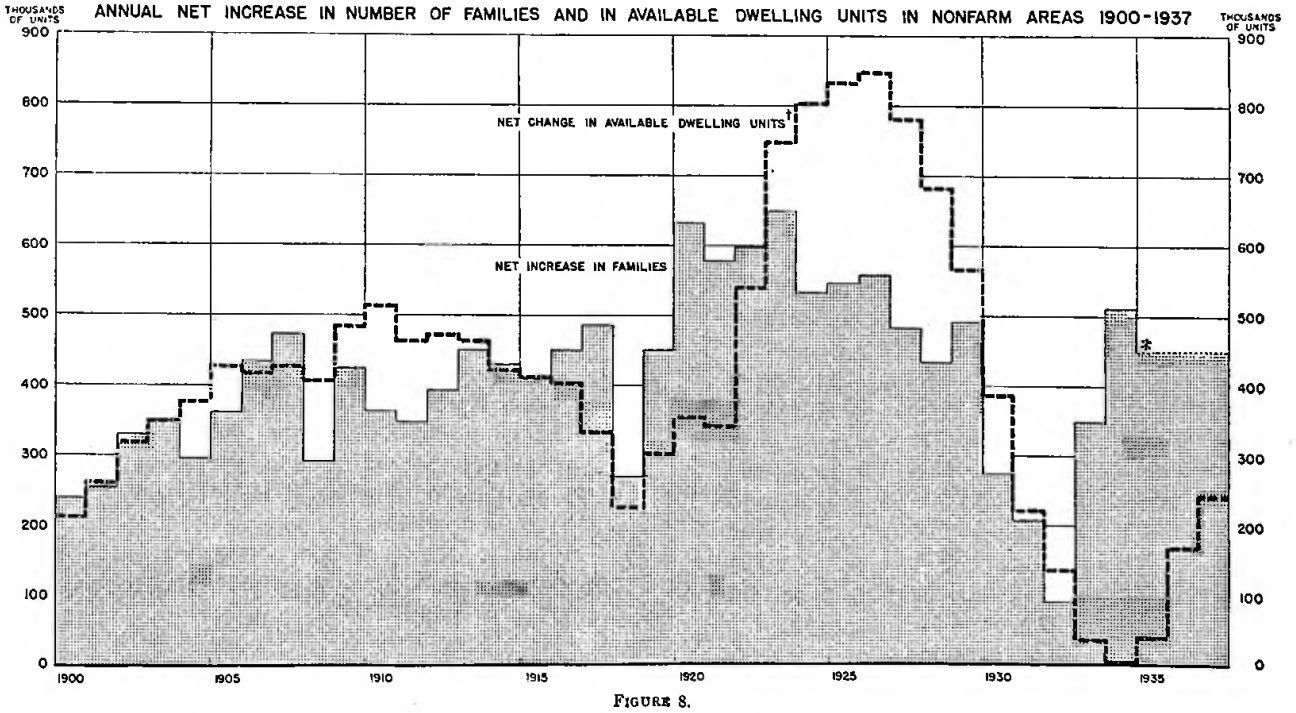

FIGURE 8.

Source: Construction and Real Property Section, Division of Economic Research, Bureau of Foreign and Domestic Commerce.

†Represents new units built plus units added by conversions minus units demolished minus units taken out of use by fire and other catastrophe.

*Estimated average annual increase in nonfarm families, 1935-40.

Estimates of net change in available dwelling units in 1934, 1935, 1936, and 1937 were revised slightly, subsequent to preparation of chart. See table VI for correct figures upon which calculations are based.

TABLE VI.—*Total families and total available housing units in nonfarm areas in the United States by years, 1900–1938*

Year, Jan. 1	Total nonfarm families [1]	Total available housing units	Ratio of families to available units [1]
	Thousands	*Thousands*	*Percent*
1900	10,025	10,285	97.47
1901	10,264	10,497	97.78
1902	10,519	10,758	97.78
1903	10,849	11,077	97.94
1904	11,199	11,426	98.01
1905	11,494	11,804	97.37
1906	11,855	12,231	96.93
1907	12,289	12,647	97.17
1908	12,781	13,074	97.61
1909	13,052	13,480	96.82
1910	13,477	13,964	96.51
1911	13,840	14,478	95.59
1912	14,188	14,942	94.95
1913	14,581	15,415	94.59
1914	15,032	15,878	94.67
1915	15,462	16,301	94.85
1916	15,872	16,714	94.96
1917	16,323	17,117	95.36
1918	16,809	17,451	96.32
1919	17,078	17,677	96.61
1920	17,529	17,978	97.50
1921	18,161	18,331	99.07
1922	18,739	18,673	100.35
1923	19,337	19,212	100.65
1924	19,987	19,959	100.14
1925	20,519	20,761	98.83
1926	21,065	21,593	97.55
1927	21,623	22,441	96.35
1928	22,104	23,222	95.19
1929	22,638	23,906	94.28
1930	23,028	24,472	94.10
1931	23,303	24,858	93.74
1932	23,510	25,078	93.75
1933	23,601	25,213	93.61
1934	23,952	25,248	94.87
1935	24,467	25,252	96.89
1936	24,922	25,302	98.50
1937	25,377	25,494	99.54
1938	25,832	25,779	100.21

Source: Construction and Real Property Section, Division of Economic Research, Bureau of Foreign and Domestic Commerce.

[1] As indicated in the footnotes to table 1, the term "families" differs from actual households. The latter can never exceed the number of available units. The number of families, as used here, however, in periods of acute shortage may result in doubling of two or more families into one household. The ratio of families to available units in such periods may be greater than unity.

index of residential vacancies shown in figure 9. The percent of units vacant shown in this figure is somewhat lower than that disclosed in real property inventories in 1934, 1935, and 1936. The real property inventories in nearly all cases included all standing units designed for dwelling purposes regardless of whether they were then fit or available for occupancy. The vacancy surveys, made for the most part by real estate boards and chambers of commerce in various cities, frequently with the assistance of postal department mail carriers, cover in nearly all cases only the units which are habitable and available for use. These surveys are made in the several cities at different times throughout each year. Annual and semiannual averages fail to disclose significant interim changes, and the usual quarterly periods are quite unsatisfactory since their turning points at the end of March and September come at the middle of the active spring and fall moving periods. Consequently, for the purposes of computing the data shown in figure 9, the reports have been classified into three groups, those made during January to April, May to August, and September to December, inclusive.

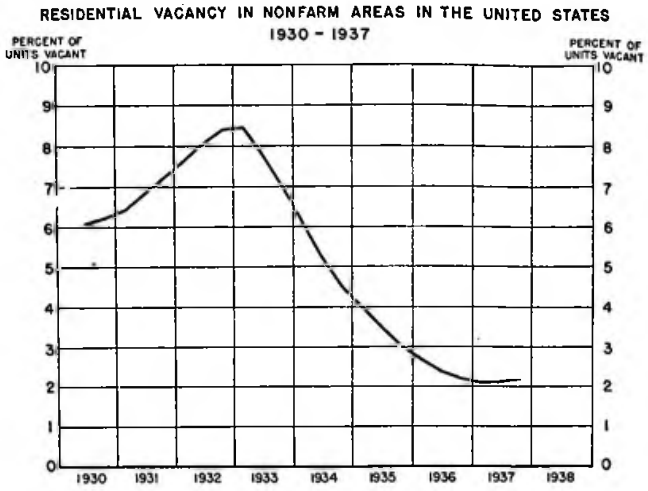

FIGURE 9.

Source: Construction and Real Property Section, Division of Economic Research, Bureau of Foreign and Domestic Commerce.

Changes in vacancies result not only from differences in the relative number of units in relation to the changes in the number of "families" but also include and are markedly influenced by changes in the rate of doubling of two or more actual families into larger households. The increase in vacancies from 1930 to the latter part of 1932 may be attributed largely to the doubling of families over this period and to some net migration back to farm areas during the year 1932. The decline in vacancies since 1932 has been due both to the undoubling of families and to a rate of increase in the actual number of families much greater than the number of units added.

Prospective Future Increments in Demand

Statistical measures of the physical needs for dwelling units, as well as forecasts of housing requirements a number of years in advance, have been made by some writers, based largely upon population and population increments with allowances for a changing number of persons per family.[14] It is believed that conjecture based upon such measures and classification as marital status, sex, race nativity and age composition of the population projected into future years, will also yield useful results.

[14] Warren S. Thompson, "Population Growth and Housing Demand," *The Annals of the American Academy of Political and Social Science*, March 1937, pp. 131–137. Frank J Hallauer, "Population and Building Construction," *Journal of Land and Public Utility Economics*, February 1934, pp 35. 41, and February 1936, pp. 12-18.

In table VII are shown estimates of the prospective number of families in the United States by 5-year periods from 1940 to 1960. For purposes of comparison, the table also gives the corresponding figures for earlier years based upon Census enumerations and the interim year estimates shown in table I. In view of the tendency of Census statistics by single-year age groups to cluster about 5 and 10 year ages, it was not believed desirable to calculate prospective increments in families by single years as was done for the years from 1900 to 1935 using other methods. (See table I.) Moreover, statistics of this character measure essentially long-term trend changes and have little validity in terms of single-year expectations.

The estimates of the prospective number of private families on January 1 of each 5-year period 1940 to 1960 are based upon estimates by Thompson and Whelpton of the future population of each race-nativity group by sex and by 5-year age groups. (*Population Statistics, Pt. I, National Data*, material prepared for *Problems of a Changing Population*, National Resources Committee, October 1937, Government Printing Office.) The population estimates by Thompson and Whelpton have been made on several assumptions. For the purposes of this study, the estimates calculated assuming medium fertility and medium mortality were used. Recent studies by investigators in this field indicate that this basis of estimation may result in future populations somewhat larger than are likely, but that the excess of such estimates over more likely values is roughly equal to the prospective net immigration. Consequently, the slight net immigration which may be realized over this period has not been included in the calculations of the figures shown in table VII. In so doing, it is believed that the most likely future population estimates readily available have been secured. To each of these population estimates for 5-year age groups, by sex and by each of four race-nativity groups, there were applied 1930 age-specific marital status ratios to determine the prospective number of persons in each marital status at each of the 5-year periods from 1940 to 1960. To the number of persons in each marital status in the several groups indicated above, there were applied head of family ratios to determine the number of families which might be expected in each period. The aggregate of the number of prospective families in the several groups gives the total number of families likely to exist at each 5-year period from 1940 to 1960.[15]

The head of family ratios used were derived from the 1930 census. If the number of family groups consisting of more than one married couple living together tends to decrease in the future, the number of separate households will tend to be higher than those shown in table VII. Also, if the percent married in future years tends to be higher than that in 1930, the number of prospective families will tend to be higher than that shown in the table. The converse results would naturally follow from opposite assumptions.

TABLE VII.—*Number of families in the United States by 5-year periods as of Jan. 1, 1900–1960*

[Thousands]

Year	Nonfarm families	Farm families	Total families	Average annual increase 5-year period beginning in year shown
1900	10,025	5,951	15,976	360
1905	11,494	6,280	17,774	462
1910	13,477	6,608	20,085	436
1915	15,462	6,804	22,266	405
1920	17,529	6,762	24,291	577
1925	20,519	6,656	27,175	519
1930	23,028	6,740	29,768	[1] 412
1935	[1] 24,467	[1] 7,360	[1] 31,827	[1] 479
1940			[1] 34,221	[1] 474
1945			[1] 36,591	[1] 452
1950			[1] 38,850	[1] 405
1955			[1] 40,877	[1] 354
1960			[1] 42,619	

Source: Construction and Real Property Section, Division of Economic Research, Bureau of Foreign and Domestic Commerce

[1] See footnote 3, table I.

[1] Estimated prospective figures.

Estimates of the prospective number of families derived from actual measures of the present age composition of the population by fairly homogeneous groups, together with estimates of the probable expectation of life and known data on percent married and head of family ratios in a given year, notwithstanding their uncertainties, are believed to result in measures of future increments highly useful for practical purposes of appraising prospective needs for shelter and other requirements of economic society.

An estimate of the number of families on January 1, 1935, using the methods outlined above, indicated a prospective increment from 1930 to 1934, inclusive, averaging 425,000 annually. During the depression years, however, some marriages were delayed and a substantial doubling up of families occurred. The number of families actually added over this period as indicated in table VII averaged 412,000 annually or somewhat less than the prospective increment, very likely due to the delayed marriages during these years. The number of actual households in the United States, as determined by using available vacancy data, appears to have increased over these years at the average rate of 350,000 annually, reflecting the substantial increases in doubling of families in the depression years.

Trends in the prospective increments in families shown in figure 10 and in table VII indicate a substantial

[15] Unpublished estimates using somewhat similar methods have also been compiled by Frank Lorimer of the National Resources Committee and George Terborgh of the Division of Research and Statistics, Board of Governors of the Federal Reserve System.

annual increase for a decade or more in the physical need for dwelling units. In nonfarm areas, the corresponding increase of families may be slightly less than the figures shown for total families in table VII, depending upon the extent of the prospective internal migration.[16] Based upon these data, it is very roughly estimated that there may be required annually an average of approximately 550,000 dwelling units in nonfarm areas and possibly 40,000 units in farm areas during the present 5-year period ending in 1944. This includes those necessary for the replacement of units taken out of use and allows for conversions in nonfarm areas.

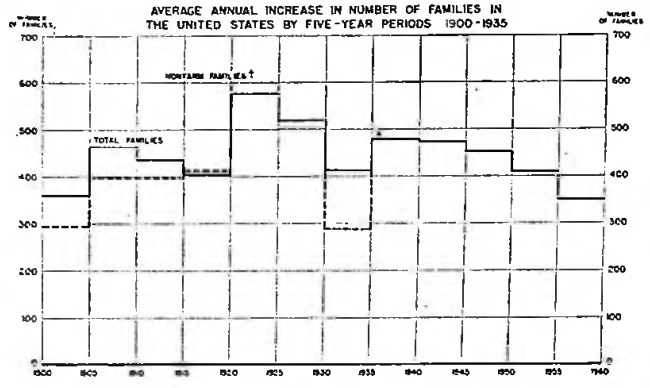

FIGURE 10.

Source: Construction and Real Property Section, Bureau of Foreign and Domestic Commerce. See footnotes 1, 2, and 3, table I.

*Based on estimated prospective figures of the number of families by 5-year periods, 1940–60.

†The increase in total families is the sum of the increases in nonfarm and farm families. Therefore, when there is a decrease in farm families, the increase in nonfarm families exceeds the increase in total families. See footnote 2, table I.

The prospective increments in families, although declining slightly, remain large during the following period, 1944–49. A decline in each subsequent quinquennium also is indicated, falling in 1955–59, to the lowest rate over the 60-year period for which these statistics have been compiled. In view of the fact that many other important factors must be considered, these data do not provide an adequate basis for a forecast but do measure one of the major factors influencing the trend in the production of new dwelling units. As far as actual building is concerned, it is likely that economic influences such as family income and costs of ownership may accentuate the prospective trends suggested by the changes from period to period in the number of families shown in table VII. Past experience also indicates that the peaks in building tend to lag a year or more after the peaks in demand.

[16] According to the revised estimates of the U. S. Bureau of Agricultural Economics, release dated Oct. 27, 1936, the net migration from farms to cities, towns, and villages averaged 630,000 persons per annum over the period from 1920 through 1929. Beginning in 1930, it declined rapidly, but actual reversal of migration, i.e., a net movement to farm areas, occurred in only one year, 1932. During 1935, the net movement to cities, towns, and villages had again reached a very large number—386,000 persons.

The above conjecture upon the future demand is thus stated solely in terms of increments in families without allowances for trends in family income and in competing items of expenditure. The number of families appears to be one of the most important elements of demand as indicated by the high coefficient of net regression between rents and the ratio of families to available units in the equation shown on page 6. Future estimates of families also appear to be the only element upon which quantitative measures for future years are possible with our present knowledge of social behavior.

Methods by Which Government May Supplement Private Enterprise

Public action in economic affairs is not only possible but at many points is an integral part of the social process. Economic institutions and practices are to a considerable degree defined in the legal pronouncements and administrative practices of government. These institutions and practices touch residential building at many points. Laws relating to the ownership of property and to the enforcement of mortgage and other obligations resting upon real property; the regulation of banking and other agencies for the extension of credit; the formation and enforcement of building codes in their influence upon technical methods and technological change; the taxation of property and of income; municipal regulation of existing structures to the end of maintaining public health and safety—all illustrate the far-reaching relationship between public action and residential building.

Although it is true that private enterprise operates essentially within an economic structure to a considerable degree defined by government, every change in public action or effort by government to supplement private enterprise has its repercussions upon the general economic process. Consequently, unless private enterprise is to be completely supplanted, any action by either public or private agencies to be effective must give careful consideration to the manner in which economic society operates under present laws and social customs.

In this section, it is not possible to discuss in any detail governmental action in relation to residential construction. There are merely mentioned here a number of the processes by which government or other collective action or individual philanthropy may supplement the usual processes of private enterprise:

1. Direct ownership of housing projects by government bodies or by other public corporations, Federal, State, or municipal.

2. Loans or grants by government to private or to other public agencies.

3. Regulation of limited profit associations.
4. Establishment or regulation of financing agencies.
5. Police power regulation: health, sanitation, safety, and building codes, zoning, industrial legislation relating to building trades workers.
6. Land development under direct government ownership.
7. Technical research in building materials and methods.
8. Technical design and inspection.
9. Promotion by government of cooperative relations between all elements of building process—design, finance, labor, production of materials, property owners, and others.
10. Remission of property taxes in whole or in part.
11. Provision of market information—vacancy data, rent indexes, financial and other business statistics, statistics on families and family income.

Summary of Building Trends and Related Influences

The primary purpose of this section has been to outline the economic and other social conditions which have influenced residential building in the United States during recent decades. As has been indicated at several points, the discussion is essentially an introduction to this broad problem. It contains a number of new statistical series and careful listing of the various influences and a preliminary formulation of some of the relationships in quantitative terms.

In this discussion of economic and other social influences, the attempt has not been made to appraise housing needs from a humanitarian point of view, but rather to describe the manner in which our economic society operates. The study is thus essentially one of observing the economic behavior of the nonfarm population of the United States during the past four decades as regards the manner in which it provides new domestic shelter.

A more precise quantitative formulation of this process remains to be completed in a continuing study of this problem. An observation of the relationships which exist between such influences as increases in families, family income available for shelter, building costs, financing costs, and taxes, and the rate of construction of new housing units indicates that it is possible to formulate this relationship in quantitative terms sufficiently precise for many practical purposes.

Insofar as building is determined by the free play of social forces in an economy not subject to material change, it is believed that some indication of future trends might be made from time to time, particularly if suitable statistics upon vacancies, rents, and other measures of the market for residential shelter, as well as statistics upon the distribution of family income and the migration of families could be made available. However, if institutional practices such as public policy with regard to the extension of credit, taxation of residential properties, or indirect Government subsidy to residential construction, change greatly, any conjecture with regard to the prospects of the future must be altered accordingly.

There is some justification for assuming cyclical regularity in the long-time fluctuations in residential building. A number of studies indicate that the period of these cycles may be about 18 to 20 years in the United States. However, the causation of these cyclical fluctuations has never been clearly established, and two of them appear to be influenced greatly by violent fortuitous changes, namely, the Civil War and the World War. Although the regularity of these cycles has some reasonable likelihood, great reliance should not be attached to the precise period of their fluctuations. It is believed that the principal emphasis in any appraisal of prospective residential building should be given to the current trends in the economic and other social influences which possess a close, logical, and measurable relationship to this branch of construction.

LEGAL PROBLEMS IN THE HOUSING FIELD

PART 1. PRIVATE HOUSING LEGAL PROBLEMS

By Horace Russell[1]

Successful operation of Federal legislation in aid of private housing finance requires complementary action by the states. Analysis of state laws on mortgages, foreclosures, mechanics' liens and methods of title proof indicates the need for less expensive and cumbersome procedures. The diversity of such legislation hampers the development of a national mortgage market. State supervision of home financing institutions needs study, as do the levying and collecting of taxes.

Federal Legislation to Facilitate Private Housing

Prior to the passage of the Federal Home Loan Bank Act of 1932, the interest of the Federal Government in the financing of private housing was slight and sporadic. The Commissioner of Labor, for example, in 1893 made a survey of the building and loan industry at the direction of Congress.[2] The War Finance Corporation, created in 1918, was authorized to make loans to building and loan associations, but only two loans in a total amount of $300,000 were made under this authorization. The United States Housing Corporation, another war-time agency, was created to build, for rent or resale, housing to accommodate those persons engaged in war industries.

A number of problems resulting from the World War brought forth the suggestion of permanent Federal assistance for housing and housing finance. There was a shortage in urban housing, and rents were high. There was a shortage in long-term mortgage credit for purposes of home financing. A third problem was the unemployment incident to industrial and military demobilization.

The Department of Labor felt that a possible solution of all three lay in making credit available to prospective home builders. If credit could be obtained, homes might be built, the shortage in homes diminished, rents lowered, and the unemployed put to work.

Subsequently, the Department of Commerce prepared a bill to establish Federal Home Loan Banks, which would offer a credit reservoir for private home financing institutions. This bill was introduced by Senator Calder in 1919. Opposition centered on the exemption from taxation of the bonds of the proposed banks and on the competitive advantages which the proposal would give to building and loan associations. The bill failed of enactment although it was reintroduced in several succeeding congressional sessions.

While Secretary of Commerce, from 1921 to 1928, Herbert Hoover developed an interest in the proposed Federal Home Loan Bank System. When a candidate for the Presidency in 1928, he pledged himself to sponsor legislation directed to this end. In 1931, he called the National Conference on Home Building and Home Ownership in order to arouse public support for the proposal and create a better understanding of the problems involved. This conference unanimously endorsed the proposal to establish a system of home loan discount banks, and in his message to Congress in December 1931 the President recommended the establishment of such a system. A bill to effectuate the recommendations of the President became law on July 22, 1932.[3]

It was just at this time that the full force of the depression was being felt. By March 1933, more than 500,000 families had lost their homes through foreclosure, and a million others were faced with the same fate. The same conditions that had brought about these results had prostrated the home financing institutions. Back of the collapse of home ownership and home finance were conditions more fundamental than the depression itself. The basic defects were in the mortgage structure and the sense of insecurity which those weaknesses gave both to home owners and to those whose small savings were invested in mortgages, directly or indirectly. The depression simply revealed the defects and showed the need of safeguard against panic in mortgage finance.

There were eight main defects which undermined the mortgage system prior to 1932. First was the general use of short-term mortgage loans, which had to be refinanced every few years with high commissions and financing charges. Second was the general practice of lending only a small amount on the security of the

[1] Horace Russell is General Counsel for the United States Building and Loan League. When this manuscript was prepared, he was General Counsel of the Federal Home Loan Bank Board.

[2] For a discussion of the various ways in which building and loan associations have been favored by Federal legislation, see H. M. Bodfish, ed., *History of Building and Loan in the United States* (Chicago: U. S. Building and Loan League, 1931), ch. XIII.

[3] Federal Home Loan Bank Act, Public, No. 304, 72d Cong.

first mortgage, which necessitated junior financing with all the hazards to the borrower which that practice involved. Third was the general use of lump-sum rather than amortized mortgages, which necessitated the borrower repaying the entire amount of the mortgage at one time or refinancing it. Fourth was the prevailing high interest rates generally charged on all such mortgage loans in contradistinction to the low interest rates charged on railroad, public utility, and other types of long-term loans. Fifth was the absence of a steady market for mortgages as a preferred type of investment, due to the lack of facilities for insuring the repayment of mortgage loans and to the lack of a sufficient number of sound mortgage associations operating on a national basis, which would create a market for this type of investment. Sixth was the lack of any credit facilities for home-financing institutions from which such institutions could borrow in order to meet reasonable withdrawal requests of their investors during times of emergency and to meet the usual requirements of their borrowers. Seventh was the lack of any insurance facilities whereby shareholders and depositors in home-financing institutions might be assured of the repayment of their invested funds. Eighth was the absence of proper lending and appraisal practices and procedure and the impossibility of obtaining uniform, cooperative action among thousands of widely scattered local home-financing institutions.

From the first stages of the depression, all these factors worked toward the demoralization of home finance and the destruction of home ownership among the masses of people of small and moderate means.

The urgent task before the private and public authorities, however, when President Roosevelt took office, was to halt the accelerating deflation and thus stabilize the underlying situation. Only when that was done, would it be possible to correct the underlying defects in the structure of home finance.

To deal with this situation, Congress set up the Home Owners' Loan Corporation [4] as an emergency agency to refinance the thousands of mortgages upon which financial institutions would otherwise have been forced to foreclose. This agency saved the homes of over a million people, who were unable to meet the payments on their mortgages during the depression period. Over 3 billion dollars worth of mortgates were refinanced on a 12- to 16-year repayment basis, with amortized monthly payments that the mortgagor could easily meet. Congress also provided 300 million dollars to enable the Corporation to invest in shares or deposits of either State or Federal savings and loan associations.

The work of the Home Owners' Loan Corporation has been solely of an emergency character. A more far-reaching and remedial influence on the mortgage structure has been exerted by the permanent Federal establishments, such as the Federal Home Loan Bank System, the Federal Savings and Loan System, the Federal Savings and Loan Insurance Corporation, and the Federal Housing Administration.

The Federal Home Loan Bank System was set up pursuant to the Federal Home Loan Bank Act discussed above. This bank system provides a place where building and loan associations, savings banks, insurance companies and other institutions, lending upon the security of long-term, amortized home mortgages, may pledge their mortgage paper, and secure additional funds with which to make loans to home owners and meet the withdrawal requests of their investors. It performs a service for institutions dealing in home mortgages similar to that of the Federal Reserve System for commercial banks. This flexibility provides greater liquidity to all home mortgages and at the same time encourages financial institutions to make long-term, amortized loans which the borrower can more easily repay.

The legislation which set up the Home Owners' Loan Corporation established the Federal Savings and Loan System. The purpose was to create a system of home mortgage lending and saving institutions, under regulation of the Federal Government, which would lend to individuals interested in building homes at the lowest rate of interest and under the most approved long-term amortized lending procedure. At the same time, it was hoped to offer the public sound institutions in which to invest funds which would later be used in the purchase or construction of a home. By August 31, 1938, charters had been granted to more than 1,350 Federal Savings and Loan Associations, which have assets totaling more than one billion two hundred million dollars.

The Government has also provided for the insuring of shares and deposits in associations of the building and loan type through the Federal Savings and Loan Insurance Corporation.[5] It is modeled after the Federal Deposit Insurance Corporation and performs for investors and depositors in savings and loan institutions the same function that the Federal Deposit Insurance Corporation does for bank depositors. By August 31, 1938, total savings accounts up to a maximum of $5,000 for each saver in more than 2,040 savings and loan associations are now insured. By this means, the possibility of another panic in this field of finance has been minimized.

The Federal Government not only took the steps outlined above to assist private institutions in meeting the mortgage demands of the country but went further to stimulate the long-neglected modernization of homes

[4] Home Owners' Loan Act of 1933, Public, No. 43, 73d Cong.

[5] Created by the National Housing Act of 1934, Public, No. 479, 73d Cong.

and to provide for greater liquidity in the mortgage market by making possible the insurance of long-term, amortized mortgages, and the chartering of national mortgage associations by the Federal Housing Administration, created in 1934.

Through the Federal Housing Administration, private institutions advancing money for modernization and repair were guaranteed against loss to the extent of 20 percent of their loans made to April 1, 1937. Some one and a half million modernization loans totaling approximately $543,000,000 were guaranteed up to that time. In February 1938, Congress renewed the authority of the F. H. A. to guarantee against losses on modernization loans. The reenactment, however, provided against loss only up to 10 percent of total loans and made other slight changes.

Up to March 1, 1938, more than 215,000 home mortgages amounting to over 880 million dollars had been insured by the Federal Housing Administration. In February 1938, the terms of title II of the National Housing Act, under which mortgages are insured, were liberalized.[6] The mortgage insurance limit was raised on single-family homes costing $6,000 or less from 80 to 90 percent of the appraised value of the property, and on single-family homes costing $10,000 or less to 90 percent of the first $6,000 of value and 80 percent of the remainder, which means, in effect, that the minimum down-payment required of a prospective home owner is reduced from 20 percent to approximately 10 percent of the sale price. The insurance premium was reduced on mortgages covering single-family homes costing $6,000 or less, the mortgages on which are insured before July 1, 1939, from the minimum of one-half percent authorized by the National Housing Act of 1934 to one-fourth percent. The insurance of mortgages on certain large-scale rental properties was authorized. The amendments of 1938 also permitted the insurance of mortgages covering property upon which there is to be constructed one or more multifamily dwellings, or a group of not less than 25 single-family dwellings under certain conditions. As amended, the act requires the insurance premium on all mortgages to be calculated on the basis of the "diminishing balance" of the unpaid principal instead of the original face value of the mortgage.[7]

Through all of this legislation, an effort has been made to remedy the long-existing defects in the mortgage structure by (1) making the long-term, amortized mortgage "the rule instead of the exception," (2) making mortgages more liquid by offering rediscount and insurance facilities to private home finance institutions, and (3) bringing about uniformity in lending procedure.

[6] Public, No. 424, 75th Cong.

[7] The amendments to the housing legislation in 1938 also liberalized title III of the National Housing Act providing for the chartering and operation of national mortgage associations. For a discussion of these changes, see p. 27.

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However, in order effectively to carry out the private housing credit program embodied in the various Federal acts, many changes in State law will be required. For instance, the mortgage and foreclosure laws of the various States must be amended to provide a more simple, uniform, inexpensive, and expeditious procedure; the mechanics' lien laws of the various States must be amended to provide a more simple, definite procedure, which will facilitate rather than impede housing construction, and, at the same time, afford adequate protection to home owners as well as to contractors, subcontractors, architects, engineers, building materialmen, and laborers; a more inexpensive, expeditious method of title examination or proof must be devised; the tax laws of the various States must be amended to prevent these laws from impeding the financing and ownership of homes; and provision must be made for more adequate State supervision of institutions making home mortgage loans so as to protect both investors and borrowers. A discussion of the ways in which State legislation should be amended to facilitate this Federal private housing credit program will be presented in the following pages.

Mortgage and Foreclosure Law

It has long been recognized that the costly, time-consuming, and often unnecessary procedures required in many States by the mortgage and foreclosure laws have hampered mortgage lending and increased the operating expenses of mortgage institutions and, at the same time, have imposed a burden on borrowers by forcing the lenders to charge higher interest rates and lend a smaller amount on the security of properties than would have been necessary under more expeditious and equitable statutes. These procedures and the diversity between the mortgage and foreclosure laws of the various States have greatly impeded the flow of mortgage money across State lines, thereby fostering high interest rates in those States where there is a demand for mortgage money.

The participation of the Federal housing finance agencies [8] in the field of mortgage lending on a Nation-wide basis during the past few years, with their emphasis on long-term, amortized, single mortgages, has brought a clearer recognition of the costly and unnecessary procedures required by the mortgage and foreclosure laws of many of the States, the diversity among them, and their effect on mortgage lending.

[8] Federal agencies which made mortgage loans prior to 1938 are the Home Owners' Loan Corporation, the Farm Credit Administration, the Reconstruction Finance Corporation, and the Farm Security Administration (formerly the Resettlement Administration). Federal agencies, in addition to these, which are vitally interested in mortgage lending are the Federal Home Loan Bank Board, by reason of its supervision of private home mortgage lending institutions; the Federal Savings and Loan Insurance Corporation, by reason of its insurance of the shares of private home financing institutions; the Federal Housing Administration, by reason of its insurance of mortgage loans made by private institutions; and the R. F. C. Mortgage Company, by reason of the fact that it purchases F. H. A. insured mortgages from private lending institutions which originate and service the loans.

Diversity in Mortgage and Foreclosure Laws

The accompanying maps, figures 1 and 2, based on the lending and foreclosure experience of the Home Owners' Loan Corporation, indicate the diversity in the more important aspects of the mortgage and foreclosure laws of the various States.

The map in figure 1 indicates the type of security instrument generally used in each State. It is to be noted that, in 9 States,[9] the type of instrument in general use is a deed of trust; in 38 States,[10] a mortgage; and, in one, (Georgia) an outright deed.

The map entitled "Real Estate Foreclosure Map," figure 2, indicates the type of foreclosure action in general use in each State. In 29 States,[11] foreclosure is generally accomplished by court action,[12] and in 18 [13] States and the District of Columbia, it is generally accomplished by power of sale.[14] In one (Maine), it is accomplished by notice or publication.

The map entitled "Real Estate Foreclosure Redemption Map," figure 3, indicates the length of the redemption period allowed by the laws of the various States and whether the foreclosed mortgagor-owner or the purchaser at the foreclosure sale is entitled to the possession of the property during the period of redemption.

[9] California, Colorado, Mississippi, Missouri, North Carolina, Tennessee, Texas, Virginia, West Virginia.

[10] Alabama, Arizona, Arkansas, Connecticut, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Maryland, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Utah, Vermont, Washington, Wisconsin, Wyoming.

[11] Arizona, Arkansas, Connecticut, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Utah, Vermont, Washington, Wisconsin, Wyoming.

[12] In 12 of these States, foreclosure in court is required by statute; while in the remaining 17, though not required by statute, this is the customary method usually followed.

[13] Alabama, Georgia, Colorado, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, North Carolina, Rhode Island, South Dakota, Tennessee, Texas, Virginia, West Virginia.

[14] In 11 of these States, no period of redemption follows the sale; while in 7 there is such period.

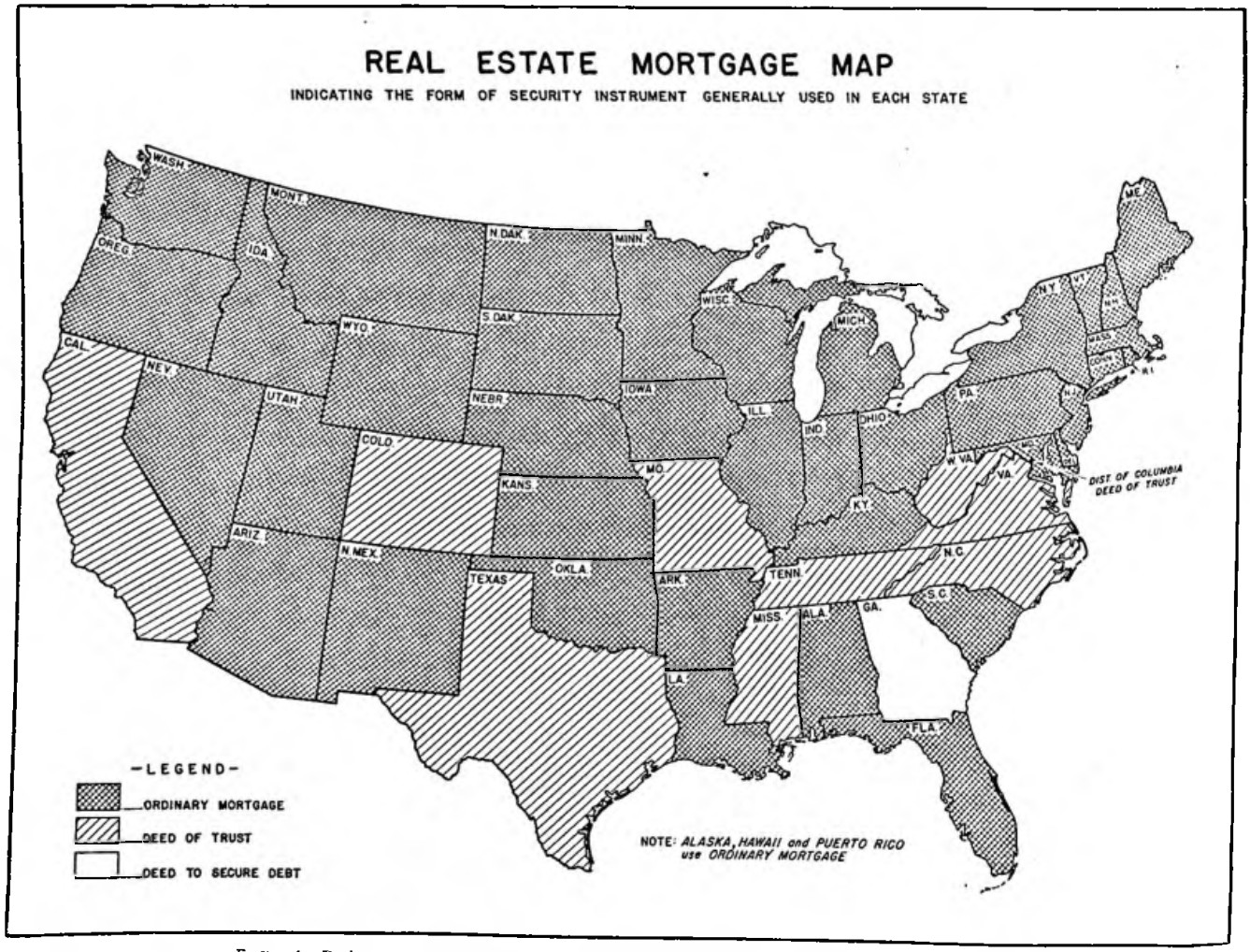

FIGURE 1.—Real estate mortgage map indicating the form of security instrument generally used in each State.

It may be seen from this map that there is no redemption period in 20 States, while in the remaining States the period for redemption ranges up to 24 months. It is also to be noted that in four States,[15] the purchaser at the foreclosure sale is entitled to the possession of the property during the period of redemption; and that in the remaining 24,[16] of the 28 States which provide a redemption period, the foreclosed mortgagor-owner is entitled to the possession of the property during the period of redemption.

It was impossible to bring out in these maps the many other variations in the substantive law of mortgages and foreclosure which affect mortgage lending, such as the interest created by a mortgage and the period of limitations. Nor was it possible to show the extent of, and diversity in, the emergency moratoria legislation passed during the depression, some of which is still in effect or has been reenacted.[17]

Effect of Foreclosure Laws on Mortgage Lending

Tables I and II,[18] which are based on statistics gathered in a recent "Survey of the Foreclosure Operations" of the Home Owners' Loan Corporation,[19] demonstrate the effect which the existing mortgage and foreclosure procedures of the various States have on the cost and time elements involved in foreclosure.[20]

[15] Alabama, New Mexico, Oregon.

[16] Arizona, Arkansas, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, North Dakota, Oklahoma, South Dakota, Utah, Vermont, Washington, Wisconsin, Wyoming.

[17] This legislation may be classified as follows: Laws prohibiting foreclosures and sales thereunder until a certain date or for a reasonable time in the discretion of the courts; laws extending the period of redemption on mortgages in process of foreclosure; and laws either abolishing deficiency judgments after foreclosure or limiting the right to such judgments by requiring the sale price of the mortgaged property to be based on the "fair," "reasonable," "just," or "equitable" value of the property. See 128 CCH 17501.

[18] Reprinted with permission from the *Federal Home Loan Bank Review*, November 1937.

[19] A copy of this survey, which was made by Mr. Henry Beaman, senior attorney, Foreclosure Section, may be obtained on request from the General Counsel, Home Owners' Loan Corporation, Washington, D. C.

[20] One of the most striking examples of the existing diversity in the mortgage and

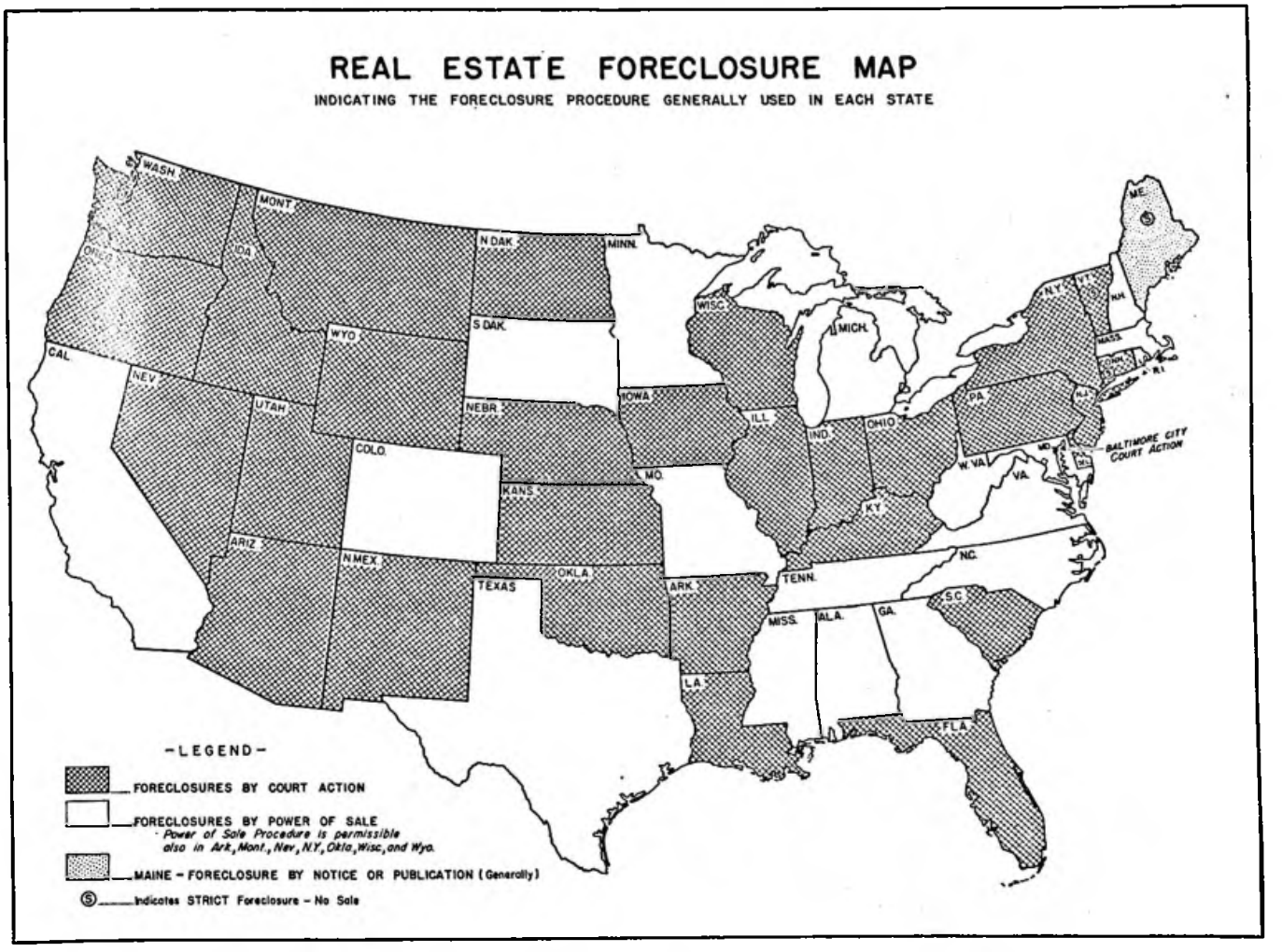

FIGURE 2.—Real estate foreclosure map indicating the foreclosure procedure generally used in each State.

In this survey, a sample of approximately 100 foreclosures was taken in every State and the average cost and time necessary to foreclose computed. Because the Home Owners' Loan Corporation chose, whenever possible, the least expensive and the shortest method of foreclosure, because computed costs did not include the cost to the Corporation of its salaried personnel who supervised the foreclosure proceedings, and because the practicing attorneys who handled the foreclosures agreed to a reasonably small fee because of the volume of business given them, the time and cost elements were probably less than those of privately instituted foreclosures.[21]

Table I sets forth the type of foreclosure action used in each State, the average cost of foreclosure per case, the average cost of foreclosure as a percentage of the total loan amount, and a breakdown of the various elements of cost.[22] The variations in cost are also indicated in figure 4.

foreclosure laws of the various States is found in a metropolitan area which is half in one State and half in another, i. e., Kansas City, Mo., and Kansas City, Kans. In the former city, foreclosure is by exercise of power of sale after 3 weeks' notice by publication. A deed to the property is immediately given to the purchaser at the sale as there is no redemption period unless the mortgagor gives notice that he wishes to exercise such right at the sale and guarantees the purchaser against loss by posting bond, in which event the mortgagor has 1 year in which to redeem. The total cost of foreclosure under this procedure averages about $40. On the other hand, in Kansas City, Kans., there is no provision for power of sale. The action must take place in court and the mortgagor is allowed from 6 to 18 months after the sale to redeem the property. The total cost of this action is approximately $100.

[21] For instance, in a recent *Report of Investigation on Cost and Procedure in Mortgage Foreclosure*, which was a part of a Survey of Real Estate Laws, conducted in 1936 by the Works Progress Administration of New York City as Project No. 352, it was revealed that the average cost of foreclosure in the borough of Queens, City of New York, during the years 1930-35, based on a study of 1,800 typical cases, was $576.03; in Kings County, N. Y., 1933-35, based on 255 typical cases, it was $663.38; in New York County during the same years, based on 433 typical cases, it was $842.08. On the other hand, according to the survey of the foreclosure operations of the Home Owners' Loan Corporation, the average cost of foreclosure in New York City was $380.37, approximately half the average cost given in the Works Progress Administration study of privately instituted foreclosures.

[22] The percentages shown in this table are based upon the total cost of foreclosing on mortgages in each particular State, rather than the average cost. Although the average costs would be preferred in showing the extent to which each item went to make up the total cost, it was impossible to show percentages of the average cost because foreclosures within a State did not always include the same items. Thus in New York, only 23 percent of the total sample included costs for auctioneers' fees or trustees' fees, because in the upstate districts no such fees are charged.

In studying this table, it should also be borne in mind that, since the various elements of cost are expressed in terms of percentages, in some cases certain items might be disproportionately high by reason of the fact that the total cost of foreclosure

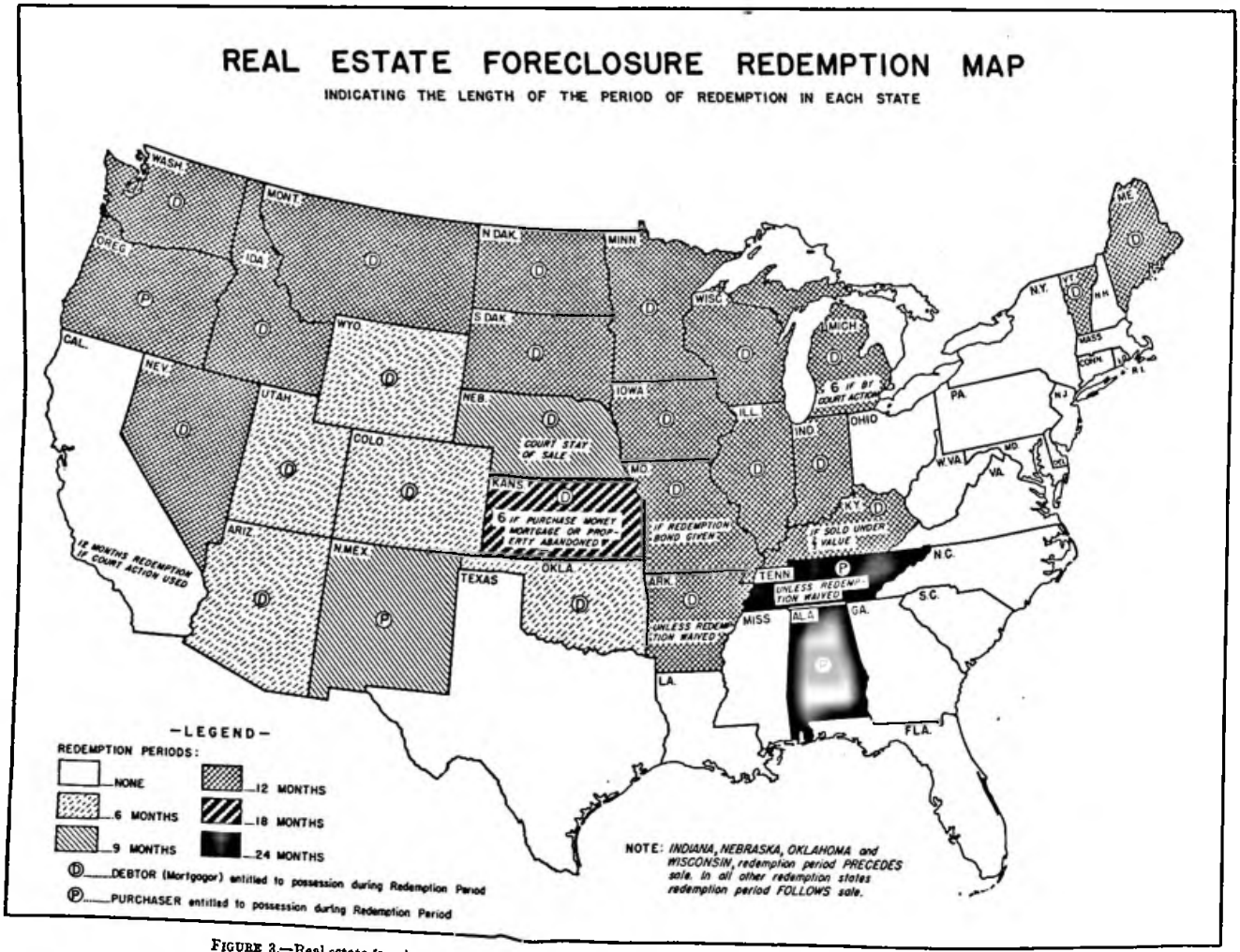

FIGURE 3.—Real estate foreclosure redemption map indicating the length of the period of redemption in each State.

TABLE 1.—*H. O. L. C. foreclosure costs and the type of foreclosure action, by States*

[Based on as near 100 foreclosures as possible for each State]

State	Type of action [1]	Percent of total loan amount	Principal items as a percentage of total costs to H. O. L. C.									Average cost of foreclosure
			Attorney's fees [3]	Advertising cost	Commissioner's, trustee's, and/or sheriff's fees	Court costs	Title search	Auctioneer's fees	Recording fees	Revenue stamps	Master in chancery's fees	Other	
Alabama	P	1.2	69.9	25.0					2.7	2.4			$47.95
Arizona	C	5.4	58.6		18.1	13.4	5.3		1.5	2.3		0.8	202.38
Arkansas	C	5.6	40.6	0.8		37.0	18.6		1.1	1.9			123.18
California	C	4.0	49.9		26.1	8.5	9.4		1.7	3.0		1.4	161.34
Colorado	P	3.6	50.2	9.4	5.0		31.0		1.5	2.9			102.65
Connecticut	C	1.9	63.6			[2] 36.4							111.00
Delaware	C	2.9		52.3		39.6			2.5	1.0		4.6	120.93
District of Columbia	P	1.0		64.7				22.0	3.1	9.1		1.1	68.75
Florida	C	5.2	60.8	7.9	3.6	6.8	9.8		1.1	0.5	9.5		158.16
Georgia	P	1.9	52.5	42.5					2.7	2.3			56.70
Idaho	C	6.0	50.1		29.7	13.1	3.8		0.9	2.1		0.3	170.98
Illinois	C	6.3	34.7	4.8		7.9	13.5		0.3	1.8	34.8	2.2	354.30
Indiana	C	4.6	48.1			[2] 31.1	5.8		0.7	2.7		11.6	185.61
Iowa	C	4.0	59.7	0.5		[2] 30.0	5.5		1.0	3.0		0.3	129.35
Kansas	C	3.7	55.1			34.8	5.4		3.3	1.4			90.88
Kentucky	C	4.2	50.3		36.4	10.0			1.1	1.9		0.3	149.23
Louisiana	C	2.7		31.1	28.0	18.8			11.8	0.9		9.4	116.48
Maine	S	0.6	46.9	47.8					4.9			0.4	21.32
Maryland	P	4.4	31.7	21.9	6.3	22.0			2.5	2.2	5.9	7.5	157.56
Massachusetts	P	0.5		56.9				27.8	15.3				29.08
Michigan	P	1.9	50.3	34.6	3.3	0.1			4.6	6.5		0.6	90.52
Minnesota	P	2.6	61.2	21.4	16.6				0.7			0.1	96.11
Mississippi	P	1.8	59.5	33.4					2.8	4.3			58.81
Missouri	P	0.7		78.5					11.3	10.2			48.40
Montana	C	5.8	75.6		7.6	8.9	4.6		0.9	2.3		0.1	161.74
Nebraska	C	5.4	45.0			47.1	7.1		0.2			0.6	112.19
Nevada	C	3.8	59.8		18.3	13.2	4.4		1.3	2.8		0.2	223.01
New Hampshire	P	2.0	60.6	21.2				7.8	5.8	4.6			70.82
New Jersey	C	4.7	38.0			[2] 62.0							222.29
New Mexico	C	6.9	54.0	11.4		6.8	12.1		0.9	1.5	7.8	5.5	175.38
New York	C	5.9	40.0	17.5		2.3	5.4	2.0	0.7	1.3	29.1	1.7	312.54
North Carolina	P	1.4	55.5	22.5	2.4	[2] 12.8				6.8			64.07
North Dakota	C	4.1	51.8	13.5	13.3	5.7	5.5		4.2	3.0		3.0	114.94
Ohio	C	2.9	39.5		0.2	[2] 49.6	3.6		1.1	3.1		2.9	125.46
Oklahoma	C	4.2	30.7	12.9	10.7	11.3	26.0		1.5	2.1		4.8	130.97
Oregon	C	4.6	56.5		9.7	16.2	12.0		1.5	2.6		1.5	130.37
Pennsylvania	C	3.6	31.8	41.5	4.2	[2] 21.7			0.4	0.4			158.27
Rhode Island	P	0.8		56.4				23.0	10.7	9.9			44.72
South Carolina	C	4.7	50.0	14.0	23.5	10.0		1.2	1.1			0.2	123.25
South Dakota	P	3.1	45.5		43.4		0.7		10.4				70.84
Tennessee	P	2.4	64.5	28.4					3.3	3.6		0.2	77.51
Texas	P	0.2							65.2	34.8			5.18
Utah	C	4.9	66.2		12.8	12.7	3.9		1.4	2.6		0.4	158.33
Vermont	C	2.2	64.4			35.6							97.14
Virginia	P	1.7	42.3	33.0	14.1	0.1			5.4	4.8		0.2	94.48
Washington	C	5.4	55.1		17.1	16.9	7.1		1.1	2.4		0.3	134.40
West Virginia	P	1.2		39.8	46.7	2.6			4.8	6.1			56.93
Wisconsin	C	3.1	52.7			[2] 33.3	10.2			2.9		0.9	169.94
Wyoming	C	7.2	61.7		23.9	3.1	7.9		1.2	1.8		0.4	174.11

[1] Consists of power of sale (P), court action (C), or (S) strict foreclosure by publication with no sale. When any one of these is allowed, that listed has been used principally by the Home Owners' Loan Corporation.

[2] Extra items included in court costs: Connecticut—all items; Indiana—sheriff's fees, advertising cost; Iowa—sheriff's fees and some advertising costs; New Jersey—all items; North Carolina—recording fees; Ohio—advertising fees; Pennsylvania—most recording fees; and Wisconsin—publication for sale, sheriff's fees, recording fees.

[3] Average foreclosure costs do not include attorneys' fees in Texas, Massachusetts, Delaware, District of Columbia, and Rhode Island as foreclosure was handled by H. O. L. C. salaried personnel. Average foreclosure costs do not include a full charge for attorneys' fees in Louisiana, Missouri, Nevada, and Oklahoma as work was partially done by salaried personnel.

Table II sets forth the average time required to complete foreclosure in each of the states, the time being computed from the date the petition to foreclose was filed in court, or the first advertisement published (depending upon whether it was a court or power of sale foreclosure), until the period of redemption, if any, had expired and the Home Owners' Loan Corporation had gained an indefeasible title. The map, in figure 5, shows graphically the differences in time required to foreclose from State to State.

From these tables, it is to be noted that, with respect to the time required for foreclosure and the costs involved, the States may be roughly classified into three

is quite nominal. For instance, since foreclosure is handled by the H. O. L. C.'s salaried attorneys in Texas as a part of their business routine, and since the total cost of foreclosure in that State is therefore but $5.18, the cost of revenue stamps and the recording of the deed makes up 99 percent of the total foreclosure costs.

TABLE II.—*Average time required to complete H. O. L. C. foreclosures* [1]

[Based on as near 100 foreclosures as possible for each State]

State	Total time		Period of redemption [2]	Explanation
	Months	Days	Months	
Alabama	25	3	24	
Arizona	8	27	6	
Arkansas	5	4	----	Redemption period of 12 months permitted but waived in H. O. L. C. mortgages.
California	14	28	12	
Colorado	7	18	6	
Connecticut	4	4	0	
Delaware	3	12	0	
District of Columbia	1	3	0	
Florida	3	22	0	
Georgia	0	27	0	
Idaho	15	1	12	
Illinois	19	16	15	Debtor has 12 months for redemption; creditors, additional 3 months.
Indiana	14	0	12	
Iowa	15	14	12	
Kansas	11	14	----	Redemption period may be 6 or 18 months depending on type and status of mortgage.
Kentucky	6	3	----	If sale does not bring ⅔ of appraised value, mortgagor may have 12 months redemption.
Louisiana	4	11	0	
Maine	12	25	12	
Maryland	1	11	0	
Massachusetts	2	6	----	Total time refers from date of dispatch to State counsel. No redemption after foreclosure by sale; a 3-year redemption after foreclosure by entry. Latter rarely used by H. O. L. C.
Michigan	15	1	----	6 months redemption if foreclosure by court action; 12 months if by advertisement.
Minnesota	13	25	12	
Mississippi	1	21	0	
Missouri	1	16	----	Written notice by mortgagor at sale or 10 days before, gives him 12 months redemption following sale.
Montana	15	2	12	
Nebraska	5	20	(3)	
Nevada	15	12	12	
New Hampshire	1	27	0	
New Jersey	4	21	0	
New Mexico	13	0	9	
New York	3	17	0	
North Carolina	1	16	0	
North Dakota	16	4	12	
Ohio	3	24	0	
Oklahoma	9	20	6	
Oregon	15	10	12	
Pennsylvania	1	19	0	
Rhode Island	2	10	0	
South Carolina	2	28	0	
South Dakota	13	25	12	
Tennessee	1	11	----	Redemption period of 24 months permitted but waived in H. O. L. C. deeds of trust.
Texas	0	22	0	
Utah	14	23	6	
Vermont	8	27	----	Redemption period is 12 months but chancellor may shorten if security is insufficient.
Virginia	0	8	0	
Washington	16	6	12	
West Virginia	1	6	0	
Wisconsin	16	0	12	
Wyoming	15	1	9	Debtor has 6 months for redemption; creditors 9 months.

[1] In case of foreclosure in court, the time has been computed from the date of the filing of the petition to foreclose to the date of acquisition of title, free of redemption. In case of foreclosure under power of sale contained in the mortgage or deed of trust, the time has been computed from the date of the first publication of notice of sale or of intention to foreclose, where such is required, to the date of acquisition of title, free of all rights of redemption.

[2] "Redemption period" is generally defined as the period from date of foreclosure sale until final acquisition of title during which the mortgagor may redeem the property. In 4 States the statutory time allowed the mortgagor is not strictly a redemption period but is often described as such. The provisions in these States are: In Indiana 12 months from date of filing foreclosure petition until date of sale. In Wisconsin 1 year from date of judgment to date of sale. In Oklahoma 6 months from date of judgment to date of sale. In Nebraska 9 months (at request of mortgagor) from date of judgment to date of sale.

groups: (1) Those in which cost of foreclosure is low (less than $100) and the time required in most instances short (less than 3 months) [23]; (2) those where cost of foreclosure is high and the time to foreclose in many instances is unnecessarily long [24]; and (3) where cost of foreclosure is not only high and the time to foreclose in many instances unnecessarily long, but where there is also a period of redemption of 6 months or more during which in most cases the mortgagor is entitled to possession of the property.[25]

Study of the costs incurred by the Home Owners' Loan Corporation in foreclosing mortgages in the various States reveals that the average cost in States in the first group was approximately $55; whereas in States in the second and third groups it was approximately $155. In other words, in the States in the second and third groups approximately $100 more was paid for foreclosure of a mortgage than in States in the first group. This $100 per foreclosure might well be considered a useless expense or waste, since it is to be assumed that in all States an equally indefeasible title is gained by foreclosure proceedings.

[23] Georgia, Massachusetts, Mississippi, New Hampshire, North Carolina, Rhode Island, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia. Maine and Missouri should probably also be included in this group as the average cost of foreclosure in each of these States is less than $45. On the other hand, in both of these States there is a 12 months' redemption period during which the debtor is entitled to the possession of the property. Alabama should probably also be included in this group, even though the period of redemption is 2 years, since the cost of foreclosure is less than $50 and since the purchaser and not the debtor is entitled to the possession of the property during the running of the period of redemption.

[24] Connecticut, Delaware, Florida, Louisiana, Maryland, New Jersey, New Mexico, New York, Ohio, Pennsylvania, South Carolina.

[25] Arizona, California, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Montana, Nebraska, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Vermont, Washington, Wisconsin, Wyoming. Arkansas should probably also be included in this group because of the cost of foreclosure and the 12 months' redemption period during which the debtor is entitled to the possession of the property unless the period of redemption is waived.

If approximately 1,000,000 mortgages have been foreclosed during the past 10 years,[26] then at an average cost of $124 each, as found by the Home Owners' Loan Corporation $124,000,000 would have been expended for mortgage foreclosures. Assuming that $55, the approximate average cost of foreclosure in States in the first group, is sufficient to cover the cost of foreclosure, it appears that during the past 10 years approximately $70,000,000 has been spent unnecessarily because foreclosure procedures in all States were not as simple, inexpensive, and expeditious as in States in that group.[27]

Furthermore, it is estimated that the cost of the delay to the lender due to the redemption period, which cost includes the loss of interest on the investment, accruing taxes, insurance, and depreciation, averages at least $2 per day on a $5,000 mortgage. From this estimate, it is apparent that an enormous waste occurs in those States in the third group, which have a redemption period of a year or more, and in some of those in the second, which require over a year for foreclosure.

The effect of these time and cost elements upon mortgage lending is obvious. In the first group of States, where the cost averages $55 and the time less than 3 months, it is obvious that a lending institution can afford to lend as high as 90 percent on the value of the property at a low rate of interest as it does not have to

[26] Holden, "The Menace of Mortgage Debt," 166 *Harper's* 575 (1933), estimates that the number of foreclosures in the United States in 1931, 1932, and 1933, was probably well over 500,000.

According to the *Report of Investigation on Cost and Procedure in Mortgage Foreclosure, supra*, there were 32,922 notices of foreclosure lis pendens filed in the borough of Queens, city of New York from 1930 to 1935. According to figures released by the tax department of the State of New York, there are approximately 175,000 one- and two-family homes in this borough. In other words, during the period of 1930 to 1935, more than 1 out of every 10 homes was in the process of foreclosure in that borough.

H. O. L. C. Summary (July 22, 1936) estimates that in a normal year, like 1926, approximately 68,000 homes are foreclosed; that, in 1932, this figure had increased to 248,700 per annum; and then, by June 1933, foreclosures were occurring at an estimated rate of 24,000 a month. In the House hearing on the National Housing Act of 1934, H. R. 9620, 73d Cong., 2d sess., p. 63, figures averaging about 8 percent higher than these may be found. From these estimates, it is safe to conclude that at least 1,000,000 foreclosures have taken place over the last 10-year period.

[27] See Russell, "Foreclosure Costs in New York," *Journal of Land and Public Utility Economics*, August 1937, in which it is estimated that 80 percent of the $5,000,000 which the H. O. L. C. will spend in the foreclosure of mortgages in New York State is a kind of "legalized waste."

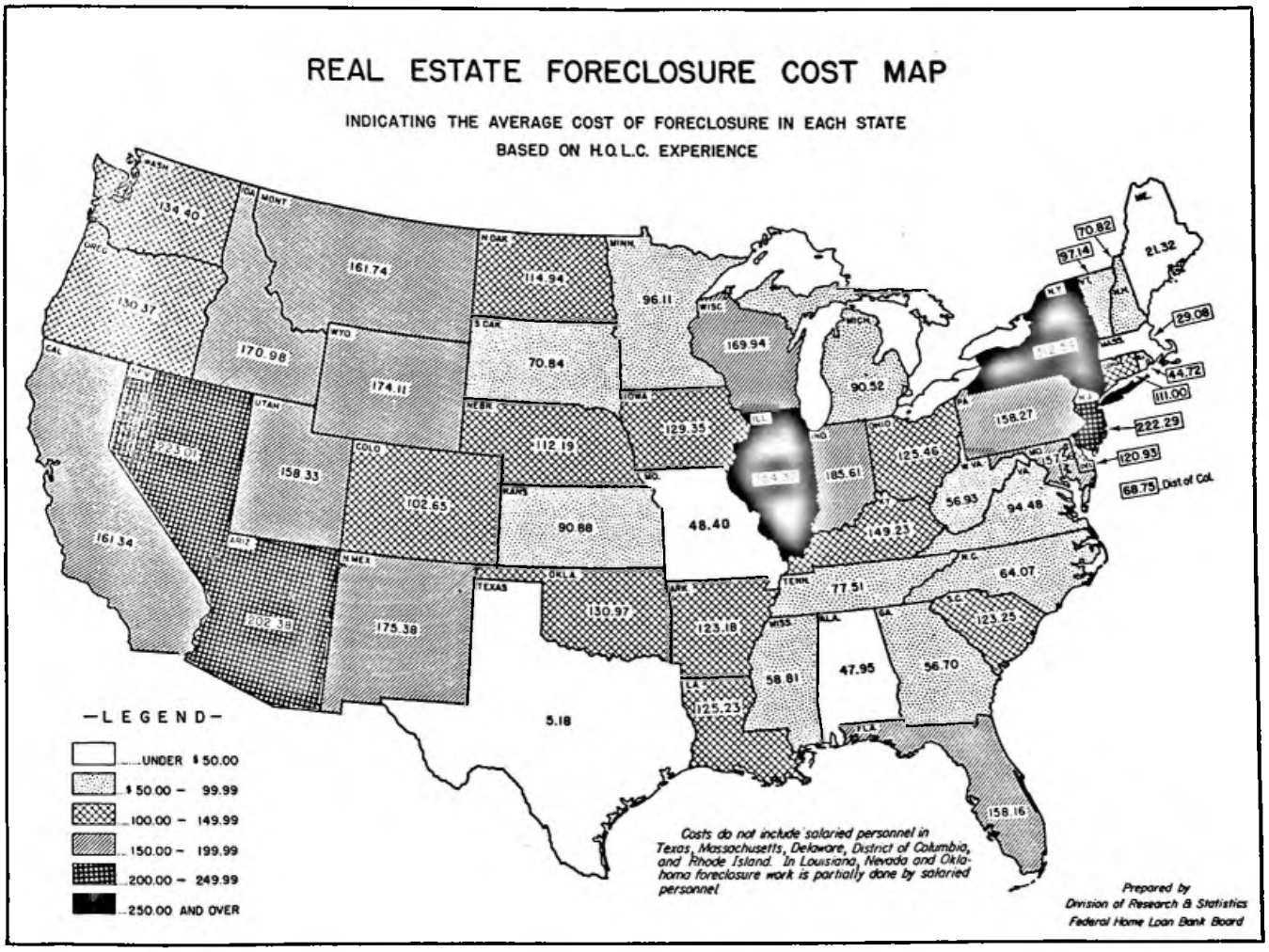

FIGURE 4.—Real estate foreclosure cost map indicating the average cost of foreclosure in each State based on H. O. L. C. experience.

deduct such a large amount from the value of the property or increase its interest rate to balance the costs which might arise if it became necessary to foreclose.

On the other hand, in those States in the second and third groups, where the average cost is $155, and the time, including the period of redemption, is greater than 1 year, it is apparent that a lending institution could not afford to lend with safety an amount in excess of 65 percent of the value of the property, which would prevent a borrower from securing a loan in many instances or necessitate his resorting to the dangerous practice of junior financing. If the lending institution did lend in excess of that percentage of the value of the property, it would be required to charge a high interest rate to compensate it for the risk involved.

A lending institution in a State in the first group, which has loaned $4,000 on a $5,000 home, is able to carry the borrower for many months after a default, during which time he may rehabilitate himself, before the accumulated interest, taxes, insurance and other carrying charges have brought the total debt up to a point where it becomes imperative that the lending institution foreclose to protect itself against loss.

On the other hand, a lending institution in a State in the second or third group, which has loaned $4,000 on a $5,000 home, would find it necessary to foreclose immediately in order to protect itself from loss when the accumulated interest, taxes, insurance, and other carrying charges had raised the borrower's debt to $4,500 by reason of the high cost of foreclosure or the cost of the delay caused by the long redemption period. Therefore, in these latter States, a lending institution is prevented from granting voluntary short moratoria to the borrower, during which time he might rehabilitate himself.

During the past 6 years, the Federal Government has been doing all in its power to sponsor long-term, amortized, single-mortgage lending on home properties [28]

[28] The H. O. L. C., during its lending operations, refinanced 1,018,390 home mortgage loans, or approximately 1 out of every 10 mortgages in the country, on a long-term (12- to 15-year) amortized (approximately $9 a month installment payment

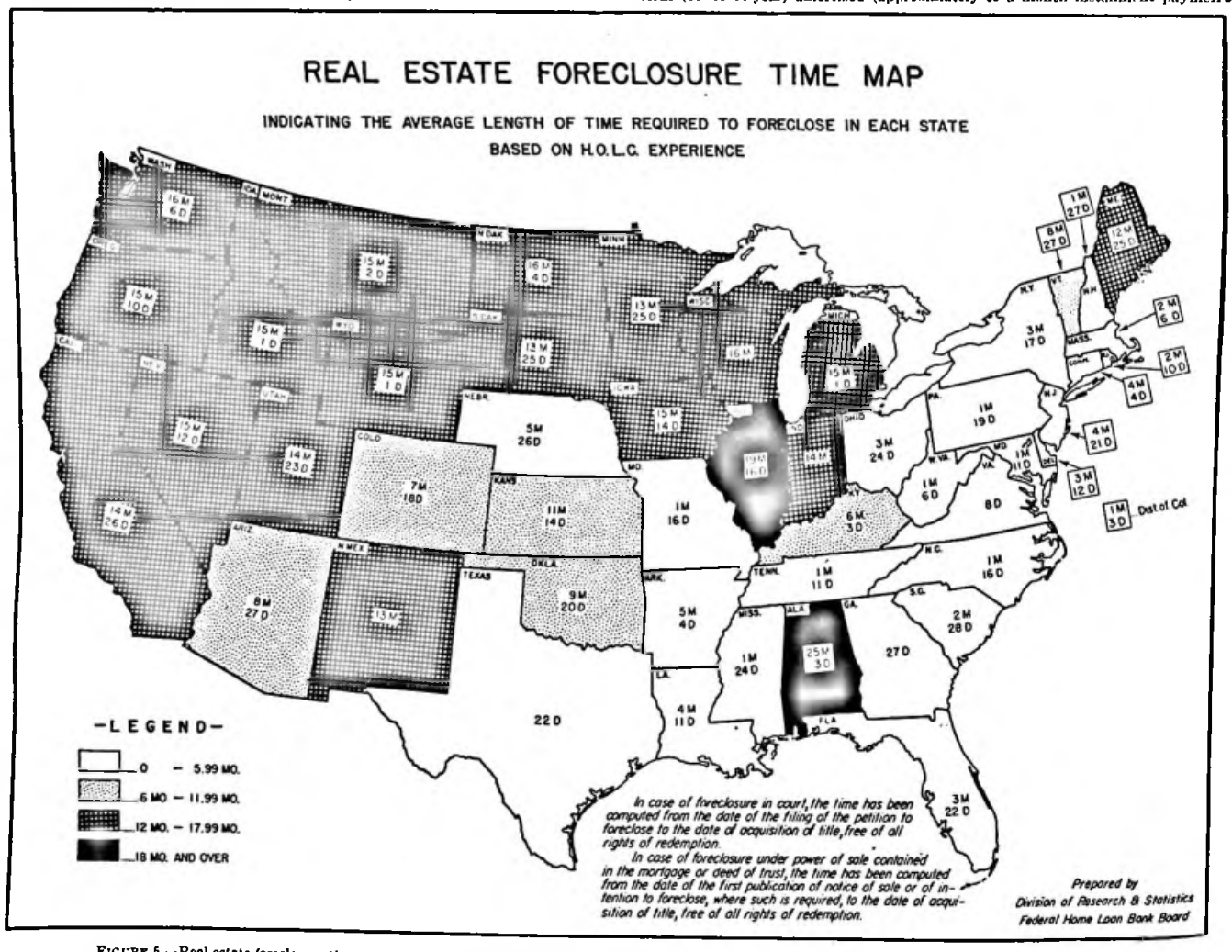

FIGURE 5.—Real estate foreclosure time map indicating the average length of time required to foreclose in each State based on H. O. L. C. experience.

instead of the short-term, lump-sum, multiple-mortgage lending, which was prevalent prior to that time.[29] The foreclosure laws and procedures of many of the States today prevent the complete realization of this program.

Furthermore, the raising of the Federal Housing Administration mortgage insurance limit as provided by the National Housing Amendments of 1938,[30] which means, in effect, that the minimum down payment required of a home owner is reduced from approximately 20 percent to 10 percent of the price of the property, makes imperative the revision of the mortgage and foreclosure laws in many of the States, for the minimum down payment is thus reduced in many States below the cost of foreclosure and the cost of the delay to the mortgagee in securing title to the property.

By way of illustration, the minimum down payment on a $3,000 home financed by a Federal Housing Administration insured mortgage would be $300; and, according to Home Owners' Loan Corporation experience, foreclosure cost, together with the cost of the delay to the lender (which may amount to $2 a day), would more than cancel out this down payment. Consequently, in those States where the cost of foreclosure is in excess of $200, or where the mortgagor is entitled to a period of redemption of 1 year or longer, a 90 percent loan would be unattractive regardless of the fact that the Federal Housing Administration will insure a mortgage loan up to that amount of the appraised value.

In addition, the liberalization of title III of the National Housing Act of 1934 so as to make more attractive the incorporation of national mortgage associations also makes imperative the revision of the mortgage and foreclosure laws of the various States, if such institutions are to function smoothly. It is obvious that the more uniform, simple, inexpensive, and expeditious the mortgage and foreclosure laws of the various States are, the easier it will be for such associations to transact their business of buying and selling mortgages on a nation-wide basis.

Unnecessary Foreclosure Procedures and Costs

A study of the particular elements of cost (table I) which go to make up the total cost of foreclosure demonstrates that many useless expenses are incurred in foreclosure by reason of the unnecessary procedures required by the laws of the various States. Tables III and IV also set forth a break-down of the averages of the various elements of cost which make up the total cost of foreclosure in the four counties comprising the metropolitan area of New York City.[31]

For instance, from table I it is to be noted that the cost of publishing in a newspaper a notice of the foreclosure action accounts for approximately 29 percent of the average total cost of foreclosure in those States which require this method of notice. From table III, it is to be noted that average cost to the Home Owners' Loan Corporation of this method of notice in the city of New York ranges from $124.30 in Bronx County to $45.47 in Queens County.

The publication of notice does not bring buyers to the sale and benefits no one except the newspaper obtaining the advertisement. Rarely does a person other than the mortgagee, or his nominee or a subordinate lienor, purchase at the sale, and such persons have direct knowledge of the pendency of the sale. Publication of notice in excess of once or twice (to meet the requirements of due process of law in case no other notice is given) is an unnecessary expense.

TABLE III.—*Elements of cost in total cost of foreclosure in the 4 counties comprising the metropolitan area of New York City, based on H. O. L. C. experience*

Foreclosure fees and costs	Queens County [1]	New York County [2]	Kings County [1]	Bronx County [1]
Referee to compute	$24.00	$25.00	$25.00	$25.00
Referee to sell	75.00	74.31	75.00	75.00
Advertising bill	45.47	105.73	74.52	124.30
Auctioneer's fee	1.80	30.00	28.20	28.80
Attorney's fees	[3] 120.00	[3] 109.38	125.00	125.00
Miscellaneous	50.50	52.39	49.91	51.30
Total	317.66	396.86	376.84	430.12
Average loan amount	6,735.40	9,907.21	6,738.05	8,070.74
Time to complete.....months	5.8	5.4	5.2	4.9

[1] Averages based on the actual fees and costs incurred by H. O. L. C. in 25 representative foreclosure cases in each county.

[2] Averages based on the actual fees and costs incurred by H. O. L. C. in 8 representative foreclosure cases.

[3] The fact that the average attorney's fee in Queens and New York Counties was less than that in Kings and Bronx Counties is due to the fact that H. O. L. C. salaried attorneys were used in one case in each county.

per thousand dollars of loan) basis, with one mortgage securing all debts refinanced. This refinancing operation not only relieved home owners in distress and helped liquefy the frozen mortgage assets of lending institutions, but placed at least the 1 out of every 10 mortgages refinanced on a sound repayment basis. The Federal Home Loan Bank Board and Bank System, by requiring as a condition to membership in its system, that the home-financing institution deal principally in long-term, amortized lending on the security of first liens; the Federal Savings and Loan System, by requiring as a condition to the granting of a charter that the institution deal principally in long-term, amortized lending on the security of first liens; the Federal Savings and Loan Insurance Corporation, by requiring as a condition to its insurance of accounts of a savings and loan institution that it deal principally in long-term, amortized lending on the security of first liens; and the Federal Housing Administration, by requiring as a condition to its insurance of a mortgage that it be on a long-term, amortized basis—have all given further impetus to the long-term, amortized, single-mortgage lending movement.

[29] Short-term mortgage loans on home properties are generally bad practice as they must be refinanced every few years with the high commissions and financing charges which that operation entails. Lump-sum mortgage loans are generally bad practice as they require repayment of the entire amount of the loan at one time or refinancing the loan with the high fees which that operation entails. Multiple mortgage financing of a single property is generally bad practice not only because of the high fees incident to the procurement of each mortgage, but of the increased dangers of default.

It may be estimated that, prior to the depression, approximately 50 percent of the home-mortgage financing of the country was on a short-term, lump-sum basis, with many properties securing more than one mortgage. With the greater part of this percentage of the home-mortgage debt of the country falling due during the depression years, with lenders clamoring for repayment and refusing to grant extensions or renewals, and with borrowers unable to repay the large lump-sum payments required by their mortgage contracts because of their reduced incomes, the evils in this system of mortgage financing were laid open to scrutiny.

[30] On homes costing $6,000 or less, from 80 to 90 percent of the appraised value of the property, and on homes costing $10,000 or less, to 90 percent of the first $6,000 of value and 80 percent of the remainder. Public, No. 424, 75th Cong.

[31] For an excellent analysis of the excessive costs and uncertainties in the present New York foreclosure procedure, see an article by Walter Fairchild in the *Brooklyn Law Review*, vol. VII, No. 1 (October 1937), pp. 1–14.

TABLE IV.—*Elements of cost in total cost of foreclosure in New York City, based on a study of privately instituted foreclosures* [1]

Items of fees and costs	Queens County [2]	New York County [3]	Kings County [4]
Referee's fees	$89.70	$97.31	$83.15
Advertising bill	70.46	191.22	99.87
Auctioneer's fee	21.67	47.11	33.51
Statutory costs	36.06	43.96	40.09
Total disbursements	81.96	92.81	86.54
Interest on costs	1.35	2.27	.45
Guardian fees	1.21	.74	.43
Allowance [5]	148.16	176.41	163.02
Extra allowance [6]	125.46	190.25	156.32
Total	576.03	842.03	663.38

[1] The average elements of cost are taken from the *Report of Investigation on the Cost and Procedure in Mortgage Foreclosure*, a part of a Survey of Real Estate Laws conducted in 1936 by the Works Progress Administration of New York City as project No. 352.

[2] Averages based on the actual fees and costs incurred in 1,500 privately instituted foreclosure actions during the years 1930–35.

[3] Averages based on the actual fees and costs incurred in 433 privately instituted foreclosure actions during the years 1930–35.

[4] Averages based on the actual fees and costs incurred in 255 typical privately instituted foreclosure actions during the years 1933–35.

[5] Allowances under sec. 1512, C. P. A. are determined by the amount of the judgment of foreclosure.

[6] Extra allowances are granted pursuant to sec. 1513, C. P. A. Although the allowance is discretionary, it is granted by the court almost as a matter of routine.

From table I, it is also to be noted that auctioneers' and master in chancery fees account for approximately 14 percent and 17 percent, respectively, of the average total cost of foreclosure in those States which require such methods of sale. From table III, it is to be noted that the average cost to the Home Owners' Loan Corporation of a public auctioneer at the foreclosure sale in three of the four metropolitan counties comprising the city of New York was approximately $28. The requirement that a public auctioneer or a master auction the property is superfluous, since rarely does anyone bid at the sale except the mortgagee or his nominee. Furthermore, the fees allowed for these services are probably excessive for the services usually rendered, i. e., reading the terms of the sale and recording the bids.

Likewise, the appointment of referees to compute the amount of the debt and to supervise the sale, as is required in a few States, merely adds fees for which there is little or no justification. To perform the first duty, the referee rarely does anything but sign his name to the computations of the debt made by the mortgagee; and to perform the second duty, he rarely does more than engage an auctioneer, attend the sale, and sign the report of the sale and the deed to the purchaser, which are usually prepared by the mortgagee's attorney.

From table III, it is to be noted that the average cost to the Home Owners' Loan Corporation of having a referee compute the amount of the debt and supervise the sale in the metropolitan counties comprising the city of New York was approximately $25 and $75, respectively, per case.

Furthermore, it is also to be noted from table I that attorneys' fees account for approximately 52 percent of the total foreclosure costs in those States where fee attorneys were employed. There is a close correlation between the size of the attorneys' fees and the work and detail involved in the foreclosure. In those States where the foreclosure statutes are cumbersome and require a great amount of detail and time, attorneys' fees run high. On the other hand, where the statutes provide for a simple procedure, the fees are low.

One of the most interesting over-all conclusions with regard to the useless expense involved in foreclosure that may be drawn from a study of the statistics gathered by the Home Owners' Loan Corporation in its survey of its foreclosure operations is that the cost of foreclosure in those States which proceed under power of sale is far less than in those which proceed under court action. Out of the 13 States classified under the first group, i. e., where the cost of foreclosure is low (less than $100) and the time required to foreclose is in most instances short (less than 3 months), the foreclosure procedure followed in 12 was by an exercise of the power of sale contained in the security instrument. While in the thirteenth, i. e., Maine, foreclosure by power of sale was not available, yet the foreclosure process was exceedingly simple and required no court action. In the 35 States, which were classified in the second and third groups, i. e., where the cost of foreclosure is high and the time to foreclose in many instances unnecessarily long, foreclosure was effected by court action in all but 6 of the 35 States.

This would indicate that the practice of foreclosing by court action, whether required by statute or by necessity in order to secure good title after foreclosure, is extremely costly and that the States wherein this method is followed would do well to provide by statute for a well-regulated power of sale foreclosure procedure.

The aforementioned unnecessary foreclosure procedures and many others were originally devised in most States to protect the helpless borrower against the supposed greed of the money-lender. They have served as a boomerang in most cases, however, by preventing a prospective borrower from obtaining a loan on as advantageous terms as he otherwise might if such procedures were not required by the law of his State.

Cumbersome and Costly Mortgage Instruments

Turning now to the archaic, costly procedures involved in the drafting, execution, and recording of instruments, it is apparent that the type of loan instrument used and its wording must vary in each State according to its substantive mortgage and foreclosure law. The form of instrument ordinarily used might be that of a mortgage with a power of sale or a mort-

gage without a power of sale; in other States it might be a deed of trust with a power of sale or a deed of trust without a power of sale.[32]

To be certain that a loan instrument conforms to the mortgage and foreclosure law of the State, it is almost essential that a lawyer draft the mortgage or deed of trust so as to fit the facts of each particular case. The fees paid attorneys each year for such drafting of loan instruments run into millions of dollars. Since it is the mortgagor who in the end bears the cost, he is penalized by the archaic mortgage law which requires such meticulous care in the drafting of loan instruments.

In addition, the average mortgage or deed of trust form now in use is unduly long and detailed. The average form used by lending institutions contains from 1,000 to 4,000 words. It is, of course, true that in at least 22 [33] jurisdictions there are statutory short forms of mortgage or deed of trust. However, these short forms are rarely used due to the absence of provision for the various covenants and conditions usually incorporated in such instruments.

Since the long 1,000 to 4,000 word instruments which are in general use must be recorded to be valid against purchasers, subsequent lienors and judgment creditors, and since the fee for recording varies with the length of the instrument, the mortgagor, who must bear the cost of recording, is further penalized. The recording fee for mortgages or deeds of trust in most States now runs from $4 to $10.

Proposed Standard Real Estate Mortgage Act

Many years of study have been given to the mortgage and foreclosure laws and procedures in the various States, to the costs incident to mortgage lending and foreclosure, and to the desirability of uniform mortgage and foreclosure legislation throughout the country which would be as fair to the mortgagee as to the mortgagor and which would reduce the excessive costs incident to mortgage lending and foreclosure.

The National Conference of Commissioners on Uniform State Laws, after investigating the subject for more than 15 years, adopted a uniform real estate mortgage and foreclosure act in 1927 which was later approved by the American Bar Association. The principle of the uniform act met with the general approval of the American Title Association, the National Association of Real Estate Boards, the Association of Life Insurance Counsel, and counsel for Federal and Joint Stock Land Banks, as well as of the professors of mortgage law and the deans of the leading law schools.[34] However, objections to details were raised, and the draft has not been adopted in its entirety in any State.

The participation of the Federal housing finance agencies in the field of mortgage lending on a Nation-wide basis during the past few years has brought a sharper recognition of the need for reform of mortgage and foreclosure laws. Consequently, one of the first tasks assigned by the Central Housing Committee [35] to its Subcommittee on Law and Legislation [36] was the study of the mortgage and foreclosure laws of the various States to the end that they might be amended to provide a procedure to facilitate long-term amortized, single-mortgage lending.

The Subcommittee made a study of the uniform act prepared by the National Conference of Commissioners on Uniform State Laws. The vast experience of the Federal agencies in mortgage credit since 1927 suggested the advisability of completely rewriting the proposed act.

After receiving the advice of many experts in the mortgage lending field and after drafting and redrafting the act many times in 2 years, the Subcommittee finally issued a preliminary draft on August 31, 1937.[37] Since that date, this draft has been submitted to the Central Housing Committee, the National Conference of Commissioners on Uniform State Laws, the American Bar Association,[38] the United States Building and Loan League, and the officials of most of the Federal agencies and private lending institutions interested in mortgage finance for their comment before it is finally revised.

The proposed standard real estate mortgage and foreclosure act of the Subcommittee has been drafted to remedy the defects pointed out above. Briefly, this

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[32] See fig. 1. The H. O. L. C. used a mortgage in nine States, an outright deed in one, and a deed of trust in the remaining States.

[33] Arizona, California, District of Columbia, Georgia, Illinois, Indiana, Iowa, Kansas, Maryland, Michigan, Mississippi, Montana, New York, North Dakota, Oklahoma, South Dakota, Tennessee, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.

[34] See the introductory statement in the pamphlet *Uniform Real Estate Mortgage Act* (1927), published by the National Conference of Commissioners on Uniform State Laws.

[35] The Central Housing Committee was established by the President in August 1935, under the chairmanship of Frederic A. Delano, in order to establish a medium for executive cooperation among the eight Federal agencies most vitally concerned with housing finance and construction. The Central Housing Committee is composed of the chief executive officers of each of the Federal agencies concerned with housing construction and finance, i. e.: Department of Commerce, Farm Security Administration, Federal Housing Administration, Federal Home Loan Bank Board, National Emergency Council, Procurement Division, R. F. C. Mortgage Co., and United States Housing Authority.

[36] The Subcommittee on Law and Legislation is composed of the general counsel of the following Federal agencies: Federal Housing Administration, R. F. C. Mortgage Co., Farm Security Administration, Farm Credit Administration, United States Housing Authority, Department of Justice, and Federal Home Loan Bank Board. Its functions are as follows: (1) To assemble and make digests of mortgage contracts, foreclosure and moratorium laws, tax procedure, building codes and other legal matters affecting housing construction and finance; (2) to assemble and digest current judicial decisions, administrative rulings, and existing and proposed legislation affecting home ownership; (3) to study possible simplification and uniformity in State legislation; and (4) to provide for convenient use of agencies active in housing, copies of legal forms, briefs, rulings and other documents.

Copies of its reports cited herein may be obtained on request from the Central Housing Committee, Washington, D. C.

[37] Copies of this proposed act may be obtained upon request from the Central Housing Committee, Washington, D. C.

[38] The Real Property Financing Committee of the American Bar Association approved the Subcommittee's Uniform Act in May 1938.

proposed standard act provides for the use of a statutory short mortgage form about 160 words in length. The various covenants mentioned by name only in this statutory short mortgage form are defined in the act itself so as to protect fully the rights of both the mortgagor and the mortgagee, thereby making it unnecessary to set forth such material in the mortgage instrument. Covenants and conditions other than those contained in the statutory short mortgage form may be inserted in it by marking them "nonstatutory."

This standard act further provides for a simple, inexpensive method of foreclosure by power of sale, with provision for court confirmation, if the mortgagee so desires, or for court action following a mortgagor's petition for injunction to restrain the foreclosure by power of sale. Provision is also made for a court action to rescind the sale upon a showing of fraud or the failure to comply with the foreclosure procedure outlined in the act. To obtain a deficiency judgment, the mortgagee must bring an action in court after exercising his power of sale and prove that the property was sold at its fair value and that the sale price was not sufficient to satisfy the debt. The act sets forth what the notice of sale shall contain and regulates the publication of notice and mailing to interested parties.

The mortgagor may redeem at any time up to the date of sale. However, the redemption period after the sale of the property is only 30 days. Nevertheless, the 6-month period which would usually be required for foreclosure under the act is sufficient to afford ample protection to the mortgagor. The act gives possession and the right to rents and profits to the mortgagor prior to foreclosure, but the mortgagor must keep the premises in repair and not commit waste. It further provides an effective statute of limitations and a marketable title after foreclosure.

Benefits to be Derived from Standard Act

The Subcommittee on Law and Legislation believes that the general adoption of this standard real estate mortgage and foreclosure act by the various States would result in a vastly simplified and improved mortgage lending situation from the point of view both of borrowers and lenders.

From the standpoint of mortgagors, the general adoption of this standard act should: (1) reduce interest rates and increase the maximum amount of the loan which a lending institution would be willing to advance on the security of a mortgage because the risk of lending resulting from expensive foreclosure proceedings, long redemption periods, etc., would be reduced; (2) make mortgage funds more accessible by facilitating the placing and handling of mortgages by large lending institutions operating on a Nation-wide basis; (3) reduce foreclosure costs, which in the end are paid by or charged against the mortgagor or his property; and (4) reduce the cost of drafting and recording mortgage instruments, for which the mortgagor pays when he obtains a loan.

From the standpoint of mortgage lending institutions, the general adoption of the standard act should: (1) facilitate the placing and handling of mortgages because of their shortness and the uniformity of the law which would thereby be achieved; (2) reduce administrative expense and the risk incident to mortgage lending; and (3) assure greater liquidity to mortgage investments because the uniformity in the law should result in making such investments more saleable.

Mechanics' Lien Laws

If 3 to 4 million dwelling units are built in this country during the next 5 years, it will mean that an increasing number of mechanics' liens will be filed by building contractors, subcontractors, workmen, materialmen and others who perform labor upon or furnish materials for the construction of such dwelling units. It is, therefore, timely to ascertain whether the mechanics' lien laws: (1) add to the cost of construction and financing, (2) discourage lending for new construction, (3) increase the tendencies toward "jerry" building, (4) contribute to the expense of title examination and insurance, (5) discourage the ownership of homes.

History and Scope of Mechanics' Liens

Mechanics' liens have their origin not in the common law, but in statutory enactment. The earlier lien statutes were limited to the protection of wage earners. Since the protection of wage earners was a principle which found ready favor with legislatures, other States followed the lead which Maryland took in 1791 and rapidly enacted similar legislation.

However, the word "mechanic," popularly defined as "pertaining to manual labor" or "involving manual skill," is not descriptive of the scope and application of these laws today. Each factor of the building industry has sought to have its particular group sheltered by some form of lien against the real estate which was being improved. This lien protection has usually been secured by amendment of the mechanics' lien acts already in force. As protection was extended to one segment of the industry, other groups sought and obtained protection. The result is that today under the mechanics' lien laws, practically every segment of the construction industry—including contractors, subcontractors, material dealers, laborers, artisans, architects, landscape architects, engineers, surveyors—is granted a lien of varying extent under varying conditions for the labor, services, or materials furnished or contracted to be furnished.

Principal Phases of Existing Laws and Their Undesirable Effect

The question arises as to how these laws work out in practice and what problems they have created in the field of housing. Since they were designed to meet very practical considerations, these laws will defeat their own ends if they are not workable and efficient.

A detailed consideration of the many parts that make up a typical mechanic's lien statute would be tedious. Therefore, only those three principal parts of such a statute which most vitally affect (*a*) the owner, (*b*) the contractor and parties in privy connection with him (especially subcontractors and material dealers), and (*c*) the lending institution, will be considered; that is, (1) that part relating to the right to, and the extent and duration of, a lien; (2) that part relating to the priority of liens, not only as between mechanic lienors, but also as between previous encumbrances; and (3) that part relating to the regulation of payments to the general contractor by the owner.

With regard to the right to, and the extent and duration of, a lien, it should be pointed out that there is no uniformity in the statutes as to who is entitled to a lien, nor under what conditions. Some statutes specify the person by name such as "every contractor, subcontractor, architect, engineer, material dealer, surveyor," and the like; other statutes provide in general form that "whoever contributes to the improvement of the real estate" shall be entitled to a lien. However, practically all statutes give a lien to laborers.

In the majority of States, a direct lien on the property is given eligible lienors entirely independent of the contractor and without regard to whether the owner paid the contractor; in other States, the lien is derived through and dependent upon the contractor. In States following the latter view, the amount of the lien is thus limited by the status of account between the owner and the contractor.

Every State prescribes the place and method for filing a lien; and prescribes the procedure for the enforcement and foreclosure of a lien. The period fixed by statute for filing varies from 30 days to 6 months. Each statute designates the event from which the period commences to run. There is no agreement between the statutes as to what the event shall be. For example, it may be the date "of the completion of the contract," the date "the indebtedness is due," the date "the work is finished," or the date the lienor ceased "to labor or furnish material," or the "date of the contract." Once filed, the lien claim is perfected as a claim only, and the claim loses legal vitality unless the statutory conditions governing the foreclosure and enforcement of the claim are complied with.

To foreclose a mechanics' lien, the claimant must commence his action within 6 years in 3 States, 2 years in 6 States, 1 year in 16 States, and periods ranging downward to as low as 60 days in the others. The event from which the period commences to run is fixed by statute. After the lien is adjudicated, it relates back to the commencement of the first work or delivery of materials and will generally be given priority over supervening liens except, usually, liens for taxes and assessments.

While the foregoing is subject to many variations, it summarizes briefly and generally certain phases of the mechanics' lien legislation in order to illustrate (1) the comparative facility with which a claimant can effect a cloud on the title to real estate, and (2) the unreasonable period which some statutes permit the cloud to continue without requiring the claimant to have his claim adjudicated. The cost of filing a claim is nominal, and thus a cloud on title is easily and cheaply effected. This frequently equips a disgruntled and unmeritorious claimant with a strong lever to force unfair settlements from the owner, particularly if the owner needs to clear title in order to mortgage or transfer the property.

Furthermore, because of the long-continuing risk of mechanics' liens that may, under certain circumstances, gain priority over the lien securing a mortgage indebtedness, some statutes operate to increase the financing cost of new construction. This results from the fact that conservative mortgage lending institutions find they must either forego this type of lending entirely or establish extensive facilities to make the necessary checks to protect themselves against such liens. When a mortgage loan is made, the cost of this protection to the mortgagee is necessarily passed on to the owner in the nature of loan service charges.

In regard to the priority of liens, there are many variations in the laws of the various States. In every State, mechanics' liens take priority over subsequent encumbrances; and, in seven or more, such liens, under varying conditions, even take priority over previously existing encumbrances. For example, in Oregon a mechanics' lien for improvements erected on the land takes priority over an antecedent mortgage against the land. There are other States which follow a "severability" doctrine by virtue of which the antecedent lien against the land takes priority as to the land, and the mechanics' lien takes priority as to the improvements only. In States following this view, the improvements may be severed and removed when no damage to the land will result.

In regard to the regulation of payments by the owner, in about three-fourths of the States the owner pays the general contractor at his peril. In these States, notwithstanding the fact that the general contractor may be the only person with whom the owner had a direct contract regarding the construction, and even though the owner may not know the names of

potential claimants and has not been notified of any claims for liens by unpaid eligible claimants, the owner may nevertheless be subject to a double liability unless he has taken the precautionary measures prescribed by the statutes.

In most of the remaining 25 percent of the States, if the owner makes payments to the contractor before he receives notice of a claim for lien by an unpaid and otherwise eligible claimant, he is protected to the extent of such prior payment, but a duty is imposed upon him to apply the unpaid balance as the statute prescribes. However, in a few States, the only way the owner can be certain of protection from loss is by withholding payment to the general contractor until the statutory period for filing liens has expired. It is, therefore, apparent that many statutes place a premium upon delayed payments.

However, in some States, even more than delay is required if the owner is to be protected against the possibility of double payment. Statutes like those in effect in Illinois, Ohio, and several other States make it the affirmative duty of the owner, before making payment of any sums, to obtain from the general contractor a statement under oath listing the names of all persons engaged to furnish labor or materials and the amounts due or to become due each. With this information before him, the statute then prescribes the procedure the owner must follow before payment may safely be made.

Furthermore, the statutory provisions governing payment are usually so involved that an owner may be wholly at sea. Building a home is an enterprise undertaken by the average citizen but once in a lifetime, and the ordinary person is frequently put to the expense of engaging an attorney or other competent agent before he can proceed in what should be a reasonable simple transaction, i. e., the payment, with safety, of the cost of constructing his own home.

Thus, the mechanics' lien laws in some States impose upon the owner the responsibility for seeing that his general contractor and others pay the debts incurred by them in making particular improvements. This condition encourages the continuance of an unsound credit system, at the expense of the owner and to the detriment of contractors who endeavor to operate on a business-like basis. The ease with which irresponsible persons can obtain credit for each new job is one reason why so-called "jerry" builders are able to operate in the small home field. In this field, a credit laxity to contractors prevails, due in large part to the fact that material dealers and other creditors realize that the particular improvement made may be subjected to a lien, through the mechanics' lien law. Under such circumstances, there is little need for a contractor, from the standpoint of acquiring and maintaining a credit standing, to manage his business with efficiency. The resultant waste is reflected in higher construction costs

Uniform Act of Department of Commerce

Recognizing the general dissatisfaction with the then existing status of mechanics' lien laws, Herbert Hoover when Secretary of Commerce, in response to the requests of owners of buildings, trade associations, and leading men in the construction industry, appointed a Standard Mechanics' Lien Act Committee in 1924 to draft a Uniform Mechanics' Lien Act.

This committee first considered the classes of cases which required some form of lien protection, and arrived at the following conclusion:

> There are two principal classes of cases in which those who perform labor or other services or who furnish materials for the building require protection under lien laws. In the first, the owner is able to make payments according to his contract, but the contractor or subcontractor fails to pay laborers, subcontractors, or material men. In the second class of cases, the owner is unable or fails to make payments as called for by the contract. There are, of course, cases in which both classes of failure to pay are involved.
>
> If the contractor or subcontractors fail to pay their bills promptly the owner should know of it at once so that he will not go on making installment payments to the contractor, which may be diverted to purposes other than that of paying off obligations for the particular improvement. A lien law should be so framed that when the contractor or subcontractor defaults a solvent owner may proceed with construction with the least possible delay and uncertainty, and not be unduly hampered in making a legitimate transfer of the property.
>
> The second class of cases usually arises when the owner becomes insolvent and it becomes necessary to arrange for a forced sale of the property in order to satisfy the claims of lienors. A lien law must, therefore, state under what circumstances a lien will take priority over a mortgage, building loan or other obligation attaching to the property, and vice versa. It is also desirable that any action to be taken be as prompt as possible in order that work may go ahead in cases where completion of the building will be advantageous to the equity of lienors and others having an interest in it.[39]

Then this committee considered the laws of the various States, and roughly classified the various acts as follows:

1. The so-called Pennsylvania type of act under which liens are not limited to the contract price fixed by the contract between the owner and the contractor but are dependent only upon the performing of lienable services by the claimant and the nonpayment for these services by the person with whom the claimant contracted. Under such acts the owner might pay his contractor in full on a $10,000 contract and, some of these moneys not having been paid over by the contractor or subcontractor for materials furnished to or labor performed for them, or if all is paid over and is insufficient to meet all claims, he might find his property liable for liens for an additional $2,000 or $3,000.

2. The so-called New York type of act, under which the right of claimants is dependent upon the indebtedness of the owner to the contractor under their contract and the amount of liens

[39] From the pamphlet, *Uniform Mechanics' Lien Act*, prepared by the Standard Mechanics' Lien Act Committee of the Department of Commerce in collaboration with the National Conference of Commissioners on Uniform State Laws.

is limited to the amount unpaid on that contract at the time the claimant shall file his claim of lien for public record. In case liens are filed, the owner has merely to see that lien claimants are satisfied up to the amount unpaid to the contractor. In the case of a $10,000 contract, for example, the owner might pay out $8,000 according to the contract when the work is nine-tenths completed and thereafter be liable to lienors to the extent of only $2,000 although claims might total $2,500 or more.

3. A third type of act, followed in the legislation of four States, in general limits lien ability of the owner's property to the amount of the contract price, this liability being reduced by the amount of moneys paid out by the owner under certain stipulated conditions and increased by the failure of the owner to observe procedure specified in the act. These acts usually require the contractor to submit to the owner at the time of each progress payment a specified form of statement, under oath, disclosing his indebtedness to those engaged upon the improvement. The owner is thereupon required, unless waivers of lien are presented, to withhold from the contractor sums sufficient to meet the claims of such persons and to make payment direct to them. Claimants also may notify the owner of indebtedness to them and the owner is likewise required to withhold the sums so claimed.

The committee found in this third type of act the nucleus of an orderly procedure for the protection of the various interests involved and used it as a basis for their standard act.

After a careful study of all of the existing State laws on the subject, as well as the pertinent court decisions, and after obtaining the views of the various diverse interests involved, the committee prepared and circulated tentative drafts of its act in 1926, 1928, and 1932. During the same period the National Conference of Commissioners on Uniform State Laws also considered the various drafts of the act and made recommendations.

Criticisms of Department of Commerce's Uniform Act

This uniform act clarifies and makes more definite and certain many phases of this field of law. However, it is subject to a number of criticisms. The Uniform Act gives a lien to contractors, subcontractors, materialmen, laborers, architects, landscape architects, and engineers; provides for the lien to be against both the land and the improvements without provision for severability; limits the liability of the owner to the contract price provided he has complied with the provisions of the act governing the making of payments; fixes the "visible commencement of operations" as the event for the attaching date of the lien; establishes the period for filing a claim of lien as not later than 3 months after final performance and the period for commencing suit as not later than 1 year after filing.

All the foregoing provisions appear to be an improvement over the provisions now found in most of the existing laws on the subject. It is believed, however, that better practices in the small construction field would result, and that the burden which these acts impose upon small home owners would be more tenable, if the time for filing and the time for commencing suit were reduced. A reduction in these time periods would not deprive one of his lien, but would require the exercise of more diligence. Such shorter periods would also lessen the likelihood of harassment of owners by unworthy claimants.

With regard to the priority of liens, the Uniform Act provides:

> SECTION 21. Priority of liens. Liens provided by this act shall have priority over a conveyance, mortgage, building loan contract, attachment, judgment, or other encumbrance or demand against such real property which was not recorded, docketed, or filed at the time of the visible commencement of operations. All liens provided by this act except those of laborers shall, subject to the provisions of sections 4, 5, and 6 of this act, be on a parity and shall be settled *pro rata;* all liens of laborers shall be on a parity one with another and shall have preference over all other liens under this act.

Since the foregoing section makes no distinction between advance-money mortgages and others and since, as heretofore pointed out, the courts of many jurisdictions regard a so-called construction loan as not having lien priority over supervening mechanics' liens which arise before actual pay-out of the loan proceeds, it is probable that such courts would construe the foregoing section in the same manner. In other words, this would limit the lien priority of lending institutions to the amount actually paid out before the mechanics' lien claim arose, notwithstanding the fact that the lending institution is obligated to make the entire advance.

Whether or not the foregoing section intends that advance-money mortgages be given a lien priority over supervening mechanics' liens for advances made and to be made, the language of the section is ambiguous and in need of clarification in order to remove all doubts regarding this important element.

With regard to the regulation of payments by the owner, the act offers mixed advantages and disadvantages. From the viewpoint of the construction industry, advantages are apparent; from the viewpoint of an owner, disadvantages may be found.

There is a seeming advantage in the protection afforded the owner when proper payments, as the term "properly paid" is defined in the act, have been made to the contractor before the owner has received a written notice of intention to claim a lien, or before a lien claim has been filed. When such is the fact, the owner may pay the contractor without risk of double liability except, perhaps, for the claims of unpaid laborers. As to these, it would appear that a continuing right of lien exists until the expiration of the three months period for filing claims has expired. Thus, notwithstanding the fact that the owner may have paid the contractor the full contract price before a lien claim has been filed, he nevertheless must hold back

enough to meet any claims of laborers that may be filed within the period stipulated.

Another seeming advantage is the provision limiting the liability of the owner to the contract price. Here again, the provision is surrounded with so many limitations as practically to nullify it. Thus, when the owner has been (1) served with notice of intention to claim a lien, or (2) when the sworn statement, which the contractor is required to furnish the owner after the final payment has become due, reveals any lienors to be paid, or (3) when a lien has been filed, the owner, upon the happening of any of the foregoing events and except for payments "properly paid" the contractor, must follow the method prescribed in the act governing the manner of payments if he desires protection against liens.

The procedure of payment prescribed in the Uniform Act is technical and involved, particularly when viewed from the standpoint of an ordinary small home owner who, if he wishes to comply with the act, would find it necessary to engage professional advice to ascertain the procedure to be followed in a given situation. A summary of the step-by-step payment procedure provided for in the Uniform Act will not be attempted because such would be meaningless without complete understanding of the operating effect of many related provisions. However, some of the general principles follow:

(1) The owner is required to ascertain the claims of laborers.

(2) Before making any payments to laborers or other lienors, the owner must give the contractor at least 10 days written warning of his intention to make payment and otherwise conform to the applicable provisions of the act governing such payments.

(3) The owner is liable to the contractor and other lienors for payments made to a particular lienor in excess of the amount ultimately determined to be due such lienor in the event such over-payment prejudices the contractor or other lienors.

(4) Before making final payment to the contractor, the owner is under duty to require of him a statement under oath stating whether all liens are paid and, if not paid, the names of and amounts due each; and, if any persons are thus listed, the owner must provide for their payment before paying the contractor

(5) Lienors are grouped in classes and take different rank as to lien priority; and, if the owner makes payment to lienors of one class, he must insure that sufficient of the contract price remains on hand to meet the claims of lienors of a prior class.

(6) If payments are not made for materials delivered to the site but not incorporated into the improvement, the vendor may repossess and remove the materials; or, if part payment is made, repossession may be had upon refund of the part of the purchase price which has been paid.

Conclusion

By way of summary of what has been said above, it would appear: (1) that the existing mechanics' lien laws now in force in the various States present the greatest diversity, add to the cost of construction and financing home mortgage lending, discourage lending for new construction, increase the tendencies toward "jerry" building, contribute to the expense of title examination, and retard widespread ownership of homes; (2) that the Uniform Mechanics' Lien Act drafted by the Standard Mechanics' Lien Act Committee of the Department of Commerce in collaboration with the National Conference of Commissioners on Uniform State Laws, though clarifying and offering a more definite and certain law on this subject, is still subject to criticism; and (3) that there is a genuine need for a more simple and effective statute.

The general adoption by the various States of an appropriate Uniform Mechanics' Lien Act would greatly simplify and improve the existing mechanics' lien procedure of the various States, eliminate many of the uncertainties now inherent in such legislation, and afford greater protection to those who perform labor upon or furnish materials for the construction of buildings, as well as the owners of the completed buildings. In addition, uniformity in mechanics' lien legislation would enable those contractors and materialmen who now operate on a national scale to carry on their business with greater facility [40]

Land Title Examination and Proof [41]

Since the first step in purchasing the land upon which to construct housing facilities or in securing a mortgage loan to finance the construction is proof that the real estate title is "valid," "good," or "marketable," it is appropriate to consider the efficiency of the various systems of real estate title examination or proof.

Methods of Title Examination or Proof

There are four principal systems of real estate title examination or proof, i. e., (1) *the Abstract and Attorney System*, under which an abstract of the public land records affecting the title is obtained from an abstract company, and an attorney renders an opinion on the title, based on his examination of the abstract; (2) the *Attorney System*, under which the entire examination of the public land records affecting title and the opinion thereon is entrusted to an attorney; (3) the *Title Company System*, under which the entire examination of the public land records affecting the title is entrusted to a title company, which generally insures the lien or the title; and (4) the *Land Title Registration System*, under which the title is registered under the Torrens or a similar land title registration system, and under which the examination of the title registration certificate is entrusted to an attorney.

These four systems of title proof in turn may be classified under two headings: (1) public land record

[40] The above section has been adapted from Special Report No. 8 of the Subcommittee on Law and Legislation, Central Housing Committee, entitled *Mechanics Lien Laws*.

[41] Abstracted with permission from an article by Mr. Horace Russell and Mr. David A. Bridewell entitled "Land Title Examination: An Appraisal," *the Journal of Land and Public Utility Economics*, May 1938.

examination, under which the first three of the above systems would fall; and (2) title registration, under which the last of the above systems would fall.

Although 16 States have legislation providing for a title registration system, this method of title proof is not used to any great extent except in four States and, even in these, only to a slight extent when compared with the use that is made of the other systems. Therefore, it may be said that the first three of the above four systems, i. e., those which involve a search of the public land records, are almost universally used in this country.

To understand these systems which involve a search of the public land records, it must be remembered that practically all of the States have statutes requiring conveyances or other changes in title or liens, whether arising by virtue of contract, State law, or judicial decree, to be filed in the public land records of the political subdivision in which the property affected is situated in order to constitute notice and be valid against subsequent purchasers, judgment creditors, mortgagees and other lienors. When proof is made of the validity of title prior to its purchase or mortgage, a search is made of these records to determine the status of the title.

To show a perfect record title under these systems which involve a search of the public land records, it is necessary to show a continuous chain of title from a good source of title, such as a patent given by the United States to the first settler or buyer. To show a title which will be acceptable in the conveyancing or mortgaging of property, it is usually necessary to show a continuous chain of title for a period of from 20 to 40 years back.

To appreciate thoroughly the expense and wastefulness involved in those systems of title proof which involve a search of the public records, consideration should be given to at least one illustrative case. Sometime ago, the Jumel property in New York was subdivided into 1,383 lots and sold at a partition sale. Three hundred purchasers were present. If it be assumed that each of these persons, before the sale, followed the prudent course of employing an attorney to examine the title to the lot which he contemplated purchasing, it is apparent that 300 attorneys would have had to examine the same records affecting the title to the entire property no matter how small the lot his client wished to buy. In other words, 300 attorneys would have examined the same long lists of names picked out from the 3,500 volumes of deeds, mortgages, etc., in the New York Registrar's office at that time.

If it is assumed that these 1,383 lots have since been resold by the original purchasers, it is likewise apparent that the 1,383 subsequent purchasers have paid 1,383 attorney's fees for examining the same titles. Furthermore, if it is assumed that the 1,383 subsequent purchasers have built upon the lots, giving a mortgage to secure a loan which was made to enable them to build, these 1,383 mortgagees would have likewise paid 1,383 attorney's fees for an opinion on the validity of the title upon the security of which they proposed to lend.

Some day these 1,383 lots will again be sold; and 1,383 new purchasers will again pay 1,383 attorneys 1,383 fees for examining the same titles. However, when that day comes, the fees will be larger for there will be more volumes in the registrar's office to examine.[42] Although title companies in New York have devised procedures by which economies can be achieved in assuring title to purchasers in the case of such a subdivision of property as that described above, this illustration would probably still be true in some States.

It is becoming more generally recognized that the cost of the examination and proof of real estate titles under those systems which involve a search of the public records presents one of the most pressing problems in the field of real property law. However, the problem is by no means new. In fact, it is a problem as old as real estate titles themselves.[43] The amazing thing about the situation is that practically all of the States in this country are still operating under the same system that was in effect in England in the eighteenth century, whereas England and practically every other country of the world has moved forward to a more inexpensive procedure, i. e., the Torrens or land title registration system.

The activity of the Federal housing finance agencies in the field of mortgage lending during the past few years has revealed more clearly than ever before the diversity in the various systems of real estate title examination and proof, the cumbersome, costly, time-consuming and unnecessary procedures involved, and the ways in which these procedures have increased the initial cost of mortgage lending.

Consequently, one of the first tasks assigned by the Central Housing Committee to its Subcommittee on Law and Legislation was a study of the systems of real estate title proof with the end in view of determining which was the least expensive and most expeditious, consistent with satisfactory proof of good title.

For this study, the Subcommittee selected 8,500 home mortgage loans made by the Home Owners' Loan Corporation in 10 States in which more than one system of title examination or proof was used. Approximately 500 loans were studied under each of the systems

[42] P. H. Mulholland, registrar, Land Court, Territory of Hawaii, "The High Cost of Title Search," *American Building Association News*, November 1936.

[43] Sir Robert Richard Torrens, in an address in 1872 with regard to the then existing complexities in methods of real estate title proof, pointed out a case of a property in England of not more than 30 acres, title to which took a year to investigate, the cost amounting to $1,500.

used in each State.[44] The accompanying tables,[45] which are based on the statistics gathered by the Subcommittee, summarize the results of this study.

Because the Home Owners' Loan Corporation chose wherever possible the least expensive and shortest method of title proof consistent with proof of good title, because cost did not include the cost to the Corporation of its salaried personnel who supervised the title examination and proof, and because the practicing attorneys or title companies who examined the title agreed to a reasonably small fee in return for the volume of business to be given them by the Corporation, the time and cost elements involved in title proof arrived at in this study were, if anything, less than the cost and time involved in proof of title for private individuals under ordinary circumstances.

[44] This study is contained in the Subcommittee's Report No. 3, entitled *Land Title Procedure.*

[45] Reprinted with permission from the *Federal Home Loan Bank Review*, January 1938.

It should be pointed out that this study of title costs incurred by the Home Owners' Loan Corporation included all costs in connection with the examination and perfection of title under each method. For this reason, recording, escrow, survey, and loan closing fees, where incurred in connection with examination and perfection of title or the closing of a loan, are included in the total cost under each method. Furthermore, this study of the time required for the Home Owners' Loan Corporation to obtain a report on title covers the time elapsing from the request by the Corporation for a report on title until such report was furnished. Consequently, the total costs set forth in this study do not purport to represent what an individual attorney, abstract company, or title company would charge; nor do the figures which represent the time required for the Home Owners' Loan Corporation to obtain a report on title, represent the time which is required for an individual attorney, abstract company, or title company to make a report on title.

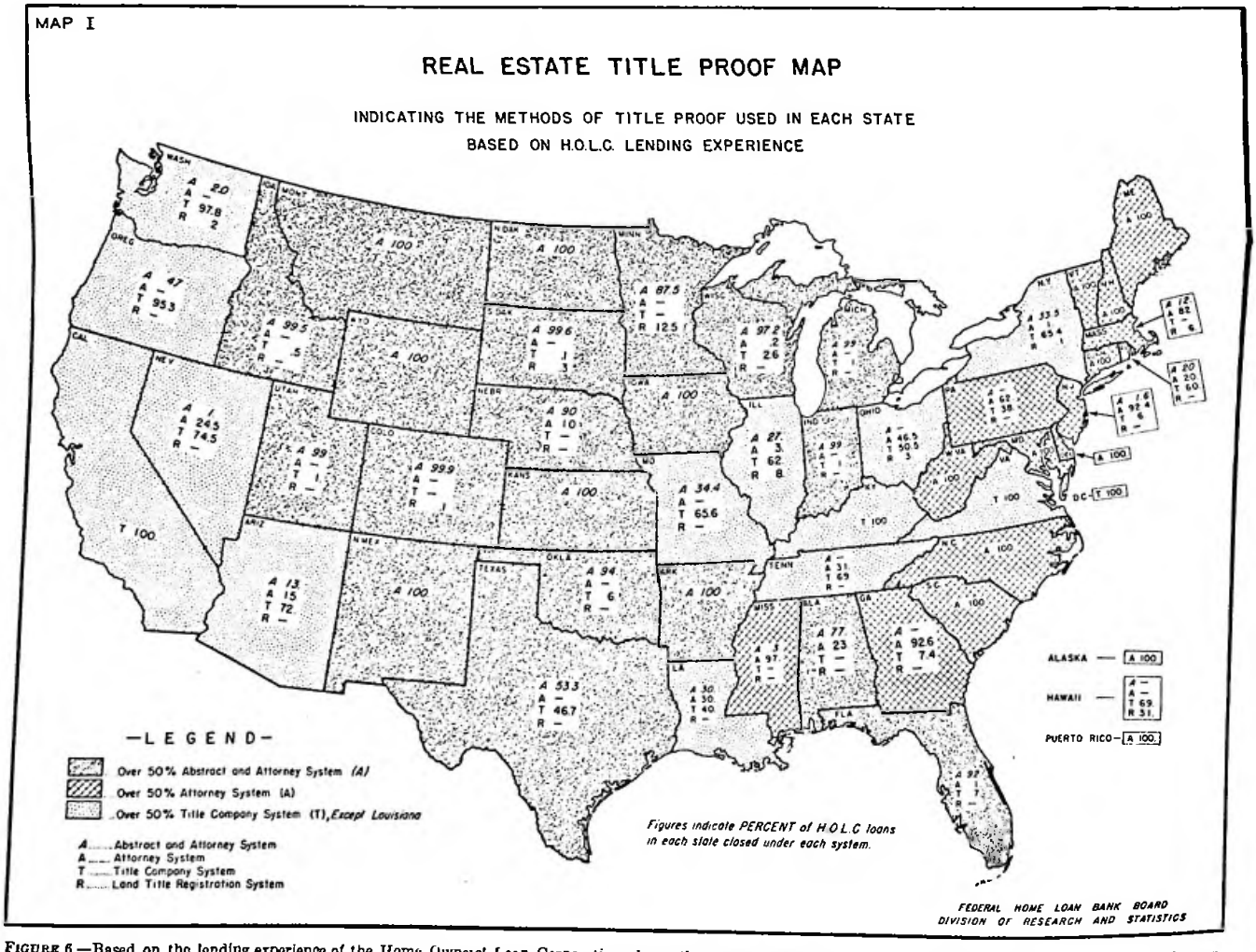

FIGURE 6.—Based on the lending experience of the Home Owners' Loan Corporation, shows the system of title examination generally used in each State and the percentage of loans which the Corporation closed under each system in each State.

Time and Cost Elements Under Different Methods of Title Examination

From an examination of table V, it is to be noted that there are wide variations in the time required to secure proof of title under the four systems of title proof. In the first place, it is interesting to note that from 16 to 71 days were required to obtain a certificate of title under these four systems, i. e., from 19 to 24 days under the attorney systems, from 16 to 46 days under the Torrens systems, from 19 to 51 days under the abstract and attorney system, and from 36 to 71 days under the title company system. These figures were computed on the basis of the time elapsing between the reference of a case to the title examiner and the receipt of the preliminary certificate of title. Although the time required is somewhat shorter under the attorney and Torrens systems than under the others, the Subcommittee, in its report, pointed out that conditions and practices in the 10 States studied varied so greatly that no conclusions could be reached as to the time element, even though the figures set forth were factually accurate.

On the other hand, from table V, it will be noted that there are wide variations in the average total cost, less the cost of recording, under these four systems. For instance, contrasting the highest total title costs, less the cost of recording, under each of these four systems, it is found that, under the Torrens system, in Massachusetts, the average total title cost is $26.59 per loan, whereas under the abstract and attorney system in Illinois, this cost is $41.90 per loan, under the attorney system in Virginia, this cost is $53.19 per loan, and, under the title insurance system in New York, this cost is $55.78 per loan.

On the other hand, contrasting the lowest total title cost under each of these four systems, it is found that, under the Torrens system in Minnesota, the average total title cost is $21.12, whereas under the attorney system in Massachusetts, this cost is $33.07, under the abstract and attorney system in New York, this cost is $53.57, and, under the title company system in New York, this cost is $55.78.

It may be concluded that the average total title cost under the Torrens or land title registration system is roughly three-fourths of the average cost under the three other systems of title proof, and that the time required to obtain a report on title under this system was, at least, less than that required under the other systems.

However, it should be borne in mind that it is extremely difficult to make comparisons between the different systems based on costs alone. To make a comparison, it would be necessary, of course, to compare the costs of proving titles of like complexity. Similarly, certain variations in the total costs may be due to differences in real estate laws and conveyancing customs of the various States rather than to varying expensiveness of the methods of title proof.

Furthermore, a comparison of the cost of proving title under different systems of title proof does not give a perfect comparison of the cost of like services. For example, under the title insurance and the Torrens systems, a greater degree of protection is probably received than under other systems and it is to be pre-

TABLE V.—*Analysis of time and cost elements under different methods of title proof based on H. O. L. C. experience*

[Source: *Special Report No. 3*, "Land Title Procedure," Subcommittee on Law and Legislation, Central Housing Committee]

State	Method	Average loan	Average time in days [1]	Average total title cost, less recording [2]	Average total title cost [3]	Average total title cost per $1,000 of loan
California	Title company	$2,571.96	40.4	$30.80	$35.35	$13.74
Georgia	Attorney	2,258.58	24.6	35.55	42.00	18.59
	Abstract and attorney	2,392.57		41.90	(43.87) 46.70	19.55
Illinois	Title company	3,409.31		49.07	54.43	15.93
	Torrens	4,657.97		35.45	38.50	8.26
Indiana	Abstract and attorney	2,267.42	19.4	38.09	(37.06) 40.43	17.83
Massachusetts	Attorney	4,179.43	19.2	33.07	39.39	9.42
	Torrens	5,283.01	16.5	26.59	31.82	6.02
Minnesota	Abstract and attorney	2,196.87	51.4	29.70	(34.20) 34.20	15.56
	Torrens	2,406.51	46.1	21.12	25.00	10.38
New York	Abstract and attorney	5,539.91		53.57	59.96	10.82
	Attorney	3,672.94		35.40	39.50	10.75
	Title company [4]	5,760.76		55.78	[4] 62.13	[4] 10.78
Texas	Abstract and attorney	2,386.28	36.5	33.75	(36.64) 37.00	15.50
	Title company	2,155.05	36.6	32.47	35.67	16.55
Virginia	Attorney [5]	3,003.54		53.19	[5] 57.81	[5] 19.24
Washington	Title company	1,831.59	71.4	30.27	30.44	19.89

[1] Time elapsing between reference of the case to the title examiner and receipt of preliminary certificate of title. Where no figures are given, elapsed time was not tabulated.
[2] Difference between total cost and cost of recording the instrument evidencing the lien taken by H. O. L. C.
[3] Figures in parentheses represent average cost in continuation abstract cases.
[4] These titles are not insured.
[5] These titles are also insured.

sumed that the cost of such protection is mirrored in final costs. Likewise, variations in the value of the property affect the costs of title insurance.

In addition, there are certain long-range costs, which could not readily be shown in these cost comparisons indicated in table V, which must be borne in mind when a comparison is made of the cost of proving title under the different systems. For example, under the attorney system there is likely to be a recurring cost for the examination of the entire chain of title in the public records at each transfer or encumbrance of the property. Consequently, the figures in table V, showing the costs of a single transaction, would probably minimize the long-range cost of the attorney system. Similarly, the cost of proving title under the Torrens or land title registration system, indicated in that table, does not take into account the cost of the initial registration of title.

Comparative Time and Cost Elements Under Identical Systems of Title Proof

Not only did the Home Owners' Loan Corporation experience reveal wide variations in the time required and the cost of securing proof of title under the different systems of title proof, but also in the time required and the cost of securing proof of title under identical systems of title proof in different States.

In the first place, it is interesting to note from table VI, that, under the abstract and attorney system in Indiana 19.4 days, and in Minnesota 51.4 days were required to secure proof of title; that under the attorney system in Massachusetts 19.2 days were required, whereas in Georgia 24.6 days were required; that under the title company system in Texas 36.6 days were required, whereas in Washington 71.4 days were required; and that under the Torrens system in Massachusetts only 16.5 days were required, whereas in Minnesota 46.1 days were required.

There are similar disparities in the cost of securing proof of title under the same system of title proof in different States. The figures, however, are subject to many of the qualifications which were indicated above with regard to a comparison of the cost of proving title under different systems. There is no assurance that the costs of like services are being compared. Thus, the cost of proving title under the attorney system in Virginia includes an insurance premium, whereas in all other States using this system the title is not insured. Likewise, the cost of proving title under the title company system includes an insurance premium in all States except New York.

Furthermore, insofar as the cost of proving title depends on the length of the chain of title and its complexity, a comparison of the cost of proving title under the same system in different States might not be indicative of the cost of like services. For instance, in some of the old eastern States, where property has changed hands many times, the chain of title is bound to be much longer than in the newer western States where there have been but few changes in title. From the costs revealed in table VI, there is, of course, no way of determining how far such factors influenced the costs under any one system in the various States.

Likewise, it should be pointed out that in some States it was necessary to obtain a new or original abstract in order to prove title, whereas in others only a supplemental one was required. The cost of preparing a new abstract is, of course, much greater than that of a supplemental one.

Nevertheless, if it be conceded that the lowest costs of securing title proof under each system in the various

TABLE VI.—*Comparative time and cost elements under identical methods of title proof, based on H. O. L. C. experience*

State	Method	Average loan	Average time in days [1]	Average total title cost, less recording [2]	Average total title cost [3]	Average total title cost per $1,000 of loan
Illinois	Abstract and attorney	$2,392.57		$41.90	(43.87) $46.79	$19.55
Indiana		2,267.42	19.4	38.09	(37.06) 40.43	17.83
Minnesota		2,190.87	51.4	29.70	(34.20) 34.20	15.56
New York		5,539.91		53.57	59.96	10.82
Texas		2,386.28	36.5	33.75	(36.04) 37.00	15.50
Georgia	Attorney	2,258.58	24.6	35.55	42.00	18.59
Massachusetts		4,179.43	19.2	33.07	39.39	9.42
New York		3,672.94		35.40	39.50	10.75
Virginia [4]		3,003.54		53.19	[5] 57.81	[5] 19.24
California	Title company	2,571.96	40.4	30.80	35.35	13.74
Illinois		3,400.31		49.07	54.33	15.93
New York [4]		5,760.76		55.78	[4] 62.13	[4] 10.78
Texas		2,155.05	36.6	32.47	35.67	16.55
Washington		1,831.59	71.4	30.27	36.44	19.89
Illinois	Torrens	4,657.97		35.45	38.50	8.26
Massachusetts		5,283.01	16.5	26.59	31.82	6.02
Minnesota		2,400.51	46.1	21.12	25.00	10.38

[1] Time elapsing between reference of the case to the title examiner and receipt of preliminary certificate of title. Where no figures are given, elapsed time was not tabulated
[2] Difference between total cost and cost of recording the instrument evidencing the lien taken by H. O. L. C.
[3] Figures in parentheses represent average cost in continuation abstract cases.
[4] These titles are not insured.
[5] These titles are also insured.

States is an adequate price to pay for that method of title proof in all States, those real property owners who prove their titles under the more expensive systems are paying an excessive amount for title proof.

Likewise, if it be conceded that the shortest time of securing title proof under each system in the various States is an adequate time within which a title may be proved, those property owners who prove their titles under the less expeditious methods are required to wait too long for proof of their titles.

Elements of Cost of Proving Title

Some indication as to why the costs of proving title under the different systems in the same State and under the same system in different States vary so greatly may be obtained from a study of the various elements of cost.

Table VII shows the principal elements of cost which go to make up the average cost of proving title under each system in the 10 States, which are grouped by systems of title proof so as better to illustrate the variations under each system.

Reading down the columns to see the variations in the cost of each major element which goes to make up average total title cost, it is to be noted that in the column entitled "Average abstract fee—new," the average cost in New York was $29.93, in Washington $39.89, in Illinois $41.96, and in Indiana $54.61; under "Average abstract fee—continuation" the cost in Minnesota was $10.97, in Washington $12.02, in Illinois $13.96, in Texas $14.08, and in Indiana $21.73. Similar variations will be seen to exist in the other major elements of cost.

The abstract and attorney system shows rather wide variations in the major elements of cost. The average cost of title examination in Indiana is less than one-third of that in Illinois, and the average cost of a new abstract in New York is approximately half that in Indiana.

Under the attorney system, it is to be noted that the average title examination fee in Massachusetts is approximately two-thirds of that in New York and Virginia. Under the title company system, there are extreme differences in average closing fee, as well as lesser variations in the cost of title insurance. Under the Torrens system, the average title examination fee in Minnesota is only two-thirds as great as in Massachusetts, while the average closing fee in Illinois is more than twice as great as in Massachusetts.

Other Criticisms of Existing Methods of Title Proof

Besides the excessive time and cost elements involved in title examinations, each of these systems is open to other criticisms.

For instance, the attorney system does not afford an absolute guarantee as to title or a guarantee of recoupment in case of loss through defective title, because the attorney's opinion is based entirely on the accuracy of his examination of the public records, and if he is negligent in searching the records and rendering an opinion, liability may be enforced against him only up to the extent of his personal resources.

The abstract and attorney system is subject to the same criticism. In addition, since the attorney's opinion is based almost entirely upon the abstract and

TABLE VII.—*Elements of total title cost, based on H. O. L. C. experience in 10 States*

System	State	Average abstract fees			Average title examination fee	Average recording fees		Average closing fee	Average attorney fees	Average survey cost	Average title insurance fee	Average escrow fee	Average release fee	Average Torrens fee	Average total title cost
		New	Continuation	Federal title search		Original papers	Releases, waiver, etc.								
Abstract and attorney	Illinois	$41.96	$13.96	$1.78	$23.27	$4.89	$1.32								$46.79
	Indiana	54.61	21.73	1.02	6.98	2.34	1.65	[1] $6.58							40.43
	Minnesota		10.97		16.31	4.50	0.76								34.20
	New York	29.93				0.39	6.59	16.70							59.96
	Texas		14.08		12.26	3.25	2.38	4.13							37.00
Attorney	Georgia					6.45	1.15		[2] $30.03	$6.57					42.00
	Massachusetts				24.86	[3] 6.32		9.17							39.39
	New York				33.53	4.10	1.79			8.88					39.50
	Virginia [4]				34.15	4.02	0.62			7.10	$9.48				57.81
Title company	California					4.55	3.16				20.80	$7.53			35.35
	Illinois					5.26	2.39	18.65			25.47		$3.90		54.33
	New York [5]				[6] 33.81	0.35	6.18	15.84		14.95					62.13
	Texas					3.20	2.01	5.00			28.73				35.67
	Washington	39.89	12.02	2.00		6.17	1.09		9.14		19.98	7.69			36.44
Torrens	Illinois					3.05	7.05	18.65					3.81	[7] $3.13	38.50
	Massachusetts				20.12	[3] 5.23		8.94							31.82
	Minnesota				14.23	3.88	0.62							5.67	25.00

[1] Includes fee escrow service costs.
[2] Includes abstract, certificate, closing, and title insurance fees.
[3] Average of recording fees both for original papers and release.
[4] These titles are also insured.
[5] These titles are not insured.
[6] Average title certificate fee.
[7] For continuation of owner's duplicate certificate of title.
[8] It should be noted that the table includes only the major elements in title cost, expressed as averages. Furthermore, the figures in the last column are average total costs, and not the sum of the major elements in the preceding columns. Therefore, these figures merely serve to indicate the relative importance of each major element in total cost.

since the certification of the average abstract company is so drafted as substantially to limit its liability for errors in the abstract, it is apparent that there is even less possibility of recoupment in case of loss through defective title. Furthermore, the average title insurance certificate or policy is usually so couched with exceptions as to limit substantially the liability of the issuing company in case of a defective title.

The Subcommittee on Law and Legislation, in an endeavor to remedy to some extent the above defects in the first three methods of title proof, has collected a set of forms [46] which have been approved and used by Federal agencies when securing proof of the marketability of title, which it recommends for the consideration of lending institutions.

Those systems of title proof which involve an examination of the public records are also subject to a criticism which is directed not so much at the method of title proof as at the extent to which the examination covers recorded evidence which might affect the title.

In most States, conveyances and liens are required to be recorded in the recording office of the political subdivision in which the real property affected is situated, to be binding upon subsequent purchasers or mortgagees of the property.

On the other hand, liens or changes in titles arising by virtue of decrees rendered in Federal courts and liens arising by virtue of Federal law, such as those for nonpayment of certain Federal taxes, are not in all cases required by Federal law to be recorded in the recording office where the real property is situated in order to constitute notice and be binding upon subsequent purchasers or mortgagees.[47] This fact prevents the records of the various local recording offices from properly reflecting the status of title of property within their jurisdiction. Consequently, to be absolutely certain of the status of the title to any piece of real estate, it is necessary that a search be made of both the records of the local recording office and those of the Federal district court for the district in which the real estate is located. Since the records of the local recording offices in all States do not contain notice of these Federal liens and since in some cases title examination under those systems which involve a search of the public records is based entirely upon a search of the local records, in some instances, at least, the title search may not cover all matters which may affect title.

The Subcommittee on Law and Legislation has drafted a proposed Federal act which would require notice of liens arising by virtue of Federal law in favor of the United States, or any department, agency or instrumentality thereof, to be filed in the recording office of the political subdivision where any real property affected by such liens or decrees is situated in order to be valid against subsequent purchasers, mortgagees, or judgment creditors. Enactment by Congress of such a proposal would mean the consolidation in the various recording offices of notice of practically all liens, whether arising by virtue of Federal or State law, affecting real property located within the jurisdiction of the recording office. Such consolidation would, of course, decrease the risk and expense of title examination under all methods involving a search of public records.

Land Title Registration System

It was pointed out above that the Torrens or Land Title Registration System is the most economical method of title proof, the average cost being roughly only three-fourths that of the three other methods. Furthermore, according to the study, the Torrens system is probably the most efficient and one of the two most expeditious.

Under the Torrens system, there is, of course, practically no possibility of loss arising through defective title as the State land court or other body having charge of the registration gives the owner a certificate of title which is good against everyone, any subsequent claimant who is able to show a better title than the registrant being compensated from the registration funds. After the original registration, all subsequent dealings with the land are entered on the certificate, and no new examination is needed.

Torrens, or similar land title registration laws, are now in effect in 16 States,[48] and in four jurisdictions under the sovereignty of the United States.[49] However, the land title registration system has not been a great success in any of these jurisdictions with the exception of Illinois, Massachusetts, Minnesota, and Hawaii. The extent to which the Home Owners' Loan Corporation made loans on Torrens titles, expressed in percentages of the total loans made in each jurisdiction, is as follows: Hawaii, 31; Minnesota, 12.5; Illinois, 8; Massachusetts, 6; Ohio, 3; Washington, 0.2; Colorado, 0.1; South Dakota, 0.03.

[46] These forms are contained in the Subcommittee's Report Number 6, entitled *Forms of Title Evidence.*

[47] It is true, of course, that sec. 3186, U. S. Revised Statutes, does provide that a lien in favor of the United States, arising by virtue of nonpayment of Federal taxes, shall not "be valid as against any mortgagee, purchase, or judgment creditor until notice thereof has been filed by the collector (1) in accordance with the law of the State or Territory in which the property subject to the lien is situated, wherever the State or Territory has by law provided for the filing of such notice; or (2) in the office of the clerk of the United States District Court for the judicial district in which the property subject to the lien is situated, whenever the State or Territory has not by law provided for the filing of such notice; * * *" However as all States have not passed statutes providing for the filing of notice of such United States liens, the Federal Government has not been able to adopt the procedure of filing notice of its liens in the local recording offices in States other than those which have passed such statutes. Consequently, the records of the local recording offices of all States do not contain notice of such United States liens for nonpayment of taxes.

[48] California, Colorado, Georgia, Illinois, Massachusetts, Minnesota, Nebraska, New York, North Carolina, North Dakota, Ohio, Oregon, South Dakota, Tennessee, Virginia, Washington.

[49] Hawaii, Philippine Islands, Puerto Rico, and Guam.

From these percentages, it is apparent that in only 8 of the 17 jurisdictions in which land title registration laws are in effect has the Home Owners' Loan Corporation made any use of Torrens certificates, and in only 4 jurisdictions can the use of Torrens certificates be said to amount to any considerable portion of the total.

The probable reasons why the land title registration system has not proved successful are as follows:

(1) The legislation providing for such system may be unworkable either because the laws were poorly drafted or because provisions inserted by adverse interests at the time of enactment make them impracticable.

(2) The expense of the original registration of title, which ranges from $50 to $150, including attorney's fees, may be too excessive to justify greater demand for such registration, especially on the part of small home owners.

(3) The credit of the State may not have been pledged or a sufficient assurance fund may not have been accumulated to assure prospective registrants of the ability of the fund to satisfy any claims which may arise in case of defective title.

Although the Subcommittee's report points out that the original cost of land title registration is considered commensurate with the protection received in Hawaii, Illinois, Massachusetts, and Minnesota, it further indicates that the initial cost of registration can and should be reduced in those States where the system is in successful operation. Even in those States where the system has not been in operation sufficiently long to build up an assurance fund, the original fee could well be reduced if the credit of the State were pledged.

Substantial assurance funds have been accumulated in Massachusetts, Illinois, and Minnesota. Although there is no assurance fund in Hawaii, the credit of the Territory of Hawaii is pledged to guarantee the titles. During 38 years of successful operation of the Torrens law in Massachusetts, an assurance fund in excess of $250,000 has been accumulated.[50] A registered title is furnished, which is backed not only by the assurance fund but also by the credit of the Commonwealth. During this entire period, only three claims in a total amount of $2,300 have been filed against the Massachusetts fund.

The National Conference of Commissioners on Uniform State Laws has drafted a uniform land title registration law which has been recommended to the various States for enactment. The Subcommittee on Law and Legislation of the Central Housing Committee is of the opinion that the proposed act can be improved and made more workable, and has undertaken the task of redrafting it.

The major improvement in the new draft will be the reduction of the high average initial cost which at present makes land title registration virtually out of the question for small-home owners. Another change will be the elimination of all exceptions from the certificates of title. Three methods will be provided under which land titles may be registered:

1. A long, expensive method such as that now in effect in some States and that provided for by the uniform land title registration act approved by the National Conference of Commissioners on Uniform State Laws, i. e., State examination of title with court confirmation prior to registration, which would necessitate a high initial cost for registration, but would insure the title against all defects both prior to and after registration.

2. A shorter and less expensive method whereby the land would be registered by the State on the basis of a responsible title certificate or of an attorney's opinion, with a fee approximately half of that required by the first method, but which would cover, in addition to registration, the insurance [51] of the title up to a designated maximum amount against all defects both prior to and after registration.

3. A still shorter and less expensive method whereby the land would merely be registered by the State on the basis of a responsible title certificate or an attorney's opinion, with no provision for insurance. After the expiration of the statute of limitations provided for in the act, a title registered under the second and third methods would be as perfect as those registered under the first method.

Although the expense of the original registration of land under the first system might be too high for the ordinary purchaser of a home, the new act provides the alternatives of the two more economical methods.

On the other hand, if a developer of a new subdivision gets his whole tract registered under the first system, before any subdivision takes place, the cost of registered title per lot would be nominal and the purchasers would be saved the expense of getting an absolutely guaranteed title or of being forced to take a certificate which is not absolutely guaranteed.

It is believed that a land title registration system can be developed which would materially reduce the cost of proving title in the purchase, mortgage, or sale of real estate, provide a reliable system under which there would be no risk of loss through defective title in such transactions, and make for better and more stable title to real estate.

[50] The Massachusetts law provides that after the fund has reached $200,000, the income therefrom shall be credited to the general fund for the purpose of defraying, as far as possible, the expenses of the administration of the law relative to the land court and the registration of title to land. For a discussion of the operation of the land title system in Massachusetts, see a pamphlet, *Land Title Registration in Massachusetts* (1937), by Clarence B. Hemphrey, Engineer for the Court, a copy of which may be obtained from the Land Court, Boston, Mass.

[51] It is interesting to note, in this connection, that out of a total premium income to title insurance companies of $12,091,125 in 1919 only $298,738 was paid for losses sustained by the assured. See Huebner, *Property Insurance* (New York, 1922), p. 479.

Supervision of Private Home Mortgage Financing Institutions

During the depression of 1930–35, there was a complete breakdown of the corporate home-financing structure. Building and loan associations were unable to meet their shareholders' applications for withdrawals. Insurance companies were unable in many instances to grant the loans applied for by their policy holders. Other mortgage lending institutions were unable to attain the degree of liquidity necessary to maintain their solvency.

This breakdown was due largely to the fact that the assets of such institutions had been invested in home mortgage loans, which could not at that time be liquidated quickly, and to the inadequate regulation of building and loan associations, banks, insurance companies, and other mortgage-lending institutions by the various States.

To relieve these mortgage-lending institutions of some of their "frozen" home mortgage investments and thereby enable them to attain some degree of liquidity, as well as to relieve home owners in distress and to place home mortgage financing upon a sounder basis, the Federal Government enacted the legislation and set up the Federal agencies discussed in the first part of this section.

Through the supervision exercised and the rules and regulations promulgated by all of these Federal housing agencies, the Federal Government has given impetus to the movement toward long-term amortized, single mortgage lending and made mortgage loans a liquid, preferred type of investment.

Furthermore, through supervision by various Federal agencies, the improper practices which accentuated the chaotic conditions in the home mortgage financing field have to a great extent been eradicated. The Federal Home Loan Bank Board charters and closely regulates and supervises Federal savings and loan associations. The same Board, acting as the Board of Trustees of the Federal Savings and Loan Insurance Corporation, exercises a degree of influence over insured Federal and State-chartered savings and loan associations.

This Corporation, through its authorization to insure State-chartered savings and loan associations, subject to certain conditions, has instituted a number of improvements in the corporate structure and financing methods of these institutions. For instance, it has brought the corporate structure of insured State-chartered institutions into strict accord with the statutory requirements of their State and the charter provisions under which they operate. It has simplified and made more definite the form of share or investment contracts issued by such institutions. It has materially assisted in the present movement toward the elimination of the practices of charging fines and penalties and allowing forfeitures which made hazardous share investment in such institutions.

However, the Federal Home Loan Bank Board and the Federal Savings and Loan Insurance Corporation are able to supervise only a part of those institutions which make home mortgage loans. In the case of State-chartered savings and loan associations, whether or not they be members of the Federal Home Loan Banks or insured by the Federal Savings and Loan Insurance Corporation, it is impossible for those Federal agencies to exercise the control which is necessary to insure proper functioning at all times, since such control is vested in the State savings and loan authorities.

In many instances, of course, the basic difficulty in the State-chartered savings and loan field is in the legislation authorizing the creation of State-chartered savings and loan associations and their supervision by the State building and loan supervisory authorities. In many instances, this legislation is now obsolete in the light of good mortgage lending practice.

To serve as an illustrative guide for those States adopting a new law or revising their old laws in accordance with present day conditions, the legal department of the Federal Home Loan Bank Board and a committee of the United States Building and Loan League, working together, have prepared a standard savings and loan act,[52] which has been made available to all State savings and loan supervisory authorities and to the various State legislatures.[53]

In addition, there are institutions other than Federal and State-chartered savings and loan associations which make home mortgage loans, such as savings banks, trust companies, life insurance companies, mortgage companies, commercial banks, as well as individuals. Although there is some supervision exercised over the aforementioned institutions by the appropriate State authorities, there is not in all cases sufficient supervision to assure proper practices. The State legislation authorizing this supervision and the efficacy of the supervision require review in the light of sound present day practice.

Supervision of Private Large-Scale Housing Mortgage Financing Corporations

Due to the large amount of funds required, the financing of the construction of apartment houses and other large-scale commercial housing facilities has been one of the most difficult problems in the entire housing field. Few individuals, groups of individuals, or corporations have had sufficient capital to meet the initial cost of such projects.

[52] A copy of this act may be obtained upon request from the United States Building and Loan League, Chicago, Ill.

[53] The substance of the provisions of this act which relate to supervision have recently been enacted into law by the State of Georgia.

The usual practice in financing such developments has, of course, been to charter a corporation and sell to the public its stock, or to sell its bonds secured by mortgages on the property, which bonds were retired from the income received from the property, after payment of taxes, assessments, insurance and operating expenses.

As such companies could be chartered under the laws of any State, the organizers would naturally choose the State where the least supervision was exercised. To meet such competition other States likewise provided for little supervision even though they realized the need for more stringent regulation. Consequently, little or no State supervision of such corporations became the rule rather than the exception, and many frauds were perpetrated upon the investing public.

Furthermore, the depression period also brought to light certain other fundamental weaknesses in this method of financing. When the incomes of people were reduced so that they were unable to pay their rents, the income from these properties securing a bond issue would thereby be decreased, and there would be a default in interest and principal payments. It would thereupon become the duty of the trustee to exercise the power of sale contained in the deed of trust or mortgage instrument and foreclose upon the property, and the property would often be sold for from one-third to one-half of its "real" value. In thus realizing upon the security which underlay a bond issue during a depression period, the bondholders would lose anywhere from one-half to two-thirds of their investment.

If, upon default in the terms of the contract, the privilege of foreclosure or power of sale was not immediately exercised, a lengthy and costly legal proceeding often arose on the part of the bondholders' protective committee to have a receiver appointed and the possession of and the rents and profits from the property turned over to him for the benefit of the bondholders, pending foreclosure.

In view of the need for expansion in this type of housing finance, for development of some effective form of supervision over the corporate structure and financial methods of such corporations, and for prevention of the distress sale of such housing properties during depression periods, it appeared necessary for the Federal Government to take some steps in this field of mortgage financing. Consequently, provision was made in title III of the National Housing Act of 1934 for the chartering of national mortgage associations by the Federal Housing Administrator.

These associations were authorized to purchase and sell first mortgages and such other first liens as are commonly given to secure advances on real estate held in fee simple or under a lease for not less than 99 years, under the laws of the State in which the real estate is located, together with the credit instruments, if any, secured hereby, and to borrow money for such purposes through the issuance of notes, bonds, debentures, or other such obligations.

Insured mortgages on both single-family homes and on large-scale commercial housing projects, including limited-dividend corporations, were authorized to be purchased by such associations and their bonds and debentures issued on the security thereof. These associations were to be under strict supervision by the Federal Housing Administrator.

Therefore, in the National Housing Act Amendments of 1938, title III of the National Housing Act of 1934 was amended by liberalizing the provisions for the chartering and operation of national mortgage associations so as to enable such institutions to begin operations when 25 percent of the required $2,000,000 minimum subscription to the capital stock had been paid in. Payments upon stock were permitted to be made in insured mortgages or uninsured first mortgages, the principal amount of which did not exceed 60 percent of the appraised value of the property at the time of subscription. The act was further amended to enable such institutions to issue debentures in an amount not to exceed 20 times the par value of the outstanding capital stock of such associations (rather than 12 times the par value as previously provided); to accept, at par and accrued interest, debentures issued by them in payment of obligations due them, provided such debentures were canceled and not re-issued; to purchase on the open market their own or other associations' debentures; and to initiate, purchase, or sell mortgage loans covering single-family homes, large-scale rental properties, multifamily dwellings, or groups of single-family dwellings, which mortgage loans were acceptable for insurance under title II, whether the mortgages were actually insured or not, provided that the principal amount of an uninsured mortgage did not exceed 60 percent of the appraised value of the property. The act was also amended so as to provide that the debentures issued by such associations should be exempted from all taxation, Federal, State, or local (except surtaxes, estate, inheritance, and gift taxes), and that the associations themselves, including their franchises, capital, reserves, surplus, mortgage loans, income, and stock (but not including real property held by them), should likewise be exempted from all taxation.

Although these national mortgage associations, when a sufficient number have been chartered, will facilitate the financing of large-scale private housing projects and be able to exercise a salutary control over the financing methods of companies initiating such projects, there still remains a need for greater State supervision over the initiating companies.

Administration of Tax Collection

Excluding State governments, there are in the United States 182,000 taxing jurisdictions, of which about 128,000 are school districts, about 3,000 are counties, about 14,000 are minor units, and the remainder are cities, townships, and other municipal governments.

This large number of taxing jurisdictions is due to the fact that in most States, real property taxes are collected through small local units; and to the fact that, where the local unit is large enough to levy more than one kind of tax, there is often a separate collector for each tax. In such units, State, county, city, school, poor, road and other taxes may each be collected by a different tax collector. Likewise, special improvement districts usually have their own collectors.

The multiplicity of tax collection agencies, acting for overlapping or coterminous jurisdictions, makes collection costs unnecessarily high and thereby increases the burden borne by home owners as well as all real estate owners. In addition, such a decentralization of tax collection makes more difficult the ascertainment of whether all taxes and assessments on a given piece of real estate are paid when due.

B. E. Nicholson, in his study of the *Collection of Local Taxes in Pennsylvania*, [54] estimates that from 5 to 6 cents of each dollar collected for taxes in that State are consumed by the costs of collection; that the people of Pennsylvania pay four or five times more for tax collection than do the people of Ohio, where there is a unified system of collection under the supervision of salaried county officials. He further estimates that an annual saving of from $2,000,000 to $3,000,000 would result should Pennsylvania adopt a system similar to that of Ohio.

Under our present generally haphazard system of tax administration, mortgagees and other lienors are unable conveniently to keep a current check upon the payment of local taxes by the mortgagor, and are thereby put to considerable expense to see that their lien is not jeopardized by nonpayment of taxes and assessments. By way of illustration of this problem, it may be pointed out that it costs the Home Owners' Loan Corporation approximately $350,000 a year to keep a check on the payment of taxes and assessments on properties on which it holds mortgages.

There is no one office to which an inquiry may be addressed concerning the status of all taxes on a specific piece of property, so long as each taxing and special assessment unit has its own collector. Nor can one rely upon information obtained from the owner, for even though honest, he may be mistaken due to misinformation, error, or oversight. Furthermore, if the mortgagee is not a local resident, personal local supervision is impossible except through a paid agent.

[54] Thesis, University of Pennsylvania., 1932.

It is apparent that any system designed to afford current information to the mortgagee or other lienor must be premised upon a centralization of tax and special assessment collection. Provision could then be made as is the practice in some States whereby, on payment of a nominal fee, notice would be given interested parties of any delinquencies on land on which they held a lien. Provision could also be made for notice to those having an interest in real estate of the possibility of and the date of a sale of the realty to satisfy a tax lien.

The Subcommittee on Law and Legislation, in a recent report on the "Administration of the Payment of Taxes on Real Estate," [55] has made recommendations that State laws be advocated: (1) which would provide for a centralized system of tax collection under a single official, with the county or some other convenient geographical subdivision as the unit of operation, the official to be paid a salary rather than fees or commissions; (2) which would require the collectors of taxes and assessments to furnish for a small charge notice to mortgagees and other inquiring parties of delinquencies in tax payments; and (3) which would impose on purchasers of tax certificates or liens the duty of giving notice to those having an interest in or lien on the real estate affected prior to the foreclosure of such tax certificate or lien.

At the request of the Central Housing Committee, the Subcommittee is now drafting a standard real estate tax collection act which will embody the above recommendations. A centralized system of tax collection would not only reduce the cost of tax collection but would also be far more efficient and convenient to the taxpayer. Furthermore, if notice is given mortgagees and other interested inquiring parties as to delinquency in taxes and special assessments, and as to the pendency of a sale to foreclose a tax lien, the cost and inconvenience of mortgage lending would be considerably reduced, and greater protection would be afforded both owners and lienors of property.

Taxation of Private Housing

Census figures show that, between 1921 and 1932, the average per capita general property tax levy by all States, their subdivisions, and the District of Columbia rose from $13.91 to $40.37. This average per capita levy is estimated to have increased to $45.17 in 1934, to $46.72 in 1935 and to $48.72 in 1936. This would represent an adjusted tax rate at present of about $26.30 per thousand dollars of property value.

From 1912 to 1932, the net debt of cities, towns, villages, and boroughs increased 207.9 percent and that of school districts, townships, and other civil divisions

[55] *Special Report No. 4.*

increased 1,611 percent. These debts will probably be paid largely from additional taxes upon real property.

Depression conditions brought an insistent demand for alterations in the system of general property taxation. It had long been known that personal property escaped assessment to a much larger degree than real property. As between different types of real property, it was found that in some jurisdictions homes bore a relatively larger proportion of the real property tax burden than did business and commercial properties. In other jurisdictions, the situation was reversed. Emergency conditions did not result in agitation for more equitable assessment under existing legislation but in action leading to arbitrary limitations on property tax rates and exemptions of certain types of real property. The swing toward exemption of homesteads from taxation has been the principal development in property taxation of interest to home owners.

In recent years, the homestead tax exemption movement has grown by leaps and bounds. In 1933, eight States considered homestead tax exemption laws, and the States of Texas and West Virginia adopted such laws through constitutional amendment. During the following years, bills were brought before State legislatures in quick succession: in 1934, in three legislatures; in 1935, in 13; in 1936, in 5; and in 1937, in 18.

By 1938, 13 States had passed laws providing for exemption or for a reduced tax rate on homesteads,[56] 2 States have passed constitutional amendments making such laws possible,[57] and in 3 States constitutional amendments were awaiting action by the voters.[58]

The majority of the States restrict the exemption to owner-occupied properties. In some cases, the exemption applies only to State property taxes, and in other cases to all forms of ad valorem or general property taxation, including taxation by municipalities and special taxing jurisdictions. However, in all States having exemption laws, except Arkansas and Oklahoma, the homesteads are not exempt from taxation for preexisting bonded indebtedness.[59]

[56] Alabama, Arkansas, Georgia, Louisiana, Minnesota, Mississippi, Oklahoma South Dakota, Texas, Vermont, Wyoming, Iowa, West Virginia.

[57] North Carolina, Utah.

[58] Florida, Pennsylvania, Rhode Island.

[59] A tabular summary of the homestead tax exemption laws and constitutional amendments appears in the *Federal Home Loan Bank Review*, October 1937, pp. 7-10.

The widespread growth of homestead tax exemptions raises general problems of who shall be exempt, how this exemption will affect other forms of taxes, and how it will burden other taxpayers.

Opinion as to the desirability of homestead tax exemption has been sharply divided. Advocates of exemption cite the handicap that taxation places on home ownership and argue that homestead exemption would have several beneficial effects. These effects have been summarized to the 1934 Convention of the United States Building and Loan League, as follows:

> First, and most obvious, will be a rise in home values. Following it, no doubt, there will be a period of new construction by those people who have been deterred from building their own homes because of the tax load which they have considered as being too great. That this is true is shown in the case of the State of Ohio where the decrease in taxation through limitation has been an important factor in the rise of real property values. Financing of homes will be easier, because the uncertainty of risk which makes up a part of the financing charge will be clarified. Lenders will be more willing to extend credit, and at higher ratios, since they will be assured that their first mortgage is in reality a first lien and not one subject to prior lien indefinite in amount. Since the cost of the money is also one of the factors making up the price of property, a tax reduction will result in substantial improvement in the home realty market. The final effect of such a homestead exemption will then transfer a large mass of individuals who are now in the tenant class to the home owning group, where previously the confiscatory nature of taxation on homes was the chief reason for their not undertaking home ownership.

On the other hand, the Twentieth Century Fund's recent study entitled *Facing the Tax Problem* denounces homestead tax exemptions, saying:

> From the point of view of a just distribution of the tax burden we can see no merit in the homestead exemptions recently adopted in Florida and several other States. The most obvious injustice in such exemptions is that they discriminate against the tenant, who must bear in his rent at least part of the real estate tax burden on his dwelling, and favor the person who happens to be able and willing to own his home.

It argues, furthermore, that the families which benefit from homestead exemptions are usually forced to pay an equal amount through some other form of taxation. In view of the conflict of opinion as to the practicability of the policy, careful study should be given this type of exemption before it is extended.

PART 2. LEGAL ASPECTS OF PUBLIC HOUSING

By Leon H. Keyserling [60]

The United States Housing Act of 1937, complemented by State legislation, provides the legal mechanism for a national, public, low-rent housing program. Within this framework, local housing authorities, cooperating with the United States Housing Authority, can move actively to deal with their local problems. The State laws, providing for tax-exempt, non-profit projects available for low-income families, have been sustained by the State courts.

Restrictive Nature of Early Housing Legislation

In the past, progress in resolving the housing problem, as reflected in local and Federal legislation, has been slow and groping. In the States, remedial measures have been predominantly of a restrictive character in the form of building and health codes dealing generally with construction, housing occupancy and maintenance, and zoning; or, more specifically, with sanitation, prevention of room overcrowding, structural safety and materials, room arrangements, plumbing, standards of maintenance, uses of property, light, air, and access, fire protection, and similar subjects. These codes have been, at best, only guides to prospective builders and, however necessary to prevent the repetition in new construction of existing hazardous conditions, are no more than a negative approach to the housing problem.

A second and supplementary approach has been by way of laws requiring the repair or demolition of existing unsafe and insanitary dwellings. But such steps as have been taken in this direction have been only mildly effective. Dangerous and unhealthful buildings comprising large slum areas still stand. This has been due, not so much to the absence of local authority or to the lack of constitutional power to grant such authority, as to the weaknesses inherent in the existing legislative schemes. In many instances, there has been too much and too diversified legislation with an absence of centralized responsibility—with the powers relating to the elimination of unfit dwellings distributed, for example, in many such uncorrelated public offices and bureaus as the fire marshal, building engineer, health officer, building inspector, tenement commission, safety commission and board of public works, or among State as well as local officials. Added to this defect have been such other factors as: a procedure which is too cumbersome, which involves too much expense, or which is too slow; defects relating to the powers of responsible officers and to the standards necessary to guide them in the enforcement of the laws and thus to protect them against criticism or liability; an understaffed or underpaid office responsible for enforcement; an apathy on the part of those charged with the administration of the laws; political intervention by affected owners; and public indifference.

In more recent years, some demolition of unfit houses by consent of owners has been accomplished through the use of Federal relief labor. Demolition by consent, however, is not a method upon which too much reliance can be placed. Unwillingness to demolish revenue-producing property irrespective of its condition, absentee ownership, reluctance of owners to advance what little cash may be required for repairs, and indifference of owners to the condition of their property all conspire to make this method of doubtful value in any long-range program for the elimination of unfit housing.

Finally, the housing shortage which prevails in many of the larger cities has presented a practical obstacle to the elimination of substandard buildings. An illustration of this situation exists in New York City, where it has been virtually impossible to enforce demolition under the Multiple Dwelling Act, for if the public officers were to demolish the "old-law tenements" which violate that law, thousands of people would be unable to obtain quarters elsewhere at rentals they could afford.

This latter fact points to the crux of the housing problem—that restrictive housing legislation of the types just mentioned, no matter how mechanically perfect or how energetically enforced, is alone impotent to remedy bad housing conditions; that at most it can ameliorate but cannot cure the evils of the slum.

Constructive Legislation

Isolated efforts have been made in the direction of State housing enterprises, through which homes are constructed by or on behalf of the State for sale or rent to such persons as industrial workers, veterans, or farmers, first, in 1917 under the Massachusetts Homestead Commission Act, followed in North Dakota by the passage of the Home Building Act and in Washington and California by the inauguration of land resettlement programs. Attempts also have been made to extend public aid to private housing enterprise either by State housing loans, as in Oklahoma, by tax exemption to limited-dividend housing corporation enterprises, as in New York, or by municipal cooperation, as in New Jersey (where cities have been authorized to exert the power of eminent domain on behalf of private housing projects) and in Wisconsin (where cities have been authorized to invest in cooperative housing corporations). These local efforts in constructive housing,

[60] Leon H. Keyserling is Deputy Administrator and General Counsel of the United States Housing Authority.

however, have fallen short of their intended purpose, that is, to produce housing within the financial reach of the low income groups sought to be benefited. They are significant only as the beginnings of legislative recognition of the need for public housing aid.

Housing by the Federal Government Prior to 1937

War Time Measures

Almost simultaneously with the initial State ventures into the field of constructive housing, the Federal Government in 1918 first undertook direct home construction as a war measure through the United States Housing Corporation and the United States Shipping Board Emergency Fleet Corporation. With the signing of the armistice, this experiment was abandoned; and it was not until the recent depression years that the Federal Government again played a role in public housing—again as an emergency expedient, this time as an unemployment relief measure.

Aids to Limited-Dividend Companies

Under the Emergency Relief and Construction Act of 1932 and under title II of the National Industrial Recovery Act of 1933, first the Reconstruction Finance Corporation and then the Public Works Administration were authorized to make loans to limited-dividend housing corporations for low-rent housing projects. Mortgages on such projects, moreover, were authorized to be insured by the Federal Housing Administration under the National Housing Act (1934), as amended. These were complementary means of encouraging reemployment through the private construction of homes for persons in the low economic levels—persons for whom private enterprise had not previously been tempted to build and for whom there was a dearth of decent housing. The experience under these acts, like that under analogous State acts, demonstrated quite conclusively that dwellings within the reach of persons in the low economic levels could not be provided without the aid of Government subsidies (such as direct grants, tax exemption, etc.) and the use of the power of eminent domain. Private enterprise, being generally ineligible for such aid and, moreover, demanding some profit even though limited, could not be depended upon to meet the need for a constructive housing program. Thus, the Public Works Administration suspended the limited-dividend-loan policy early in 1934 and decided that the remainder of the funds then available under the National Industrial Recovery Act would be used only for public low-rent housing and slum clearance. That act permitted two possible methods of effecting this purpose: either construction by local public agencies with the aid of Federal loans and grants, or direct construction by the Federal Government.

Direct Construction by the Public Works Administration and Farm Security Administration

Due to the absence at that time of adequate State laws authorizing local public bodies to engage in housing activities, the Public Works Administration turned to the only method then available, namely, direct Federal construction. In the Emergency Relief Appropriation Act of 1935, Congress extended the life of the Public Works Administration including its power to engage in housing. Under that act, also, the President, by Executive order, established the Resettlement Administration (now the Farm Security Administration in the Department of Agriculture) and authorized it to engage in suburban and rural housing. However, the curtailment of the Federal relief program in 1936 once more brought these Federal housing activities to an end.

Of all of the public housing activities prior to 1937, State or Federal, that of the Public Works Administration is by far the most outstanding. It was the first intensive public housing program the country had known. Fifty-one projects were undertaken in 36 cities as well as in Puerto Rico and the Virgin Islands, providing approximately 21,770 dwelling units for an estimated total of 87,000 persons. It was the first real attempt to correlate slum clearance and the construction of new dwellings for the low-income groups compelled to live under slum conditions, that is, the restrictive and the constructive phases of housing reform. It stimulated the enactment of State enabling housing laws; it gave impetus and direction to the long-existent demand for the Nation-wide housing program which was to follow; and finally, it provided the practical and legal background for the development of such a program.

Certain legal questions arose when direct construction was undertaken by the Federal Government. Acquisition of property for low-rent housing projects brought with it the question of whether persons occupying such premises would be under the exclusive jurisdiction and control of the Federal Government. Questions arose as to whether such tenants were entitled to vote in the State wherein the projects were located, were subject to the civil and criminal laws of the State or local government, were entitled to seek redress from the courts in the State, and could take advantage of the schooling and other privileges accorded other residents of the community. These questions were resolved when Congress enacted two laws, one relating to the Public Works Administration housing projects (49 Stat. 2025) and one relating to the Resettlement Administration housing projects (49 Stat. 2035). These laws expressly declared that the civil and criminal jurisdiction of the State wherein a Federal housing project was located should not be impaired by the acquisition of property therein by the Federal Government for a hous-

ing project and that the civil rights of persons residing on such property should not be affected.

Furthermore, these two acts disposed of another legal question which had arisen as a result of the Comptroller General's decision dealing with the power of the Federal Government to make payments in lieu of taxes which would have been levied on the projects had they not been owned by the Federal Government. Both acts specifically authorized the respective agencies to make payments to the local taxing body of sums in lieu of taxes, based upon the cost of the public or municipal services to be supplied for the benefit of the project.

There were even more serious legal issues, principally those relating to the power of the Federal Government to undertake direct home construction and the right to exercise the power of eminent domain therefor. The most fundamental of these questions is, naturally, that which relates to the power of the Federal Government to undertake housing and slum clearance projects. Several actions were instituted for the purpose of presenting this question to the courts, one of the most important being that in the case of *Township of Franklin* v. *Tugwell*, decided by the United States Court of Appeals for the District of Columbia (85 F. (2d) 208, 1936). Suit was brought to enjoin the expenditure of Federal funds for the purchase of lands for a Resettlement Administration project. The court held that insofar as the Emergency Relief Appropriation Act of 1935 purported to authorize the particular project contemplated, it was unconstitutional for the reason that Congress lacked the power to authorize such projects. In short, the court found that there was no relationship between the housing projects of the Resettlement Administration and the general welfare.

The question with regard to eminent domain arose in condemnation suits instituted for the purpose of clearing titles in areas contemplated as sites for Public Works Administration housing projects. In three such suits, arising in Louisville, Ky., Detroit, Mich., and the District of Columbia, the power of the Federal Government to condemn land for low-rent housing was denied on the ground that the taking of land for such purpose by the Federal Government was not a taking for a public use. (*United States* v. *Certain Lands in City of Louisville*, 78 F. (2d) 684, 1935; *United States* v. *Certain Lands in City of Detroit*, 12 Fed. Supp. 345, 1935; *In the Matter of the Acquisition of all Privately Owned Land, Etc.*, 63 Wash. Law Rep. 822, 1935.)

It should be noted that these three cases, as well as the *Tugwell* case, were lower Federal court decisions and that the United States Supreme Court did not pass on the issues raised.

Alley Dwelling Authority

No discussion of direct Federal construction would be complete without some mention of the entrance by the Federal Government in this field through the Alley Dwelling Authority. This agency was authorized by Congress in 1934 to rid the District of Columbia of its inhabited alleys. (By amendments to the Alley Dwelling Act in 1938, the Alley Dwelling Authority was authorized to borrow money from the United States Housing Authority to undertake a general program of low-rent housing in the District of Columbia.) The constitutionality of the Alley Dwelling Authority's power to condemn has been sustained. It should be noted, in this connection, that in sustaining the power of the Alley Dwelling Authority to condemn, the courts were not inconsistent with decisions holding that the Federal Government did not have the power to condemn for housing purposes, inasmuch as the Alley Dwelling Authority cases were, to a large extent, decided on the basis that Congress, in the exercise of its exclusive legislative power over the District of Columbia, could authorize the use of eminent domain to correct an evil which could not be treated adequately by the use of the police power.

The United States Housing Act of 1937

The decisions holding that the Federal Government lacked the power to condemn for housing purposes, the realization that many aspects of housing are local problems and that the Federal Government should act only in a financing and advisory capacity, and the gradual growth in the number of States having local enabling housing legislation pointed the legal way for the decentralized housing program for which Congress made provision in the United States Housing Act of 1937.

That act creates in the Department of the Interior the United States Housing Authority as a permanent corporation, headed by an Administrator appointed by the President for a term of 5 years. It authorizes this corporation to lend and to make grants to public housing agencies to aid in the development of their low-rent housing and slum-clearance programs. A public housing agency means any State, Territory, dependency, and possession of the United States, the District of Columbia, the District of Columbia Alley Dwelling Authority, and any county, municipality, political subdivision, public body or public corporation which is authorized by law to engage in the development or administration of low-rent housing or slum clearance.

Broadly speaking, the aid which public housing agencies may receive may be divided into two types: grants and loans. The grants, in turn, are of two types. The first, and the more important, is the annual contributions type, by which the Authority may pay to a public

housing agency annually for a period not to exceed 60 years, and pursuant to an annual-contributions contract, a sum equivalent to the going Federal rate of interest plus one percent of the development cost of a project. (The going Federal rate of interest is defined in the act as being the rate of interest specified in the then most recently issued bonds of the Federal Government having a maturity of 10 years or more.) By virtue of the amendments to the United States Housing Act adopted in June 1938, the annual-contributions contracts into which the Authority may enter are limited to those calling for payments of not more than $28,000,000 per year.

The other form of Federal subsidy is the capital grant. Where a public housing agency can demonstrate that the capital-grant method is better suited to the purpose of achieving low rentals than the annual contributions method, the Authority may make a capital grant to aid in financing the construction of a project, but this capital grant may not exceed 25 percent of the project's development cost. To supplement this capital grant, the President may allocate to the Authority, from any funds available for the relief of unemployment, an additional capital grant of not to exceed 15 percent of the project's development cost, to be expended for the payment of labor. The total capital grants which the Authority may agree to make may not aggregate more than $30,000,000, of which $20,000,000 may be made after July 1, 1938, and an additional $10,000,000 after July 1, 1939.

Funds for the purpose of making either the annual contributions or the capital grants are to be available to the Authority from appropriations authorized to be made by Congress. It is important to note, in this connection, that with reference to the annual contributions, the faith of the United States is "solemnly pledged" to their payment.

The Authority may make to public housing agencies loans bearing interest at not less than the going Federal rate of interest plus one-half of 1 percent, these loans to mature in not more than 60 years and, where annual contributions are made, not to exceed 90 percent of a project's development cost. These obligations and the interest thereon are exempt from taxation now or hereafter imposed by the United States. The loan authorization program of the Authority is, by virtue of the 1938 amendments, $800,000,000. Funds for these loans are derived by the Authority from the proceeds of the sale of its own Federally guaranteed tax-exempt bonds. It is to be observed that the payments under annual contributions contracts must be pledged as security for any loans obtained by a public housing agency, although annual contributions must first be used to apply toward the payment of interest or principal on any loans due to the Authority from the public housing agencies. The term "any loan due to the Authority," as just used, means any loan made by the Authority to assist in the development of a project, including any bonds or other evidences of such loan which the Authority has resold.

Not more than 10 percent of the funds provided for in the act may be expended within any one State.

The provisions of the act which thus far have been described relate, essentially, to the powers of the Federal Authority. The act, however, conditions financial assistance from the Authority upon the observance of obligations which the local public housing agencies must discharge if they are to be eligible to receive this aid.

These obligations are several: First, to raise at least 10 percent of a project's cost; second, to see that the State, county, city, or other political subdivision in which the project is located contributes in the form of cash, tax exemptions or tax remissions at least 20 percent of the Federal annual contributions; third, to observe the limitations, upon the construction cost of the dwelling facilities' portion of a project of $4,000 per dwelling unit and $1,000 per room in cities where the population is 500,000 or less and $5,000 per dwelling unit and $1,250 per room in cities where the population exceeds 500,000; fourth, in the development and administration of the projects, to require the payment to all architects, technical engineers, draftsmen, technicians, laborers, and mechanics of wages or fees prevailing in the locality; and fifth, to rent the completed projects only to families of low income, which, by the terms of the act means families in the *lowest* income group, who cannot afford to pay enough to cause private enterprise in their locality or metropolitan area to supply them adequately with decent, safe and sanitary dwellings, and whose net income at the time of admission does not exceed five times the rental (including the value or cost to them of utility services), or in the case of families with three or more minor dependents, six times such rental.

The Constitutionality of the United States Housing Act

In discussing this act from a legal point of view, the paramount question is: Can it resist attacks upon its constitutionality in the courts? It is apparent, from the general review of the act, that consideration of the validity of this measure must be directed to the following issues:

1. Does Congress have power to appropriate in aid of slum clearance and low-rent housing and for the employment relief which such action produces?

2. If Congress has this power, do any attendant purposes or methods or consequences of the United States Housing Act violate the Tenth Amendment?

3. Is there an improper delegation of legislative power under the act?

4. Does a prospective litigant have a standing in court to question the validity of the act?

The power of Congress to appropriate money for slum clearance and low-rent housing, if it resides anywhere, must reside in the right to "provide for the general welfare."

Three important views have been taken with respect to the general welfare clause. The first view is that it confers an entirely independent and plenary power upon Congress. The second view, advanced by Madison, is that the general welfare clause has no separate significance whatsoever, but is strictly limited by subsequent direct grants of specific powers to Congress. The third view, supported by Hamilton and Story, is that the general welfare clause is a limitation upon the taxing power, and by implication upon the spending power, but that it is not limited by the subsequent direct grants of power to Congress.

The opinion of Mr. Justice Roberts, written for the Supreme Court in the case of *United States* v. *Butler* (297 U. S. 1, 1936), involving the constitutionality of the Agricultural Adjustment Act,decided unequivocably in favor of the third view—that the right of Congress to spend for the general welfare is not limited by the other enumerated powers of Congress.

That expenditures for unemployment relief fall within the welfare clause can hardly be questioned after the opinion of Mr. Justice Cardozo for the Supreme Court in *Steward Machine Co.* v. *Davis* (301 U. S. 548, 1937), sustaining parts of the Social Security Act. While it is impossible to conceive of a Nation-wide building program that would not substantially and directly relieve unemployment, it seems clear that low-rent housing and slum clearance standing on their own feet can be brought under the general welfare clause. In *Green* v. *Frazier* (253 U. S. 233, 1920), the Supreme Court upheld the power of the State of North Dakota to provide homes for its residents. While this decision merely held that housing was a public purpose, the only additional feature necessary to bring housing under the general welfare clause would be to regard it as a public purpose national in scope. In terms of the wide-spread character of the evil, its effect upon the national health, morals and security, and the inability of the localities themselves to handle the problem, it is hard to see how slum clearance is any less a matter of the general welfare than unemployment relief.

The second question is whether any attendant purposes or methods or consequences of the United States Housing Act violate the Tenth Amendment.

In the *Butler* case, Mr. Justice Roberts did not hold clearly that Congress could not appropriate money for agricultural subsidies under the general welfare clause. If he had so held, there would have been no need for the Court to go into the question of the limitations imposed by the Tenth Amendment. But Mr. Justice Roberts did hold clearly that even a valid expenditure under the welfare clause would be invalid if made a vehicle for the regulation in substance by Congress of an activity which he held to be reserved to the States by the Tenth Amendment—namely, agricultural production.

This decision was not dissimilar in its broad, essential constitutional philosophy to *Hammer* v. *Dagenhart* (247 U. S. 251), decided in 1917. In that case, the Supreme Court had held that the power of Congress to regulate interstate commerce could not be used to implement regulation in substance by Congress of a matter supposedly reserved to the States—the employment of child labor.

The strongest protestant against the view that a specific grant of power to Congress could be cut down because of its incidental purposes or effects was Mr. Justice Holmes. Dissenting in *Hammer* v. *Dagenhart*, he said that a specific grant of power to Congress was plenary, and insofar as the exercise of the power satisfied due process, he argued that it could not be restricted because of any effect which it might have upon matters within the borders of the several States.

No one on the Court has yet gone quite as far as Mr. Justice Holmes in this direction. The dissent of Mr. Justice Stone in the *Butler* case was based largely on the view that the agricultural benefits constituted a mere inducement to farmers and not coercion. It may be difficult in future cases, however, to determine where inducement ends and coercion begins.

For real clarification of this difficult question, attention must be focused on the opinion of Mr. Justice Cardozo in the *Steward* case. Here, the Court held that where the conditions exacted of the State in return for a receipt of money were conditions incidental to the proper devotion of the money to the purposes for which it was intended, then the conditions did not violate the Tenth Amendment. It was otherwise in the *Butler* case, where the restriction of production was held to be a regulatory matter unrelated to the use of the money Congress was spending. In other words, the Court has drawn a distinction between the use of money in connection with a plan of regulation, and a mere insistence that the agent through whom the money is spent spend it in accordance with the purposes which called it forth. The first was held unconstitutional, the second was not. To hold otherwise as to the second would overthrow the entire system of Federal grants-in-aid.

While the distinction drawn by the Court is certainly not without meaning, it is not clear that it will be easy to apply the distinction in all future cases. The Court may be driven either in the direction of more general

application of the *Butler* and *Dagenhart* cases, or to full acceptance of the principles enunciated by Mr. Justice Holmes years ago. In any event, the *Steward* case seems to remove the likelihood that the Tenth Amendment presents any bar to the United States Housing Act. For in that act, there is no regulation whatsoever imposed upon the local housing authorities, but only conditions incidental to the devotion of money to the public purposes for which Congress intended it. There is no coercion whatsoever, because no State is brought into the picture unless it voluntarily enacts a public housing law. The voluntaryism here is far greater than the voluntaryism of State action which Mr. Justice Cardozo held sufficient.

A more recent case, *United States* v. *Bekins* (82 L. Ed. 751, 1938), sustaining the so-called Second Municipal Bankruptcy Act, makes it even clearer that the Tenth Amendment does not prohibit the States from contracting voluntarily to assent to conditions that in the words of the Supreme Court "will assure a fair and just requital for benefits received."

The third question is whether there is an unconstitutional delegation of power under the act.

The exactitude of standards and limitations set forth in the United States Housing Act seem beyond question to remove the statute from the criticism which struck down the National Recovery Administration in the "Hot Oil" (*Panama Refining Co.* v. *Ryan*, 293 U. S. 388, 1935) and "Sick Chicken" (*Schechter Poultry Corp.* v. *United States*, 295 U. S. 495, 1935) cases.

A mere enumeration of the standards imposed upon the Administration by the act, in fact, will show them to be more precise than in many of the Federal statutes which have been sustained by the Supreme Court. Thus, loans and subsidies are specifically limited as to time and amounts and conditions; "public housing agencies" are defined and financial aid restricted to such agencies; the amount to be expended in any one State is fixed; "slum clearance" and "low-rent housing" and "families of low income" are defined; and maximum construction costs of housing projects and definite labor standards are prescribed.

The fourth question is whether a prospective litigant has a standing in court to question the validity of the act.

The constitutionality of the act might be challenged by a bill to enjoin the consummation of financial transactions, such as contracts for loans and annual contributions entered into between the United States Housing Authority and local housing agencies. The two types of persons who might attain a standing to sue by virtue of action affecting their interests would be: first, taxpayers whose future tax burdens might allegedly be increased; and second, persons engaged in private housing for profit with whom public housing might allegedly be in competition.

As to taxpayers, it is well established that a taxpayer cannot prevent enforcement of a Federal statute on the basis of remote and uncertain fluctuations or increases in future taxation. (See *Frothingham* v. *Mellon*, 262 U. S. 447, 1923, and *Franklin* v. *Tugwell*, 85 F. (2d) 208, 1936.)

As to those alleging the competition of public housing, the recent decision in the case of *Alabama Power Co.* v. *Ickes* (302 U. S. 464, 1938) settled the point that a private citizen has no legal standing to complain against lawful competition arising from a lawful public enterprise financed with the aid of public moneys. Besides, on the facts, it is generally conceded that public housing does not compete with private enterprise.

Legal Effect of Federal Annual Contribution Contracts

Apart from the question of the constitutionality of the United States Housing Act, there is a further legal problem arising out of the act: that of the legal effect of contracts entered into between the United States Housing Authority and local housing agencies for the payment of annual contributions.

In considering the legal effect of such contracts, two lines of inquiry should be pursued: (*a*) are annual contributions contracts binding obligations of the United States Housing Authority and of the Federal Government, and if so (*b*) are these contracts legally enforceable?

Annual contributions, as previously mentioned, are those Federal subsidies which may be paid to assist in achieving and maintaining the low-rent character of local public housing projects, over such periods of time, not in excess of 60 years, and in such amounts as the Authority may determine. Specifically, it is to be noted that Congress has expressly required that the Authority "embody the provisions for such annual contributions in a contract guaranteeing their payment;" that the aggregate amount payable per annum under these contracts be limited to $28,000,000; and that these contracts be approved by the President. It is to be noted, further, that Congress has provided that "all payments of annual contributions shall be made out of any funds available to the Authority [except its capital and the proceeds from its bonds] when such payments are due;" that "the faith of the United States is solemnly pledged to the payment of all annual contributions contracted for;" and that there is "authorized to be appropriated in each fiscal year, out of any money in the Treasury not otherwise appropriated, the amount necessary to provide for such payments." From these provisions and from the legislative history of the act, it seems clear that Congress intended the Authority as well as the United States Government to be legally obligated to fulfill the contributions contracts.

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Nor is this any the less true because the Authority, in contracting for the payment of annual contributions, must necessarily undertake to contract for an expenditure in the future for which appropriations have not yet been made by Congress. There is statutory foundation as well as case authority for the proposition that contracts may be entered into by Federal instrumentalities for payments in excess of moneys then appropriated, provided only that the making of such contracts has been specifically authorized.[61]

Assuming the validity of annual contributions contracts, are they legally enforceable? By the terms of the United States Housing Act, the Authority is a "body corporate of perpetual duration" which may sue and be sued in its own name and be represented in all litigated matters by the Attorney General. Accordingly, the Authority is open to suit, in the event of default, by a contracting local housing agency. This being true, the United States Government, on the agency theory, may be joined in such a suit against the Authority or (by virtue of U. S. C., Title 28, Secs. 25 and 41, giving the Court of Claims jurisdiction over all legal liabilities incurred by the United States under contracts, express or implied, laws of Congress or regulations of Executive Departments, and giving the district courts concurrent jurisdiction over all such claims not exceeding $10,000) may be sued separately.

Of course, there is no means of compelling Congress to appropriate money to the Authority for the payment of judgments rendered against it, or to appropriate money to meet a proper judgment against the United States. However, statutory provision has been made for the submission of a judgment of the United States Courts to Congress for payment (U. S. C., Title 31, Sec. 583); and, as a matter of fact, Congress has never failed to appropriate sufficient funds to meet such judgments. Moreover, to the extent that the Authority itself might have funds on hand available for the payment of annual contributions, there is little doubt that a judgment against the Authority would be subject to enforcement by way of mandamus.

For the foregoing reasons, it seems clear, as a legal matter, that annual contributions contracts entered into pursuant to the United States Housing Act are binding obligations, which, as a practical matter, are enforceable against the Authority as well as the Federal Government.

Analysis of State Housing Legislation

State Enabling Legislation

As previously stated, the United States Housing Act contemplates a decentralized program, with Federal participation limited to financial assistance for the construction of low-rent housing projects and the clearance of slums undertaken by local public bodies. Accordingly, State legislation enabling such bodies to engage in housing is a prerequisite to local participation in the benefits of the Federal Act. As of October 1938, 33 States [62] and the two territories of Hawaii and Puerto Rico had such legislation.

The form which State enabling housing legislation has taken has not been uniform. Nor has there been any uniformity in the number of laws adopted in any one State in order to round out its enabling legislation. Thus, in some States there is merely the housing authorities law; in others, there are housing authorities and housing cooperation laws; in addition, in some States there are one or more of the following: State housing board, tax exemption, police power, eminent domain, and validating laws. Citations to these various housing laws are contained in chart I.

Although it is true that there is no uniformity in the various laws, running through practically all of them is one common feature: the creation of or the authorization to create local housing authorities.

These local housing authorities are corporate entities, separate and distinct from the State itself as well as from the counties and municipalities of the State. Their sole function is that of financing, constructing, and operating low-rent housing projects in order to further a local low-rent housing and slum clearance program. They do not have the power to levy taxes or to exercise the police power. They depend for their revenues on the income-producing capacities of the projects they undertake and on subsidies received from the Federal and local governments. They do have the power to issue bonds to finance their projects, secured only by such revenues and, in some instances, by a mortgage on the project. In no case, can they issue a bond which would be an obligation of the State or municipality in which they operate.

The use of the housing authority as an instrumentality for effecting a local housing program, rather than the direct undertaking of such a program by the municipalities or other local governments themselves, prevails for legal as well as practical reasons.

The constitutions of many of the States contain limitations and restrictions on the incurring of indebtedness by the States and their political subdivisions. Moreover, the financial and tax conditions of the States are such that it would be impractical to obtain laws providing for the use of tax moneys to finance public housing projects. The use of the authority obviates these difficulties.

The legal problems which would be faced in an

[61] See U. S. C., Title 31, Sec. 627 and *ibid.*, Title 41, Sec. 11. Also, *Bradley* v. *United States*, 98 U. S. 104, 113, affirming 13 Ct. Cl. 166, 1878; *Sutton* v. *United States*, 256 U. S. 575, affirming and modifying 55 Ct. Cl. 193, 1921; *Collins* v. *United States*, 15 Ct. Cl. 22, 25; and *Shipman* v *United States*, 18 Ct. Cl. 138, 147.

[62] See charts, *infra*.

attempt to authorize the municipalities or other public bodies themselves to undertake a local low-rent housing or slum clearance program, particularly in terms of constitutional debt limitations, are shown in a table in the *Municipal Year Book* for 1936, to which the reader is referred.[63]

Moreover, the authority can be managed by experts trained in this highly specialized and technical field. Its lack of power to tax, to exercise police power, to enact penal ordinances, to regulate the use of streets, and to license are all factors which meet with the approval of those who are concerned with the threat of rising taxes and overlapping governmental functions. It qualifies, when properly set up, as a public body eligible for financial and other assistance from the State and municipal governments, and has the necessary statutory power to participate in the program of Federal aid under the United States Housing Act.

Jurisdiction of State Agency or State Officer

In many of the States, the housing legislation, in addition to creating or authorizing the creation of local housing authorities, provides for some type of jurisdiction over the operation of these local authorities by a State board or State officer. In general, this type of legislation falls into three classes: the creation of a State housing board which, from State to State, has varying degrees of regulatory and supervisory powers over the local housing authorities; the requirement that certain activities of the local housing authority must be approved by a State agency, other than the State housing board; and the imposition of additional duties upon some State officer in connection with certain aspects of a local housing authority's activities. Distribution of these powers is shown in chart II.

State Housing Authorities

It is important to distinguish between State housing boards and State housing authorities. The former are intended to have varying amounts of jurisdiction over local housing authorities; the latter are intended to have power, themselves, to undertake a housing program.

Aside from practical considerations, the desirability of one type of authority over the other often depends not on the size of the State, the population of any particular city in the State, or similar practical aspects of the problem but rather on the legal framework of the State in which the particular authority will have to function.

Where there are constitutional limitations and restrictions on the incurring of indebtedness by the States, the creation of a State authority raises a serious constitutional question as to the validity of bonds issued by such an authority. For example, the highest court of New Jersey has held the obligations of a State Commission to be debts of the State, subject to the constitutional restriction prohibiting any State indebtedness in excess of $100,000 without a State-wide election. (*Wilson* v. *State Water Supply Commission*, 84 N. J. Eq. 150, 93 Atl. 732, 1915.) As a result of this decision, it was believed that the State housing authority would have difficulty in selling its bonds, either to the Federal Government or to private investors. Since this constitutional debt restriction in New Jersey applies only to the State and not to the local public bodies, the New Jersey housing law was amended, at the 1938 session, to provide for the use of local housing authorities in order to avoid the legal questions which would otherwise arise with regard to bonds issued for housing in that State.

In Maryland, a similar question existed regarding the validity of the bonds of a State housing authority. Consequently, although legislation existed which provided for a State housing authority, the Maryland legisla ture, like the New Jersey legislature, amended its housing law in 1937 to provide for local housing authorities.

Territorial, Organizational, and Administrative Provisions

As has been noted, there are substantial variations from housing law to housing law. This is particularly true with reference to the public bodies within a State which may authorize the authority to function. In some States, only cities of certain classes may authorize an authority to function; in some, only cities above a certain population; in some, towns may also authorize authorities to function; and in some, the governing body of a county may authorize housing authorities to function within the county. As a general rule, county housing authorities may not operate in cities which have already created housing authorities.

Housing problems, of course, know no geographic boundaries, but generally the greatest blighted areas are found in metropolitan centers. It is this situation which accounts for the fact that the area of operation of a local housing authority is usually the area of the public body which has authorized it to function, plus the territory within a radius of 5 or 10 miles beyond its boundaries.

Although there is no absolute uniformity as to the terms of the members of an authority, the term is generally fixed at 5 years, and on a staggered basis. Similarly, it is interesting to note that in most of the States, a housing authority commissioner receives no compensation, although he is entitled to necessary expenses.

A few other generalizations concerning the personnel of housing authorities would include the fact that seldom

[63] Table VIII. *Constitutional and Statutory Debt Limits; General Provisions as of January 1, 1936*, pp. 319–324, International City Managers' Association, Chicago.

may housing authority members be city officials; that authorities may employ a secretary and such technical experts, attorneys, and other officers as they may require; that commissioners are ordinarily removable for stated reasons, including inefficiency, neglect of duty, or misconduct in office.

Chart III contains an analysis of the various territorial, organizational, and administrative provisions appearing in the State housing enabling laws.

Tenant Selection

Most of the acts provide that the projects may be rented only to persons of low income and that these projects must be such as will provide safe and sanitary quarters without overcrowding. It will be recalled that under the United States Housing Act only the lowest income families are eligible as tenants in Federally financed projects, whose income at the time of admission does not exceed five times the rental of the quarters to be furnished (or for families with three or more minor dependents, six times the rental). Naturally, since most of the housing laws were adopted before the United States Housing Authority Act, they do not embody corresponding tenant-selection provisions. Nevertheless, it is true that either in the late acts or by virtue of amendments to older laws, in more than half of the States and in Puerto Rico, provisions relating to the ratio between the rental and the tenants' incomes correspond to the similar provisions in the United States Housing Act. Chart IV contains an analysis of the tenant selection and occupancy restrictions.

Rentals

Consistent with the purpose of the local housing legislation, the predominant characteristic with reference to rentals is that they must be the lowest possible rates obtainable for soundly-constructed and soundly-financed dwellings. These low rentals are assured in most of the laws by provisions for Federal and local subsidies, by limitations upon construction costs per room and per dwelling unit, by provision for the financing and maintenance items which rentals must be high enough to meet but not exceed, and also by provisions restricting the housing authorities to strictly nonprofit operations. An analysis of the rental provisions appears in chart V.

Cooperation Provisions

For the States to be properly prepared to participate in the Federal housing program, certain cooperation powers are necessary. Where Federal annual contributions are made, Federal loans under the United States Housing Act are limited to 90 percent of the development cost of a project, and Federal subsidies are contingent upon a local contribution, equivalent to 20 percent of the Federal contributions, and upon the repair or demolition of substandard dwellings equal in number to the new dwellings to be constructed. Finally, any Federal assistance is conditioned upon the ability of the local authority to construct projects upon which rentals will in fact be sufficiently low to make them available to those families whose incomes are so low as to compel them now to live under slum conditions. Because the authority is a body with limited powers—powers inadequate to enable it alone to meet the requirements of the Federal act—other local bodies must be authorized to grant various forms of aid and assistance to the housing authorities.

To that end, practically all of the States, either through housing authority legislation or through separate housing cooperation laws (see chart VI), confer upon cities, towns, counties, commissions, districts, and other political subdivisions and public bodies of the State some or all of the following powers:

1. To dedicate, sell, convey, or lease any property to a housing authority.
2. To provide and maintain parks, sewerage, water, and other facilities adjacent to or in connection with housing projects.
3. To enter into any agreement to open, close, pave, install, or change the grade of streets, roads, roadways, alleys, sidewalks, or other such facilities.
4. To incur the entire expense (subject to reimbursement by the authority) of any public improvements without assessment against abutting property owners.
5. To make any sale, conveyance, or lease without appraisal, public notice, advertisement, or public bidding.
6. To donate or loan money to a housing authority.
7. To invest in authority bonds.
8. To plan or replan, zone or rezone any part of such State subdivision.
9. To make exceptions from building regulations and ordinances.
10. In the case of a city, to change its map.
11. To enter into agreements with a housing authority or the Federal Government respecting action to be taken by such public body pursuant to any of the powers granted.
12. To grant easements, licenses, or any other rights or privileges to a housing authority.
13. To provide the customary services for the benefit of the occupants of housing projects.
14. In the case of a municipal corporation, to contract with a housing authority with respect to a sum or sums (if any) which the housing authority or Federal Government may agree to pay during any year or period of years for any improvements or services to be furnished by said municipal corporation. (This provision, of course, is complementary to the provisions in the housing authorities law relating to tax exemption.)

15. To make appropriations for preliminary and overhead expenses of an authority.

16. To acquire land by eminent domain for an authority.

17. To enter into agreements with a housing authority with respect to their exercise of the powers relating to the repair, eliminating, or closing of unsafe, insanitary, or unfit dwellings.

18. To do any and all things necessary or convenient to aid and cooperate in the planning, undertaking, construction, or operation of housing projects.

Bonds

Provisions in the State laws relating to the investment of public funds (as well as private trust funds) in the bonds of local housing authorities are designed to facilitate the financing of housing projects, particularly the 10 percent of a project's development cost which is required by the Federal act to be raised locally. These provisions are widely variant, some being very broad, others too restrictive. Some of the laws specify that any bonds of a housing authority may be purchased by the state or local governments; other laws require that the bonds be a first lien upon the revenues; other laws contain the additional requirement that the total amount of the bonds outstanding shall not exceed a certain percentage of the value of the property, usually 66⅔ percent; while still other laws which impose a percentage or lien limitation except from this limitation the state and municipalities located within the area of the housing authority (such an exception being a desirable means of enabling greater cooperation by the state and by municipalities which are immediately concerned with the activities of the particular authority). In considering the provisions limiting investments to bonds which do not exceed a percentage of the value of the property, it should be noted that these were enacted at a time when the capital grant method of providing the Federal subsidy was contemplated. Now that the United States Housing Act provides for annual contributions by the Federal Government, these provisions of the State laws may have to be amended so as to permit local governments to invest in any bonds of local authorities which are additionally secured by a pledge of the Federal annual contributions.

These provisions, insofar as they relate to the investment of other than public funds, are important because they tend to enlist private capital in a low-rent housing program. The system of financing under the Federal act is peculiarly well adapted to the inducement of private capital into the housing field. The annual contributions, by increasing the revenues of the project, add so much to the security of the capital loans that private capital is now willing to enter this field at surprisingly low interest rates.

The question of the local housing authority's bonds must, of course, be considered in more aspects than those relating to their purchase by other public bodies. An analysis of the various provisions relating to housing authority bonds appears in chart VII.

An interesting feature concerning the security of these bonds is the attention given in most of the laws to the power to mortgage housing authority property and to provisions relating to liens and executions upon such property. An analysis of these provisions appears in chart XI.

Equivalent Elimination

Of further importance from the standpoint of compliance with the United States Housing Act are the provisions in the housing laws empowering the local government within whose boundaries or vicinity a housing project is undertaken to exercise its police power on behalf of the local authority for the repair or demolition of a number of unfit buildings equivalent to the number of dwellings in the new project. Of course, this type of assistance is not required where the project includes the elimination on the same site of the necessary number of unsafe and insanitary dwellings. But, because of the present acute housing shortage and the relatively high cost of property in densely populated sections of metropolitan areas, many of the low-rent housing projects will be constructed on vacant sites or on sites occupied by few unsafe or insanitary dwellings. In such situations, arrangements must be made by the local authority for the equivalent elimination of unsafe or insanitary dwellings on other sites in the same area. Since the expense of buying such other sites on which the buildings are to be demolished would be prohibitive, the required elimination usually will be accomplished by one or more of the following methods:

1. By voluntary action of private owners of unsafe and insanitary dwellings in cooperation with public officers charged with the enforcement of "police" regulations.

2. In connection with public works, whereby other local public agencies, such as the park departments, public works departments, school boards, etc., cooperate to arrange for the elimination of unsafe or insanitary dwellings by acquiring and clearing sites on which such dwellings are located in connection with the planning of new developments in the locality.

3. By the exercise of the police power by the proper State, county, and municipal officials in the area of the new low-rent housing project.

The third method will undoubtedly be most frequently relied upon. It is by far the most practicable and reliable one for meeting slum clearance problems. It is more practicable, on the one hand, than the use of the power of eminent domain which necessarily involves

the outlay of large sums of money not only for the property condemned but usually for the development of a public improvement thereon, which the cities may or may not now be in a position to afford. It is more reliable, on the other hand, than voluntary action dependent upon the whims of private owners.

Since most of the local authorities operate in metropolitan areas, they will have to arrange for the compulsory repair, improvement, closing, and demolition of unsafe and insanitary dwellings by municipal officers. It is clear that the municipalities of the 48 States as well as of the two territories of Hawaii and Puerto Rico are authorized to exercise the police power for the protection of the health, safety, welfare, and morals of their inhabitants. It is clear, too, that these municipalities may abate nuisances in the municipal areas. In all of the States and territories having housing legislation, moreover, there is statutory foundation for this use of the police power for the specific purpose of requiring the repair, improvement, closing, and demolition of unsafe and insanitary dwellings. (See chart VIII.)

From a practical standpoint, however, this legislation presents difficulties of enforcement, being, as it frequently is, haphazard and piecemeal and lacking in adequate administrative machinery.

Mississippi, Louisiana, and Puerto Rico have enacted well-formulated statutes designed to overcome such difficulties. By these laws, the governing body of a municipality is authorized to adopt ordinances relating to dwellings unfit for human habitation. A public officer is designated to exercise the powers prescribed by such ordinances. If, after notice and hearing, the public officer determines that the dwelling under consideration is unfit, he notifies the owner and orders him to repair, alter, or improve the dwelling to render it fit, or, at the option of the owner, to vacate and close the dwelling as a human habitation. If the owner fails to comply with such an order, the public officer may cause the dwelling to be vacated and closed.

If, after notice and hearing, the public officer determines that a dwelling is in such condition (because of dilapidation, disrepair, structural defects, or otherwise) that it is dangerous or injurious to the health or safety of the public or the occupants of such a dwelling or the occupants of neighboring dwellings, the public officer may order the owner to repair, alter, or improve the dwelling or, at the option of the owner, to remove or demolish it. If the owner fails to comply with such an order, the public officer may cause the dwelling to be repaired, altered, or improved, or, if such repairs, alterations or improvements cannot be made at a reasonable cost in relation to the value of the dwelling, the public officer may cause the dwelling to be removed or demolished. The cost of such repairs, alterations, improvements, removal, or demolition constitute a lien against the real estate, and is assessed and collected as a special tax. If the building is removed or demolished by the public officer, he may sell the materials of such dwelling and credit the proceeds of the sale against the cost of removal or demolition.

Tax Exemption

The United States Housing Act provides that before Federal annual contributions shall be made available for any local housing project, the State, city, county, or other political subdivision in which the project is located must contribute at least 20 percent of the Federal contributions; in other words, for every $5 of the annual Federal subsidy, the local community must contribute $1. This is the minimum local contribution, however. In fact, the local contributions must be sufficient, together with the Federal contributions, to provide housing at rentals within the reach of persons in the lowest third of the income groups now living under slum conditions. By the terms of the Federal act, these local contributions may take the form either of (*a*) cash, or (*b*) tax remissions, general or special, or (*c*) tax exemptions.

Despite the cogent arguments which are advanced against tax exemption as the more desirable type of subsidy and despite the drive which should be made to develop more direct forms of local aid, for most communities tax exemption is the only form of contribution within the realm of the obtainable. It does not entail the direct immediate withdrawals from public funds incident to the making of cash contributions or the difficulties inherent in the tax remission type of contribution, particularly where there are many overlapping taxing districts. Moreover, adequately low rentals usually may be secured only where the local contribution exceeds the minimum statutory 20 percent level, and tax exemption affords a very substantial contribution, as is evidenced by the fact that for contracts already entered into by the Federal Authority, local contributions by way of tax exemption average 60 percent of the Federal annual contributions.

Of course, the form of the local contributions is a matter of policy to be determined by the States. If they are to take the form of tax exemption, it must be remembered that tax exemption is always a matter of privilege and not of right and that unless the property of housing authorities is expressly exempted by State law, constitutional or statutory, it will be subject to normal real estate taxes.

Of the 33 States, and 2 possessions having enabling housing legislation (October 1938), 29 in all have made specific provision for full, or at least partial, tax exemption, either in the housing authorities law or in a separate statute. For an analysis of tax exemption provisions, see chart IX.

These States usually offer, beside tax exemption, any one of the following supplementary types of cooperation:

1. Remission of or exemptions for utilities and services, such as schools, street maintenance, police and fire protection, furnished by the taxing agency and financed by charges or assessments.
2. Services, such as upkeep of project grounds or buildings, ordinarily paid for by property owners themselves, but which, through special arrangements, are furnished to the project by the municipality or other taxing agency without cost.
3. Annual cash payments, or
4. Outright contributions to the development cost of a project, in the form of land, services or improvements, which may be considered as annual contributions equal to the annuity which their fair value to the project would produce at 3 percent over the estimated period of the useful life of the project but not below the number of years during which bonds issued to finance the project remain outstanding.

The situation with respect to tax exemption in Illinois is so peculiar that it deserves special mention. In that State, prior to the special session in 1938, the land and improvements of a housing authority were not tax exempt. At the special session, after considerable discussion, a bill was enacted (S. B. 38) which granted exemption only where the project was constructed or would thereafter be constructed on land acquired from the Federal Government or any agency of the Federal Government. This bill became law without the Governor's signature. In this connection, it should be observed that since one of the bills adopted at the special session (S. B. 37) made the housing authorities municipal corporations and hence qualified them for tax exemption under the State constitution, there is at least the implication that all projects of an authority would be exempt from taxes under an old general law in Illinois which exempts "public grounds used for public purposes." Another ground for the present existence of tax exemptions would be based on the "repeal by implication" theory, since S. B. 39 authorizes payments in lieu of taxes and provides for a new method of levy, collection and apportionment of these payments.[64]

In the remaining six States where there is enabling housing legislation but no express provision for the tax exemption of property of local housing authorities, namely, Alabama, Delaware, Kentucky, Montana, Ohio, and Virginia, adequate exemption, nevertheless, appears to be furnished by the general laws and State constitutional provisions, or by decisions, except perhaps in Delaware where it is not so clear that tax exemption is thus available.

[64] Since this section was written, the Supreme Court of Illinois, in *Krause et al.*, v. *Peoria Housing Authority, et al.*, —— Ill., ——, N. E. (January 1939) has held that projects of local authorities are entitled to tax-exemption.

Alabama is unique in that the State Supreme Court, by declaring housing authorities to be municipal agencies (in an advisory opinion to the Governor), brought their property within the purview of the general proviso in the State constitution which guarantees exemption for the property of municipal corporations.

Kentucky, both by general statute and constitutional provision, exempts "public property used for public purposes." An authority's property has been construed by the Supreme Court of the State to be exempt by virtue of this provision.

Ohio, though chary of long-time commitments, regards its housing property as "public property for public use," which by general code and constitutional proviso is tax exempt. This view has been substantiated by an opinion of the Attorney General, in 1934, as to property acquired by the Cincinnati Housing Authority, through the aid of the Public Works Administration.

Montana, by general code and constitutional provision, exempts the property of municipal corporations and of the State. Housing authorities are merely declared by the legislature to be "public bodies, corporate and politic," yet the Supreme Court of Montana has held the property of housing authorities to be exempt from taxation under the State Constitution as "public property."

Virginia, through the medium of a constitutional provision giving tax exemption to "political subdivisions" of the State, may reasonably consider the property of an authority to be tax-exempt, since the State housing authorities law declares a housing authority to be a "political subdivision."

In Delaware, however, though the constitution permits the exemption of such property as "will best promote the public welfare," the legislature has merely declared, without expressly granting exemption, that all property of an authority "shall be deemed public property for public use."

Payments in Lieu of Taxes

In most of the State housing laws where tax exemption is expressly granted to the property of local housing authorities, the authorities and the cities are authorized to fix, or enter into contracts for, payments by the local authority to the city for services in lieu of taxes. In other words, while tax exemption is granted, these laws permit the local authority and the city to enter into contracts calling for payments for public services, including fire and police protection, educational facilities, street lighting and cleaning, and garbage and trash removal, rendered for the benefit of a project. To the extent that these payments are made, the value of tax exemption will be correspondingly reduced, but in order that the low rentals which tax exemption affords may not be jeopardized, these payments have been expressly

limited by statute in some cases. An analysis of provisions for payments in lieu of taxes in chart X demonstrates that while existing provisions for "payments in lieu of taxes" or "contracts for payments for services" are similar in principle, they show great variety from State to State, both in wording and mechanics. It is significant, in this connection, that in 18 of the cities where the United States Housing Authority contracts have been signed (as of July 1938), complete tax exemption is being granted. The average payments in all cities, in fact, is only about 1.4 percent of the shelter rents.

Eminent Domain

As previously stated, local housing authorities have been given, among other powers, the power of eminent domain. This power is needed in order that the authorities may assemble the tracts of land required for their projects or, if necessary, clear title to some of the parcels included in a site. Even though this power may not always be exercised, its mere existence will be a great aid to a housing authority in acquiring land at a reasonable price. In the construction of housing facilities for persons of low income, it is imperative that all excessive costs for land and construction be avoided, as such costs are bound to be reflected in the rentals.

Under the archaic provisions of many of the State constitutions and statutes, however, the exercise of this power of eminent domain involves a slow and cumbersome procedure which may sometimes take years. In such States, the local housing authority may be confronted with two horns of a dilemma: either to pay unreasonable prices for property or to endeavor to acquire land by the exercise of the power of eminent domain under a procedure which is time-consuming and which may involve protracted litigation, with uncertainty as to its ultimate outcome.

The constitutions of the States contain various types of provisions relating to the procedure for the exercise of the power of eminent domain. Thus, some of the constitutions require the actual payment of compensation prior to the taking of title or possession; other constitutions require a prior determination of compensation; still other constitutions require the tender or deposit of compensation, or security therefor, prior to taking; and, finally, there are a number of constitutions which are silent regarding these procedural requirements. The following States have constitutions which do not contain such provisions for payment, assessment, tender, deposit or security, prior to the taking of title by the public body: Connecticut, Delaware, Maine, Massachusetts, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Rhode Island, Tennessee, Utah, Vermont, Virginia, and Wyoming. In these States (as well as a few others where the constitutional restraints are not too rigid), it is possible to provide for the acquisition of title through the filing of a declaration of taking. This procedure, generally speaking, permits the taking of possession or title prior to the award or payment of damages, upon the filing of a declaration of taking in the proper court, together with the deposit of a sum estimated by the public agency to be just compensation for the property. Several States have enacted laws providing for a declaration of taking. Similar legislation could be enacted in those States where the constitutions are sufficiently broad to permit it.

Legal Problems Arising Under State Enabling Housing Legislation

The entry of the States into the field of public housing under the United States Housing Act presents manifold legal implications, of which the following are deemed to be the most fundamental:

1. Low-rent housing and slum clearance as a valid public purpose.
2. The authority as a legal concept.
3. The debt question arising out of State constitutional debt limitations.
4. The validity of State and municipal assistance to local housing authorities.
5. The validity of tax exemption for public housing purposes.
6. Elimination of unfit dwellings by way of the police power.
7. Low-rent housing and slum clearance as a public use for the purposes of eminent domain.

Low-Rent Housing and Slum Clearance as a Valid Public Purpose

State enabling housing legislation is based in every instance upon a legislative finding and determination to the effect that there exist in the State insanitary or unsafe dwelling accommodations and that persons of low income are forced to reside in such insanitary and unsafe accommodations; that within the State there is a shortage of safe or sanitary dwelling accommodations available at rents which persons of low income can afford and that such persons are forced to occupy overcrowded and congested dwelling accommodations; that these conditions cause an increase in and spread of disease and crime and constitute a menace to the health, safety, morals, and welfare of the residents of the State and impair economic values; that these conditions necessitate excessive and disproportionate expenditures of public funds for crime prevention and punishment, public health and safety, fire and accident protection, and other public service and facilities; that these areas in the State cannot be cleared, nor can the shortage of safe and sanitary dwellings for persons of

low income be relieved, through the operation of private enterprise, and that the construction of housing projects for persons of low income would therefore not be competitive with private enterprise; that the clearance, replanning, and reconstruction of the areas in which insanitary or unsafe housing conditions exist and the providing of safe and sanitary dwelling accommodations for persons of low income are *"public uses and purposes for which public money may be spent and private property acquired and are governmental functions of state concern."* [Italics supplied.]

The legislatures having so declared, the question then is whether the object of this legislation—low-rent housing and slum clearance—is a "public purpose" *within the law.* It is an acknowledged principle under our jurisprudence that a legislative determination of public use, though not conclusive on the courts, is entitled to great respect—is not to be overruled except in clear cases of abuse of legislative discretion.

Applying this principle, housing has been sustained, prior to the inauguration of the present program under the United States Housing Act, as a public purpose in the furtherance of which State and local governments might properly exercise the spending, taxing, and police powers.[65]

Likewise, the present program has been given judicial sanction in those few cases which have already arisen. The first of these cases was that of *New York City Housing Authority* v. *Muller* (270 N. Y. 333, 1 N. E. (2) 153, 1936), sustaining the Municipal Housing Authorities Act of New York, at least as to the condemnation of private property for slum clearance projects. There, the defendant resisted condemnation of his property by the authority on the ground that the taking was for a private, not a public, use. In holding the proposed use to be for the public benefit and hence a public use, the court recounted the evils of the slum and argued that since government exists to protect the public health, safety, morals, and general welfare, government must have the power to deal with a situation which so menaces the health, safety, morals, and general welfare of the community; that the housing program was a reasonable method of dealing with the problem; and that it was immaterial which of the trinity of governmental powers—taxation, police power, and eminent domain—was used for this purpose. The fact that private enterprise ordinarily provided housing facilities was treated as of no importance in an era when municipalities were engaged in enterprises formerly and presently supplied by private business. Finally, the court dismissed the argument that the act was "class legislation," saying:

> * * * This objection disregards the primary purpose of the legislation. Use of a proposed structure, facility, or service by everybody and anybody is one of the abandoned universal tests of a public use. (Citing cases.) The designated class to whom incidental benefits will come are persons with an income under $2,500 a year, and it consists of two-thirds of the city's population. But the essential purpose of the legislation is not to benefit that class or any class; it is to protect and safeguard the entire public from the menace of the slums. * * *
>
> Nothing is better settled than that the property of one individual cannot, without his consent, be devoted to the private use of another, even when there is an incidental or colorable benefit to the public. The facts here present no such case. In a matter of far-reaching public concern, the public is seeking to take the defendant's property and to administer it as part of a project conceived and to be carried out in its own interest and for its own protection. That is a public benefit, and, therefore, at least as far as this case is concerned, a public use.

Following the *Muller* case, both in principle and in time, came the case of *Spahn* v. *Stewart* (268 Ky. 97, 103 S. W. (2d) 651, 1937), upholding the Kentucky act authorizing certain cities to engage in municipal housing. Seeking to enjoin further proceedings in preparation for the construction of a slum clearance project under the act, the petitioners contended that the act would deprive them, as taxpayers, of property without due process of law, would permit condemnation for a use, and exemption of bonds for a purpose, not "governmental", and would benefit one class of citizens to the exclusion of all others. Conceiving all of these contentions to turn "upon the question as to whether or not the ultimate result sought constitutes a public use or purpose", the court disposed of them jointly by deciding this single question affirmatively. In so doing, the court pointed to the facts making the housing problem acute; from these facts, it inferred that private initiative was unable to cope with the situation and, relying on the *Muller* case, concluded that the amelioration of such conditions was necessary to protect the public interest and, therefore, public not private, general not special, in purpose. Specifically, the argument as to class legislation was dismissed with these words:

> The use here proposed, as argued by appellee and admitted by appellants, may be more beneficial in the way of direct aid to a particular class, but it also operates to the benefit of the general public and its welfare. The act limits the ultimate use of the improved property to such persons as may be selected to occupy. This does not brand the purpose as class or special legislation. Whether or not the persons chosen to occupy are to be ultimately benefited more than those who are not, is a sociological question because of differing circumstances. Who can say that in the long run those who live in sumptuous residences environed by the elite may not account themselves still more blessed if by improved conditions of housing in another section they are relieved from the probabilities or possibilities of an epidemic of smallpox, typhoid fever, or other diseases, or that they may sleep more serenely because of a lessened fear of the commission of crime against their persons or property?

In close succession come the five most recent decisions in *Wells* v. *Housing Authority of the City of Wil-*

[65] *Green* v. *Frazier, supra; Willmon* v. *Powell,* 91 Cal. App. 1, 266 Pac. 1020, 1928; *State ex rel. Reclamation Board* v. *Clausen,* 110 Wash. 525, 188 Pac. 538, 1920; *Block* v. *Hirsh,* 256 U. S. 135, 1921; *Simon* v. *O'Toole,* 108 N. J. L. 32, 155 Atl. 449, 1931. *Contra. Lowell* v. *Boston,* 111 Mass. 454, 1873; *Opinion of the Justices,* 211 Mass. 624, 98 N. E. 611, 1912. *Cf. Stell* v. *Mayor and Aldermen of Jersey City,* 95 N. J. L. 38, 111 A. 274, 1920.

mington (213 N. C. 744, 197 S. E. 693, June 1938), *State ex rel. Porterie* v. *Housing Authority of New Orleans* (190 La. 710, 182 So. 725, June 1938), and *Dornan* v. *Philadelphia Housing Authority* (____ Pa. ____, 200 Atl. 834, June 1938); *Marvin* v. *Housing Authority of Jacksonville, Fla.* (____ Fla. ____, 183 So. 145, July 1938); *Williamson* v. *Housing Authority of Augusta* (____ Ga. ____, 199 S. E. 43, September 21, 1938).[66]

In the *Wells* case, the plaintiff attacked the constitutionality of the North Carolina housing laws principally on the ground that the purposes sought to be accomplished were not of a public nature justifying the exercise of governmental functions. Refusing to concede this argument, the court said:

> * * * The Housing Authorities Act depends for its validity, as a proper exercise of governmental authority, upon its declared objective in removing a serious menace to society, not disconnected with political exigency, in the populous areas to which it applies. * * *
>
> The State cannot enact laws, and cities and towns cannot pass effective ordinances, forbidding disease, vice, and crime to enter into the slums of overcrowded areas, there defeating every purpose for which civilized government exists, and spreading influences detrimental to law and order; but experience has shown that this result can be more effectively brought about by the removal of physical surroundings conducive to these conditions. This is the objective of the Act, and these are the means by which it is intended to accomplish it. * * *
>
> Applying again the principle that courts may not declare an act of the Legislature unconstitutional in a case of doubt, we find that the Housing Authorities Act under consideration is a constitutional exercise of a legislative power. * * *

It follows as a corollary, the court continued, that real and personal property of an authority is held and maintained for a public purpose and as such is exempt by the State constitution from all State, county, and local ad valorem taxes.

In the *New Orleans* case where the validity of the Louisiana housing laws was at issue, the Supreme Court of Louisiana, admitting the legislative declarations to be persuasive, held that housing authorities whose purposes are clearly limited to the clearance of the slums and the eradication of slum evils, subserve a public interest and that the housing activities of the local authorities constitute a public purpose justifying the condemnation of land by an authority, the classification of property of an authority as public property for the purposes of tax exemption under the State constitution, and the expenditure of public funds by a city in aiding an authority which is operating on its behalf.

In the *Dornan* case, a taxpayer's bill in equity to test the constitutionality of the Pennsylvania housing laws, the court accorded a *prima facie* presumption of correctness to the factual declarations of the legislature and, after reiterating the deleterious public effect of the slum and pointing to the relation between slum elimination and low-rent housing, held the use to which housing projects are devoted to be a public use for the purposes of eminent domain and tax exemption under the Pennsylvania constitution.

Similarly, in the *Florida* case, the State Supreme Court held that low-rent housing and slum clearance were public purposes.

In the latest case, the *Williamson* case, where the petitioner taxpayer sought to enjoin the local housing authority and the city of Augusta from proceeding with the development of a housing project for that city on the ground that the State housing authorities and cooperation laws were unconstitutional, the Supreme Court of Georgia reconsidered and reaffirmed all of the several issues which had been raised and decided in the foregoing cases. The court held low-rent housing and slum-clearance to be not only a public purpose but a charitable purpose in the furtherance of tax exemption and municipal donations were allowable under the Georgia constitution.

Governmental housing projects contemplated under the present program constitute a relatively new approach to the problem of bad housing. It is an approach which, if to be sustained generally, must be appraised, as in the foregoing cases, in the light of the compelling public need for the elimination of the slum and the necessary relation between slum clearance and rehousing. These judicial precedents should carry much weight in those jurisdictions where the validity of local public housing legislation has not been challenged.

The Authority as a Valid Legal Concept

The authority concept is not new to the field of public law. It developed as a vehicle of public revenue financing long before its use for low-rent housing and slum clearance purposes. It first appeared in this country in the form of the Port of New York Authority; and since then has been used as the instrumentality for the undertaking and financing of such types of improvements as State electrification and power, water conservation, hydro-electric, navigation and flood control projects, toll bridges, and State educational institutions.

Many such authorities have withstood, moreover, the rigid tests of judicial scrutiny and have been able successfully to construct needed improvements and to finance them by the sale of marketable securities. It appears from the decisions that the creation of a local authority or the power to create such an authority

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[66] Since the preparation of this study, additional favorable decisions have been rendered by the Supreme Courts of: South Carolina (*McNulty* v. *Owens et al.*, ____ S. C. ____, 199 S. E. 425 (October 1938)); Montana (*Rutherford* v. *City of Great Falls et al.*, ____ Mont. ____ Pac. (2d) ____ (January 1939)); Tennessee (*Knoxville Housing Authority, Inc.* v. *City of Knoxville et al.*, ____ Tenn. ____, S. W. ____ (January 1939)); and Illinois (*Krause et al.*, v. *Peoria Housing Authority et al.*, ____ Ill. ____, ____ N. E., January 1939)).

must first be authorized by an express statutory enactment of the State. Once this enactment appears on the books, there seems to be no legal obstacle to the creation of a local authority, for the decisions of the courts have established (certainly in those jurisdictions where the issue has been raised) that the legislature has the constitutional power to create or authorize the creation of such authorities.

So far as housing is concerned, however, the concept is a relatively novel one, but already it has been recognized as a proper instrumentality for the undertaking of low-rent housing and slum clearance projects.[67]

Questions Arising Out of State Constitutional Debt Limitations

The precise question is whether obligations of a housing authority are debts of the State or of the municipality in which it operates, within the meaning of applicable provisions of the State constitution relating to State or municipal indebtedness. It is believed that they are not.

In the first place, the constitutional provisions involved refer to the State and to counties and cities but do not generally refer to instrumentalities of the State such as a local authority. It has already been pointed out that housing authorities are created as separate legal entities, distinct from the State itself and from the political and civil subdivisions of the State. For this reason, the obligations of the authority, if they are to be considered debts at all, can only be debts of the authority. The authority is the only obligor on its bonds or other forms of indebtedness. Its obligations are by express statutory terms made enforceable against the authority only and are in no case enforceable against the State or any other public body of the State. There are numerous judicial precedents holding that obligations of such a separate public corporation are not debts of the States which have created them or of the public bodies in which they operate or which they may overlap.

The second line of reasoning in support of the proposition that obligations of an authority are not debts within the meaning of any constitutional provision is founded upon the so-called special fund doctrine.

Under this doctrine, obligations of a public body which are not payable from taxes do not constitute debts of such a public body within the meaning of a constitutional debt limitation or restriction The special fund doctrine has been adopted by courts in practically every State in which constitutional debt questions have arisen with respect to the issuance of revenue obligations.

[67] (*Spahn* v. *Stewart, supra; Wells* v. *Housing Authority of the City of Wilmington, supra; State ex rel Porterie* v. *Housing Authority of New Orleans, supra;* and *Dornan* v. *Philadelphia Housing Authority, supra); Marvin* v. *Housing Authority of Jacksonville, Fla., supra.*

Specifically, with regard to housing authority bonds, either or both of the foregoing theories have been adhered to—in the cases of *Spahn* v. *Stewart, supra; Wells* v. *Housing Authority of the City of Wilmington, supra; State ex rel. Porterie* v. *Housing Authority of New Orleans, supra; Dornan* v. *Philadelphia Housing Authority, supra; Marvin* v. *Housing Authority of Jacksonville, Fla., supra; Williamson* v. *Housing Authority of Augusta, supra.*

Whether or not a revenue bond of a housing authority additionally secured by a foreclosable mortgage would constitute a debt of a State or of the municipal corporation in which the authority is operating, notwithstanding provisions in the enabling act prohibiting the authority from creating such a debt, has not been expressly decided by any court. If an authority's bonds are secured solely by a pledge of revenues (or revenues plus Federal contributions), there is no question but that such a debt would not be created in those states which adopt the special fund doctrine. It is only the mortgage which makes the legality of the bonds of a housing authority an unsettled question.

A few courts have held that a foreclosable mortgage on State or municipal property as additional security for a revenue bond will create a debt within the meaning of a constitutional provision relating to municipal or State indebtedness. These decisions, however, should not be controlling as to bonds issued by a housing authority for the reason that the property of such an authority is not property of the State or of any municipal corporation, but property of an entity separate and distinct from the State or any municipal corporation. Moreover, so long as the mortgage covers property acquired by the authority with the proceeds of obligations which it issues, no question of State or municipal debt should arise because the mortgage in such a case would be in the nature of a purchase money mortgage, which is generally considered as coming within the purview of the special fund doctrine.

Validity of State and Municipal Assistance to Local Housing Authorities

Of the various types of State and municipal aid provided for under the housing cooperation laws, previously alluded to, those relating to the donation or loan of money and the donation or sale of land are most apt to be drawn into issue. Objection thereto arises out of State constitutional prohibitions against, first, the use of State or municipal funds or property for other than State or municipal purposes and, second, the loaning or donating of State or city funds or credit.

This objection, in effect, turns upon the question as to whether or not housing undertaken by local housing authorities serves a State or municipal purpose. In the cases which have decided this point, the courts,

having found the housing activities of local housing authorities to be for a public purpose, have reasoned that they could therefore have been undertaken directly by the State or the municipalities themselves and that (to the extent that they benefit the cooperating States or municipal government) they are no less a proper State or municipal purpose though undertaken by a housing authority.

Thus, in the case of *Wells* v. *Housing Authority of the City of Wilmington, supra*, the court observed: "The powers given to the agency created under the Housing Authorities Act are not dissimilar to those given to towns and cities in the Constitution and Laws" and after enumerating certain such powers, continued:

> * * * Any or all of these powers might be vested in a separate municipal authority, if convenience required, without offending against any constitutional principle of which we are aware.
>
> The same necessity that prompted the subdivision of political authority, in the creation of cities and towns, to the end that government should be brought closer to the people in congested areas, and thus be able to deal more directly with problems of health, safety, police protection, and public convenience, progressively demands that government should be further refined and subdivided, within the limits of its general powers and purposes, to deal with new conditions, constantly appearing in sharper outline, where community initiative has failed and authority alone can prevail.

And in *State ex rel. Porterie* v. *Housing Authority of New Orleans*, the court said:

> The primary purpose of housing authorities is to eradicate the slum menace. In doing so, they lighten the burden of cities in discharging the municipal duty of protecting all citizens indiscriminately against disease, crime, and immorality.
>
> It is, therefore, perfectly clear that, when a city uses public funds for the establishment of a housing authority, whether the funds be used for organization expenses or in the purchase of a small percentage of the housing authority's bonds, the city is performing, indirectly through a public agency created by the State and sanctioned by its own governing authority, one of the primary functions of municipal government.
>
> It is not suggested in this case that the amounts already used by the city and that to be used for these purposes are out of proportion to the benefits to be received. Nor is it suggested that these amounts are in excess of the amounts the City would have to expend during the next few years to accomplish the same purposes.

In these and other recent housing cases, the courts have specifically upheld the power of a city to assist a local authority operating within its boundaries by way of an appropriation or loan to enable the authority to meet its preliminary functioning expenses (*Spahn* v. *Stewart, supra; State ex rel. Porterie* v. *Housing Authority of New Orleans, supra; Williamson* v. *Housing Authority of Augusta, supra*), by conveying or leasing property with or without consideration (*Wells* v. *Housing Authority of the City of Wilmington, supra*), by entering into service contracts (*Williamson* v. *Housing Authority of Augusta, supra*), by closing certain streets of the city within the area of a housing project which are no longer necessary for the public use to which they were originally dedicated and selling the land comprised therein to the housing authority (*State ex rel. Porterie* v. *Housing Authority of New Orleans, supra*), and the power of a city or the State to invest in bonds of a housing authority (*State ex rel. Porterie* v. *Housing Authority of New Orleans, supra*).

Validity of Tax Exemption for Public Housing Purposes

This question will arise out of the specific provisions, previously alluded to, for the tax exemption of property of local housing authorities or, in the absence of such provisions, out of attempts to exempt such property under general provisions in the State constitution or general laws.

There is a variety of constitutional provisions pursuant to which the States are authorized to exempt from taxation various types of property. Thus, some constitutions are silent on the subject of tax exemption, some name the purposes for which exemption may be granted, some authorize the legislature to grant exemption for certain purposes, some authorize exemption for public, municipal, governmental or charitable purposes, some are self-executing, some require positive legislation, and some grant exemption not in the terms of purpose but in terms of ownership. This variation in constitutional provisions relating to tax exemption may raise various legal questions, such as: Is property of a housing authority used for a public, municipal, governmental, or charitable purpose? May a housing authority be deemed a municipal corporation or political subdivision for the purpose of tax exemption? Is property of a housing authority property of the public body within which an authority operates? Is a constitutional grant of power to the legislature to grant exemption for certain designated purposes exclusive? Can the legislature grant exemption in the absence of specific constitutional authority?

These constitutional provisions may lead, and in fact have led, to litigation with respect to the validity of tax exemption in some of the States. In each case, much will depend on the wording and judicial construction of the constitutional provisions. It is believed, however, that the constitutions of the States are broad enough to permit the courts to construe them in a manner which will make it possible to grant tax exemption to housing projects.

The first of the recent housing cases involving the tax exemption question is that of *Spahn v. Stewart, supra*, where it was held that property used by a public corporate housing commission for a slum clearance or housing project was used for a public purpose, within the mean-

ing of a constitutional provision exempting from taxation public property used for public purposes.

Another, and particularly significant decision is found in *Opinion of the Justices* (179 So. 535, 1938), an advisory opinion of the Supreme Court of Alabama, to the effect that a local housing authority is an administrative agency of the city, created for the purpose of performing a governmental function on behalf of the city, and that its real and personal property, therefore, is property of a municipal corporation for the purposes of tax exemption under the constitutional provision applying to all property of "the State, counties or other municipal corporations."

Likewise, the Louisiana, North Carolina, Florida, and Georgia courts, in *State ex rel. Porterie* v. *Housing Authority of New Orleans, supra,* and *Wells* v. *Housing Authority of Wilmington, supra, Marvin* v. *Housing Authority of Jacksonville, Fla., supra,* and *Williamson* v. *Housing Authority of Augusta, supra,* respectively, concluded that property acquired by a housing authority is "public property" within the meaning of the constitutional tax exemption provisions applicable to such property. The Pennsylvania court, in *Dornan* v. *Philadelphia Housing Authority, supra,* has gone even further by upholding complete tax exemption, including exemption from school taxes, notwithstanding that the legislature had attempted to exclude school taxes from the exemption but did not affirmatively impose them, the court holding that taxation could not be effected under the State Constitution by indirection.

Elimination of Unfit Dwellings; Use of the Police Power

As previously pointed out, the equivalent elimination required by the Federal act may be accomplished in one or more of three ways.

(*a*) By the voluntary cooperation of the owners of property requiring attention,

(*b*) By condemnation or excess condemnation as an incident to the development of some municipal improvement, and

(*c*) By compulsory repair or demolition under the police power.

The first method is effected merely by using the power of eminent domain in conjunction with the police power as bargaining weapons and, therefore, involves no legal implications. As a practical matter, it will not suffice to effect mass slum clearance.

As to the second method, it cannot now be disputed that cities, pursuant either to general State enabling legislation or authorization contained in their charters, may acquire private property through the power of eminent domain for the purposes of creating a park, playground, recreational center, or public building. Therefore, if slum sites were condemned for such purposes, no legal objection could be raised, and little or no difficulty should be encountered.

When properly authorized, municipalities, it would seem, may also acquire title to private property for a fair consideration through the use of the power of excess condemnation in connection with an exercise of the power of eminent domain. Under excess condemnation, the municipality acquires more property than is needed for the specific public improvement and leases or sells the property not needed under restrictions for a use in harmony with the plans for the public improvement.

As early as 1812 and 1817, municipalities in the States of New York and South Carolina were authorized by their respective State legislatures to exercise this power of excess condemnation. Since that time, 13 other States, namely, Connecticut, Illinois, Maryland, Massachusetts, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Virginia, and Wisconsin, have authorized municipalities within their jurisdiction to exercise this power. Eight States (California, Massachusetts, Michigan, New York, Ohio, Rhode Island, Virginia, and Wisconsin) have also amended their constitutions to permit the exercise of this power by municipal corporations. However, there is still a shadow of doubt as to the validity of excess condemnation laws.

In 1930, the important case of *Cincinnati* v. *Vester,* 281 U. S. 439, squarely raised the issue as to whether a municipality might validly use this power. The case involved the validity of section 10, article 18, of the constitution of the State of Ohio, which provides:

> In furtherance of such public use (the city may) appropriate or acquire an excess over that actually to be occupied by the improvement, and may sell such excess with such restrictions as shall be appropriate to preserve the improvement made.

The United States Supreme Court, instead of passing upon the constitutional question presented, ruled that the city council, upon the city's excess condemnation of land under the Ohio constitution, should have specified definitely in its resolution the purpose of the excess appropriation. The statutes requiring such statements as to the use for which the land is to be taken, the opinion states, applied to the excess as well as to the principal appropriation. In this way, the court sidestepped the constitutional question involved. Nevertheless, by so ruling, it appears to be impliedly indicated that, when excess condemnation was effected in accordance with constitutional and statutory provisions, such a taking would be upheld. Therefore, it is believed that if an excess condemnation were definitely for, and clearly stated to be for, the specific purpose of protecting the improvement made and for a use in harmony with the plans for the public improvement, it would be sustained.

The third method, that of compulsory repair, vacation or demolition under the police power, as previously stated, is the method which will probably be most commonly employed. That all cities are equipped with the general police power and that this power can be properly exercised to compel the repair, vacation, or demolition of buildings which menace the public health and general welfare is too clear to be questioned. Basic problems of the scope of this application of the police power are not so clear, however, and therefore merit special consideration.

In the past, the cases which have arisen have primarily concerned single buildings which were structurally unsafe due to dilapidation or decay so as to be dangerous to passersby, or to the community at large as fire hazards. In such cases, and they have usually been extreme ones where the danger to the public was obvious and imminent, abatement by compulsory repair or, if it would have been unreasonable to repair, by compulsory vacation or demolition has been sustained.[68]

These cases recognize in a general sort of way that unsafe and insanitary buildings are public nuisances, but beyond that they do not indicate the extent to which the courts will concede an expansion of the police power to include the abatement of buildings which are unsafe and insanitary as measured by minimum legislative standards of light, ventilation, sanitation, fire protection, design and lay-out, privacy, etc., essential directly to the decent living of the occupants and indirectly to the general welfare. For this further refinement, however, there is support in the late decision of *Adamec* v. *Post*, 273 N. Y. 250, 7 N. E. (2d) 120 (1937). In the *Adamec* case, the New York Court of Appeals held constitutional the so-called Multiple Dwelling Law of New York State requiring that buildings used as multiple dwellings, though erected prior to 1901, in accordance with then existing requirements of law, now comply with the new and higher standards of health, sanitation, and safety prescribed by existing statutes. In so holding, the court accepted the legislative declaration that the new requirements were in the furtherance of the general welfare, as measured by present day sociological factors. Discussing the subject of police power, the court said:

> The power of the State to place reasonable restrictions upon the use of property for the promotion of the general welfare is no longer subject to challenge and regulations governing the erection or use of buildings as multiple dwellings which are reasonably calculated to safeguard the public health and safety constitute a proper exercise of the power.
>
> . . . Because the State has tolerated slum dwellings in the past, it is not precluded from taking appropriate steps to end them in the future. When the building used as a dwelling house is unfit for that use and a source of danger to the community, the Legislature in order to promote the general welfare may require its alteration or require that its use for a purpose which injures the public be discontinued; and, subject to reasonable limitation, the Legislature may determine what alterations should be required and what conditions may constitute a menace to the public welfare and call for remedy. The result, as we have said, may be the closing of many tenement houses and the eviction of the tenants.

Commenting upon the order for compulsory repair which was in issue, the court declared:

> The imposition of the cost of the required alterations as a condition of the continued use of antiquated buildings for multiple dwellings may cause hardship to the plaintiff and other owners of "old law tenements" but, in proper case, the Legislature has the power to enact provisions reasonably calculated to promote the common good even though the result be hardship to the individual. "It is not the hardship of the individual case that determines the question, but rather the general scope and effect of the legislation as an exercise of the police power in protecting health and promoting the welfare of the community at large. It is a well-recognized principle in the decisions of the State and Federal courts that the citizen holds his property subject not only to the exercise of the right of eminent domain by the state, but also subject to the lawful exercise of the police power by the legislature; in the one case property is taken by condemnation and due compensation; in the other the necessary and reasonable expenses and loss of property in making reasonable changes in existing structures, or in erecting additions thereto, are damnum absque injuria." *Tenement House Department of City of New York* v. *Moeschen*, 179 N. Y. 325, 330, 72 N. E. 231, 232 * * *.

On the other hand, in *Central Sav. Bank* v. *City of New York*, 279 N. Y. 266, 18 N. E. (2d) 151 (December 1938), reversing 254 App. Div. 502, 5 N. Y. S. (2d) 451 (1938), the Court of Appeals of New York held that the "Murray Prior Lien Law" [69] affords the mortgagee no opportunity to be heard as to the reasonableness of the proceedings or the expenses, that the mortgagee must sit idly by and watch his first lien degenerate into a second lien, and therefore, as to the mortgagee, constitutes a taking of property without due process of law and an impairment of contract.

Further evidence that the courts are ready to recognize the application of the police power, not only to the clearance of isolated slum buildings but to mass slum clearance, as merely the proper application of approved legal principles to a new situation, is to be found in the several cases sustaining State housing authorities laws.

[68] *Gow Why* v. *City of Marshfield et al.*, 138 Oreg. 167, 6 P. (2d) 696 (1931); *Russell* v. *City of Fargo et al.*, 28 N. D. 300, 148 N. W. 610 (1914); *Polsgrove et al.* v. *Moss*, 154 Ky. 408, 157 S. W. 1133 (1913); *Davison* v. *City of Walla Walla*, 52 Wash. 453, 100 P. 981 (1909); *Theilan* v. *Porter et al.*, 82 Tenn. (14 Lea) 622 (1885); *Ferguson* v. *City of Selma*, 43 Ala. 398 (1869); *Runge* v. *Glerum*, 37 N. D. 618, 164 N. W. 284 (1917); *Jackson* v. *Bell*, 143 Tenn. 452, 226 S. W. 207 (1920); *York* v. *Hargardine*, 142 Minn. 219, 171 N. W. 773 (1919); *Commonwealth* v. *Roberts*, 155 Mass. 281, 29 N. E. 522 (1892); *Health Department of the City of New York* v. *Rector, etc., of Trinity Church in City of New York*, 145 N. Y. 32, 39 N. E. 833 (1895); *City of New Orleans* v. *Ricker and Beck*, 137 La. 843, 69 So. 273 (1915); *City of New Orleans* v. *Beck*, 139 La. 595, 71 So. 853 (1916); *Tenement House Department of The City of New York* v. *Moeschen*, 179 N. Y. 325, 72 N. E. 231 (1904); and *Swett* v. *Sprague*, 55 Maine 190 (1867).

[69] Chapter 353, Laws of New York, 1937. This law authorized the city to make certain repairs upon "old law" tenements and assess the cost as a lien prior to existing mortgages and other encumbrances against the property improved.

Low-rent Housing as a Public Use for the Purposes of Eminent Domain

There are, of course, two methods whereby title to land may be acquired as the site for low-rent housing projects: first, by outright purchase or donation from the owners, and second, by condemnation under the power of eminent domain.

As a practical matter of dollars and cents, as well as legal expediency, however, housing experts are unanimously agreed that condemnation, either as a right to be invoked or a threat to be wielded, is necessary to insure low-rent housing.

The United States Constitution and practically every State constitution require that the exercise of the power of eminent domain be limited to the acquisition of property for a public use and upon payment of just compensation. The question incident to the exercise of the power of eminent domain by local housing authorities is, then, whether low-rent housing and slum clearance is a "public use." However, the definition of "public use" has been the subject of the greatest divergence in the courts, the issue being whether the test of public use is use by the public or use for the general welfare. Commenting on these two alternative viewpoints, Nichols in his work *Eminent Domain*, 2d ed. vol. 1, pp. 129–131, has said:

> The disagreement over the meaning of "public use" is based largely upon the question of the sense in which the word "use" in the constitution was intended to be understood, and has developed two opposing views, each of which has its ardent supporters among the text writers and courts of last resort. The supporters of one school insist that "public use" means "use by the public," that is, public service or employment, and that consequently to make a use public a duty must devolve upon the person or corporation seeking to take property by right of eminent domain to furnish the public with the use intended, and the public must be entitled, as of right, to use or enjoy the property taken * * * On the other hand, the courts that are inclined to go furthest in sustaining public rights at the expense of property rights contend that "public use" means "public advantage," and that anything which tends to enlarge the resources, increase the industrial energies, and promote the productive power of any considerable number of the inhabitants of a section of the state, or which leads to the growth of towns and the creation of new resources for the employment of capital and labor, manifestly contributes to the general welfare and the prosperity of the whole community, and, giving the constitution a broad and comprehensive interpretation, constitutes a public use.

Assuming on the basis of prior discussion that slum clearance and public housing is a public purpose subserving the health, safety, and general welfare of the entire community, the constitutionality of the grant of the power of eminent domain to local housing authorities can easily be sustained under the latter view.

However, it is not so easy to sustain the constitutionality of such a grant of power under the former view as it would be harder to show that the ultimate object or use for which the property is taken is one in which the public in general is entitled to share as a matter of right. Nevertheless, it can be argued with some weight that use by the public does not necessarily require use by the entire public, but is satisfied when there is use by the public up to capacity, the tenants being selected on a reasonable basis.

That the trend of the State court decisions at the present time, with regard to the condemnation activities of local housing authorities, is toward the "general welfare" theory of "public use" is evidenced by the decisions in *New York City Housing Authority* v. *Muller, supra; Spahn* v. *Stewart, supra; Wells* v. *Housing Authority of the City of Wilmington, supra, State ex rel. Porterie* v. *Housing Authority of City of New Orleans, supra;* and *Marvin* v. *Housing Authority of Jacksonville, Fla., supra;* and *Williamson* v. *Housing Authority of Augusta, supra.*

In the *Muller* case, which is significant as the first case in point, Judge Crouch said:

> Nothing is better settled than that the property of one individual cannot, without his consent, be devoted to the private use of another, even when there is an incidental or colorable benefit to the public.

But, the court continued, this rule did not apply to the taking of land for

> the clearance, replanning and reconstruction of part of an area * * * wherein there exist * * * unsanitary and substandard housing conditions,

which

> cause an increase and spread of disease and crime and constitute a menace to the health, safety, morals, and welfare of the citizens of the state and impair economic values.

Following that decision, in a jurisdiction where it was much less clear that the courts were inclined toward the broader of the two interpretations of "public use," the supreme court of Pennsylvania in the *Dornan* case, said:

> * * * There is, in the legal situation here presented, a factor which conclusively determines that the use for which these housing projects are designed is a public one, namely, that the construction of the new dwellings as authorized by these statutes is to be an aid to, and indeed, a necessary adjunct of, the demolition of dangerous and unsanitary dwellings, which, in turn, is an exercise of the police power of the Commonwealth * * * It appearing that all previous attempts to rid communities of their unsafe and objectionable dwellings have proven ineffective, it is now found necessary to resort to the more drastic and comprehensive method of demolishing such structures simultaneously and over more extended areas. But, as indicated in the Housing Authorities Law—and indeed it is self-evident—this cannot be done and the ultimate aim be achieved unless at the same time provision is made for sanitary and wholesome accommodations for those who will lose their homes in the process. Certainly such persons cannot be left wholly without shelter, yet their financial resources are insufficient to enable them to lease any existing dwellings outside of

other slum districts, since private industry has not been able to furnish acceptable accommodations at a rental cost as low as that now paid for rooms in slum properties. For the State or a municipality to tear down objectionable houses without providing better ones in their stead would be merely to force those ejected into other slums or compel them to create new ones, and the cardinal purpose of the legislation would thus be frustrated. As a necessary concomitant of slum elimination, therefore, provision is made in the Housing Authorities Law for the erection, without profit, and through the enjoyment of Federal subsidies, of low-cost housing projects in which to shelter the evicted inhabitants of slum areas * * *.

What we have here, then, is a situation in which the proposed construction of new housing is vital to the clearance of the slums through the exercise of the police power, but the necessary sites for the housing projects can be justly and practically acquired only by means of the power of eminent domain, and what we now decide is that when the power of eminent domain is thus called into play as a handmaiden to the police power and in order to make its proper exercise effective, it is necessarily for a public use.

Obviously, whether future State court decisions will adhere to the view of these above-mentioned cases in passing upon the condemnation activities of local housing authorities will depend upon which of the two definitions of "public use" they will subscribe to. Suffice it to say, however, that under a jurisprudence governed largely by precedent there is every reason to believe that other courts will follow in the trail of the New York, Pennsylvania, North Carolina, Louisiana, and Florida courts. And upon these decisions will largely depend the attitude of the Supreme Court of the United States, for it is well settled that, with regard to State legislation, that Court will accept all reasonable declarations by the local authority, legislative and judicial, as to what is or is not a public use.[70]

Even assuming the validity of the exercise of the power of eminent domain by a local housing authority, there remains the necessity for an expeditious and legal way of exercising this power.

In attempting to devise a more expeditious procedure for condemnation under existing constitutional provisions, questions may arise regarding the validity of the methods designed to improve and hasten eminent domain procedure. In States where the constitutions do not contain restrictive provisions relating to the payment, assessment or deposit of compensation in advance of the taking of title, it is clearly constitutional to provide for a declaration of taking or a similar method of acquiring title promptly. However, in those States where the constitutions do contain such provisions, legal difficulties will be encountered in endeavoring to expedite condemnation procedure, although it should be possible to improve the existing procedure to some extent, even under these constitutions.

Conclusion

The legal aspects of public housing are manifold and variant. Only the more fundamental and more common are within the scope of this study. Only the surface has been scratched; below this surface of general issues lie many legal questions inherent in the variations in the law from State to State and dependent for their answers upon judicial interpretation of existing statutory and case law or upon the adequacy of present housing and related legislation. In its broader aspects, there is strong precedent for the legality of public housing in the rapidly increasing number of favorable housing decisions; in its more specific aspects, the legality of public housing depends upon the keenness of foresight and understanding with which it is viewed by the courts and the legislators—therein, from a legal standpoint, rests the future of public housing.

[70] *Green* v. *Frazier*, *supra*. And see *Erie Railroad Co.* v. *Tompkins*, 82 L. Ed. 787, 1938.

CHART I.—*Citations to State public housing legislation* [1]

State	Housing authorities law	Housing cooperation law	Tax-exemption law	Eminent domain law	Validating law	State agency having some type of jurisdiction over authority operations	Other
Alabama	Act No. 50 of 1935, approved 2/8/35. Amended by Act No. 445 of 1935, approved 9/13/35. Also in 1936 Cumulative Supplement to the Alabama Code of 1928, Ch. 31A, Art. 2, Sec. 1297, Subsecs. 5-51.	Act No. 41 of 1935, approved 2/7/35. Also in 1936 Cumulative Supplement to the Alabama Code of 1928, Ch. 31A, Art. 1, Sec. 1297, Subsecs. 1-4.		Has no separate eminent domain law for housing authorities, but Act No. 41, Laws of 1935, approved 2/7/35, authorizes housing authorities to exercise right of eminent domain.			
Arkansas	Act No. 298 of 1937, approved 3/23/37. Also in Ch. 115, Secs. 10059-10088, Pope's Digest of Arkansas Statutes, Vol. II.			Act No. 177, Acts of Arkansas, 1935, approved 3/21/35. Also in Sec. 5085, Ch. 57, Pope's Digest of Arkansas Statutes, Vol. I.		Laws of 1933, Act No. 89, approved Mar. 9, 1933.	
California	Assembly Bill No. 4, being Ch. 4 of Laws of California, Special Session, 1938, approved 3/21/38.	Assembly Bill No. 2, being Ch. 2 of Laws of California Special Session, 1938, approved 3/21/38.	Assembly Bill No. 1, being Ch. 1 of the Laws of California, Special Session, 1938, approved 3/21/38.	Assembly Bill No. 3, being Ch. 3 of the Laws of California, Special Session, 1938, approved 3/21/38.			
Colorado	Ch. 132, Session Laws of Colorado, 1935 (House Bill No. 778), approved 4/19/35. Amended by Ch. 172, Session Laws of Colorado, 1937 (House Bill No. 821), approved 4/30/37. Also in Vol. 3, Colorado Statutes, Annotated, Ch. 82, Art. 3, and 1937 Supplement to Vol. 3, Ch. 82, Art. 3, P. 38.	Ch. 130, Session Laws of Colorado, 1935 (House Bill No. 777), approved 4/19/35. Amended by Ch. 170, Session Laws of Colorado, 1937 (House Bill No. 817), approved 4/30/37. Also in Vol. 3, Colorado Statutes, Annotated, Ch. 82, Art. 1, and 1937 Supplement to Vol. 3, Ch. 82, Art. 1, P. 32.					Ch. 131, Session Laws of Colorado, 1935 (House Bill No. 40), approved 4/19/35, and amended by Ch. 171, Session Laws of Colorado, 1935 (House Bill No. 815), approved 4/30/37. Also in Vol. 3, Colorado Statutes, Annotated, Ch. 82, Art. 2, and 1937 Supplement to Vol. 3, Ch. 82, Art. 2, P. 34. (City Housing Law.)
Connecticut	Ch. 33c, 1937 Supplement to the General Statutes, approved 12/14/36.						
Delaware	Vol. 39, Laws of Delaware of 1934, Ch. 16, approved 4/24/34. Also in Revised Code of Delaware, 1935, Ch. 160, Art. 2.					Ch. 61, Laws of Delaware, 1933, approved 4/20/33; Revised Code (1935), Ch. 160, Art. 1, Secs. 1-29.	
Florida	Ch. 17981, Act No. 275, General Laws of Florida, 1937, approved June 1, 1937.	Ch. 17982, Act No. 276, General Laws of Florida, 1937, approved 6/1/37.	Ch. 17983, Act No. 277, General Laws of Florida, 1937, approved 6/1/37.				
Georgia	Act No. 411, Georgia Laws of 1937, Pt. I, Title IV, approved 3/30/37. Also in Georgia Code, Annotated, Ch. 99-11, Cumulative Pocket Part.	Act No. 400, Georgia Laws of 1937, Pt. I, Title VI, approved 3/31/37. Also in Georgia Code, Annotated, Ch. 99-12, Cumulative Pocket Part.					
Illinois	House Bill No. 4, Laws of Illinois, Third Special Session, 1933-34; amended by Senate Bill No. 408, Laws of Illinois, 1937, approved 7/6/37; amended by Senate Bill No. 39, Laws of 1938. Also in Jones' Illinois Statutes, Annotated, Secs. 63.01-63.70. Also in Illinois Revised Statutes, Ch. 67a. Also in Smith-Hurd Illinois Revised Statutes, Ch. 67½.	Senate Bill No. 409, Laws of Illinois, became law 7/13/37; amended by Senate Bill No. 37, Laws of 1938. Also in Jones' Illinois Statutes, Annotated, Secs. 63.71-63.78.	Senate Bill No. 38, Laws of 1938, which amends an act for the assessment of property, etc., approved 3/30/1872, as amended		Senate Bill No. 410, Laws of Illinois, 1937, approved 7/6/37.	House Bill No. 622, Laws of 1933, approved 7/12/33; amended by House Bill No. 5, Laws of 1933-34, Third Special Session, approved 3/19/34; amended by House bill No. 491, Laws of 1935, approved 6/28/35; further amended by Senate Bill No. 4011, Laws of 1937, approved 7/6/37. Also in Jones Illinois Statutes, Annotated, Sec. 63.02. Also in Smith-Hurd Revised Statutes (1935), Ch. 32, Secs. 504-550. Also in Illinois Revised Statutes (1935), Ch. 67a.	

[1] For the 33 States and 2 Territories having enabling housing legislation as of October 1938.

CHART I.—*Citations to State public housing legislation*—Continued

State	Housing authorities law	Housing cooperation law	Tax-exemption law	Eminent domain law	Validating law	State agency having some type of jurisdiction over authority operations	Other
Indiana	Ch. 207, Acts of 1937, approved 3/11/37. Also in Burns' Indiana Statutes, Annotated, Cumulative Pocket Supplement to Vol. 9, Ch. 81, Secs. 48-8101-48-8127. See also Ch. 55, Art. 3, Secs. 9400-1-9400-27, of Baldwin's Indiana Statute Service, May 1937 Supplement.	Ch. 209, Acts of 1937, approved 3/11/37. Also in Burns' Indiana Statutes, Annotated, Cumulative Pocket Supplement to Vol. 9, Ch. 82, Secs. 48-8201-48-8209. See also Ch. 55, Art. 3, Secs. 9400-28-9400-36, of Baldwin's Indiana Statute Service, May 1937 Supplement.	Ch. 81, Acts of 1937, approved 3/6/37. Also in Burns' Indiana Statutes, Annotated, Cumulative Pocket Supplement to Vol. 11, Ch. 2, Secs. 64-216-64-218.				
Kentucky	Ch. 113, Kentucky Acts of 1934, approved 3/19/34, amended by Ch. 11, Kentucky Acts, Fourth Special Session, 1936-37, approved 1/18/37. Also in Carroll's Kentucky Statutes, Annotated, Baldwin's 1936 Revision, Art. XXIII, Secs. 2741x-1-2741x-15. Also in Ch. 89, Baldwin's Kentucky Service, October 1937 Number, Secs. 2741x-1 and 2741x-2 and 2741x-10.						
Louisiana	Act No. 275, Acts of Louisiana 1936, approved 7/9/36, amended by Act No. 101, Acts of 1938, approved July July 2, 1938; further amended by Act No. 276, Acts of 1938, approved July 6, 1938; Also in 1937 Cumulative Annual Supplement to the General Statutes of Louisiana, Ch. 21, Secs. 6280.1-6280.26.	Act No. 277, Acts of Louisiana, 1938, approved 7/6/38.			Act No. 278, Acts of 1938.		Act No. 275, Acts of 1938, approved July 6, 1938 (Police Power Law); Act No. 81, Acts of Louisiana, 1938, approved 7/2/37, title 7, Ch. 5, Sec. 62 (Legal Inment Act).
Maryland	Ch. 517, Laws of Maryland, 1937, approved 5/28/37. Also in Art. 44a, Code of Public General Laws of Maryland.	Ch. 518, Laws of Maryland, 1937, approved 5/28/37. Also in Art. 44b, Code of Public General Laws of Maryland.					
Massachusetts	Ch. 449, Acts of 1935, approved 7/20/35; amended by Ch. 484, Acts of 1938, approved 7/5/38, amending Ch. 121 of the General Laws.					Ch. 364, Acts of 1933; amended by Ch. 449, Acts of 1935, approved 7/20/35; amended by Ch. 485, Acts of 1935, approved 8/14/35.	
Michigan	Act No. 18, approved 1/9/34, Extra Session of 1933. Also in Mason's 1935 Supplement to the Compiled Laws of Michigan, 1929, Secs. 2607-1-2607-43; amended by Act No. 80, Session of 1935, approved 5/24/35; and further amended by Act No. 265, Session of 1937, approved 7/22/37; further amended by Act No. 5, Public Acts of 1938, Extra Session, approved 9/8/38. Also in Mason's 1937 Supplement to the Compiled Laws of Michigan, 1929, Secs. 2607-1-2607-46c.	Act No. 293, Session of 1937, approved 7/23/37; amended by Act No. 6 of Public Acts of 1938, Extra Session, approved 9/8/38. Also in Mason's 1937 Supplement to the Compiled Laws of Michigan, 1929, Secs. 2607-51-2607-60.					
Mississippi	House Bill No. 694, Laws of 1938, approved 3/25/38.						House Bill No. 693, Laws of 1938, approved 3/30/38. (Police Power Act.)
Montana	Ch. 140, Laws of Montana, 1935, approved 3/13/35. Also in Ch. 404, Secs. 5309.1-5309.27, Revised Codes of Montana.	Ch. 138, Laws of Montana, 1935, approved 3/13/35; also Ch. 404, Secs. 5309.28-5309.34, inclusive, Revised Codes of Montana.					

CHART I.—*Citations to State public housing legislation*—Continued

State	Housing authorities law	Housing cooperation law	Tax-exemption law	Eminent domain law	Validating law	State agency having some type of jurisdiction over authority operations	Other
Nebraska	For "Metropolitan Cities Housing Authorities Law," Laws of Nebraska, 1935, Ch. 29, approved 5/21/35, amended by Laws of Nebraska, 1937, Ch. 94, approved 5/18/37. Also in Ch. 14, Art. 14, Cumulative Supplement of 1937 to Compiled Statutes of Nebraska, 1929, Secs. 14-1401-14-1437.	Laws of Nebraska, 1937, Ch. 91, approved 5/18/37. Also in Ch. 71, Art. 35, Secs. 71-3501-71-3509, Compiled Statutes of Nebraska of 1929, Cumulative Supplement of 1937.	Laws of Nebraska, 1937, Ch. 93, approved 5/18/37. Also in Ch. 71, Art. 35, Secs. 71-3510-71-3512, inclusive, Compiled Statutes of Nebraska of 1929, Cumulative Supplement of 1937.		Laws of Nebraska, 1937, Ch. 92, approved 5/18/37. Also in Ch. 14, Sec. 14-1417, 1937, Cumulative Supplement to Compiled Statutes of Nebraska of 1929.		
	For "First-Class Cities Housing Authorities Law," Laws of Nebraska, 1937, Ch. 90, approved 5/18/37. Also in Ch. 19, Art. 11, Cumulative Supplement of 1937 to Compiled Statutes of Nebraska, 1929, Secs. 19-1101-19-1124.						
New Jersey	Ch. 19, Laws of 1938, approved 3/8/38. Also in Revised Statutes of New Jersey, Ch. 14A, Title 55; amended by Ch. 210, Laws of 1938, Regular Session, approved May 24, 1938.	Ch. 20, Laws of 1938, approved 3/8/38. Also in Revised Statutes of New Jersey, Ch. 14B, Title 55; amended by Ch. 211, Laws of 1938, Regular Session, approved May 24, 1938.		Ch. 21, Laws of 1938, approved 3/8/38. Also in Revised Statutes of New Jersey, Sec. 20:1.		Ch. 444, Laws of New Jersey, 1933.	
New York	Ch. 4, Laws of 1934, amending Ch. 823, Laws of 1926; amended by Ch. 310, Laws of 1935, by Ch. 218, Laws of 1938, by Ch. 395, Laws of 1938, and by Ch. 461, Laws of 1938. See also McKinney's Consolidated Laws of New York, Annotated, Vol. 65, Secs. 2310-2328.				Laws of 1935, Ch. 311 (New York); Ch. 312 (Buffalo); Ch. 313 (Schenectady).	Laws of 1926, Ch. 823, as amended by Laws of 1937, Ch. 35, Laws of 1938, Ch. 722, Laws of 1930, Ch. 872, Laws of 1931, Chs. 557 and 558, Laws of 1932, Ch. 507, Laws of 1933, Ch. 802, Laws of 1934, Chs. 4-1, 500, Laws of 1935, Ch. 310, Laws of 1937, Ch. 207, Laws of 1938, Chs. 218, 270, 395, 461, and 480. (Board of Housing.)	
North Carolina	Ch. 456, Public Laws of North Carolina, 1935, approved 5/11/35; North Carolina Code of 1935, Ch. 103-A, Art. 1, Secs. 6243 (1)-6243 (20); amended by Sec. 14 of the "Revenue Bond Act of 1938" ratified Aug. 13, 1938.	Ch. 408, Public Laws of North Carolina, 1935, approved 5/10/35; North Carolina Code of 1935, Ch. 103-A, Art. 2, Secs. 6243 (30)-6243 (41).		Ch. 409, Public Laws of North Carolina, 1935, approved 5/10/35.			
North Dakota	Ch. 102, Laws of 1937, approved 3/16/37.						
Ohio	Laws of Ohio, 115-Pt. 2, 1933-34; House Bill No. 19, approved 9/5/33; amended 5/7/37 by House Bill No. 574 and amended again 2/2/38 by House Bill No. 788; further amended by Senate Bill No. 497, Laws of 1938, approved 7/19/38: Page's Annotated Ohio General Code, Permanent Supplement, Ch. 14-1, Secs. 1078-29-1078-41; Baldwin's Ohio Code Service, January 1938 Number, Secs. 1078-30-1078-50; Throckmorton's Annotated Code of Ohio, Baldwin's Revision, 1934, Secs. 1078-29-1078-41.	House Bill No. 575, approved 5/7/37; Baldwin's 1934 Certified Revision of Throckmorton's Annotated Code of Ohio, Ch. 14A; Baldwin's Ohio Code Service, January 1938 Number Secs. 1078-51-1078-58.			House Bill No. 576, approved 5/7/37; Baldwin's Ohio Code Service, January 1938 Number, Secs. 1078-59 and 1078-60.		
Oregon	Laws of Oregon, 1937, Ch. 442, approved 3/12/37.	Laws of Oregon, 1937, Ch. 441, approved 3/12/37.					
Pennsylvania	Laws of Pennsylvania, 1937, Public Law 955, approved 5/28/37. Also in Purdon's Pennsylvania Statutes, Annotated, 1937 Cumulative Annual Pocket Part, Title 35, Secs. 1541-1565.	Laws of Pennsylvania, 1937, Public Law 888, approved 5/20/37. Also in Purdon's Pennsylvania Statutes, Annotated, 1937 Cumulative Annual Pocket Part, Title 35, Secs. 1581-1588.				State Board of Housing, Public Law 1705, Laws of 1937, approved 6/5/37.	

CHART I.—*Citations to State public housing legislation*—Continued

State	Housing authorities law	Housing cooperation law	Tax-exemption law	Eminent domain law	Validating law	State agency having some type of jurisdiction over authority operations	Other
Rhode Island	Ch. 2255, Public Laws of Rhode Island, 1935, approved 5/27/35.			Ch. 2256, Public Laws of Rhode Island, 1935, approved 6/1/35. (By cities for authorities.)			
South Carolina	Laws of South Carolina, 1934, Act No. 783, approved 3/19/34; also Sec. 9151 of the 1934 Supplement to the Code of Laws of South Carolina of 1932; amended by Act No. 345, Laws of 1935, approved 6/5/35; further amended by Act No. 301, Laws of 1935, approved 5/17/35; further amended by Act No. 183, Laws of 1937, approved 4/17/37; further amended by Act No. 284, Laws of 1937, approved 5/10/37; further amended by Act No. 647, Laws of 1937, approved 5/10/37; further amended by Act No. 1239, Acts of 1938, approved 5/6/38; and further amended by Act No. 1035, Acts of 1938, approved 4/15/38.				Act No. 647, Laws of 1937, approved 5/10/37.	The State Housing Law Act No. 143, Acts of South Carolina, 1933.	
Tennessee	Ch. 20, Public Acts of 1935, Extra Session, approved 8/3/35, amended by Ch. 234, Public Acts of 1937, approved 5/21/37. Also in Vol. 3, Ch. 2A, Art. I, Secs. 3647.1–3647.29d, of 1937 Cumulative Pocket Supplement of Williams' Tennessee Code, Annotated. And in Title 9, Ch. 11, Art. I, Secs. 4406 (82)–4406 (110b), of 1937 Cumulative Supplement to Michies' Tennessee Code of 1932.	Ch. 45, Public Acts of 1935, Extra Session, approved 8/3/35; amended by Ch. 225, Public Acts of 1937, approved 5/21/37. Also in 1937 Cumulative Pocket Supplement of Williams' Tennessee Code, Annotated, Vol. 3, Secs. 3647.30–3647.36c; and in Title 9, Ch. 11, Art. III, Secs. 4406 (115)–4406 (121c), of 1937 Cumulative Supplement to Michies' Tennessee Code of 1932.	Ch. 214, Public Acts of 1937, approved 5/21/37. Also in Vol. 2, Ch. 1, Art. IV, Secs. 1089.1–1089.3, of 1937 Cumulative Pocket Supplement of Williams' Tennessee Code. Annotated; and in Title 9, Ch. 11, Art. IV, Sec. 4406 (121d), of 1937 Cumulative Supplement to Michies' Tennessee Code of 1932.	Ch. 183, Public Acts of 1937, approved 5/20/37, amends Sec. 3130 of the Code of Tennessee. Also in 1937 Cumulative Pocket Supplement of Williams' Tennessee Code, Annotated, Vol. 3, Ch. 8, Sec. 3130. Ch. 44, Public Acts of 1935, Extra Session, approved 8/3/35. Also in 1937 Cumulative Pocket Supplement of Williams' Tennessee Code, Annotated, Vol. 3, Ch. 2A, Art. III, Secs. 3647.37–3647.40. See also Ch. 11, Art. II, Secs. 4406 (111)–4406 (114), of 1937 Cumulative Supplement to Michies' Tennessee Code of 1932. (Special type of eminent domain law.)			For Memphis Housing Authority Law, see Ch. 615, Private, Acts of 1935, approved 4/20/35, amended by Ch. 990 Private. Acts of 1937, approved 5/21/37.
Texas	House Bill No. 821, Laws of Texas, 1937, approved 6/8/37, amended by House Bill No. 102, Laws of Texas, 1937, Second Called Session, approved 11/3/37, Title 32, Ch. 2. Also in Title 28, Art. 1269k of Vernon's Texas Statutes, 1938 Supplement.	House Bill No. 820, Laws of Texas, 1937, approved 6/8/37, amended by House Bill No. 103, Laws of Texas, 1937, Second Called Session, approved 11/3/37, Title 32, Ch. 1. Also in Title 28, Art. 1269L of Vernon's Texas Statutes, 1938 Supplement.					
Vermont	Act No. 231, Laws of Vermont, 1937, approved 4/12/37.						
Virginia	House Bill No. 227, Laws of 1938, approved 3/29/38.						
West Virginia	Ch. 93, Acts of West Virginia, 1933, Extra Session, approved 3/16/34. Also in 1934 Supplement to 1932 Code, Secs. 1409 (56)–1409 (71).						
Wisconsin	Ch. 525, Laws of 1935, approved 9/27/35, as amended by Ch. 15, Laws of 1937, Special Session, approved 10/16/37; see also Sec. 66.40 of Wisconsin Statutes.						

CHART I.—*Citations to State public housing legislation* —Continued

State	Housing authorities law	Housing cooperation law	Tax-exemption law	Eminent domain law	Validating law	State agency having some type of jurisdiction over authority operations	Other
Hawaii (Territory of).	Act No. 190, Session Laws of Hawaii, 1935, approved 5/15/35; amended by Act No. 3, Session Laws of Hawaii, 1937, approved 3/12/37; further amended by Act No. 179, Session Laws of Hawaii, 1937, approved 5/8/37.	Act No. 173, Session Laws of Hawaii, 1935, approved 5/14/35.	.....	Act No. 118, Session Laws of Hawaii, 1935, approved 5/9/35.	.....	.....	Public No. 202, 75th Cong., approved 7/10/37. (Federal enabling and validating legislation.)
Puerto Rico (Possession of).	Act. No. 126, Laws of 1938, approved 5/6/38.	Act. No. 125, Laws of 1938, approved 5/6/38.	.....	.....	Public No. 745, 75th Congress, Third Session, approved June 25, 1938.	.....	Act No. 222, Laws of 1938, approved 5/15/38; Public No. 745, 75th Cong., Ch. 703, Third Session, approved 6/25/38 (Federal enabling and validating legislation.)

CHART II.—*Jurisdiction of State housing boards and other*

(H. A. L.=Housing Authorities Law; M. H. A. L.=Municipal Housing Authorities Law; M. C. H. A. L.=Metropolitan Cities

Agency having jurisdiction	Alabama	Delaware	Georgia	Illinois	Indiana	Massachusetts [2]	Montana
STATE HOUSING BOARDS [2]							
State board may prescribe methods for keeping accounts, records, and books.	----------	Sec. 16, H. A. L.	----------	Sec. 13, H. A. L.	Sec. 24 (A), H. A. L.	Sec. 26 E. E., H. A. L.	----------
State board may require authority to file reports on its operations and activities.	----------	----do----	----------	----do----	----do----	----do----	----------
State board may investigate affairs and conditions and inspect property etc., of authority.	----------	----do----	----------	----do----	Sec. 24 (B), H. A. L.	----do----	----------
An authority shall submit to the board data as to the location and cost of property, proposed plans, specifications and estimate of costs and a statement of the proposed methods of financing and operating the projects.	----------	Sec. 17, H. A. L.[4]	----------	Sec. 14, H. A. L.[4]	Sec. 24 (D), H. A. L.	----do----	----------
Application must be made to board to discontinue operation of projects by an authority.	----------	Sec. 19, H. A. L.	----------	Sec. 13, S. B. H. L.	----------	----------	----------
Project approval and changes in project must be approved by board	----------	Sec. 17, H. A. L.	Sec. 4, H. A. L.	Sec. 14, H. A. L.	Sec. 24 (D), H. A. L.	Sec. 26–S. H. A. L.	----------
OTHER STATE BOARDS, AGENCIES, OR OFFICIALS [3]							
Utilities Commission has investigatory powers and must approve project.	----------	----------	----------	----------	----------	----------	----------
Public Works Board must approve bonds of authority	Sec. 10, H. A. L.	----------	----------	----------	----------	----------	----------
Department of Internal Affairs must approve bonds	----------	----------	----------	----------	----------	----------	----------
All accounting and other transactions of authority shall be subject to the inspection and approval of the Bureau of Inspection and Supervision of Public Offices.	----------	----------	----------	----------	----------	----------	----------
Secretary of State approves and issues certificate of incorporation	Sec. 4, H. A. L.	----------	----------	----------	----------	Sec. 26, M. H. A. L.	Sec. 4, H. A. L.
Authority may have bonds certified by Attorney General	----------	----------	----------	----------	----------	----------	----------

[1] Of the 33 States and 2 Territories having enabling housing legislation as of October 1938, 13 had no specific provision: Arkansas, California, Colorado, Connecticut, Florida, Kentucky, Louisiana, Michigan (but "functions, powers, and duties of State department unaffected," Sec. 34), Mississippi, Vermont, Virginia, West Virginia, and Wisconsin.
[2] One member of Housing Authority is appointed by the State Board.
[3] Further provision. South Carolina, Sec. 6, H. A. L.: State Board may extend territorial jurisdiction of the housing authority.

CHART III.—*Enabling housing legislation: Territorial*

State	Public bodies in which authorities may be created	Method or methods of creating authority	Area of operation of authority	Term of members of authority
Alabama	Housing authority may be created in any city or incorporated town, (Sec. 3, Subsec. 2, and Sec. 4.)	25 residents of city or of area within 10 miles of boundaries thereof may file petition with the City Clerk, who shall call and give notice of public hearing, after which Council adopts a resolution concerning the dwelling accommodations in area. The Council or Mayor thereupon appoints 5 commissioners of an authority, who present application for certificate of incorporation to the Secretary of State of Alabama, who thereupon issues a certificate of incorporation. (Sec. 4.)	The city and the area within 10 miles of boundaries thereof. It shall not include any other city with more than 10,000 inhabitants nor area included in another authority. Additional authority may be set up for each 50,000 inhabitants in city. (Sec. 4 as amended by Act No. 445 of 1935.)	Members of authority commission, consisting of 5, appointed for terms of 1 to 5 years each. (Sec. 5.) Term of members first appointed 1 to 5 years, respectively. Thereafter 5 years for each term. (Sec. 5).
Arkansas	Any city of first-class or any county in State may create a housing authority. (Sec. 4.)	City or county may create a housing authority upon motion of the governing body or upon petition to the governing body by 25 residents of the city or county, asserting the need for an authority. (Sec. 4.)	1. Cities of less than 10,000 and the area within 5 miles of boundaries. 2. Cities of 10,000 or more and area within 10 miles of boundaries. 3. Counties, except that part within boundaries of city. (Sec. 2g.)	Term of members first appointed, 1 to 5 years, respectively. Thereafter 5 years for each term. (Sec. 5.)
California	Governing body of any city or county may declare need for an authority for city or county. (Sec. 4.)	After governing body, upon its own motion or upon petition of 25 residents of city or county, determines need for an authority based on investigation of housing conditions, the Mayor of the city may appoint 5 persons as commissioners of authority and, in case of county, governing body makes such appointments. (Secs 4 and 5.)	1. The city and area within 5 miles from boundaries thereof. 2. The county, except that portion within boundaries of city located in said county, for which an authority has been created. Housing authority for county must obtain consent of city in which it is proposed to operate. (Sec. 3f.)	3 commissioners first appointed to serve terms of 1 to 3 years and 2 commissioners first appointed to serve 4-year terms. Thereafter term of office of each of the 5 commissioners is 4 years. (Sec. 5.)
Colorado	Authority may be created by a city and area within 10 miles from boundaries thereof. Not to include whole or part of any other city or area within another authority. (Sec. 4.)	25 residents may petition City Clerk, who shall thereupon calla public hearing, after which the Council, by resolution, shall determine the conditions of the dwelling accommodations in the city and notify the Mayor, who thereupon appoints 5 persons as commissioners of an authority. The Commissioners shall file a certificate with the Secretary of State of Colorado. (Sec. 4.)	The city and the area within 10 miles from boundaries thereof, but shall not include any other city or area included in another authority. (Sec. 4.)	First commissioners appointed by the Mayor for terms of 1 to 5 years. Thereafter term shall be 5 years. (Sec. 5.)

[1] For the 33 States and 2 Territories having enabling housing legislation as of July 1938. Unless otherwise indicated, section number refers to State Housing Authorities law.

State boards, agencies, or officials over housing authorities[1]

Housing Authorities Law; F. C. C. H. A. L.=First Class Cities, Housing Authorities Law; S. B. H. L.=State Board Housing Law]

New Jersey	New York	North Carolina	North Dakota	Ohio	Oregon	Pennsylvania	Rhode Island	Tennessee	Texas	Puerto Rico
	Sec. 67, M. H. A. L.					Sec. 9, S. B. H. L.				
Sec. 25, H. A. L.	do			Sec. 1078-38, H. A. L.		do				
Sec. 23, H. A. L.						Sec. 7, S. B. H. L.				
do	Sec. 68, M. H. A. L.					Sec. 10, S. B. H. L.				
				Sec. 1078-40, H. A. L.						
Sec. 23, H. A. L.	Sec. 68, M. H. A. L.			Sec. 1078-36, H. A. L.		Sec. 13, S. B. H. L.				
		Sec. 28, H. A. L.								
						Sec. 18, H. A. L.				
				Sec. 1078-36, H. A. L.						
		Sec. 4, H. A. L.					Sec. 4, H. A. L.	Sec. 4, H. A. L.		
			Sec. 17, H. A. L.		Sec. 17, H. A. L.				Sec. 17, H. A. L.	Sec. 17, H. A. L.

[1] These provisions do not apply to projects aided or financed by the Federal Government.

[2] Further provision Maryland, sec. 8 (h), H. A. L.: Location of all housing projects in the City of Baltimore must first be approved by the Board of Estimates of the City of Baltimore. Nebraska, Sec. 17, F. C. C. H. A. L., Sec. 11, M. C. H. A. L.: Bonds must be approved by State Auditor of Public Accounts. Hawaii, Sec. 7978J, Sec. 11, H. A. L.: Bonds must be approved by Governor and President of the United States if they are not sold to the Federal Government.

organizational and administrative provisions [1]

Compensation of members	By whom appointed	Limitations on eligibility of members	Power to select and pay additional personnel	Removal of directors	Reasons for removal
A commissioner receives no compensation but is entitled to necessary expenses, including traveling expenses. (Sec. 5.)	Commissioners are appointed by the Mayor of the city or the City Council. (Secs. 4 and 5.)	None of the commissioners may be city officials. (Sec. 5.)	The authority may employ a secretary (executive director), technical experts, attorneys, and other employees required, and shall determine their qualifications, duties, and compensation. (Sec. 5.)	Commissioners may be removed by the Mayor of the city after 10 days' notice of hearing and opportunity to be heard in person or by counsel. (Sec. 8.)	Inefficiency, neglect of duty, misconduct in office, or willfully violating any law of the state or term, provision or covenant of contract. (Sec. 8.)
A commissioner receives no compensation but is entitled to necessary expenses, including traveling expenses. (Sec. 5.)	Commissioners appointed by Mayor of city or governing body of county. (Sec. 5.)	Officers and employees of city or county are not eligible for appointment to housing authority. (Sec. 5.)	Authority may select secretary (executive director), technical experts, officers, agents, and employees, and determine their duties and compensation. (Sec. 5.)	Commissioners may be removed by the Mayor of the city or governing body of the county after 10 days' notice and hearing in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 7.)
Commissioner receives no compensation but is entitled to necessary expenses, including traveling expenses. (Sec. 5.)	Commissioners of an authority of a city appointed by the Mayor, and those of a county appointed by the governing body. (Sec. 5.)	No commissioner may be an officer or employee of the city or county. (Sec. 5.)	An authority may employ a secretary (executive director), technical experts, officers, agents, and employees and determine their qualifications, duties, and compensation. May employ its own counsel or obtain services of chief law officer of city or county. (Sec. 5.)	Commissioners may be removed by the Mayor of city or governing body of county after 10 days' notice of hearing and opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 7.)
Commissioners shall receive no compensation but shall be entitled to the necessary expenses, including traveling expenses. (Sec. 5.)	Commissioners appointed by the Mayor of the city. (Sec. 5.)	Not more than one city official may be a commissioner of the authority. (Sec. 5.)	Authority may employ secretary (executive director), technical experts, officers, agents, and employees and determine their duties, qualifications, and compensation. May employ counsel or call upon corporation counsel or chief law officer of the city. (Sec. 5.)	Commissioners may be removed by the Mayor after notice and hearing and opportunity to be heard in person or by counsel. (Sec. 8.)	Inefficiency, neglect of duty, misconduct in office, or violating any law of the state or any term, provision, or covenant of any contract. (Sec. 8.)

CHART III.—*Enabling housing legislation: Territorial*

State	Public bodies in which authorities may be created	Method or methods of creating authority	Area of operation of authority	Term of members of authority
Connecticut	Each municipality may authorize a housing authority to function. (Secs. 141d and 140d (b).)	After governing body of municipality by resolution declares need for authority, upon investigation of dwelling accommodations, and notifies the Mayor to that effect, latter shall appoint 5 persons as commissioners. In case of a town, the commissioners are appointed by the governing body. (Secs. 141d and 142d.)	Each municipality (city or borough of more than 10,000 and town having more than 10,000) but excluding any area within a city or borough for which a housing authority has already been created. (Sec. 140d (e).)	First commissioners appointed serve 1 to 5 years. Thereafter term of office shall be 5 years. (Sec. 142d.)
Delaware	State Board of Housing must determine need for an authority in any county or part thereof and issue certificate to that effect, describing the area of operation. (Sec. 4.)	After issuance of State Board of Housing Certificate, 6 commissioners of an authority are appointed, who file certificates with the Secretary of State of Delaware, thus creating authority. (Secs. 4 and 8.)	The county or part of the county designated by the State Board of Housing. (Sec. 2 (f) and Sec. 4.)	First commissioners appointed for terms of 1 to 6 years. Thereafter term of office 6 years each (Sec. 4.)
Florida	Governing body of city having more than 5,000 inhabitants declares need for an Authority by resolution on own motion or upon petition of 25 residents of city. (Sec. 4; also Secs. 3 (b) and 3 (c).)	If governing body upon investigation finds unsafe or insanitary dwelling accommodations and adopts resolution to that effect, it shall notify mayor who shall appoint members of a housing authority. (Secs. 4 and 5.)	For city having population of less than 25,000, the city and area within 5 miles of boundaries thereof; for cities having population of 25,000 and over, such city and area within 10 miles of boundaries. (Sec. 3f.)	Three of first 5 commissioners appointed serve 1 to 3 years, respectively. The remaining two members serve 4 years each. Thereafter, all commissioners shall be appointed for a term of 4 years each. (Sec. 5.)
Georgia	Governing body of city or county may adopt resolution declaring need for authority. (Secs. 4, 3 (b), and 3 (c).)	Any governing body declares by resolution, on its own motion or upon petition of 25 residents, need for an authority and notifies Mayor. The latter, with consent of Governor, shall appoint 5 persons as commissioners for city. In case of county, the governing body, with consent of Governor, appoints the commissioners. (Secs. 4 and 5.)	For city with population more than 5,000 shall include city and area within 10 miles of boundaries but no part of any other city. In case of county, shall include county, but no part within area of city. (Secs. 3 (b) and 3 (f).)	Commissioners first appointed for terms of 1 to 5 years. Thereafter, term of office shall be 5 years each. (Sec. 5.)
Illinois	Governing body of city, village, or incorporated town of more than 25,000, or any county in State, may create housing authority. (Sec. 3 as amended.)	Need for authority first determined by governing body by resolution, upon adoption of which it is forwarded to State Housing Board. If latter determines need for authority exists, it issues certificate for creation of authority. State Housing Board may also on its own initiative issue certificate creating housing authority. Presiding officer of city, village, incorporated town, or county thereupon appoints, with approval of State Housing Board, 5 persons to act as commissioners. (Sec. 3.)	City, village, incorporated town, and area within 3 miles of boundaries, or county, except area included in city, village, or incorporated town. (Sec. 17b.)	First members of authority appointed for 1 to 5 years. Thereafter term is 5 years each. (Sec. 3.)
Indiana	A housing authority created for each city, town, and county after governing body declares by resolution need for such Authority. (Secs. 4 and 3(c).)	After governing body, upon own motion or upon petition of 25 residents of city, town or county, or upon receipt of an order from State Housing Board, by resolution declares need for Authority, it notifies the Mayor, who appoints 5 persons as commissioners. In case of county, governing body itself appoints the commissioners. (Secs. 4 and 5.)	In case of city or town, such city or town and area within 10 miles of its boundaries, but no part of any other city or town. In case of county, includes such county except that lying within boundaries of any city or town. (Sec. 3 (g).)	Three of first 5 commissioners appointed serve terms of 1 to 3 years. Other 2, terms of 4 years each. Thereafter, all terms 4 years each. (Sec. 5.)
Kentucky	Cities of the first, second, third, fourth, and fifth class are authorized to create housing authorities. (Sec. 2, as amended by Sec. 2741X-1.)	The mayor of a city of the first, second, third, fourth, or fifth class, with the approval of the legislative body of the city, may appoint four persons who, with the mayor ex-officio, may constitute a municipal housing commission. (Sec. 2, as amended by Sec. 2741X-2.)	Cities of the first, second, third, fourth, or fifth class. (Sec. 1, as amended by Sec. 2741X-1.)	Term of Commissioners first appointed shall be 4 years each, thereafter, terms shall be 1 to 4 years. At the expiration of which, the terms shall again be 4 years each. (Sec. 2, as amended by Sec. 2741X-2.)
Louisiana	Housing authorities created for each city having population of more than 20,000. (Sec. 4.)	After council, upon petition of 25 residents of city, adopts resolution declaring need for Authority, it notifies mayor, who thereupon appoints 5 persons as commissioners. (Secs. 4 and 5.)	The city in which the housing authority is created and the area within 10 miles of the boundaries thereof. Shall not include any part of any other city in such area. (Sec. 3 (e).)	First Commissioners appointed for terms of 1 to 5 years; thereafter, terms of office shall be 5 years each. (Sec. 5.)
Maryland	Housing authorities created for each city or town having a population of more than 1,000 and for each county. (Sec. 1.)	The governing body of a city or Board of Commissioners of a county by resolution must determine the need for an Authority and notify the mayor, who shall approve or disapprove of such action. If he approves he appoints 5 persons as commissioners of the Authority. In the case of a county, the commissioners of the Authority are appointed by Board of Commissioners. (Sec. 1.)	The city and the area within 10 miles of the boundaries thereof but no part of any other city. In the case of a county, includes the county, except that part lying within boundaries of city for which Authority has been created, unless such city consents to its inclusion in County Authority. (Sec. 1 (22).)	First Commissioners appointed serve terms of 1 to 5 years; thereafter term of office 5 years each. (Sec. 1 (5) and (22).)

organizational and administrative provisions—Continued

Compensation of members	By whom appointed	Limitations on eligibility of members	Power to select and pay additional personnel	Removal of directors	Reasons for removal
Commissioners shall receive no compensation but shall be reimbursed for actual, necessary, expenses. (Sec. 142d.)	Commissioners for a municipality are appointed by the Mayor. In case of a town, commissioners are appointed by the governing body. (Sec. 142d.)	No commissioner shall hold office in the municipality. (Sec. 142d.)	Authority may employ secretary (executive director), technical experts, agents, and employees and determine qualifications, duties, and compensation. It may also employ its own counsel. (Sec. 142d.)	In case of a town, the commissioners may be removed by the governing body; and in case of a municipality by the Mayor. 10 days' notice and copy of the charges and opportunity to be heard by counsel are provided for. (Sec. 144d.)	Inefficiency, neglect of duty, misconduct in office. (Sec. 144d.)
Commissioners receive no compensation but are entitled to reimbursement for necessary expenses. (Sec. 7).	2 commissioners appointed for 6 and 3 years, respectively, by the Governor, 2 commissioners for 5 and 2 years, respectively, appointed by the Mayor of the most populous, incorporated city or town in area; and 2 commissioners for terms of 4 years and 1 year each, respectively, appointed by the Resident Judge of the Superior Court of the county. Successors to the first commissioners likewise appointed for 6-year terms. (Sec. 4.)	No limitation on eligibility of commissioners but must reside in area of operation. (Sec. 4.)	Commissioners may employ officers, employees, director, engineering, architectural, and legal assistants and prescribe their duties and compensation. (Sec. 6.)	The Governor, Mayor, and Resident Judge may by majority vote, remove a commissioner after the latter shall have been given a copy of the charges and an opportunity to be heard in person or by counsel. (Sec. 4.)	Official misconduct, neglect of duty, or incompetence. (Sec. 4.)
Commissioners receive no compensation but are entitled to necessary expenses, including traveling expenses. (Sec 5.)	Commissioners appointed by mayor of the city. (Sec. 5.)	No Commissioner of an Authority may be an officer or employee of the city. (Sec. 5.)	An Authority may employ a secretary (executive director), technical experts, officers, agents, employees and determine qualifications, duties, and compensation. May employ counsel or call upon chief law officer of the city. (Sec. 5.)	A Commissioner may be removed by mayor upon 10 days' notice of hearing, together with copy of charges and an opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency or neglect of duty or misconduct in office. (Sec. 7.)
Commissioners receive no compensation but are entitled to necessary expenses, including traveling expenses. (Sec. 5.)	Commissioners of the city appointed by the mayor, with consent of the governor. Commissioners of county appointed by governing body with consent of governor. (Sec. 5.)	No commissioner of an authority may be an officer or employee of the city or county. (Sec. 5.)	An Authority may employ secretary (executive director), technical experts, officers, agents, employees, and determine qualifications, duties, and compensation. May employ counsel or call upon chief law officer of city or county. (Sec. 5.)	Commissioners may be removed by mayor of city, with consent of governor or by governing body of county, with consent of governor, after being given copy of charges and notice of hearing and opportunity of being heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 7.)
Commissioner receives no compensation. Entitled to necessary expenses. (Sec. 7.)	Members of authority appointed by presiding officer of city, village, incorporated town, or county with approval of State Housing Board. (Sec. 3.)	Public officer eligible to serve as commissioner. No member of Housing Board eligible as commissioner. (Sec. 3.)	Authority may employ officers, including engineers, architects, and legal assistants, and determine their duties and compensation. (Sec. 6.)	State Board of Housing may remove commissioner after latter receives copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 4.)	Incompetency, neglect of duty, malfeasance. (Sec. 4.)
Commissioners receive no compensation but are entitled to necessary expenses, including traveling expenses. (Sec. 5.)	Commissioner of Authority for city appointed by mayor, for town or county by the governing body. (Sec. 5.)	No commissioner of Authority may be an officer or employee of city, town, or county. (Sec. 5.)	An Authority may employ secretary (executive director), technical experts, officers, agents, and employees, and determine their duties, qualifications, and compensation. May employ counsel or call upon chief law officer of city, town, or county. (Sec. 5.)	Commissioners may be removed by the mayor in the case of a city or by the governing body in the case of town or county, after receiving copy of the charges and notice of hearing and an opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 7.)
Members of Authority receive compensation as fixed by legislative body of city. Maximum of chairman shall be $2,000 per annum and each member not to exceed $400 per annum. (Sec. 2, as amended by Sec. 2741X-2.)	Commissioners appointed by Mayor of city, with approval of legislative body, mayor ex-officio member of Commission. (Sec. 2, as amended by Sec. 2741X-2.)	No officer or employee of city eligible for appointment as Commissioner. Not more than two appointees from the same political party. (Sec. 2, as amended by Sec. 2741X-2.)	Commissioners may employ secretary, treasurer, engineers, architects, experts, attorneys. (Sec. 2, as amended by Sec. 2741X-2.)	Commissioners may be removed by the mayor after notice of hearing and an opportunity to be heard in person or by counsel. (Sec. 13.)	Incompetence, neglect of duty, malfeasance. (Sec. 13.)
Commissioners receive no compensation but are entitled to actual and necessary expenses. (Sec. 5.)	Commissioners of Authority appointed by the mayor of the city. (Sec. 5.)	No Commissioner shall be city official. (Sec. 5.)	Authority may employ secretary (executive director), technical experts, officers, agents, employees, and determine qualifications, duties and compensation. May employ counsel or call upon chief law officer of city. (Sec. 5.)	Mayor may remove commissioner after commissioner has been given copy of charges and notice of hearing and an opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, or misconduct in office, or wilfully violating any law of the state or term, provision, or covenant of a contract. (Sec. 7.)
Commissioners receive no compensation but are entitled to necessary expenses, including traveling expenses. (Sec. 1 (5).)	Commissioners of Authority for city appointed by Mayor of city. Commissioners of Authority for county appointed by Board of Commissioners. (Sec. 1 (5).)	No Commissioner of the Authority may be an officer or employee of the city or county. (Sec. 1 (5) and (22).)	Authority may employ secretary (executive director), technical experts, officers, agents, and employees, and determine compensation, qualifications and duties. May employ counsel or call upon chief law officer of city. (Sec. 1 (5).)	Commissioner of an Authority may be removed by mayor of city or Board of Commissioners of county after being given copy of charges and notice of hearing and an opportunity to be heard in person or by counsel. (Sec. 1 (22).)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 1 (7).)

CHART III.—*Enabling housing legislation: Territorial*

State	Public bodies in which authorities may be created	Method or methods of creating authority	Area of operation of authority	Term of members of authority
Massachusetts	City Council of city, with approval of Mayor, and town at town meeting, may create housing authority. (Sec. 26L.)	Need for housing authority of city determined by vote of city council with approval of Mayor, who with approval of council, appoints 4 members of authority, and 1 is appointed by housing board. In case of towns, need for housing authority determined by vote of town meeting. Selectmen appoint 4 members of authority and 1 is appointed by housing board. City or town clerk then files certificate of appointment or election with housing board, and duplicate with Secretary of State, who issues certificate of organization. (Sec. 26L and 26M.)	City or town (Sec. 26L)	For city, members of authority first appointed by Mayor serve terms of 1, 2, 4, and 5 years; members appointed by housing board, 3 years. Thereafter term of office 5 years each. For town, members first appointed by selectmen, serve until next annual town meeting. Thereafter elected members serve terms of 5, 4, 2, and 1 years according to number of votes received. Members appointed by housing board serve 3 years. Thereafter term of office 5 years each. (Sec. 26L and 26M.)
Michigan	City or incorporated village (Sec. 3, Act No. 18, Laws of 1933, as amended by Sec. 1 of Act No. 5, Pub. Acts., Ex. Sess., 1938).	Housing commission of a city or incorporated village created by appointing 5 persons to act as commissioners. (Sec. 4, Act No. 80, Laws of 1935, amends Sec. 4, Act No. 18, Laws of 1933.)	City or incorporated village (Sec. 1 of Act No. 5, Public Acts, Ex. Sess., 1938).	Commissioners first appointed for terms of 1 to 5 years. Thereafter commissioners' terms are 5 years each. (Sec. 4, Act No. 80, Laws of 1935 amending Sec. 4, Act No. 18, Laws of 1933.)
Mississippi	Governing body of city or county by resolution may authorize housing authority for city or county to function. (Sec. 3.)	Upon motion of the governing body or petition of 25 residents of city or county, the governing body by resolution must declare the need for a housing authority to function and notify mayor of the city of such resolution. The mayor thereupon appoints 5 persons as commissioners. In the case of the county, 5 persons appointed by governing body. (Secs. 3 and 4.)	Includes the city and area within 5 miles from the boundaries thereof. In the case of county, includes the county except portion lying within boundaries of city. (Sec. 1 (g).)	First commissioners appointed serve terms of 1 to 5 years. Thereafter term of office 5 years each. (Sec. 4.)
Montana	Residents of city of first or second class may create housing authority. (Sec. 4.)	25 residents of city and area within 10 miles may file petition with city clerk setting forth need for authority who thereupon gives notice of public hearing. After hearing the city council by resolution determines the lack of proper dwelling accommodations and must notify mayor of adoption of such resolution who thereupon appoints 5 persons as commissioners. (Sec. 4.)	The city and area within 10 miles of the boundaries thereof but no part of any city included within the boundaries of another authority. (Sec. 4.)	Commissioners first appointed for terms of 1 to 5 years. Thereafter terms of office 5 years each. (Sec. 5.)
Nebraska	Governing body of metropolitan city including either city of first class (population of more than 5,000, less than 100,000) or of county may create housing authority. (Sec. 3, Ch. 29, Laws of 1935, and Sec. 4, Ch. 90, Laws of 1937.)	Governing body of metropolitan city by ordinance determines need for an authority. Thereupon the mayor with the approval of governing body appoints 5 persons as commissioners. (Secs. 3 and 5, Ch. 29, Laws of 1935; Sec. 10, Ch. 94, Laws of 1937.) In first-class cities and counties, governing body on own motion or upon petition of 25 residents of city or county declare need for authority by resolution and notify mayor of city who may appoint 5 persons as commissioners. In case of county, appointment of commissioners by governing body. (Sec. 4, Ch. 90, Laws of 1937.)	Cities of metropolitan class includes the city and the area within 10 miles of the boundaries thereof. (Sec. 2f, Ch. 94, Laws of 1937.) In the case of cities of the first class, includes such city and the area within 5 miles of the boundaries thereof, and in case of county includes county except that portion which lies within boundaries of a city. (Sec. 3f, Ch. 90, Laws of 1937.)	For metropolitan cities, term is 1 year each. (Sec. 3, Ch. 29, Laws of 1935.) For first-class cities or counties, term of office of first commissioners appointed, 1 to 5 years. Thereafter term of office 5 years each. (Sec. 5 Ch. 90, Laws of 1937.)
New Jersey	Governing body of county by resolution or of city by ordinance may create housing authority, and two or more municipalities may create regional housing authority. (Sec. 5.)	The governing body of municipality or of county, after adoption of resolution, may create housing authority and appoint 5 persons as commissioners of authority. In case of regional authority, 2 or more municipalities may join by appointing 2 persons each as commissioners and an additional commissioner appointed by the governing body of the municipality having the largest population. (Sec. 5.)	In the case of municipality, includes such municipality; in case of regional authority, includes 2 or more municipalities; in case of county, includes all of county except portion lying within limits of municipality already having an authority. (Sec. 4e.)	For municipalities or counties, commissioners first appointed serve 1 to 5 years; thereafter term of office 5 years each. For regional authority, term of office 5 years each. (Sec. 5.)
New York	Authority may be established by a county, city, or first-class village. (Sec. 63 (1).)	Local legislative body by resolution may authorize and direct the mayor of a city or village or county executive to file certificate for authority, thereby creating it, or Mayor or county executive may file in office of State board of housing a certificate and copy in office of secretary of state setting forth the need of the authority, etc. (Sec. 63 (1).)	City, county, or first-class village for which authority was created. (Sec. 63 sub. (1).)	Term of members of first authority 1 to 5 years; thereafter term of office 5 years each. (Sec. 63 (2) and (3).)
North Carolina	City council and mayor upon petition of 25 residents of city and area within 10 miles may appoint housing authority commissioners. (Sec. 4.)	25 residents of city and area within 10 miles may file petition with city clerk setting forth need for authority. City clerk must give notice of public hearing at which city council by resolution must determine the need for an authority. After adoption of such resolution it shall notify mayor who appoints 5 persons as commissioners who thereupon present application for incorporation to the secretary of state. The latter issues a certificate of incorporation to the commission. (Sec. 4.)	A city or town having a population of more than 5,000 and the area within 10 miles of the boundaries thereof. (Secs. 3 and 4 as amended Aug. 13, 1938.)	First commissioners appointed by mayor serve terms of 1 to 5 years; thereafter term of office 5 years each. (Sec. 5.)
North Dakota	A housing authority may be created in each city and in each county of the State. (Sec. 4.)	Governing body must determine need for authority upon own motion or upon petition of 25 residents of city or county. After adoption of resolution declaring need for authority, governing body must notify mayor who thereupon appoints 5 persons as commissioners. In case of county, commissioners appointed by governing body. (Secs. 4 and 5.)	In case of a city of less than 15,000, includes such city and area within 5 miles of boundaries thereof. In case of city of 15,000 or over, area includes such city together with area within 10 miles thereof; and in case of county, includes all of county except that portion within boundaries of city. (Sec. 3f.)	First commissioners appointed serve terms of 1 to 5 years; thereafter term of office 5 years each. (Sec. 5.)

organizational and administrative provisions—Continued

Compensation of members	By whom appointed	Limitations on eligibility of members	Power to select and pay additional personnel	Removal of directors	Reasons for removal
Members of authority receive no compensation, in any capacity, but are entitled to reimbursement for proper expenses. (Sec. 26F.)	For city, 4 members appointed by Mayor with approval of City Council and 1 by housing board. For town, 4 of first authority appointed by selectmen; thereafter elected by town meeting; 1 appointed by housing board. (Sec. 26L and 26M.)	No provision is made concerning eligibility of members.	Housing Authority may employ counsel, executive director (exofficio-secretary) treasurer, officers, agents, employees, and determine qualifications, duties and compensation. May use services of agencies, officers and employees of city or town. (Sec. 26O.)	Mayor with approval of city council, or town selectmen, as case may be, may remove a member of authority, after such member receives a copy of charges, notice of hearing and opportunity to be heard in person or by counsel. Members of authority appointed by housing board may be removed by housing board in like manner. (Sec. 26N.)	Inefficiency, neglect of duty or misconduct in office. (Sec. 26N.)
Members of commission receive no compensation. (Sec. 4, Act No. 80, Laws of 1935 amending Sec. 4, Act No. 18, Laws of 1933.)	Commissioners appointed by chief administrative officer of city or incorporated village. (Sec. 4, Act No. 80, Laws of 1933 amended by Sec. 4, Act No. 18, Laws of 1935.)	No limitation on eligibility.	Commission may appoint director and other officers and employees including engineers, architects, and consultants. (Sec. 5, Act No. 80, Laws of 1935 amending Sec. 5, Act No. 18, Laws of 1933.)	Members of commission may be removed by appointing authority. (Sec. 4, Act. 80, Laws of 1935 amending Sec. 4, Act No. 18, Laws of 1933.)	No provision is made giving reasons for removal.
Commissioners receive no compensation but may receive necessary expenses including traveling expenses. (Sec. 4.)	Commissioners of city appointed by mayor. Commissioners of county appointed by governing body of county. (Sec. 4.)	Commissioner may not be an officer or employee of city or county. (Sec. 4.)	Authority may employ secretary (executive director), technical experts, officers, agents, employees, and determine the qualifications, duties, and compensation; may employ counsel or call upon chief law officer of city or county. (Sec. 4.)	No provision made for removal of commissioners.	No provision.
Commissioners receive no compensation but may receive necessary expenses including traveling expenses. (Sec. 5.)	Commissioners appointed by mayor of city. (Sec. 5.)	No commissioner may be city official. (Sec. 5.)	Authority may employ secretary (executive director), technical experts, officers, agents, employees and determine qualifications, duties and compensation; may employ counsel or call upon chief law officer of city. (Sec. 5.)	Commissioners may be removed by mayor after having been given copy of charges and notice of hearing and an opportunity to be heard in person or by counsel. (Sec. 8.)	Inefficiency, neglect of duty, misconduct in office, or willful violation of any law of State, or term, provision, or covenant of contract. (Sec. 8.)
Commissioners receive no compensation but may be reimbursed for necessary expenses. (Sec. 3, Ch. 29, Laws of 1935; also Sec. 5, Ch. 90, Laws of 1937.)	Metropolitan housing authority members appointed by Mayor with approval of governing body. (Sec. 3, Ch. 29, Laws of 1935.) For first-class cities, members of authority appointed by Mayor. For counties, members of authority appointed by governing body. (Sec. 5, Ch. 90, Laws of 1937.)	No commissioner of authority of first class city or county may be officer or employee of city or county. (Sec. 5, Ch. 90, Laws of 1937.)	Authority may employ counsel, director, officers, employees, and fix qualifications, compensation and duties; may also call upon chief law officer of city or county for legal services. (Sec. 4, Ch. 29, Laws of 1935, and Sec. 5, Ch. 90, Laws of 1937.)	For metropolitan housing authority members no provision is made for removal; for first class cities commissioners may be removed by mayor after being given copy of the charges and notice of hearing and an opportunity to be heard in person or by counsel. For counties, commissioners may be removed by governing body after being given notice as above. (Sec. 7, Ch. 90, Laws of 1937.)	Inefficiency, neglect of duty, misconduct in office. (Sec. 7, Ch. 90 Laws of 1937.)
Commissioner receives no compensation for services but is entitled to necessary expenses including traveling expenses. (Sec. 7.)	Commissioners of authority for municipality or county appointed by governing body. In case of regional authority, commissioners appointed by respective governing bodies. Executive Director of State housing authority may appoint ex officio member of each authority. (Sec. 5.)	Commissioner of authority may not be an officer or employee of a municipality or county. (Sec. 7.)	Housing authority may employ secretary (executive director), technical experts, officers, agents, employees and determine qualifications, duties and compensation may employ counsel or call upon chief law officer of municipality or county. (Sec. 7.)	Commissioner may be removed by governing body which made the appointment, after being given copy of charges with notice of hearing and an opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, misconduct in office. (Sec. 7.)
Members of authority receive no compensation but entitled to necessary expenses including traveling expenses. (Sec. 63 sub. (3).)	Members of authority appointed by mayor or county executive. (Sec. 63 (2).)	No more than 1 member of authority may be official of municipality. (Sec. 63 (2).)	Authority may employ secretary (executive director), officers, agents, employees and determine qualifications, duties and compensation; may employ counsel or call upon chief law officer for legal services. (Sec. 64 (1).)	The mayor or county executive may remove member of authority after being given copy of charges, notice of hearing, and an opportunity to be heard in person or by counsel. (Sec. 63 (4).)	Inefficiency, neglect of duty, misconduct in office. (Sec. 63 (4).)
Commissioners receive no compensation but entitled to necessary expenses including traveling expenses. (Sec. 5.)	Commissioners appointed by mayor. (Sec. 5.)	No commissioner may be city official. (Sec. 5.)	Authority may employ secretary (executive director), technical experts, officers, agents, employees, and determine qualifications, duties, and compensation; may employ counsel or call upon chief law officer for legal services. (Sec. 5.)	Commissioner may be removed by mayor after being given copy of charges, notice of hearing and an opportunity to be heard in person or by counsel. (Sec. 8.)	Inefficiency, or neglect of duty, misconduct in office, or willful violation of any law of State, or term, provision, or covenant of a contract. (Sec. 8.)
Commissioners receive no compensation but are entitled to necessary expenses including traveling expenses. (Sec. 5.)	Commissioners of authority of city appointed by mayor after that appointments made by governing body. (Sec. 5.)	No commissioner of authority may be officer or employee of city or county. (Sec. 5.)	Authority may employ secretary (executive director), technical experts, officers, agents, and employees and determine qualifications, duties, and compensation; may employ counsel or call upon chief law officer for legal services. (Sec. 5.)	Commissioner may be removed by mayor of city or governing body of county after such commissioner receives copy of charges, is given notice of hearing, and an opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 7.)

CHART III.—*Enabling housing legislation: Territorial*

State	Public bodies in which authorities may be created	Method or methods of creating authority	Area of operation of authority	Term of members of authority
Ohio	Metropolitan housing authorities may be created by State board of housing in any portion of any county comprising 2 or more political subdivisions or portions thereof but less than entire county. (Sec. 1078-30 as amended.)	State board must adopt resolution declaring need for authority and forward same to Probate Court, Common Pleas Court, Board of County Commissioners, and Mayor of most populous city in territory, each of whom appoint 1 member of authority, except Mayor, who appoints 2, and the 5 constitute housing authority. (Sec. 1078-30.)	May consist of any portion of any county that comprises 2 or more political subdivisions or portions thereof. State board of housing may enlarge territory. (Sec. 1078-30.)	Probate Court appointee, term 4 years. Common Pleas Court, appointee term 3 years. Board of County Commissioners appointee, 2 years. Mayor appointees, terms 1 and 5 years. Thereafter terms of each 5 years. (Sec. 1078-30.)
Oregon	Governing body of city or town having population of more than 5,000, or any county may create housing authority. (Sec. 4.)	Upon its own motion or upon petition of 25 residents of city or county, governing body of city or county by resolution determines need for authority and notifies Mayor of adoption of such resolution who shall appoint 5 persons as commissioners of authority, in case of county commissioners appointed by governing body. (Secs. 4 and 5.)	For cities of less than 10,000 such city and area within 5 miles thereof. For cities of 10,000 or more, such city and area within 10 miles of boundary. For counties, such county, except portion lying within boundary of city. (Sec. 3f.)	Commissioners first appointed serve terms of 1 to 5 years, thereafter terms of office 5 years each. (Sec. 5.)
Pennsylvania	A housing authority may be created in each city of first, second, second class-A, or third class of 30,000 or over, and counties, except counties of the first class. (Secs. 3c, e and 4a, P. L. 955, Laws of 1937.)	Governing body of city or county must declare by resolution need for authority; or 25 citizens and taxpayers of city or county may submit petition to Governor stating need for authority. The clerk of city or county issues a certificate of adoption of resolution. The governing body or Governor then files triplicate with Department of State and State Board of Housing. Board of County Commissioners of county may issue certificate declaring need for authority in county. (Secs. 4 and 5.)	City of the first, second, second class-A, or third class of 30,000 population or over and any county. (Secs. 3c and 4.)	Terms of members of authority first appointed 1 to 5 years, respectively, thereafter 5 years each. (Sec. 6.)
Rhode Island	Council of City upon petition of 25 residents, may create housing authority. (Sec. 4.)	25 residents of city file petition with Clerk declaring need for authority, whereupon Clerk gives notice of public hearing, after which council adopts resolution to that effect and notifies Mayor, who appoints 5 persons as commissioners. Latter presents application to Secretary of State, who issues certificate of incorporation to commissioners. (Sec. 4.)	Coterminous with city. (Secs. 3 and 4.)	First commissioners appointed for terms of 1 to 5 years. Thereafter, term of office 5 years each. (Sec. 5.)
South Carolina	Each city (city or town, population over 5,000) or county of State. (Secs. 2 and 3 of Act 783, Laws of 1934, as amended.)	Need for authority in cities determined by resolution of council on own motion or upon petition of 25 residents of city. In counties, by legislative delegation. In case of cities Mayor is notified of resolution and appoints 5 commissioners of authority, except Charleston, where 7 are appointed. For counties, commissioners appointed by Senator. (Sec. 3, as amended.)	The city and the county. In case of county, excludes that portion within boundaries of city having its housing authority. State Board of Housing may extend jurisdiction, within limits. (Sec. 3, as amended.)	Members first appointed for terms of 1 to 5 years. Thereafter, term of office, 5 years each. (Sec. 3, as amended.)
Tennessee	Any 25 residents of city (city or town with more than 2,000 inhabitants) and area within 10 miles of boundaries. (Sec. 4. Ch. 20, Laws of 1935.) In case of Memphis, Board of Commissioners may determine need for authority. (Sec. 4, Ch. 615 Laws of 1935.)	Upon petition of 25 residents of a city filed with Clerk, the latter gives notice of public hearing, after which council determines need for an authority by resolution and notifies Mayor, who appoints 5 commissioners, who present application to Secretary of State, who, in turn, issues certificate of incorporation to authority. In case of Memphis, the need is determined by Board of Commissioners, after which the Mayor appoints Commissioners as in other cities. (Sec. 4.)	For city, it includes city and area within 10 miles of boundaries but no part of another city. For Memphis, the City of Memphis. (Sec. 4.)	First commissioners appointed for terms of 1 to 5 years. Thereafter, term of office, 5 years each. (Sec. 5.)
Texas	Housing Authority is created in each city of State. (Secs. 3 (b) and 4, as amended.)	Need for authority first determined by governing body, by resolution on its own motion, or upon petition of 100 qualified voters and residents of city. It notifies Mayor of adoption of such resolution who appoints 5 persons as commissioners of authority. (Secs. 4 and 5, as amended.)	Includes the city and area within 5 miles of boundaries thereof, excluding area of any other city. (Sec. 3 (f), as amended.)	2 commissioners first appointed, for 1 year each, and remaining 3, for 2 years each. Thereafter, term of office shall be 2 years each. (Sec. 5, as amended.)
Vermont	Governing body of city or town may adopt resolution declaring need for an authority. (Sec. 4.)	Need for authority determined by governing body, by resolution, of municipality (city of over 10,000; town of over 10,000) upon own motion or upon petition of 25 residents of municipality. Mayor is notified of adoption of resolution, who appoints 5 persons as commissioners of authority for city. In case of town, the governing body, after adoption of the resolution, appoints the 5 commissioners. (Secs. 4 and 5.)	In case of city, includes city and area within 6 miles of its boundaries. (Sec. 3g.)	First members of authority appointed for terms of 1 to 5 years. Thereafter each term 5 years. (Sec. 5.)
Virginia	Housing authority created in each city and county. (Sec. 4.)	Need for authority determined by governing body of city or county, by resolution, upon own motion, or upon petition of 100 freeholders. Mayor is notified of adoption of resolution, who appoints 5 persons as commissioners of authority. In case of county, the 5 commissioners are appointed by the governing body. (Secs. 4 and 5.)	In case of a city, coextensive with boundaries of city; for county, includes all of county except portion within boundaries of city. (Sec. 3f.)	First members of authority appointed for terms of 1 to 5 years. Thereafter term of office, 5 years each. (Sec. 5.)

organizational and administrative provisions—Continued

Compensation of members	By whom appointed	Limitations on eligibility of members	Power to select and pay additional personnel	Removal of directors	Reasons for removal
Members of authority receive no compensation but shall be reimbursed for necessary expenses. (Sec. 1078-30.)	Members appointed as follows: 1 by Probate Court, 1 by Common Pleas Court, 1 by Board of County Commissioners, 2 by Mayor of most populous city in territory. (Sec. 1078-30.)	Not more than 2 public officials shall be members of an authority at 1 time. (Sec. 1078-30.)	Authority may employ counsel, director (ex-officio secretary) and officers and employees and fix compensation, qualifications, and duties. (Sec. 1078-31.)	No provision for removal of housing authority members.	No provision.
Commissioner receives no compensation for services, but is entitled to expenses, including traveling expenses. (Sec. 5.)	Commissioners of authority for city appointed by Mayor of city; and for county appointed by governing body of county. (Sec. 5.)	No commissioner of authority may be officer or employee of city or county. (Sec. 5.)	Authority may employ secretary (executive director), technical experts, officers, agents, employees, and determine qualifications, duties and compensation. May employ counsel or call upon chief law officer of city or county. (Sec. 5.)	Commissioner of authority may be removed by Mayor or by governing body of county after being given a copy of charges and notice of hearing and opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 7.)
Members of housing authority receive no compensation but are entitled to expenses, including traveling expenses. (Sec. 6.)	In case of county, members appointed by Board of County Commissioners, except third-class counties where governing body appoints 2 members and Governor appoints 3 members. In case of cities Mayor appoints 5 members of authority, except first-class cities where Mayor appoints 2 members; City Controller appoints 2 members and the 4 select fifth member. In third-class cities Mayor appoints 2 members, Governor appoints 3 members. (Sec. 5.)	Not more than 2 persons holding any other paid public office may be members of housing authority at same time. (Sec. 6.)	Housing authority may employ counsel, secretary, technical experts, officers, agents, employees and determine qualifications. (Sec. 7.)	No provision made for removal of members of authority but obligee of authority may file charges with appointing power or the State Board of Housing against any member of authority. (Sec 9.)	None.
Commissioners receive no compensation, but entitled to necessary expenses, including traveling expenses. (Sec. 5)	Commissioners appointed by Mayor. (Sec. 5.)	No commissioner may be city official. (Sec. 5.)	Housing authority may employ secretary (executive director), technical experts, agents, officers, employees, and determine duties, qualifications, and compensation. May employ counsel, or call upon chief law officer of city. (Sec. 5.)	May be removed by Mayor, after receiving copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 8.)	Inefficiency, neglect of duty, misconduct in office, willful violation of term, provision or covenant of contract, or laws of State. (Sec. 8.)
Commissioner receives no compensation, but is entitled to reimbursement for expenses. (Sec. 7.)	Members of City Authority, appointed by Mayor. (Sec. 3.) Members of County Authority, appointed by Senator. (Sec. 2, Act. 183, Laws of 1937.)	Authority members may not be officers or employees of city. (Sec. 3.)	Authority may appoint officers, employees, engineers, architects, legal assistants, and fix duties and compensation. (Sec. 5.)	Authority member may be removed by Mayor of city or Senator of county after receiving copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 3.)	Inefficiency, neglect of duty, misconduct in office. (Sec. 3.)
Commissioners receive no compensation, but receive necessary expenses, including travelling expenses. (Sec. 5.)	Commissioners appointed by Mayor. (Sec. 5.)	For cities, except Memphis, no commissioner may be city official. (Sec. 5.) For Memphis, no limitations.	Authority may employ secretary (executive director), technical experts, officers, agents, employees, and determine qualifications, duties, and compensation. May employ counsel or call upon chief law officer of city. (Sec. 5.) Memphis authority not authorized to call upon chief law officer of city.	Mayor may remove commissioner after being given copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 8.)	Inefficiency, neglect of duty, misconduct in office, willful violation of any law of State, or any term, provision or covenant of contract. (Sec. 8.)
Members of authority receive no compensation, but entitled to expenses, including travelling expenses. (Sec. 5e, as amended.)	Members of authority appointed by Mayor. (Sec. 5, as amended.)	No member of authority may be officer or employee of city. (Sec. 5, as amended.)	Authority may employ secretary (executive director), technical experts, officers, agents, employees, and determine qualifications, duties, and compensation. May employ counsel or call upon chief law officer of the city. (Sec. 5, as amended.)	Member of authority may be removed by Mayor, after receiving copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 7, as amended.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 7, as amended.)
Members of authority receive no compensation but receive necessary expenses, including traveling expenses. (Sec. 5.)	For city, members of authority appointed by Mayor. For town, appointed by governing body of town. (Sec. 5.)	No member of authority may be officer or employee of municipality. (Sec. 5.)	Authority may employ secretary (executive director) technical experts, officers, agents, employees, and determine qualifications, duties, and compensation. May employ counsel or call upon chief law officer of municipality. (Sec. 5.)	Member of authority may be removed by Mayor of city or governing body of town, after receiving copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 7.)
Members of authority receive no compensation, but receive necessary expenses, including traveling expenses. (Sec. 5.)	For city, members of authority appointed by Mayor; for county, appointed by governing body. (Sec. 5.)	No member of authority may be officer or employee of city or county. (Sec. 5.)	Authority may employ secretary (executive director), technical experts, agents, officers, employees, and determine qualifications, duties, and compensation. May employ counsel or call upon city or commonwealth attorneys for legal aid. (Sec. 5.)	Mayor of city or governing body of county may remove a member of authority, after receiving copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 7.)

CHART III.—*Enabling housing legislation: Territorial*

State	Public bodies in which authorities may be created	Method or methods of creating authority	Area of operation of authority	Term of members of authority
West Virginia	Council of any city may determine need for authority. (Sec. 3.)	After council of city determines need for an authority, it notifies Mayor thereof, who appoints 5 persons as commissioners of an authority. (Sec. 3.)	City. (Sec. 3)	First members of authority appointed for terms of 1 to 5 years. Thereafter the term is 5 years each. (Sec. 3.)
Wisconsin	Council of any city may, by resolution, declare need for an authority. (Sec. 4.)	After council, based on investigation of housing conditions, adopts resolution declaring need for authority, it notifies Mayor, who then appoints 5 persons as commissioners of an authority. (Secs. 4 and 5.)	The city and area within 5 miles of boundaries thereof, but not beyond county limits where city is located. (Sec. 3e.)	First members of authority appointed for terms of 1 to 5 years. Thereafter term of office 5 years each. (Sec. 5b.)
Hawaii (Territory of).	Legislature of Hawaii created Hawaii Housing Authority for Territory of Hawaii. (Sec. 7978A.)	5 commissioners of housing authority appointed by Governor with the consent of the Senate. (Sec. 7978A.)	Territory of Hawaii. (Sec. 7978A.)	First commissioners appointed for terms of 1 to 5 years. Thereafter the term of office is 5 years each. (Sec. 7978A.)
Puerto Rico (Possession of).	Law creates "Puerto Rico Housing Authority," and also a housing authority in each municipality of Puerto Rico. (Sec. 4.)	Need for an authority in a municipality first determined by resolution of governing body on own motion, or upon petition of 25 residents of municipality. Resolution must be approved by Executive Council of Puerto Rico. The Mayor is notified of adoption of the resolution and appoints 5 persons as commissioners of authority for municipality. (Secs. 4 and 5.)	For municipality, authority area is co-extensive with municipality. The Puerto Rico Housing Authority does not include any area within municipality having an authority, unless consented to by it. (Sec. 3f.)	First commissioners appointed for terms of 1 to 5 years. Thereafter term of office 5 years each. (Sec. 5.)

CHART IV.—*Enabling housing legislation: Provisions*

[Citation refers to section of the State Housing Authorities

Provision	Arkansas	California	Colorado	Connecticut	Florida	Georgia	Illinois	Indiana
Rent or lease only to persons of low income	10	10	10			10		
Rentals within their financial reach	10	10	10	8	10	10	25	10
Rent or lease only enough rooms (no greater number), to provide safe, sanitary quarters without overcrowding.	10	10	10		10	10	25	10
Tenants' annual income cannot be more than 5 times annual rent including average annual cost to occupants of heat, water, electricity, gas, cooking range, other necessary facilities (whether or not included in rent).	10	10	10	8		10		
For families with 3 or more minor dependents, the income ratio shall not exceed 6 times rental.		10						
Excludes families with aggregate income sufficient to rent sanitary, safe quarters within area, yet maintaining adequate living standards.					10		25	10
Subletting prohibited		10				10		
Section, or preceding section, does not limit authority's power to give obligee right to take possession of project, if default; appoint receiver, acquire foreclosure title free from restrictions.	10	10	10	8	10	10	[2] 25	10

[1] Of the 33 States and 2 Territories having enabling housing legislation as of October 1938, 9 had no provision: Alabama, Delaware, Kentucky, Montana, New York, North Carolina, Ohio, Rhode Island, and West Virginia.

[2] Further provision, Sec. 26AA: No discrimination, but preference to United States citizens, local inhabitants, and families expelled from demolished, condemned dwellings.

organizational and administrative provisions—Continued

Compensation of members	By whom appointed	Limitations on eligibility of members	Power to select and pay additional personnel	Removal of directors	Reasons for removal
Members of authority receive no compensation but may be reimbursed for necessary expenditures. (Sec. 6.)	Members of authority appointed by Mayor. (Sec. 3.)	No provision	Authority may appoint officers, employees, engineers, architects, legal assistants, and prescribe duties and compensation. (Sec. 5.)	Mayor may remove member of authority after member receives copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 3.)	Official misconduct, neglect of duty, or incompetence. (Sec. 3.)
Members of authority receive no compensation; may receive necessary expenses, including traveling expenses. (Sec. 5b.)	Members of authority appointed by Mayor and confirmed by council. (Sec. 5a.)	Member of authority may not be officially connected with political party. Not more than 2 members of authority may be officers of city. (Sec. 5a.)	Authority may employ secretary (executive director), technical experts, officers, agents, employees, and determine qualifications, duties, and compensation. May call upon city attorney for legal services. (Sec. 5c.)	Mayor may remove member of authority after member receives copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. Also Sec. 17.16 of Wisconsin Statutes. (Sec. 8.)	Inefficiency, neglect of duty, or misconduct in office. (Sec. 8.)
Commissioners receive no compensation. Entitled to necessary expenses, including traveling expenses. (Sec. 7978A.)	Commissioners appointed by Governor with consent of Senate. (Sec. 7978A.)	Not more than 3 commissioners shall be of same political party. (Sec. 7978A.)	Authority may employ executive secretary, technical experts, officers, agents, employees, and determine qualifications, duties, and compensation. May employ counsel or call upon Attorney General of Territory for legal services. (Sec. 7978A.)	Member of authority may be removed by the Governor after the member receives copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 7978E.)	Inefficiency, neglect of duty, or misconduct in office, or wilful violation of any term, provision or covenant of contract or law of Territory. (Sec. 7978E.)
Commissioners receive no compensation. May receive necessary expenses, including traveling expenses. (Sec. 5.)	For Puerto Rico Housing Authority, the commissioners are appointed by Governor with consent of Senate. For municipality, appointed by Mayor. (Sec. 5.)	Commissioner may not be employee or officer of Puerto Rico or municipality. (Sec. 5.)	Authority may employ secretary (executive director), technical experts, officers, agents, employees, and determine qualifications, duties, compensation. May employ counsel or call upon Attorney General for legal services. (Sec. 5.)	Commissioner may be removed by Governor of Puerto Rico. For municipality, commissioner may be removed by Mayor after he receives copy of charges, notice of hearing, and opportunity to be heard in person or by counsel. (Sec. 7.)	Inefficiency, neglect of duty, misconduct in office. (Sec. 7.)

for tenant selection—Occupancy restrictions [1]

Law except New Jersey=Local Housing Authorities Law]

Louisiana [1]	Maryland	Massachusetts [2]	Michigan	Mississippi	Nebraska	New Jersey	North Dakota	Oregon	Pennsylvania	South Carolina	Tennessee	Texas	Vermont	Virginia	Wisconsin	Hawaii	Puerto Rico
24-B	(10)		44	8	10	9	10	10	[3] 13	8-C	32	10	10	10	27		10
24-B	(10)	26AA	44	8	10	9	10	10	13	8-C	32	10	10	10	27	26	10
24-B	(10)	26AA	44	8	10	9	10	10	13	8-C	32	10	10	10	27	26	10
24-B	(10)	26AA	44	8	10	9	10	10		8-C	32	10	10	10	27		10
24-B		26AA	44	8		9			[4] 3	8-C		10		10	27		10
																26	
	(10)		44		10		10						10				
24-B	(10)		44	8	10		10	10	13	8-C	32	10	10	10	27	26	10

[1] Files schedule of rental charges with the State board of housing.
[2] No provision as to the number of dependents.
[3] "To give bondholder or trustee the right. * * *"
[4] Added by Act No. 276, Sec. 2, Acts of 1938, approved July 6, 1938.

CHART V.—*Enabling housing legislation: Provisions for rentals—nonprofit operations* [1]

[Citations refer to Housing Authorities Law unless otherwise noted: Nebraska, F. C. C. H. A. L.=First-Class Cities Housing Authorities Law; New Jersey, L. H. A. L.=Local Housing Authorities Law]

State	Lowest possible rates to produce safe, sanitary dwellings	To reduce rentals as expedient, providing does not violate Authority's contract with obligee	Objectives not profit, revenues to local State body	Rentals only high enough to produce (plus other incomes, revenues) revenue to pay bond principal and interest, maintenance, operating costs, insurance, administrative expense	Create, maintain reserve during at least 6-year period succeeding bond issuance, to meet largest principal and interest payments due on bonds in any 1 year	Create reasonable reserves for contingencies
Arkansas	Sec. 9		Sec. 9	Sec. 9	Sec. 9	
California	do		do	do	do	
Colorado	Sec. 30	Sec. 30		Sec. 30, "to meet costs of operation and maintenance, meet all obligations."		Sec. 30.
Florida	Sec. 9		Sec. 9	Sec. 9, substitutes term "debentures" for bonds.	Sec. 9	
Georgia	do		do	Sec. 9	do	
Illinois [2]	Sec. 24		Sec. 24	Sec. 24	Sec. 24 [3]	
Indiana	Sec. 9		Sec. 9	Sec. 9	Sec. 9	
Kentucky [4]						
Louisiana	Sec. 24-A		Sec. 24-A	Sec. 24-A	Sec. 24-A [5]	
Maryland	Sec. 1, Subsec. 9		Sec. 1, Subsec. 9	Sec. 1, Subsec. 9	Sec. 1, Subsec. 9	
Massachusetts	Sec. 26AA		Sec. 26AA, "or to commonwealth."	Sec. 26AA, "And payments in lieu of taxes."	Sec. 26AA	
Michigan	Sec. 27		Sec. 27 "no commission shall construct, operate any such project for profit."	Sec. 27	Sec. 27, plus reserve of 5 percent shelter rentals for payments in lieu of taxes.	
Mississippi	Sec. 7		Sec. 7	Sec. 7	Sec. 7	
Nebraska	Sec. 9, F. C. C. H. A. L.		Sec. 9, F. C. C. H. A. L.	Sec. 9, F. C. C. H. A. L.	Sec. 9, F. C. C. H. A. L.	
New Jersey	Sec. 9, L. H. A. L.		Sec. 9, L. H. A. L.	Sec. 9, L. H. A. L.	Sec. 9, L. H. A. L.	
North Dakota	Sec. 9		Sec. 9	Sec. 9	Sec. 9	
Oregon	do		do	do	do	
Pennsylvania	Sec. 12		Sec. 12, "no authority shall construct, operate * * * for profit."	Sec. 12, "to make such payments, if any, in lieu of taxes."	Sec. 12	
South Carolina	Sec. 8-B		Sec. 8-B	Sec. 8-B	Sec. 8-B	
Tennessee	Sec. 31		Sec. 31	Sec. 31	Sec. 31	
Texas	Sec. 9		Sec. 9	Sec. 9	Sec. 9	
Vermont	do		do	do	do	
Virginia	do		do	do	do	
Wisconsin	Sec. 26		Sec. 26	Sec. 26	Sec. 26	
Hawaii	Sec. 25		Sec. 25 to authority or "to the Territory."	Sec. 25	Sec. 25	
Puerto Rico	Sec. 9		Sec. 9, "or to the government of Puerto Rico."	Sec. 9	Sec. 9	

[1] Of the 33 States and 2 Territories having enabling housing legislation as of October 1938, 9 had no provision: Alabama, Connecticut, Delaware, Montana, New York, North Carolina, Ohio, Rhode Island, and West Virginia.

[2] Create reserve during at least 10-year period succeeding bond issuance to meet largest principal and interest payments due in any 2 consecutive years; create reasonable reserve solely from contributions, grants from Federal Government or State public body to meet maintenance, operating costs, bond principal, and interest payments.

[3] Kentucky, Municipal Housing Commission Law, Sec. 11: Rents and other revenues of housing commission shall be applied (1) to pay interest, principal of bonds issued; (2) costs of maintenance and operation; (3) reserve for depreciation; (4) excess rents for annual period to prepay interest obligations of housing commission when due (in sequence given).

[4] Eight-year period succeeding bond issuance.

CHART VI.—*Enabling housing legislation: Analysis of housing cooperation provisions*

[Citation refers to section number of enabling housing law of the 33 States and 2 Territories having such legislation as of July 1938. H. C. L.=Housing Cooperation Law; H. A. L.=Housing Authorities Law; M. H. A. L.=Municipal Housing Authorities Law; E. D. L.=Eminent Domain Law]

State	Cooperating agencies	Dedicate, sell, convey, or lease any property to a housing authority	Provide and maintain parks, sewage, water, and other facilities adjacent to or in connection with housing projects	Enter into any agreement to open, close, pave, install, or change the grade of streets, roads, roadways, alleys, sidewalks, or other such facilities	May incur the entire expense (subject to reimbursement by the Authority) of any public improvements without assessment against abutting property owners	To make any sale, conveyance, or lease, without appraisal, public notice, advertisement, or public bidding	Donation of money	Loan of money	Plan or replan, zone or rezone any part of such State public body	Make exceptions from building regulations and ordinances	Any city or town may change its map	Enter into agreements with a housing authority or Federal Government respecting action to be taken by a State public body pursuant to any of the powers granted	Do any and all things necessary or convenient to aid and cooperate in the planning, undertaking, construction, or operation of housing projects	After any housing project has been found to be constructed so as to promote the public interest and afford necessary safety, sanitation, and other protection, no city shall require any changes to be made in project or its construction.	Grant easements, licenses, or any other rights or privileges	Provide customary services for benefit of occupants of housing projects	Appropriate administrative expenses and overhead of Authority for first year	Power of municipality to acquire land by eminent domain for an Authority	Enter into agreements with respect to the exercise by public bodies of powers relating to the repair, elimination, or closing of unsafe, insanitary, or unfit dwellings
Alabama	State, any county, city, municipality, or agency of the State.	3 (a), H. C. L.	3 (2), H. C. L.	3 (3), H. C. L.	3 (3), H. C. L.	3 (3), H. C. L.			3 (3), H. C. L.		3 (3), H. C. L.					3 (l), H. C. L.			
Arkansas	City, town, county, municipal corporation, commission, district, authority, other subdivision or other public body of the State.	25 (a), H. A. L.	25 (b), H. A. L.	25 (c), H. A. L.	25 (h), H. A. L.	25 (h), H. A. L.	26, H. A. L.	26, H. A. L.	25 (d), H. A. L.	25 (d), H. A. L.	25 (d), H. A. L.	25 (e), H. A. L.	25 (f), H. A. L.	25 (g), H. A. L.		24, H. A. L.	26, H. A. L.		
California	City, city and county, town, county, borough, municipal corporation, commission, district, authority, other subdivision or public body of the State.	4 (a), H. C. L.	4 (b), H. C. L.	4 (c), H. C. L.	4 (i), H. C. L.	4 (i), H. C. L.	6, H. C. L.	6, H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (e), H. C. L.	4 (f), H. C. L.	4 (h), H. C. L.		5, H. C. L.	6, H. C. L.		
Colorado	City, any subdivision, agency, or instrumentality, corporate or otherwise, of either State or Federal Government.	2, H. C. L.	2, H. C. L.	2, H. C. L.	2, H. C. L.	2, H. C. L.			2, H. C. L.		2, H. C. L.	2, H. C. L.	2, H. C. L.	2, H. C. L.		2, H. C. L.			
Connecticut	City, borough, town, municipal corporation, district, or other subdivision of the State.	20 (a), H. A. L.	20 (b), H. A. L.	20 (c), H. A. L.	20 (f), H. A. L.	22, H. A. L.	21, H. A. L.	21, H. A. L.	20 (d), H. A. L.		20 (d), H. A. L.	20 (e), H. A. L.	20 (f), H. A. L.	20 (f), H. A. L.		19, H. A. L.	21, H. A. L.		
Delaware	City, village, and incorporated towns	9, H. A. L.	8, H. A. L.	8, H. A. L.	6, H. A. L.	9, H. A. L.		9, H. A. L.	8, H. A. L.			8, H. A. L.	8, H. A. L.		9, H. A. L.				
Florida	City, town, county, commission, municipal corporation, district, authority, or other subdivision or public body of the State.	4 (a), H. C. L.	4 (b), H. C. L.	4 (c), H. C. L.	4 (i), H. C. L.	4 (i), H. C. L.	6, H. C. L.	6, H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (e), H. C. L.	4 (f), H. C. L.	4 (b), H. C. L.		5, H. C. L.	6, H. C. L.		
Georgia	City, town, county, municipal corporation, commission, district, authority, and other subdivision or public body of the State.	do	do	do	4 (h), H. C. L.	4 (h), H. C. L.	do	do	do	do	do	do	do	4 (g), H. C. L.		do	do		
Illinois	City, village, incorporated town, county, municipal corporation, commission, district, authority, or other subdivision or public body of the State.	do	do	do			5 (a), H. C. L.	4 (h), H. C. L.	4 (e), H. C. L.	4 (e), H. C. L.		4 (f), H. C. L.	4 (l), H. C. L.	6, H. C. L.	4 (a), H. C. L.	4 (j), H. C. L.			4 (k), H. C. L.
Indiana	City, town, county, commission, district, authority, municipal corporation, and other subdivision or public bodies of the State.	4 (a), H. C. L.	4 (a), H. C. L.	4 (a), H. C. L.	4 (g), H. C. L.				4 (b), H. C. L.	4 (b), H. C. L.		4 (e), H. C. L.	4 (d), H. C. L.	4 (f), H. C. L.		5, H. C. L.	6, H. C. L.		
Kentucky	Cities of first and second class			4 M. H. C. A.					4, M. H. C. A.										
Louisiana	City, town, incorporated village, parish or other public body of the State.[1]	4 (a), H. C. L.	4 (b), H. C. L.	4 (c), H. C. L.	4 (j), H. C. L.	4 (k), H. C. L.	6, H. C. L.	6, H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (c), H. C. L.	4 (i), H. C. L.	4 (j), H. C. L.	4 (a), H. C. L.	4 (e), H. C. L.			
Maryland	Any incorporated city or town, or any county, municipal corporation, commission, district, authority, other subdivision or public body of the State.	4 (a), H. C. L.	4 (b), H. C. L.	4 (c), H. C. L.	4 (h), H. C. L.	4 (h), H. C. L.	6, H. C. L.	6, H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (c), H. C. L.	4 (f), H. C. L.	4 (g), H. C. L.		5, H. C. L.	6, H. C. L.		
Massachusetts	City, town, or appropriate board or officers	26X (a), H. A. L.	26X (b), H. A. L.	26X (c), H. A. L.	26X (e), H. A. L.	26X (j), H. A. L.	26V, H. A. L.	26V, H. A. L.		26X (d), H. A. L.	26X (d), H. A. L.	26X (i), H. A. L.	26X (j), H. A. L.	26Q, H. A. L.	26X (a), H. A. L.	26X (g), H. A. L.	26U, H. A. L.		26X (l), H. A. L.
Michigan	City, town, incorporated village, county, metropolitan district, or other subdivision or public body of the State.	4 (a), H. C. L.	4 (b), H. C. L.	4 (c), H. C. L.	4 (l), H. C. L.	4 (i), H. C. L.	6, H. C. L.	6, H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (e), B. C. L.	4 (f), H. C. L.	4 (j), H. C. L.		4 (g), H. C. L.	6, H. C. L.		
Mississippi	City, town, village, county, municipal corporation, commission, district, authority, or other subdivision or public body.	22 (a), H. A. L.	22 (b), H. A. L.	22 (c), H. A. L.	22 (l), H. A. L.	22 (i), H. A. L.	24, H. A. L.	24, H. A. L.	22 (d), H. A. L.	22 (d), H. A. L.	22 (d), H. A. L.	22 (j), H. A. L.	22 (b), H. A. L.	22 (k), H. A. L.	22 (a), H. A. L.	22 (c), H. A. L.			22 (f), H. A. L.
Montana	State, its subdivision and agencies, and any county, city, or municipality of the State.	3 (a), H. C. L.	3 (b) (2), H. C. L.	3 (b) (3), H. C. L.	3 (b) (3), H. C. L.	3 (b) (3), H. C. L.	4, H. C. L.	4, H. C. L.	3 (b), (3) H. C. L.		3 (b) (3), H. C. L.		6, H. C. L.			3 (b) (1), H. C. L.	4, H. C. L.		
Nebraska	City, town, village, county, municipal corporation, commission, district, authority, other subdivision or public body of the State.	4 (a), H. C. L.	4 (b), H. C. L.	4 (c), H. C. L.	4 (i), H. C. L.	4 (i), H. C. L.	6, H. C. L.	6, H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (e), H. C. L.	4 (f), H. C. L.	4 (b), H. C. L.		5, H. C. L.	6, H. C.		
New Jersey	City, town, borough, village, township, county, school district, authority, or other political subdivision of the State.	5 (a), H. C. L.	5 (b), H. C. L.	5 (c), H. C. L.	5 (k), H. C. L.	5 (k), H. C. L.	7, H. C. L.	7, H. C. L.	5 (d), H. C. L.	5 (d), H. C. L.	5 (d), H. C. L.	5 (e), H. C. L.	5 (f), H. C. L.	5 (j), H. C. L.		5 (g), H. C. L.			5 (b), H. C. L.
New York	Municipality, county, city or first class village, subdivision, agency or instrumentality, corporate or otherwise of the State.	69 (2), M. H. A. L.	69 (2), M. H. A. L.	69 (2), M. H. A. L.	69 (2), M. H. A. L.	69 (2), M. H. A. L.	65 (1), M. H. A. L.	65 (2), M. H. A. L.	69 (2), M. H. A. L.		69 (2), M. H. A. L.		66, M. H. A. L.			69 (2), M. H. A. L.	65, M. H. A. L.	70 (2), M. H. A. L.	
North Carolina	State, its subdivisions and agencies, and any county, city, or municipality of the State.	3 (a), H. C. L.	3 (b) (2), H. C. L.	3 (b) (3), H. C. L.	3 (b) (3), H. C. L.	3 (b) (3), H. C. L.	4, H. C. L.	4, H. C. L.	3 (b) (3), H. C. L.		3 (b) (3), H. C. L.		7, H. C. L.			3 (b) (1), H. C. L.	4, H. C. L.		
North Dakota	City of more than 5,000 inhabitants, and counties.																		
Ohio	City, village, township, county, municipal corporation, commission, district, authority, other subdivision or public body of the State.	3 (a), H. C. L.	3 (b), H. C. L.	3 (c), H. C. L.	3 (i), H. C. L.	3 (i), H. C. L.	5, H. C. L.	5, H. C. L.	3 (d), H. C. L.	3 (d), H. C. L.		3 (e), H. C. L.	3 (f), H. C. L.	3 (h), H. C. L.		4, H. C. L.			
Oregon	City, town, county, municipality, commission, district, authority, other subdivision or public body of the State.	4 (a), H. C. L.	4 (b), H. C. L.	4 (c), H. C. L.	4 (l), H. C. L.		do	do	4 (d), H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (e), H. C. L.	4 (f), H. C. L.	4 (b), H. C. L.			5, H. C. L.		
Pennsylvania	City, borough, town, township, county, municipal corporation, commission, district, authority, other subdivision, or public body of the Commonwealth.	do	do	4 (c), H. C. L.	4 (g), H. C. L.	4 (g), H. C. L.	6, H. C. L.	6, H. C. L.	10 (j) (3), H. A. L.			4 (d), H. C. L.	4 (e), H. C. L.	4 (f), H. C. L.	10 (b), H. A. L.	5, H. C. L.	6, H. C. L.		
Rhode Island	State, its subdivisions and agencies, and any county, city, town, or municipality of the State.		9, H. A. L.	9, H. A. L.					9, H. A. L.		9, H. A. L.					9, H. A. L.		1, E. D. L.	
South Carolina	City, town, and village																		
Tennessee	State, its subdivisions and agencies, and any county, city, or municipality of the State.	3 (a), H. C. L.	3 (b) (2), H. C. L.	3 (b) (3), H. C. L.	3 (b), H. C. L.	3 (b), H. C. L.	8, H. C. L.	8, H. C. L.	3 (b) (3), H. C. L.		3 (b) (3), H. C. L.	9, H. A. L.	5, H. C. L.	10, H. C. L.		3 (b) (1), H. C. L.	8, H. C. L.		
Texas	City, town, county, municipal corporation, commission, district, authority, other subdivision or public body of the State.	4 (a), H. C. L.	4 (b), H. C. L.	4 (c), H. C. L.	4 (l), H. C. L.	4 (l), H. C. L.		6, H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.	4 (e), H. C. L.	4 (f), H. C. L.	4 (h), H. C. L.		4a (b), H. C. L.	6, H. C. L.		4a (a), H. C. L.
Vermont	City, town, county, municipality, commission, district, authority, other subdivision or other public body of the State.	22 (a), H. A. L.	22 (b), H. A. L.	22 (c), H. A. L.	22 (g), H. A. L.	22 (g), H. A. L.	23, H. A. L.	23, H. A. L.	22 (d), H. A. L.	22 (d), H. A. L.		22 (o), H. A. L.	22 (f), H. A. L.			21, H. A. L.	23, H. A. L.		
Virginia	City, town, county, municipal corporation, commission, district, authority, other subdivision or public body of the Commonwealth.	23 (a), H. A. L.	23 (b), H. A. L.	23 (c), H. A. L.			24, H. A. L.	24, H. A. L.	23 (d), H. A. L.	23 (d), H. A. L.	23 (d), H. A. L.	23 (l), H. A. L.	23 (b), H. A. L.		23 (a), H. A. L.	23 (e), H. A. L.			23 (f), H. A. L.
West Virginia	City	13, H. A. L.		7, H. A. L.			13, H. A. L.	13, H. A. L.	7, H. A. L.			28 (f), H. A. L.	28 (g), H. A. L.	28 (i), H. A. L.	13, H. A. L.	7, H. A. L.			
Wisconsin	City, town, incorporated village, county, municipal corporation, commission, district, authority, other subdivision or public body of the State	28 (a), H. A. L.	28 (b), H. A. L.	28 (d), H. A. L.	28 (j), H. A. L.	28 (j), H. A. L.	30, H. A. L.	30, H. A. L.	28 (d), H. A. L.							28 (c), H. A. L.	30, H. A. L.		
Hawaii	Counties, city and county, cities, town and village.	3 (a), H. C. L.	3 (b 2), H. C. L.	3 (b 3), H. C. L.	3 (e), H. C. L.	3 (c), H. C. L.	4, H. C. L.	4, H. C. L.	3 (b), 4, H. C. L.	3 (b), (4), H. C. L.	3 (c), H. C. L.	4 (j), H. C. L.	4 (h), H. C. L.	4 (k), H. C. L.	4 (a), H. C. L.	4 (e), H. C. L.	6, H. C. L.		4 (f), H. C. L.
Puerto Rico	Government of Puerto Rico, any agency or instrumentality thereof or any municipality including the Capital.	4 (a), H. C. L.	4 (b), H. C. L.	4 (c), H. C. L.	4 (l), H. C. L.	4 (j), H. C. L.	6, H. C. L.	6, H. C. L.	4 (d), H. C. L.	4 (d), H. C. L.									

[1] Includes municipal corporation, commission, board, district, authority, other subdivision or public corporation, or municipality.

CHART VII.—*Enabling housing*

[For the 33 States and 2 Territories having housing enabling legislation as of October 1938, this table indicates salient provisions with reference to

State	Bonds may be payable—								Maximum term	Maximum interest rate (percent)
	Exclusively from income and revenues of project financed by such bonds	Exclusively from income and revenues of designated projects	From revenues generally	Additional security of mortgage on property	Additional security of pledge of revenues	Full faith and credit of authority may be pledged	Plus additional security of mortgage of property and revenues	Plus additional security of pledge of revenues		
Alabama [1]	Yes	Yes		Yes	Yes	Yes	Yes	Yes	40 years	6
Arkansas	Yes	Yes	Yes	Yes	Yes					6
California [2]	Yes	Yes	Yes	Yes	Yes					4½
Colorado	Yes	Yes		Yes	Yes	Yes	Yes	Yes	60 years	6
Connecticut										6
Delaware										
Florida	Yes	Yes	Yes		Yes					6
Georgia	Yes	Yes	Yes	Yes	Yes					6
Illinois	Yes	Yes	Yes	Yes	Yes					6
Indiana	Yes	Yes	Yes	Yes	Yes					6
Kentucky	Yes	Yes	Yes	Yes	Yes					
Louisiana	Yes	Yes	Yes	Yes	Yes					6
Maryland	Yes	Yes	Yes	Yes	Yes					6
Massachusetts			Yes	Yes	Yes	Yes				
Michigan	Yes	Yes							[3]	6
Mississippi	Yes	Yes	Yes	Yes	Yes					6
Montana	Yes	Yes		Yes	Yes	Yes	Yes	Yes	60 years	6
Nebraska [4]	Yes	Yes	Yes	Yes	Yes					6
New Jersey	Yes	Yes	Yes	Yes	Yes					6
New York [5]										6
North Carolina	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	60 years	6
North Dakota	Yes	Yes	Yes	Yes	Yes					6
Ohio	Yes	Yes	Yes	Yes	Yes					6
Oregon [6]	Yes	Yes	Yes	Yes	Yes					6
Pennsylvania [7]	Yes	Yes	Yes	Yes	Yes					6
Rhode Island	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	60 years	6
South Carolina	Yes	Yes	Yes	Yes	Yes					6
Tennessee	Yes	Yes		Yes	Yes	Yes	Yes	Yes	60 years	6
Texas [8]	Yes	Yes	Yes	Yes	Yes					6
Vermont										6
Virginia [10]	Yes	Yes	Yes	Yes	Yes					6
West Virginia	Yes	Yes	Yes	Yes	Yes	Yes				
Wisconsin	Yes	Yes	Yes	Yes	Yes					6
Territory of Hawaii [11]	Yes	Yes	Yes	Yes	Yes				60 years	6
Puerto Rico [12]	Yes	Yes	Yes	Yes	Yes					6

[1] Bonds not to be issued until consent given by Public Works Board of Alabama.
[2] Authority may submit bonds to Attorney General of the State for certification.
[3] Bonds to mature annually, first installment payable in 3 to 5 years, no installment to exceed 2½ times smallest previous installment.
[4] Act provides that bonds are legal investments when secured by first pledge of revenues or first mortgage lien on property of value not exceeding 66⅔ percent of bonds outstanding.
[5] Authority may submit bonds to Auditor of Public Accounts for certification.
[6] Legal investments when secured by pledge of revenues of housing project and by pledge of annual contributions to be paid by Federal Government, provided that building and loan associations may only invest in them when secured by mortgage not exceeding 80 percent of value of property.

legislation: Bond provisions

Issuance of local housing authority bonds, no consideration being given to validity thereof or to other State laws affecting issuance of public bonds]

Bonds tax exempt	Sale	Price at which bonds are to be sold	Authority may purchase own bonds at not more than principal amount and accrued interest	Legal investments		Provisions by which governmental agencies may purchase bonds of authorities
				For enumerated public and private funds	For enumerated funds only when secured by first lien on revenues or first mortgage of property and bonds do not exceed 66⅔ percent of value thereof	
	Public sale, or private if to United States.	Interest cost to maturity not to exceed 6 percent per annum.	Yes			No provision.
	do	Not less than par	Yes		Yes	Yes. See previous columns.
Yes	do	do	Yes			Any State public body may purchase.
Yes	do	Interest cost to maturity not to exceed 6 percent per annum.	Yes			
Yes	Only to Federal Government	Not less than par	Yes			
Yes. (Tax exemption law.)						
Yes	Public sale, or private if to United States.	Not less than par	Yes			Any State public body may purchase.
Yes	do	do	Yes			
	Public or private	Not less than par and accrued interest.				Any State public body may purchase.
Yes. (Tax Exemption Act.)	Public sale, or private if to United States.	Not less than par	Yes			Any municipal corporation may purchase.
Yes						
Yes	Public sale, or private if to a government.	Not less than par	Yes	Yes		Yes. See previous columns.
Yes	Public sale, or private if to United States.	do	Yes			
	Public or private	do				City or town may purchase.
Yes	Public sale, or private if to United States.	do	Yes [14]			
Yes	do	do	Yes	Yes		Do.
	do	Interest cost to maturity not to exceed 6 percent per annum.	Yes		(4)	Yes. See previous columns.
Yes. (Tax exemption law.)	do	Not less than par	Yes. First Class Cities Law. N. P.—Metropolitan Cities Laws.			Any State public body may purchase.
Yes	do	do	Yes	(6)		Any public body may purchase.
Yes	Public or private sale	At such price or prices as authority determines.	Yes	For city and State [6]	Yes. For city and State.	Municipality or State may purchase.
Yes [13]	Public sale or private if to United States.	Interest cost to maturity not to exceed 6 percent per annum.	Yes		Yes	Yes. See previous column.
Yes	do	Not less than par	Yes			
	do	Not less than par and accrued interest.		Yes		Any State public body may purchase.
Yes	do	Not less than par	Yes			Do.
		Not less than par and accrued interest.	Yes			
Yes	Public sale, or private if to United States.	Interest cost to maturity not to exceed 6 percent per annum.	Yes		Yes	See previous columns.
Yes	Public or private	Not less than par		Yes		Yes. See previous column.
Yes	Public sale, or private if to United States.	Interest cost to maturity not to exceed 6 percent per annum.	Yes			Any municipality may purchase.
Yes	do	Not less than par	Yes	(5)		Any State public body may purchase.
Yes	do	do	Yes			
	Public or private	do	Yes			Any county, city, or town may purchase.
Yes						
Yes	Public or private	Interest cost to maturity not to exceed 6 percent per annum.	Yes			Any state public body may purchase.
Yes	Public sale, or private if to United States.	Not less than par			Yes	See previous columns.
Yes	Public or private	do	Yes	Yes		Any governmental body may purchase.

[7] Approval of Board of Estimate and Apportionment or local legislative body of city required on bonds.
[8] When issued in connection with projects financed in whole or in part by Federal Government under act providing for annual contributions or capital grants, or when a mortgage as indicated.
[9] Approval of bonds by Department of Internal Affairs of the State required.
[10] Bonds may be issued payable solely from annual contributions or grants from Federal Government or other sources.
[11] Approval of Governor required for issuance of bonds and approval of President of United States on all issues except those to be sold in whole or part to United States.
[12] Authority may submit bonds to Attorney General of Puerto Rico for certification.
[13] When held by purchase from Federal Government or any one acquiring title from or through such purchaser.
[14] Out of any unexpended proceeds of such bonds.

CHART VIII.—*Compulsory repair, improvement, closing, and demolition of unsafe and insanitary dwellings by municipalities* [1]

State	Political subdivisions to which power is granted	Municipal officials designated to carry out existing provisions for the compulsory repair and improvement of unsafe and insanitary dwellings	Municipal officials designated to carry out existing provisions for the closing of unsafe and insanitary dwellings	Municipal officials designated to carry out exising provisions for the demolition of unsafe and insanitary dwellings
Alabama	Municipalities			Governing body.
Arkansas	do			
California	Municipal corporations of first, second, third, fourth, and fifth classes.			Do.
	Municipal corporations of sixth class			Do.
Colorado	Cities and towns	Governing body		Board of Health.
		Board of Health		Do.
	Villages	do		Do.
Connecticut	Cities and towns	do	Board of Health	Do.
Delaware	do	do	do	
Florida	do			
Georgia	Municipalities			Governing body.
Illinois	Cities and villages	Governing body		
	Towns			
Indiana	Cities	Governing body	Board of Health	Governing body.
		Board of Health		Board of Health.
	Towns	do	Board of Health	Do.
Kentucky	Municipal corporations of the first, fourth, fifth, and sixth classes.			
	Municipal corporations of the second and third classes.	Governing body		Governing body.
Louisiana	Municipalities		Board of Health	Do.
		Municipal-designated official	Governing body	Board of Health.
			Municipal-designated official	Do.
	Villages		Board of Health	Municipal-designated official.
	Towns			Board of Health.
	Parishes		Board of Health	Governing body.
Maryland	Cities and towns			Board of Health.
Massachusetts	Cities	Governing body [2]	Board of Health	Governing body.[2]
		Inspector of buildings [2]		Inspector of buildings.[2]
		Board of Health		Board of Health.[2 4]
	Towns	Governing body [3]	Board of Health	Governing body.[3]
		Inspector of buildings [3]		Inspector of buildings.[3]
		Board of Health		
Michigan	Cities	Health officer [5]	Health officer [5]	Health officer.[5]
		Governing body [6]		Governing body.[6]
	Villages	Health officer [5]	Health officer [5]	Health officer.[5]
				Governing body.[6]
Mississippi	Municipalities	Municipal-designated official	Municipal-designated official	Municipal-designated official.
		Governing body	Governing body	Governing body.
Montana	Cities and villages	Chief of fire department		Chief of fire department.
	Townships	Justice of peace		Justice of peace.
Nebraska	Cities of metropolitan and first class and villages.			
	Cities of second class	Governing body		
New Jersey	Towns, townships, villages, and boroughs.			Governing body.
	Cities			Do.
				Board of Fire and Police Commissioners.
New York	do	Municipal-designated department [7]	Municipal-designated department [7]	Superintendent of buildings.
				Municipal-designated department.[7]
	Towns	do.[8]	do.[8]	Do.[8]
		Governing body		Governing body.
	Villages	Municipal-designated department [9]	Municipal-designated department [9]	Municipal-designated department.[9]
North Carolina	Cities and towns	Inspector of buildings [10]	Inspector of buildings [10]	Governing body.
			Governing body	
North Dakota	Cities	Governing body		Do.
	Villages	do	Governing body	Do.
	Townships			
Ohio	Municipal corporations	Governing body	Governing body	Do.
Oregon	Cities and towns			
Pennsylvania	Cities of first class	Fire marshal	Chief of Division of Housing and Sanitation.	Fire marshal.
	Cities of second class	Department of Public Health	Department of Public Health	Department of Public Health.
	Cities of second class A			
	Cities of third class	Board of Health	Board of Health	Board of Health.
	All municipalities except cities of first class, second class, and second class A.	Department of Labor and Industry	Department of Labor and Industry	
Rhode Island	Municipalities			
	Towns	Governing body	Governing body	
South Carolina	Cities and towns	Inspector of buildings		Inspector of buildings.[11]
		Insurance commissioner		
		Chief of fire department		
		Chief of police		
Tennessee	Cities	Governing body	Governing body	
Texas	do	do.[12]		Governing body.
	Towns and villages			

[1] Powers given to municipalities, and the officials designated by 33 State and 2 Territorial legislatures for the compulsory repair, improvement, closing, and demolition of unsafe and insanitary dwellings by municipalities. Only general legislation is reviewed here. It is also necessary to examine special State and Territorial legislation as well as charter and ordinance provisions to secure a complete presentation of the situation in any particular municipality. In all of these States and Territories the designated political subdivision may exercise ordinance power to provide for the protection of the health, safety, welfare, and morals of inhabitants, and for the abatement of nuisances.

[2] Applicable if city accepts statute.
[3] Applicable if town accepts statute.
[4] Except Boston.
[5] Applicable if 10,000 or more population.
[6] Fourth-class cities only.
[7] Applicable if 175,000 or more population or if city accepts statute.
[8] Applicable if town accepts statute.
[9] Applicable if village accepts statute.
[10] Applicable if city or town over 1,000 population or if city or town accepts statute.
[11] Applicable if city or town over 5,000 population.
[12] Applicable if 600 or over population and if city accepts statute.

CHART VIII.—*Compulsory repair, improvement, closing, and demolition of unsafe and insanitary dwellings by municipalities*—Contd.

State	Political subdivisions to which power is granted	Municipal officials designated to carry out existing provisions for the compulsory repair and improvement of unsafe and insanitary dwellings	Municipal officials designated to carry out existing provisions for the closing of unsafe and insanitary dwellings	Municipal officials designated to carry out existing provisions for the demolition of unsafe and insanitary dwellings
Vermont	Cities, towns, and villages	Building inspector	Building inspector	Building inspector.
Virginia	Cities and towns	-----	-----	-----
West Virginia	----do	Chief of fire department	-----	Chief of fire department.
Wisconsin	Cities	Governing body, inspector of buildings or other municipal-designated official.	-----	Governing body, inspector of buildings, or other municipal-designated official.
	Towns	----do	-----	Do.
		Fire warden	-----	-----
	Villages	Governing body, inspector of buildings, or other municipal-designated official.	-----	Do.
Hawaii	City and county of Honolulu	Governing body	Governing body	Governing body.
Puerto Rico	Municipalities	----do	----do	Do.
		Municipal-designated official	Municipal-designated official	Municipal-designated official.

CHART IX.—*Enabling housing legislation: Tax exemption provisions*

[Legend: Unless otherwise specified, citation refers to State H. A. L.=Housing Authorities Law for 33 States and 2 Territories having enabling housing legislation as of October 1938.] L. H. A. L.=Local Housing Authorities Law. M. H. A. L.=Municipal Housing Authorities Law. T. E. L.=Tax Exemption Law]

State	Statutory provisions	Constitutional provisions: taxation
Alabama	No specific provision for tax exemption of property owned by local authorities. (But see *Opinion of the Justices*, 179 So. 535 (1938).)	ARTICLE IV. SEC. 91. The legislature shall not tax the property, real or personal, of the State, counties, or other municipal corporations or cemeteries; nor lots in incorporated cities or towns, or within 1 mile of any city or town to the extent of 1 acre; nor lots 1 mile or more distant from such cities or towns, to the extent of 5 acres, with the buildings thereon, when same are used exclusively for religious worship, for schools, or for purposes purely charitable.
Arkansas	The property of an authority is declared to be public property used for essential and exclusively public and governmental purposes, and not for profit, and such property and an authority shall be exempt from all taxes and special assessments of the State or any State Public Body thereof * * * (Sec. 23.)	ARTICLE XVI. Sec. 5. * * * *Provided further*, That the following property shall be exempt from taxation: Public property used exclusively for public purposes; churches used as such; cemeteries used exclusively as such; school buildings and apparatus; libraries and grounds used exclusively for school purposes, and buildings and grounds and materials used exclusively for public charity.
California	The property of housing authorities shall be exempt from all taxes and special assessments of the State or any city, city and county, county, town, or political subdivision of the State * * * (Sec. 2, T. E. L.)	ARTICLE XIII. SEC. 1. * * * *And further provided*, That property used for free public libraries and free museums, growing crops, property used exclusively for public schools, and such as may belong to the United States, this State, or to any county, city and county, or municipal corporation within this State shall be exempt from taxation, except such lands and the improvements thereon located outside of the county, city and county, or municipal corporation owning the same as were subject to taxation at the time of the acquisition of the same by said county, city and county, or municipal corporation.
Colorado	The property of an authority shall be exempt from all local and municipal taxes. All property leased to the authority for the purposes of a project shall likewise be exempt from taxation, as shall the income derived from the authority by the lessor under such lease. (Sec. 28, H. A. L.) A housing authority shall be exempt from the payment of any special assessments to the State or any subdivision thereof. The property of a housing authority shall be exempt from all local and municipal special assessments. All property leased to a housing authority shall likewise be exempt from special assessments. (Sec. 5, Chap. 172, Laws of 1937.)	ARTICLE X. *Exemption-county-city-State property.*—SEC. 4. The property, real and personal, of the State, counties, cities, towns and other municipal corporations, and public libraries, shall be exempt from taxation.
Connecticut	* * * The property of an authority shall be exempt from all local and municipal taxes * * * (Sec. 18.)	None.
Delaware	No provision is made for the exemption of property of an authority from taxation.	ARTICLE VIII. SEC. 1. *Taxes to be uniform and general.*—All taxes shall be uniform upon the same class of subjects within the territorial limits of the authority levying the tax, and shall be levied and collected under general laws, but the General Assembly may by general laws exempt from taxation such property as in the opinion of the General Assembly will best promote the public welfare.
Florida	The housing projects (including all property of housing authorities used for or in connection therewith or appurtenant thereto) of housing authorities shall be exempt from all taxes and special assessments of the State or any city, town, county, or political subdivision of the State, * * *. (Sec. 2, T. E. L.)	ARTICLE XVI. SEC. 16. The property of all corporations, * * * shall be subject to taxation unless such property be held and used exclusively for religious, scientific, municipal, educational, literary, or charitable purposes
Georgia	The property of an authority is declared to be public property used for essential public and governmental purposes and not for purposes of private or corporate benefit and income, and such property and an authority shall be exempt from all taxes and special assessments of the city, the county, the State, or any political subdivision thereof; * * *. (Sec. 21.)	ARTICLE VII. SEC. 2. All taxation shall be uniform upon the same class of subjects, and ad valorem on all property subject to be taxed within the territorial limits of the Authority levying the tax, and shall be levied and collected under general laws * * *. The General Assembly may, by law, exempt from taxation all public property.
Illinois	All land of housing authorities created under "An Act in relation to Housing authorities," approved March 19, 1934, as amended, title to which land has been or shall be acquired from the United States Government or any agency or instrumentality thereof, and any buildings or improvements now or subsequently erected thereon, insofar as such land, buildings, and improvements are used for low-rent housing purposes, or as an incident thereto; but such land, buildings, and improvements or portions thereof intended or used for stores or other commercial purposes shall not be exempt from taxation. Nothing herein shall be construed as exempting property of housing authorities or any part thereof from special assessments or special taxation for local improvements; and nothing herein contained shall be construed as limiting the power of any political subdivision of this State to sell or furnish a housing authority with water, electricity, gas, or other services and facilities upon the same basis that such services and facilities may be rendered to others under similar circumstances. (Sec. 2, Subsec. 12, S. B. No. 38, First Sp. sess., 1938.) But see *Krause et al., v. Peoria Housing Authority et al., Ill.*, ---, --- N. E. --- (January 1939.)	ARTICLE IX. SEC. 3. The property of the State, counties, and other municipal corporations both real and personal, and such other property as may be used exclusively for agricultural and horticultural societies, for school, religious, cemetery, and charitable purposes, may be exempted from taxation; but such exemption shall be only by general law. In the assessment of real estate incumbered by public easement, any depreciation occasioned by such easement may be deducted in the valuation of such property.

CHART IX.—*Enabling housing legislation: Tax exemption provisions*—Continued

State	Statutory provisions	Constitutional provisions: taxation
Indiana	That the property of housing authorities shall be exempt from all taxes and special assessments of the State or any city, town, township, county, or other political subdivision or taxing district; * * *. (Sec. 2, T. E. L.)	ARTICLE X. SEC. 1. The General Assembly shall provide, by law, for a uniform and equal rate of assessment and taxation; and shall prescribe such regulations as shall secure a just valuation for taxation of all property, both real and personal, excepting such only for municipal, educational, literary, scientific, religious, or charitable purposes, as may be specially exempted by law.
Kentucky	No provisions. (But see *Spahn* v. *Stewart*, 268 Ky. 97, 103 S. W. (2d), 658 (1937).)	SEC. 170. There shall be exempt from taxation public property used for public purposes. * * * SEC. 171. Bonds of the State and of counties, municipalities, taxing, and school districts shall not be subject to taxation.
Louisiana	The property of an authority shall be exempt from all taxes of the city or municipality and from all other local taxes. (Sec. 22.)	ARTICLE X. SEC. 1. The power of taxation shall be vested in the Legislature; shall never be surrendered, suspended or contracted away; and all taxes shall be uniform upon the same class of subjects throughout the territorial limits of the authority levying the tax, and shall be levied and collected for public purposes only. SEC. 4. The following property, and no other, shall be exempt from taxation: All public property.
Maryland	The property of an authority is declared to be public property used for essential public and governmental purposes and such property and an authority shall be exempt from all taxes and special assessments of the city, the State or any political subdivision thereof; * * * (Sec. 1, subsec. 21.)	*Declaration of Rights.*—ARTICLE 15. * * * The General Assembly shall, by uniform rules, provide for separate assessment of land and classification and subclassifications of improvements on land and personal property, as it may deem proper; and all taxes thereafter provided to be levied by the State for the support of the general State Government, and by the counties and by the City of Baltimore for their respective purposes, shall be uniform as to land within the taxing district, and uniform within the class or subclass of improvements on land and personal property which the respective taxing powers may have directed to be subjected to the tax levy; * * *.
Massachusetts	The real estate and tangible personal property of a housing authority held in connection with a project financed in whole or in part by the Federal Government under the United States Housing Act of 1937 shall be deemed to be public property used for essential public and governmental purposes and shall be exempt from taxation and from betterments and special assessments, * * *. (Sec. 26W.)	CHAPTER I. SEC. 1, ART. IV. And further full power and authority are hereby given and granted to the said General Court, * * * to impose and levy proportional and reasonable assessments, rates, and taxes, upon all the inhabitants of, and persons resident, and estates lying within the said Commonwealth; * * *.
Michigan	The property of housing authorities is seemingly tax exempt under Sec. 2, Act No. 265, Pub. Acts of 1937, and also under Sec. 2, Act No. 5, Pub. Acts of 1938, Extra Session.	ARTICLE X. SEC. 3. The legislature shall provide by law a uniform rule of taxation, except on property paying specific taxes, and taxes shall be levied on such property as shall be prescribed by law: *Provided*, That the legislature shall provide by law a uniform rule of taxation for such property as shall be assessed by a State Board of Assessors, and the rate of taxation on such property shall be the rate which the State Board of Assessors shall ascertain and determine is the average rate levied upon other property upon which ad valorem taxes are assessed for State, county, township, school and municipal purposes.
Mississippi	The property of an authority is declared to be public property used for essential public and governmental purposes and such property and an authority shall be exempt from all taxes and special assessments of the city, the county, the State or any political subdivision thereof; * * * (Sec. 19.)	ARTICLE 7. SEC. 192. Provision shall be made by general laws whereby cities and towns may be authorized to aid and encourage the establishment of manufactories, gasworks, waterworks and other enterprises of public utility other than railroads, within the limits of said cities or towns, by exempting all property used for such purposes from municipal taxation for a period not longer than 10 years.
Montana	No provision. But see *Rutherford* v. *City of Great Falls et al.*, ... Mont. ...., ... Pac. (2d) ...., (January 1939).	ARTICLE XII. SEC. 2. *Tax exemption.*—The property of the United States, the State, counties, cities, towns, school districts, municipal corporations, public libraries, shall be exempt from taxation; and such other property as may be used exclusively for the agricultural and horticultural societies, for educational purposes, places of actual religious worship, hospitals and places of burial not used or held for private or corporate profit, institutions of purely public charity and evidences of debt secured by mortgages of record upon real or personal property in the State of Montana, may be exempt from taxation. (As amended Nov. 5, 1918.)
Nebraska	SEC. 2. The property of housing authorities shall be exempt from all taxes and special assessments of the State or any city, village or political subdivision thereof, * * *. (Sec. 2, T. E. L.)	ARTICLE VIII. SEC. 1. The necessary revenue of the State and its governmental subdivisions shall be raised by taxation in such manner as the legislature may direct; but taxes shall be levied by valuation uniformly and proportionately upon all tangible property and franchises, and taxes uniform as to class may be levied by valuation upon all other property. Taxes, other than property taxes, may be authorized by law. Existing revenue laws shall continue in effect until changed by the legislature. SEC. 2. The property of the State and its governmental subdivisions shall be exempt from taxation. The legislature by general law may exempt property owned by and used exclusively for agricultural and horticultural societies, and property owned and used exclusively for educational, religious, charitable or cemetery purposes, when such property is not owned or used for financial gain or profit to either the owner or user.
New Jersey	All housing projects of housing authority, including all property of the public body or bodies or housing authority or authorities comprising such housing projects, are hereby declared to be public property devoted to an essential public and governmental purpose. All such public property devoted to such a public purpose shall be exempt from all taxes and special assessments of the State or any political subdivision thereof as long as such public property remains under exclusive control and jurisdiction of a housing authority or public body which owns or holds such property; * * *. (Sec. 21. L. H. A. L.)	ARTICLE IV. SEC. VII. SUBSEC. 12. Property shall be assessed for taxes under general laws and by uniform laws, according to its true value.
New York	An Authority shall be exempt from the payment of any taxes or fees to the State or any subdivision thereof, or to any officer or employee of the State or subdivision thereof * * * The property of an authority shall be exempt from all local and municipal taxes. (Sec. 74, M. H. A. L.)	ARTICLE III. SEC. 18. The legislature shall not pass a private or a local bill * * * granting to any person, association, firm or corporation an exemption from taxation on real or personal property.
North Carolina	The authority shall be exempt from the payment of any taxes or fees to the State or any subdivision thereof, or to any officer or employee of the State or any subdivision thereof. The property of an authority shall be exempt from all local and municipal taxes and for the purposes of such tax exemption, it is hereby declared as a matter of legislative determination that an authority is and shall be deemed to be a municipal corporation. Bonds, notes, debentures and other evidences of indebtedness of an authority are declared to be issued for a public purpose and to be public instrumentalities and, together with interest thereon, shall be exempt from taxes when same are held by the Federal Government or by any purchaser from the Federal Government or anyone acquiring title from or through such purchaser. (Sec. 26, H. A. L.)	ARTICLE 5. SEC. 5. Property belonging to the State, or to municipal corporations, shall be exempt from taxation. The General Assembly may exempt cemeteries and property held for educational, scientific, literary, charitable, or religious purposes. * * *
North Dakota	The property of an authority is declared to be public property used for essential public and governmental purposes and such property and an authority shall be exempt from all taxes and special assessments of the city, the county, the State or any political subdivision thereof; * * *. (Sec. 22.)	ARTICLE XI. SEC. 176. Taxes shall be uniform upon the same class of property including franchises within the territorial limits of the authority levying the tax. The legislature may by law exempt any or all classes of personal property from taxation and within the meaning of this Section, fixtures, buildings, and improvements of every character whatsoever upon land shall be deemed personal property. The property of the United States and the State,

CHART IX.—*Enabling housing legislation: Tax exemption provisions*—Continued

State	Statutory provisions	Constitutional provisions: taxation
		county, and municipal corporations, and property used exclusively for schools, religious, cemetery, charitable or other public purposes shall be exempt from taxation. Except as restricted by this Article, the legislature may provide for raising revenue and fixing the sites of all property for the purpose of taxation provided that all taxes and exemptions in force when this amendment is adopted shall remain in force until otherwise provided by statute.
Ohio	No provision is made exempting the property of an authority from taxation.	ARTICLE XII. SEC. 2. * * * General laws may be passed to exempt burying grounds, public school houses, houses used exclusively for public worship, institutions used exclusively for charitable purposes, and public property used exclusively for public purpose, but all such laws shall be subject to alteration or repeal; and the value of all property so exempted shall from time to time be ascertained and published as may be directed by law.
Oregon	The property of an authority is declared to be public property used for essential public and governmental purposes and such property and an authority shall be exempt from all taxes and special assessments of the city, the county, the State or any political subdivision thereof; * * *. (Sec. 22.)	ARTICLE IX. SEC. 1. The legislative assembly shall, and the people through the initiative may, provide by law uniform rules of assessment and taxation. All taxes shall be levied and collected under general laws operating uniformly throughout the State.
Pennsylvania	The property of an Authority is declared to be public property used for essential public and governmental purposes and such property and an Authority shall be exempt from all taxes and special assessments, except school taxes, of the city, the county, the Commonwealth, or any political subdivision thereof; * * * (Sec. 23.) (As to school taxes, see *Dornan* v. *Philadelphia Housing Authority*, 200 Atl. 834, 1938.)	ARTICLE IX. SEC. 1. All taxes shall be uniform, upon the same class of subjects, within the territorial limits of the authority levying the tax, and shall be levied and collected under general laws; but the General Assembly may, by general laws, exempt from taxation public property used for public purposes, actual places of religious worship, places of burial not used or held for private or corporate profit, institutions of purely public charity, and real and personal property owned, occupied, and used by any branch, post, or camp of honorably discharged soldiers, sailors, and marines. (Amendment of Nov. 6, 1923.)
Rhode Island	An authority shall be exempt from the payment of any taxes or fees to the State or any subdivision thereof or to any officer or employee of the State or subdivision thereof. * * * The property of an authority shall be exempt from all local and municipal taxes. (Sec. 25. H. A. L.)	ARTICLE IV. SEC. 15. The General Assembly shall, from time to time, provide for making new valuations of property, for the assessments of taxes, in such manner as they deem best. A new estimate of such property shall be taken before the first direct State tax, after the adoption of this Constitution, shall be assessed.
South Carolina	The property of an authority is declared to be public property used for essential public and governmental purposes and such property of an authority shall be exempt from all taxes and special assessments of the city, the county, the State, or any political subdivision thereof. * * * (Sec. 11-E.)	ARTICLE X. SEC. 4. There shall be exempted from taxation all county, township, and municipal property used exclusively for public purposes and not for revenue, and the property of all schools, colleges, and institutions of learning, all charitable institutions in the nature of asylums for the infirm, deaf and dumb, blind, idiotic, and indigent persons, except where the profits of such institutions are applied to private use; all public libraries, churches, parsonages, and burying grounds, but property of associations and societies, although connected with charitable objects, shall not be exempt from State, county or municipal taxation: *Provided*, That as to real estate this exemption shall not extend beyond the buildings and premises actually occupied by such schools, colleges, institutions of learning, asylums, libraries, churches, parsonages, and burial grounds, although connected with charitable objects.
Tennessee	The property of housing authorities shall be exempt from all taxes and special assessments of the State or any city, town, or political subdivision thereof. * * * (Sec. 2, T. E. L.)	ARTICLE II. SEC. 28. All property real, personal, or mixed, shall be taxed, but the legislature may except such as may be held by the State, by counties, cities, or towns, and used exclusively for public or corporation purposes, and such as may be held and used for purposes purely religious, charitable, scientific, literary, or educational.
Texas	The property of an authority is declared to be public property used for essential public and governmental purposes and such property and an authority shall be exempt from all taxes and special assessments of the city, the county, the State, or any political subdivision thereof; * * *. (Sec. 22.)	ARTICLE VIII. SEC. 1. Taxation shall be equal and uniform. All property in this State, whether owned by natural persons or corporations, other than municipal, shall be taxed in proportion to its value, which shall be ascertained as may be provided by law. * * * SEC. 2. All occupation taxes shall be equal and uniform upon the same class of subjects within the limits of the authority levying the tax; but the Legislature may, by general laws, exempt from taxation public property used for public purposes. * * *
Vermont	The property of an authority is declared to be public property used for essential public and governmental purposes and such property and an authority shall be exempt from all taxes and special assessments of the State or any State public body thereof; * * *. (Sec. 20.)	CHAPTER II. SEC. 64. Laws for the encouragement of virtue and prevention of vice and immorality, ought to be constantly kept in force, and duly executed; and a competent member of schools ought to be maintained in each town, for the convenient instruction of youth; and one or more grammar schools to be incorporated and properly supported, in each county in this State. And all religious societies, or bodies of men that may be united or incorporated for the advancement of religion and learning, or for other pious and charitable purposes, shall be encouraged and protected in the enjoyment of the privileges, immunities, and estates, which they in justice ought to enjoy, under suc regulations as the General Assembly of this State shall direct.
Virginia	No specific provision	ARTICLE XIII. SEC. 183. Unless otherwise provided in this Constitution, the following property and no other shall be exempt from taxation, State and local, including inheritance taxes: (a) Property owned directly or indirectly by the United States, the Commonwealth or any *political subdivision* thereof, and obligations of the Commonwealth issued since February fourteenth, eighteen hundred and eighty-two, or hereafter exempted by law, * * *.
West Virginia	The authority shall be exempt from the payment of any taxes or fees to the State or any subdivision thereof, or to any officer or employee of the State or any subdivision thereof. The property of an authority shall be exempt from all local and municipal taxes. * * *. (Sec. 14.)	ARTICLE X. SEC. 1. Subject to the exceptions in this section contained, taxation shall be equal and uniform throughout the State, and all property, both real and personal, shall be taxed in proportion to its value to be ascertained as directed by law. * * * property used for educational, literary, scientific, religious, or charitable purposes, all cemeteries, public property, the personal property, including livestock, employed exclusively in agriculture as above defined and the products of agriculture as so defined while owned by the producers may by law be exempted from taxation, * * *.
Wisconsin	The property of an authority is declared to be public property used for essential public and governmental purposes and such property and an authority shall be exempt from all taxes of the State or any State public body; * * *. (Sec. 1 (22).)	ARTICLE VIII. SEC. 1. The rule of taxation shall be uniform, and taxes shall be levied upon such property with such classifications as to forests and minerals, including or separate or severed from the land, as the legislature shall prescribe. Taxes may also be imposed on incomes, privileges, and occupations, which taxes may be graduated and progressive, and reasonable exemption may be provided. (As amended April 1927.)
Hawaii	The authority shall annually pay to the tax commissioner, as real property taxes, the amount which was last levied as the annual real property tax upon the property of the authority prior to the time of its acquisition by the authority. The authority shall be exempt from any and all other Territorial taxes of whatsoever nature. Bonds, notes, debentures, and other evidences of indebtedness of an authority are declared to be issued for a public purpose and to be public instrumentalities and, together with interest thereon, shall be exempt from taxes. (Sec. 20.)	
Puerto Rico	The property of an authority is declared to be public property of public utility used for essential public and governmental purposes and such property and an authority shall be exempt from all taxes and special assessments of the government of Puerto Rico, its municipalities, and other subdivisions; * * *. (Sec.22.)	

CHART X.—*Enabling housing legislation* [1]:

[Unless otherwise noted, citation refers to section number of State Housing Authorities Law. L. H. A. L.=Local Housing Authorities

Provision	Arkansas	California	Colorado	Connecticut	Florida	Georgia	Indiana	Louisiana	Maryland	Michigan
Local authority may agree to make payments to State public body for improvements, services, facilities furnished for housing project:										
But payments shall not exceed estimated cost to State public body (municipality, city, town, township, county, or political subdivision).	23	2 T. E. L.			2 T. E. L.	21	2 T. E. L.			(2)
But payments shall not exceed last annual tax levy of political subdivision on property before acquired by authority.										
State public body (municipality, city, town, township, county, or political subdivision) may—										
Fix sum to be paid annually by local authority to State public body for each project.				18				22		
Waive payment by agreement for 1 or more projects for 1 or more years.				do				22		
Agree with authority or government upon sum to be paid by authority for any year or years, for project, or accept, agree upon fixed sum, consideration in lieu of payment, but fixed or agreed sum shall not exceed last assessed annual tax on property before acquired by authority.[3]				do				22		
Payment by local authority to the city or State political subdivision:										
Sum fixed by political subdivision for annual payment for each project.									[4] 1 (21)	
Sum shall not exceed, in any year, last annual tax levy upon authority's property before acquired by authority.										
State public body has duty to furnish usual services in absence of contract for service fee.[5]	24	5 H. C. L.	2 H. C. L.	19	5 H. C. L.	5 H. C. L.	5 H. C. L.			5 H. C. L.

[1] Of the 33 States and 2 Territories which had enabling housing legislation as of October 1938, 7 had no specific provision: Alabama, Delaware, Kentucky, Montana, North Carolina, Virginia, and West Virginia.

[2] State public body may contract with housing commission authority or Federal Government respecting sums, if any, * * * which the housing body may agree to pay during any year or period (Sec. 5, H. C. L.). *Nonprofit operation.*—For each project, reserve shall be created for taxation purposes, 5 percent of shelter rentals for year *shall* be paid to municipality and taxing units in proportion to amount of taxes received for unit in year before housing site acquired (H. A. L., Sec. 27 (d) (1)); or to pay to taxing units annual sum equal to taxes received from previous levy before site acquired (Sec. 27 (d) (2)). (Amended by Act No. 5, Sec. 1, Pub. Acts of 1938, Extra Session.)

[3] State public body may contract with housing authority or Federal Government respecting sums, if any, "which the public body may agree to pay during any year or period * * *."

[4] Amended by Chap. 218, Sec. 11, Laws of 1938.

CHART XI.—*Enabling housing legislation:*

[Citation refers to section of the State Housing Authorities Law of the 33 States and 2 Territories having enabling housing legislation as of October 1938, except as follows: Kentucky=Municipal New York=Municipal

Provision	Alabama	Arkansas	California	Colorado	Connecticut	Delaware [1]	Florida [2]	Georgia	Illinois [3]	Indiana	Kentucky [4]	Louisiana	Massachusetts	Maryland	Michigan	Mississippi [5]
Definition of "bonds" as "any bonds, notes, interim certificates, debentures or other obligations."	3 (12)	3 (l)	3 (k)	3 (9)	2 (j)		3 (k)	3 (k)		3 (l)		3 (k)		3 (k)		1 (l)
Power of authority "to sell, exchange, transfer, assign or pledge any property, real or personal, or any interest therein."	9	8 (d)	8 (d)	9		8	8 (d)	8 (d)		8 (d)		8 (d)		8 (d)	7 (b)	6 (d)
Power of authority to borrow money on its bonds, notes, warrants, debentures or other evidence of indebtedness and to secure same by pledges of its revenues, and (as limited) by mortgages upon the property held or to be held by it.	9			9		8			[6] 8				26R (b)		(7)	
Limitations on operation and tenant selection not to limit right of obligee upon default to take possession of housing project, cause the appointment of a receiver or acquire title thereto thru foreclosure.			10	10	8		(8)	10	[9] 25	10				10	(9)	
Bonds to be issued by authority may be additionally secured by a mortgage of the property.	15	14	14	14 (b)				14		14		13		14		12
In connection with issuance of bonds or incurring of obligations, authority to have power "to mortgage all or any part of its real or personal property, then owned or thereafter acquired."		16 (b)	16 (b)		14 (b)			16 (b)		16 (b)		15 (b)		16 (b)	48 (b)	14 (b)
Authority to have power to covenant to vest in trustee or obligee of bonds right in event of default to take possession and use, operate, and manage project or part thereof.	17 (21)	16 (i)	16 (i)	16 (21)	14 (i)		16 (h)	16 (i)	21 (h)	16 (i)		15 (j)		16 (i)	48 (j)	14 (i)
Power to mortgage when project financed in whole or part by a government and to vest right to foreclose thru judicial proceedings or exercise of power of sale without judicial proceedings.	18			17												
Power to confer upon obligee right on default to bring suit, to cause possession of project to be surrendered to such obligee, to obtain appointment of a receiver to manage project, or to have authority account as trustee.	20	18	19	19	16		19	18	23	18		17		18		16
Exemption of property from execution sale, not to apply to or limit right of obligees to foreclose or enforce mortgage of property. (Where provisions exist under section 8 above, "Power to mortgage when project financed * * *," only such mortgages are excepted from exemption.)	22	19	20	22				19		19		19		19		17
Mortgage or foreclosure sale subject to agreement of authority with government.	23			22												
Purpose and intent of act to authorize all things necessary to secure financial aid by Federal Government	24	20	21	23	17		21	20	27	20		20		20	46	18

[1] Subject to restrictions of this act an authority may incur any indebtedness and issue any obligations and give any security therefor which it may deem necessary or advisable. (Sec. 13.)

[2] Limitations on operation and tenant selection not to limit right of obligee upon default to take possession of housing project or cause the appointment of a receiver. (Sec. 10.) Exemption of property from execution sale not to apply to or limit right of obligee to enforce pledge on its rents, fees, or revenues. (Sec. 20.)

[3] Mortgage and foreclosure powers given in Acts of 1933-34, Third Special Session, H. B. No. 5, expressly deleted by Acts of 1937, S. B. No. 408.

[4] Subject to restrictions of this act a housing commission may incur any indebtedness and issue any obligations and give any security it may deem necessary or advisable and may pledge or mortgage specific property. (Sec. 10.)

Provision for payments in lieu of taxes

Law; M. H. A. L.=Municipal Housing Authorities Law; H. C. L.=Housing Cooperation Law; T. E. L.=Tax Exemption Law]

Mississippi	Nebraska	New Jersey	New York	North Dakota	Ohio	Oregon	Pennsylvania	Rhode Island	South Carolina	Tennessee	Texas	Vermont	Wisconsin	Hawaii	Puerto Rico
	2 T. E. L.			22	4 H. C. L.[3]	22	23		11 (e)	2 T. E. L	22	20			
19		21 L. H. A. L.													22
			74 (3) M. H. A. L.					25					1 (22)		
			do					25					1 (29)		5 H. C. L
			do [4]					25					1 (22)		
								25							
								25						20	
	5 H. C. L				4 H. C. L		5 H. C. L				5 H. C. L	21			

[2] Massachusetts, Sec. 26W: Agree with housing authority upon annual sum to be paid to city or town, for year or years on realty used, or to be used for project—not over amount levied at current tax rate on average of assessed values of such realty, buildings for 3 years preceding acquisition. (Valuation in each year reduced by amount given to city for furnishing improvements, services—excluding gas, water, electricity.)

[3] Maryland has additional provision as follows: Sum, if any, which political subdivision agreed to accept for each project, or projects; but sum paid shall not exceed amount equal to regular tax levy on similar property. (Sec. 1 (21).) (Sec. 5, H. C. L.)

[4] Illinois, S. B. No. 39, 60th G. A., First Special Session, 1938, Sec. 29. Housing authority files, after project occupied, statement of aggregate shelter rentals of project, collected preceding year, *unless different amount agreed upon between authority and state public body*, 5 percent of aggregate shelter rentals collected as service charge for services furnished; amount collected distributed to taxing bodies in proportion to tax rate if not tax exempt. Public body may agree for service charge, greater or less than 5 percent of aggregate annual shelter rentals, but not exceeding amount payable if property not tax exempt; this amount distributed in manner provided above. (Shelter rent equals total rentals of property, exclusive of charge for utilities as heat, water, electricity, and gas.)

Mortgage and lien provisions

Housing Commission Law; Nebraska=M. C., Metropolitan Cities Housing Authorities Law; and F. C., First-Class Cities Housing Authorities Law; New Jersey=Local Housing Authorities Law; Housing Authorities Law]

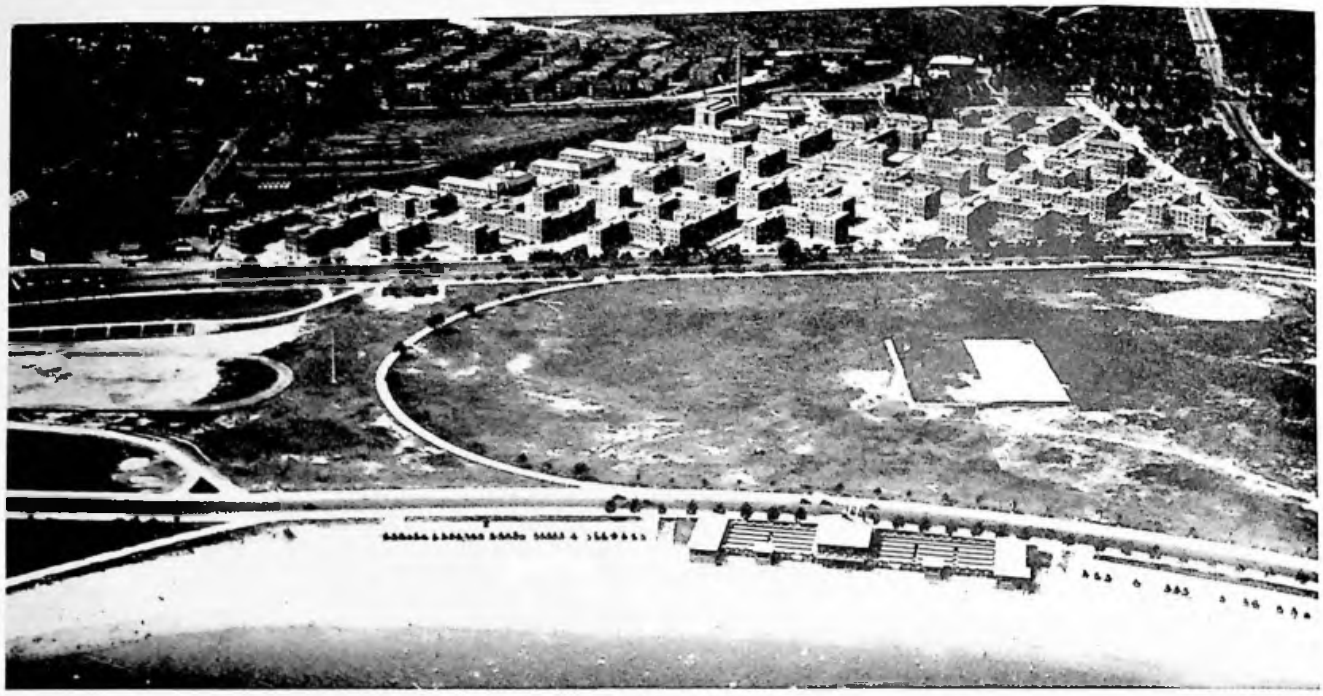
Montana	Nebraska	New Jersey	New York [5]	North Carolina	North Dakota	Ohio	Oregon	Pennsylvania	Rhode Island	South Carolina	Tennessee	Texas	Vermont	Virginia [6]	West Virginia [7]	Wisconsin	Hawaii	Puerto Rico
3 (12)	M. C. 2 (k); F. C. 3 (k)	4 (k)	62 (9)	3 (12)	3 (k)		3 (k)	3 (b)	3 (12)	1 (i)	3 (12)	3 (k)	3 (i)	3 (k)		3 (i)	3 (10)	3 (k)
9 (c)	M. C. '35, 5 (b); F. C. 8 (d)	8 (d)	66	9	8 (d)	1078-34 (b)	8 (d)	10 (o)	9	8 (3)	9	8 (d)	8 (d)	8 (d)	7		7	8 (d)
do	M. C. '35, 5 (b)		66	9		1078-34 (c)			9		9				7			
	M. C. '37, 5 (e); F. C. 10 (e)	10			10	1078-42	10	13		8-C		10	10			27	26	10
14	M. C. '37, 8; F. C. 14	13		14	14	1078-44	14	17	13	11	14	14		14		13	11	14
	M. C. '37, 10 (b); F. C. 16 (b)	16 (b)	72 (6b)		16 (b)	1078-46 (b)	16 (b)	19 (b)		11-B (b)		16 (b)	16 (b)	16 (b)			14 (b)	16 (b)
16 (21)	M. C. '37, 10 (i); F. C. 16 (i)	16 (i)	72 (6i)	16 (21)	16 (i)	1078-46 (i)	16 (i)	19 (i)	15 (21)	11-B (i)	16 (21)	16 (i)	16 (i)	16 (i)		15 (i)	14 (i)	16 (i)
17				17					16		17					16		
19	M. C. '37, 13; F. C. 19	18	75 (2)	19	19	1078-48	19	21	18	11-D	19	19	18	19		18	17 14 (x)	19
21	M. C. '37, 14; F. C. 20	19		21	20		20		20		21	20						20
22				22					21		22					20	16	
23	M. C. '37, 15; F. C. 21	20		23	21		21	22	22		23	21	19	20	11	21	17	21

[5] Limitations on operation and tenant selection not to limit right of obligee upon default to take possession of housing project or cause the appointment of a receiver. (Sec. 10.)

[6] Authority may vest in an obligee a right to foreclose any mortgage. (Sec. 72 (6x).) Authority and municipality to be made defendants in any action to foreclose mortgage on real property of an authority. (Sec. 75.)

[7] Borrower may borrow money and issue revenue bonds therefor. (Sec. 17.)

[8] Limitations on operation and tenant selection not to limit power to vest in obligee or trustee right in event of default to cause appointment of receiver. (Sec. 44.)



View of Old Harbor Village, Public Works Administration housing project facing Columbus Park and the Old Harbor, Boston, Mass.

The 33-acre site on Old Colony Avenue contains 3-story apartments and 2-story group houses, aggregating 3,860 rooms and providing for 1,016 families. This, the second-largest Public Works Administration housing project in the country, shows a larger land coverage and denser population than some others, justified by the planners because of the adjacent public recreation area. The latter includes playground facilities, athletic facilities, stadium, bathhouse, and bathing beach. Eighty percent of the apartments have a view of the harbor.

View of Lockefield Garden Apartments, Public Works Administration housing project at Indianapolis, Ind.

The chevron type plan in this project presents the maximum benefits of light, sunshine, and air. The 3- and 4-story apartments and 2-story row houses contain 2,538 rooms and provide for 748 families.

LAND, MATERIALS, AND LABOR COSTS

PART I. LOCATION FACTORS IN HOUSING PROGRAMS

By Jacob Crane[1]

The primary thrust of the argument of this section is the necessity for thoroughly analyzing a particular housing project as it will be when completed in order to decide on location. The platitude that housing should be built where workers must work is given real meaning.

Conclusions and Recommendations

1. For this review of location factors, primary consideration is given to metropolitan districts;[2] to the early future; to a simplified classification of categories of location; and to the influence of location upon the character of housing and upon the cost of housing, particularly upon the *total monthly cost* to the occupant families.

2. The first cost of land, ready to use, generally constitutes from 10 to 25 percent of the total capital cost per dwelling, complete with land and utilities.

3. The interest and amortization charges on land for housing generally constitute from 5 to 12 percent of the total monthly cost.

4. Reducing the per-family cost of land by 50 percent by doubling the number of families per net acre generally reduces the total monthly cost by only 2 to 6 percent.

5. The location of housing influences:

a. The cost of land.

b. The type of project and, hence, other costs and livability.

c. The cost and quality of utilities services.

d. The cost of taxes.

e. The cost of municipal and community services generally.

f. The cost of interest and amortization.

g. The cost of transportation.

h. The cost of construction.

i. The cost of insurance.

j. The cost of maintenance and operation.

6. For low-income housing the first cost of land, as charged to the project, should generally not exceed $20,000 per net acre or 50 cents per square foot, ready to use; the "normal" range lies between 10 and 30 cents per square foot.

7. Location and the cost of land tend to control building density. The optimum density, all things considered, ranges from 10 to 25 families per net acre of building land.

8. For smaller projects the optimum sites are generally situated in the outer portions of the central city and its suburbs.

9. For very large projects (over 1,200 units) the garden city or garden suburb offers an excellent type of location and development, provided other important criteria are met.

10. Federal aid is suggested for the advance acquisition of metropolitan land reserves, which would be available for many purposes, including housing projects and garden suburbs.

11. The occupied slum site is at present generally not suitable for new private low-income housing developments, nor for public housing except where land costs are less than 50 cents per square foot or where policy justifies writing off by subsidy any excess above that range.

12. Except for the courageous slum-site program of the P. W. A. Housing Division, the great preponderance of recent house building, both private and public, in this country and in most of the European countries, has been placed upon outlying vacant sites.

13. Metropolitan regional planning is fundamental to successful housing programs, private and public. It is suggested that the Federal agencies concerned with housing and with local public works join forces to assist in the strengthening of metropolitan regional planning.

14. Measures are urgently needed to check "wild cat" subdividing and to facilitate or compel the pooling of property in defunct subdivisions and in blighted areas.

15. The repossession of tax-reverted land and the utilization of suitable vacant lots left over after a boom offer many suitable locations for houses and housing projects

16. The location factors cannot be separated but must be considered in the light of all the other factors with which location is interrelated. A project has to be figured all the way through, and the various alternatives appraised, before location, along with the other major elements, can be sensibly determined.

17. In the past, the flood of wasteful subdivisions and of jerry-built projects has overwhelmed attempts to rationalize the production of housing. The task of reorganizing the processes by which housing is provided, including the land factors, cannot be achieved overnight. However, the present impasse in the pro-

[1] Jacob Crane is Assistant Administrator and Director of Project Planning, U. S. Housing Authority. At the time this section was in preparation he was not connected with the U. S. Housing Authority. He has worked as a consulting engineer with the National Resources Committee, the Housing Division of the Public Works Administration, Federal Housing Administration, and Farm Security Administration (Resettlement Administration).

[2] The New York City situation constitutes a special case and some of the conclusions reached here do not apply.

duction of houses seems to offer an opportunity to introduce more economic practices in land development, house building, and city building.

The Problem

For examining the factors of location, the metropolitan regions are given primary consideration. In these regions there lived in 1930 approximately six times as many persons as there were in all other urban places in the United States having more than 5,000 population.[3] The metropolitan districts,[4] moreover, have shown the greatest increase in number of families and hence the greatest demand for houses. With some exceptions, the evidence points to an immediate general continuance of this metropolitan growth. Further, in the smaller towns and cities, the location factors for housing are less significant, since distances and land costs are relatively much less.

Within metropolitan areas houses may be built in slum and blighted locations, or on vacant lands inside of or immediately adjacent to the city or its suburbs, or on new, totally undeveloped outlying suburban sites. While these three types of location are often not sharply defined on the ground, they do represent the three broad categories among which a choice must generally be made for every house-building project, and the location problems are clarified by analyzing them in this way.

We deal here mainly with the period of the next 15 or 20 years. While present projects should provide houses which will continue to be habitable throughout their physical life, the formulation of policies and programs beyond the next decade or two is obscured by relatively unpredictable changes in purchasing power; in the distribution of industry; in the distribution and rate of increase of the population; in transportation; in techniques of building construction; in the physical, social, and governmental organization of urban and metropolitan areas; and in the responsibilities of government. We can, however, in the light of present knowledge, reasonably attempt to understand the situation of the present and of the relatively early future—the period during which the enormous current housing shortage will probably be met through various activities.

Like other factors, the location for housing becomes a problem only when considered in terms of cost and of "livability," in terms of meeting the monthly costs which the lower-income half or two-thirds of the urban population can pay and at the same time providing at least the minimum American standard of healthful, convenient shelter.

[3] From the 1930 *Census of Population:* Metropolitan districts, population 54,753,645; all other incorporated places above 5,000, population 9,483,588.

[4] National Resources Committee, *Our Cities.* Government Printing Office. 1936, p. 33–35.

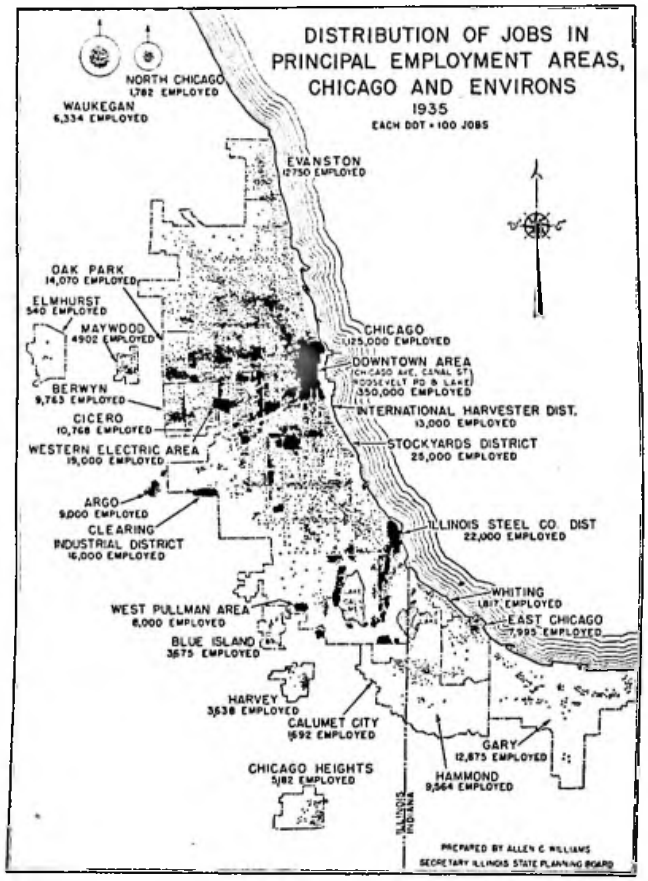


FIGURE 1.—Distribution of jobs in principal employment areas, Chicago and environs, 1935.

Three-fourths of the jobs are widely distributed in the metropolitan area; one-fourth are situated "downtown," and diffusion outward continues. At present many workers live long distances from their work, and "cross-hauling" in all large cities constitutes a great drain in time, energy, and money. The redistribution of housing in relation to employment can be fostered in the planning of housing developments.

Less than half of the 55-square-mile downtown "blighted area" in Chicago could accommodate 300,000 to 400,000 families at a density of 20 families per net acre, or less. Accordingly, all downtown workers who chose to live close in could be accommodated in a relatively open development, if the rebuilding were planned to meet the need rather than to support the "expectation value" of property.

Influence of Location Upon Cost and Quality of Housing

It should be made clear that the term "cost of housing" is used here to mean the total annual or monthly cost, including interest and amortization on the investment, commissions and mortgage insurance, full normal taxes, maintenance and normal replacements, management, the utility services (water, electricity, gas), heating, and special assessments for such items as street paving and sewers. For certain computations there has also been included the cost of essential transportation paid out of pocket for going to and from places of employment, this element being always important in determining location, and often controlling the choice of site. In this way, we can most readily discover the relationship between the factors

of location and the other factors which make for greater or lesser costs and desirability.

In considering the first cost of the land itself, there is included the cost of those local improvements which go to make the land "ready to use"—the street pavements, water mains, sewers, street sidewalks, etc.—the elements which are ordinarily included in the purchase price of an unincumbered lot ready for the building operation.

Land in metropolitan regions, ready to use for houses, at the present time generally ranges in purchase price from $2,000 to $200,000 per net acre. The lower limit represents the category of outlying vacant land with very modest street improvements; the upper range represents the category of sites in densely occupied sections of the large cities. Generally, the outlying lands have been considered too remote to attract the multitudes. The price of close-in lands reflects the complex of beliefs that almost all such sites can be and will continue to be used for commercial operations and for crowded apartment houses and tenements. Improvement in transit facilities and the suburbanization of commerce and industry are destroying the basis for these beliefs.[5] Meanwhile, the high prices put upon close-in land constitute a controlling element in the sequence which produces slums and retards their reconstruction on livable standards.

By virtue of the fact that, in nearly all residential construction, the number of house units placed on the land increases more or less proportionately with the purchase price of the site, the cost of the land per dwelling falls within a much narrower range.

The first cost of land, ready to use, traditionally constitutes from 10 to 25 percent of the total capital cost of the complete, unfurnished housing unit. For single-family houses, which still make up the great preponderance of urban dwellings and of residential construction in the United States, developers consider that the lot ready to use should properly represent in the neighborhood of 20 percent of the total cost of the house and lot.

Correspondingly, the capital charges on the cost of the site represent something in the order of 10 to 25 percent of the total capital charges, although this ratio is often obscured by the widely varying manner in which the cost of land is written into a house-building project.

When we consider the portion of *total monthly cost* which goes to pay the fixed charges on the first cost of the land, the showing is quite different, since the capital charges represent only part of the total monthly cost.[6]

[5] For a summation of many recent studies see *Our Cities*, National Resources Committee, Government Printing Office, June 1937.

[6] In formulating housing programs it should be constantly emphasized that a reduction in capital cost translates itself into monthly saving at only the interest and amortization rate applied to the capital saving, while economies in maintenance, transportation, heat, etc., represent equivalent direct savings in monthly cost. Further, cheaper construction requires more maintenance and may be more costly per month.

TABLE I.—*Per-family cost of land ready to use, expressed as an approximate percentage of total first cost of land, building, and landscaping*

Type of development:	*Percent*
Private small house-and-lot development	15–25
Tenement development on "$2 land" at 60 families per net acre and $4,500 per-family building cost	25
Milwaukee P. W. A. housing project, Parklawn	10
Milwaukee suburban resettlement project, Greendale	20
Detroit P. W. A. housing project, Brewster (slum clearance)	14
A large-scale middle-class project in Washington, D. C., district	19

Thus, if capital charges constitute half of the total monthly cost, and taxes, maintenance, utilities services, heat, etc., the other half (the ratio varies from 30–70 to 70–30), and if capital charges on the land ready to use represent 15 percent of the total capital charges, the "monthly land cost" amounts to only 7½ percent of the total monthly cost. By loading twice as many families on the same land area, this step, considered by itself, will reduce the total monthly cost per family by less than 4 percent. This elementary computation is fundamental in housing economics.

Cost of utilities services.—The monthly cost of electricity, water, gas, garbage collection, etc., varies in different locations. There is no general rule to guide in selection of a site, but the facts should be gathered and set in with the other cost figures. The quality of these services also varies widely. For example, a relatively cheap, hard water is often both inconvenient and expensive to the householder, who must soften it with a domestic softener or with soap. The type of housing project also influences the cost and quality of these services, and, as discussed later, the location of a project critically affects the type of housing. The P. W. A. Housing Division and the Suburban Resettlement Division of the Resettlement Administration generally procured relatively very low rates for electricity purchased at wholesale and distributed on an unmetered basis. The low rate, in turn, makes it possible to take advantage of the great convenience of electric cooking stoves and other electric household appliances. By and large, utilities services are likely to be less expensive when taken from existing municipal plants than when taken from facilities newly developed for totally detached sites.

Taxes.—Taxes and taxation policy vary widely in different locations. Again, there is no general guide except the suggestion that the taxes (not the tax rate) and the quality of the governmental services be entered into the computations by which total monthly cost and quality finally dictate the choice of a site. Sometimes prevailing tax rates are deceptive. A low State and local public debt and relatively high taxes may be more

favorable over a period of years than the converse, which some day will require higher taxes to clear up the debts. The suburban towns are probably most favorable from the standpoint of current tax costs; the new isolated small garden suburb probably faces the highest tax costs for equivalent services.[7]

General community costs.—A large and increasing portion of our earnings from productive labor goes to carry the costs of governmental and community services. These community costs include governmental administration, police and fire protection, health and hospital services, correctional and charitable institutions and agencies, education, recreation facilities, maintenance of the vast physical plant which is operated by our government, and many other items. The manner in which a metropolitan district is built up vitally affects all these costs, quite apart from the other elements of efficiency or waste in community operation. This is an extremely complicated matter, but two major elements will illustrate its over-all potency.

It seems to be established as a fact that slum living conditions contribute to the public and private costs required to meet ill health, delinquency, crime, unproductiveness, fire losses, etc., all in part attributable to the relatively dark, crowded, insanitary housing in such areas. It is probably not possible to isolate the proportion of these costs which is due to the slum housing and the proportion which would not be eliminated by the substitution of good housing, for disease, delinquency, crime, etc., are common manifestations of poverty, wherever housed. Further, the showing that slum districts carry in tax yield less than their share of governmental service costs is not conclusive, since the tax yield is most directly a function of the capacity of slum dwellers to pay, wherever and however housed. Nevertheless, the slums themselves are a real community liability, and the building of more slums will inevitably increase the liability.

Thin, scattered development also is expensive for the community. Even if the houses themselves are altogether satisfactory, the overextension of streets and utilities and of the police, fire, educational, recreational, and health services costs more in the outlay of public funds per family than does a more continuous development which utilizes the public facilities more fully.

From this standpoint, and in the light of our present knowledge of efficient city building, the optimum pattern is that represented by a density of population in the range of 10 to 25 families per net acre of built-up residential area, with perhaps one-third to one-half of the gross built-up urban land area devoted to streets, parks, public institutions, industry, and commerce.

[7] Until such time as they are further developed, the curtailed suburban resettlement projects, with only 600 to 900 families, must necessarily carry heavy taxes to meet the cost of the community public services.

Here we encounter an important consideration. Our metropolitan districts are now physically so organized that, by and large, the basic services are spread out to accommodate, within the areas now served, the whole metropolitan population, at densities not greater than those tentatively quoted above as an optimum. Only minor additional areal expansion of the public services is required to provide sites for all present and prospective metropolitan populations, at an approximate density of 20 families per net acre.

It may be asserted with some confidence that, with few exceptions, no permanent community economies will be achieved by low-income residential development either above or below the range of 10 to 25 families per net acre of built-up area.

On available 10- to 50-cent land and in the density range quoted, the land cost per unit is low, the appropriate type of development permits relatively inexpensive construction per unit of livability and a high degree of tenant maintenance, which is very important, and the general community costs will tend to be favorably affected.

All told, general community costs are high, and they are rising, particularly in metropolitan areas. Two most important measures to check the continued rise of these costs and to bring them back into balance are mature metropolitan regional planning and well-considered programs for new low-income housing at rational densities on the land.

Interest charges.—In slum and blighted neighborhoods, interest charges tend to be higher and amortization periods shorter than in new, open districts. The zoned, restricted, apparently stable residential district, with satisfactory utilities and transportation service, is usually least costly in interest and amortization. This is a matter of considerable importance. A reduction of only 1 percent, say from 6 to 5 percent, in the annual charges for interest and amortization effects, in the typical situation, a larger saving in monthly cost than can be made by doubling the number of families on the site in order to reduce by 50 percent the original land cost per family.

Transportation costs.—The monthly cost of going to and from work varies with the location of the residence in relation to places of employment, and, for families with incomes up to $1,600 per year, ranges from little or nothing up to about $10 per family per month. Reducing the first cost of a house and lot from $5,000 to $4,000, at 5 percent per year for interest and amortization, saves only $4 per month on capital charges. A saving of 15 cents per day per family in average transportation costs is approximately equivalent.

One extra mile of auto haul, at 3 cents per mile, and at an average of one and one-half round trips per day per family, costs $27 for a 300-day year, which, capitalized at 5 percent, is equivalent to a capital invest-

ment of $540. In other words, on this basis, the cost of land ready to use for housing could be $540 more per family if it avoided 1 extra mile of automobile travel.

The time, cost, convenience, and relative agreeableness of transit constitute controlling factors in metropolitan growth and in housing programs. The development of rapid transit, the automobile, the elevated highway, and the freeway are potent forces in the spread of industry and of housing in metropolitan areas. They are rapidly reshaping our cities. They are slowly recasting land values in older sections.

Building codes.—Big city building codes tend to be more restrictive and more "political;" and, accordingly, housing located in suburban areas can sometimes be built less expensively, without violation of good standards.

Wage rates.—Likewise, wage rates tend to be lower in some suburban areas than within the large cities. While it is not considered that the solution of the housing production problem lies in reduced annual building-trades wage rates, it is nevertheless true that, where living costs are lower for construction workers who live in the outer portions of metropolitan districts, wages may also be lower without sacrifice by the worker.

Fire insurance constitutes a minor item. The rates are generally lowest in suburban towns and higher in congested areas and in undeveloped areas without adequate fire protection.

Delivery of materials, an element in the cost of building, is generally less costly outside of the congested areas but more costly again in isolated sections at a distance from railroad service.

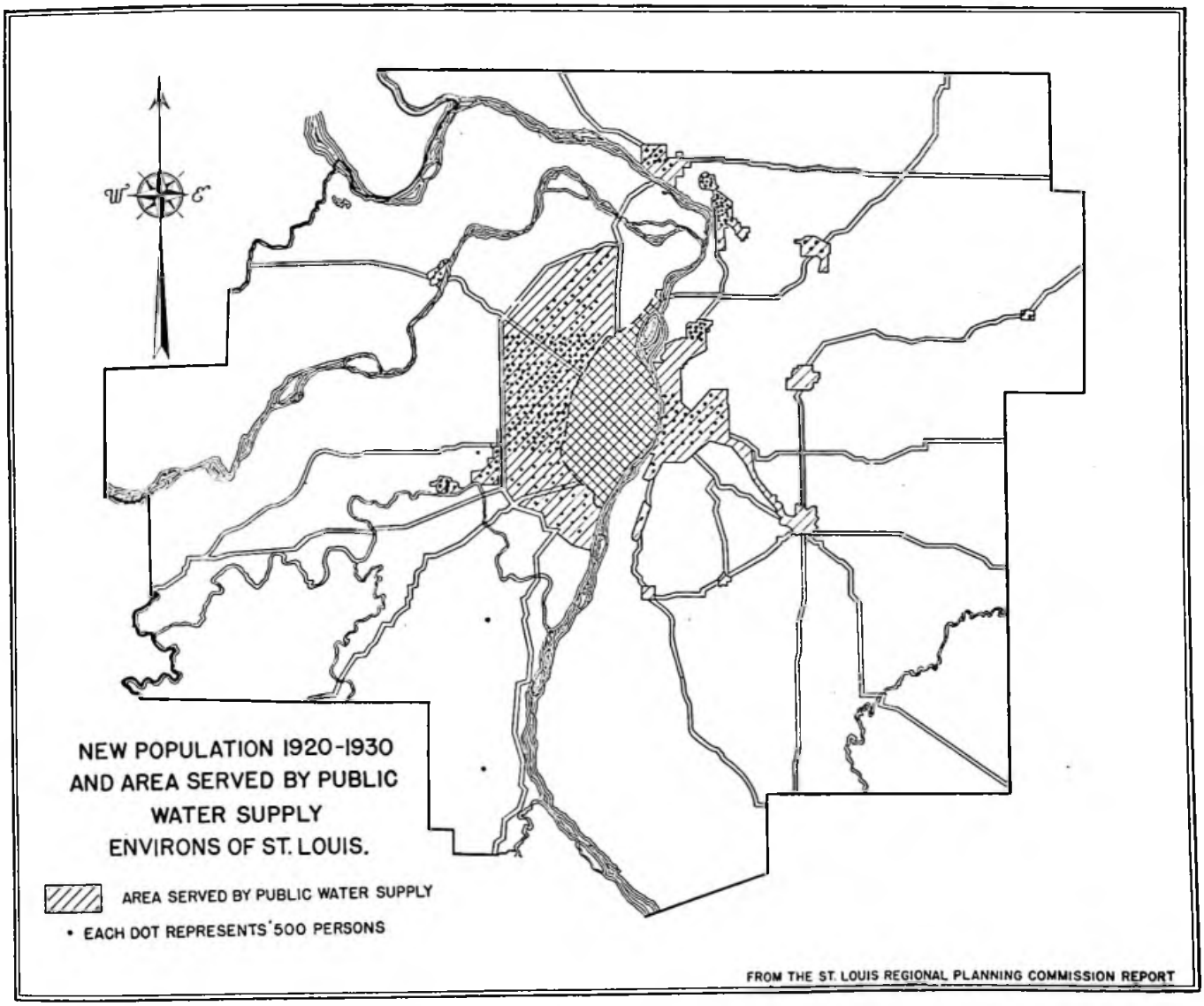


FIGURE 2.—New population 1920-30 and area served by public water supply, environs of St. Louis.

Extension of public water supply helps to make possible the diffusion of residential development outside the central city but within the metropolitan area.

Relationship between location, type of housing, and costs.—In rounding out the examination of the influence of location upon the cost and quality of housing, we return to some of the points raised at the beginning of this section. The price paid for the land ready to use in considerable measure dictates the type of housing provided and, in turn, the monthly costs and the livability of the houses. As the cost of the land goes up, the developer seeks to compensate by reducing the other elements of cost. On high-priced land he turns to the apartment house or the tenement. By so doing, the first cost of the land and the capital charges on the land per family are reduced. Then it is discovered that "fire resistant" construction may be required for multiple dwellings, adding to building cost; and that halls and stairways and heating plants and grounds require more project maintenance than for the tenant-operated or owner-operated dwelling unit, adding to the operation costs. At once, the tendency is to cut down the size of the apartment, cut down the size of halls and stairs, cut down the area of open ground, put in stove heat—critically to reduce standards and livability, without actually reducing the total monthly cost proportionately. Private developers realize this impasse into which they are led by high-priced land, and, with industry moving outward and transit facilities rapidly improving, the very great preponderance of privately built housing goes out to less expensive locations.

For low-income housing there are usually other more economical alternatives than that of piling apartments up on high-priced land.

Comparing Three Types of Location

As an illustration of the weight of the factors of location, there follows a computation on hypothetical projects in each of three principal categories; a slum site, a site on vacant land within or adjacent to a city in the metropolitan region, and an outlying vacant suburban site where no development existed previously. The choice generally lies among these three types of location, or variations of them.

(*a*) A slum site at $1.50 per square foot ready to use; two and three-story apartment houses, fireproof, averaging four rooms per unit; 1,600 square feet of net land area per family; central heat and hot water; wholesale electricity; walk to work; considerable community maintenance of grounds.

(*b*) A site on the outskirts of a sizeable central city; land, ready to use, at 25 cents per square foot of net area; single, twin, and row houses of frame or masonry, average five rooms each; lots at 4,000 square feet per family; reservations for playgrounds, etc.; individual furnaces and hot-water stoves; wholesale electricity; $5 per month per family for necessary travel; occupant maintenance of yards; utilities service from municipality and companies.

(*c*) A farm-land site converted into a new garden suburb community of 1,200 families, with area reserved for expansion; land ready to use at 15 cents per square foot of lot, and at 5,000 square feet per family; single and twin houses of frame or masonry, averaging five rooms each; furnaces and hot-water stoves; wholesale electricity; occupant maintains yards; 5 miles to work by bus or by car on freeway and elevated highway at $10 per family per month; new water supply, sewage-treatment and garbage plants necessary; schools and stores provided as part of project.

In this table, round figures are used throughout to dispel any implication that the computation is precise. It is not. It is set up on a purely hypothetical basis with approximate values to illustrate the way that the factors weave together and the way location should be determined by considering all aspects of a project.

No general conclusion can safely be drawn from this table, except that, in selecting a location, the alternatives must be considered by figuring the whole job through, at least in a preliminary way. The location factors weave through the whole complex of costs and livability, and lower or higher land cost per family does not necessarily of itself produce lower or higher total monthly costs to the occupant.

TABLE II.—*Hypothetical illustrative cost of 3 types of housing*

Elements of cost	Slum site, 1,600 square feet, 4-room apartment	City-outskirts vacant site, 4,000 square feet, 5-room house	Converted farm-land site, 5,000 square feet, 5-room house
1. Cost of land ready to use, per family [1]	$2,400	$1,000	$750
2. Cost of housing unit, excluding land [2]	5,000	4,800	5,000
3. Interest and amortization, 5 percent on 1 plus 2, per month [3]	31	24	24
4. Full taxes, per month [4]	14	10	12
5. Project maintenance of buildings and grounds, and fire insurance, per month [5]	12	10	10
6. Water, electricity, and hot water, per month	4	4	4
7. Heat, per month	4	5	5
8. Transportation, per month		5	10
Total cost per month	65	58	65

[1] While 1,600 square feet of net land area (about 27 families per net acre) is a lesser density than $1.50 land usually produces, good feasible standards and rational city building dictate densities in the range assumed here. Increasing the density on this land, say up to 50 families per net acre, would decrease the first cost of the land per family, it might slightly decrease construction costs, and it would tend to decrease the cost of project maintenance of grounds. The total monthly cost would then be in the range of the city-outskirts vacant site, but the livability would be, for most families, considerably less. Thus, the point is emphasized that $1.50 land is generally too expensive for low-income housing, unless public subsidy goes to "pay out" the excess of land cost. Private low-income housing does not generally use such costly land; public housing policy revolves in part around the question of whether expensive built-up blighted areas should be utilized.

[2] The cost per housing unit varies widely, but it is a fact that the first cost of a 4-room fireproof apartment, with corridors, central heating plant, etc., lies in the same range as the first cost of 5-room semifireproof cottages, twin houses and row houses.

[3] Interest and amortization are figured at a uniform hypothetical rate on land and structure equally. Both the rate and the application of the rate to land and to buildings will vary in different situations.

[4] Full normal taxes are figured at about 2.2 percent on total capital cost for the slum site, at about 2.0 percent for the vacant site on the outskirts of a central city, and at about 2.4 percent for the garden suburb, where a new village must sustain its separate services.

[5] Structural maintenance is favorable to the slum site, but in the 2 vacant outlying sites maintenance of halls, walks, and grounds is assigned to occupants, compensating in the total monthly cost.

The most important thing revealed in this appraisal of types of location is that crowding the buildings together and upward on expensive land usually does not proportionately reduce monthly costs, whereas it may reduce in a marked degree the livability qualities desired by the families to be housed.

At this point, we face the intricate question of the preferences for different types of housing on the part of the families in the income ranges here considered. Tradition, the results of various questionnaires, and, most significant, the response of private developers to the market, all indicate a predominant desire for the house (cottage, twin house, or row house) in preference to the apartment.[8] Nevertheless, the relative convenience of apartment living, with heating and much of the operation and maintenance supplied by the management, may begin to turn the tide for some proportion of these families. Again, the location factors in housing have to be considered in the light of these changing preferences.

The Optimum Location for Housing

Drawing from the considerations which have been briefly reviewed, it is possible to enumerate the characteristics which together help to identify an optimum location for metropolitan housing to accommodate families in the lower income ranges.

[8] The Illinois State Housing Board estimates that more than 97 percent of all the dwelling units constructed during 1936 in the Chicago metropolitan area were single-family houses.

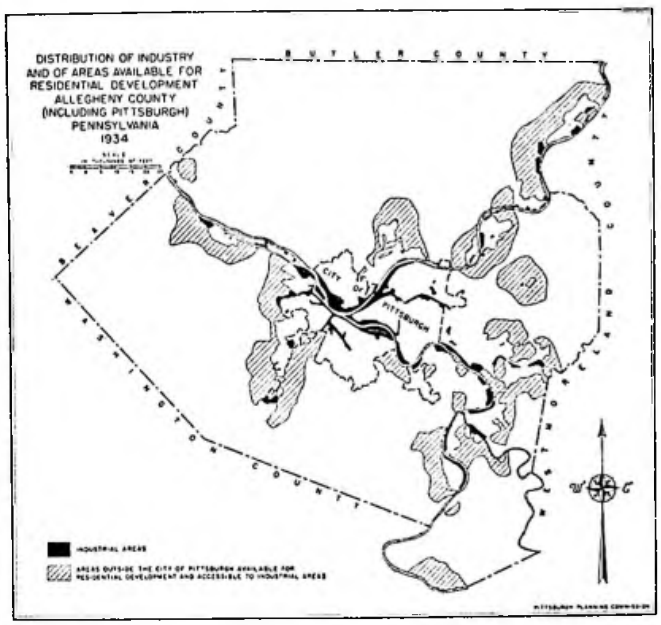


FIGURE 3.—Distribution of industry and of areas available for residential development, Allegheny County (including Pittsburgh), Pa., 1934.

Industry diffuses into the metropolitan region; residential development for workers tends to follow. Such movement of industry and housing is characteristic of large centers in the United States.

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1. Preferably within walking distance from major areas of employment, or, if beyond walking range, within a maximum of 30 minutes in time and 10 cents in cost each way for transportation. Here it should not be forgotten that the 5-mile trolley ride usually costs no more than the 1-mile ride, and may require only 25 minutes as compared with 15 minutes for the 1-mile trip; that the "jitney," carrying two to five men or women who divide the cost, is both increasing in popularity and decreasing in cost per person; and that improved transit facilities, elevated highways and freeways are rapidly extending the area served within the range of 30 minutes and 10 cents.

2. Within half a mile of adequate grade schools and local shopping facilities, existent or shortly to be provided. Playgrounds should be available within a quarter mile of every house.

3. Accessible to a good water supply, sewers, and electricity at reasonable cost.

4. The cost of the land ready to use should permit a suitable type of development. The optimum, all things considered, will permit single-family houses, twin houses, row houses, and small apartment houses at densities ranging from 8 or 10 to 20 or 25 families per

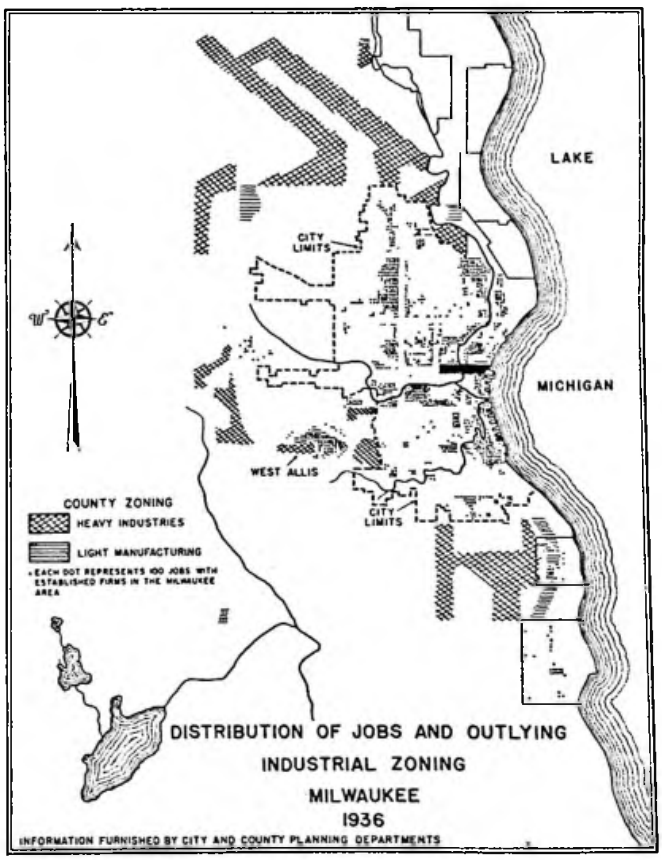

FIGURE 4.—Distribution of jobs and outlying industrial zoning, Milwaukee, 1936.

In this, and in nearly all metropolitan areas, the outlying zoning for industry anticipates the outward movement of industry.

net acre and net land coverage ranging from around 15 percent for occupant-maintained private yards up to a maximum of 25 to 35 percent where the ground may be partially project-maintained. In general, the cost of optimum sites ready to use will range from $4,000 to $12,000 per net acre, or from 10 to 30 cents per square foot of net land area with street and utility installation costs included.

5. The neighborhood stability should be such as to create lowest risks of neighborhood deterioration and hence, on this score, to justify lowest rates of interest and amortization. Here, regional planning, municipal and county zoning, deed restrictions, and effective regulation of subdividing are of great importance.

6. From the standpoint of the whole metropolitan community, housing projects should be so located as to promote and not obstruct the development and redevelopment of a satisfactory regional city; promote municipal and regional economy; promote and not obstruct the execution of civic development projects such as parks and highways; promote and not damage neighboring development; facilitate the demolition of slums and not create new ones; place the occupant families in a geographic situation where they may participate conveniently and fully in the life and responsibilities of the region and of their social group. This is to say that housing should be part and parcel of well-considered metropolitan regional planning.

The Slum and the Garden City

Against these broad criteria for the optimum location we may briefly appraise the two extreme situations—the slum site and the new garden city or garden suburb.

It is safe to assume that unsubsidized private capital will not generally go in to clear slum lands and build low-income housing on them, at any rate not until the cost of such sites has fallen sharply. Further, it is a safe assertion that generally, all things considered, there are no longer any controlling factors of public policy which dictate the continuance of the dense concentration of population which characterize most close-in city slums. Accordingly a principle emerges. The clearance and rebuilding of expensive slum areas by public agencies is wise only if it is justifiable to write off, as a subsidy to the ramified interests which own the slum property, the difference between the purchase price and the land cost which the new housing project can reasonably carry.

The slums in our cities are already recognized as constituting large areas, and as time goes on they will be considered to include still larger areas. They are in fact the product of age, change, and city growth. They constitute community liabilities and, often, private liabilities. In slum districts the "invested value" has often long since been amortized out of existence by rents paid. The current pressure to put public monies into bailing them out does not of itself make them appropriate locations for housing. Their populations are leaving them for very good reasons, and their present market values are sustained largely by illusions of a prospect for realizing upon those values. The regional city ahead of us will not, cannot, revert to the crowding of human beings and industry which characterizes the slums and make them slums. By and large, the public interest will be best served if slum districts are considered to be worth for housing not over something in the order of 50 cents per square foot of net land area ready to use, and if the values above such a figure are permitted to wear themselves down to real use values by encouraging rather than discouraging their partial abandonment.

The garden city or garden suburb represents the closest thing to the ideal that has been proposed in metropolitan regional development, provided the other criteria are met. The principles of the garden city contemplate that there be taken a large tract of relatively undeveloped, inexpensive land in a good location within the metropolitan region; that a development of industry, housing, and community facilities be planned and carried out as an integrated whole; that an appropriate, large part of the land area be reserved for parks, forests, and farms; that the community, by one arrangement or another, receive the benefit of the increment in economic land value created by the development of the area; that maximum size be limited to that which produces the optimum local community life, perhaps 50,000 population. The garden suburb differs from the garden city mainly in that it contemplates a residential community conveniently related to major employment areas outside its own boundaries. In the English-speaking world, Letchworth and Welwyn, near London, are the classic examples of the garden city. In the United States a number of developments fall more or less in the category of garden city or garden suburb; the "Greenbelt" projects of the Resettlement Administration are the most recent. Drawing upon earlier ventures and upon the experience of the Suburban Resettlement Division [9] of the Resettlement Administration (now the Farm Security Administration), some salient points may be brought to bear upon the whole problem of location for housing. The garden city and garden suburb theory is an excellent one and susceptible of use in this country. The garden city is preferable to the garden suburb, but more difficult (perhaps only rarely feasible) because of the lag in the industrial-employment base and tax base in a new location. The garden suburb has an advantage in that it may detach itself from railroads and main highways, where topography, land costs, and existing develop-

[9] These are the writer's comments and in no way represent the official conclusions of the Administration or the Division.

ment and subdivisions all militate against the prospect of acquiring a large enough tract of suitable land. Further, since Ebenezer Howard first formulated the English garden city principles, about 1898, transit and automobile developments have freed residential settlements from the earlier necessity of immediate proximity to industry.

A garden city or garden suburb development requires that the agency responsible for it should have the means to build up to a minimum of some 1,200 fam lies in the first project. The capital costs and the operation costs per family for good, standard facilities for water supply, wastes disposal, recreation, police and fire protection, and, notably, education become disproportionately high for the small new village; and a settlement of less than 1,200 families faces critical difficulties in the cost of supporting even minimum standards in these public services.

If not incorporating sufficient employment opportunities within its area, the garden suburb must be situated within economic travel distance for the residents to go to and from established and prospective areas of employment. This is not difficult except for the fact that around our big cities a great part of the most eligible lands are already subdivided and, even though not built up, are troublesome and costly to assemble in a large enough tract.

If the purchase price of the virgin land is in the range of $300 or $400 an acre, then the portions to be built up can be planned so that the capital cost of the utilities is in proper proportion ($500 to $1,000 per residential unit), and from half to three-fourths of the total tract can be devoted to a green open environment and a protective belt of parks, parkways, forests, and farms.

The primary step is that of securing the land (from 600 to 800 acres, as a minimum, upward to many thousands as the ideal), carefully planning all the future development as a whole, and proceeding with at least the first development unit of 1,200 dwellings or more.

The garden city or garden suburb will fare best if it is recognized throughout that various income groups and occupational groups are advantageous to well-rounded community life. While loyalty and cohesion within the development are desirable, the arrangements should encourage the participation of the residents in the larger life of the metropolitan region.

Aid from the Federal Government in the purchase of the necessarily large tracts of land would greatly facilitate the production of housing in the form of garden cities and garden suburbs. Where feasible, such developments, conveniently situated and wisely planned, represent the all-around ideal in location for a portion of low-income housing in metropolitan regions.

The Availability of Appropriate Land for Housing

Having examined the influence of location upon the cost and livability of housing, and having suggested the criteria upon which alternative locations can be appraised, we may now look into the question of the availability of lands which meet the more important criteria. The accompanying figures illustrate the American metropolitan region—crowded at the center; development stringing out along main arteries of transportation; the land, in much the larger part, open, vacant, and idle insofar as urban uses are concerned. A most significant trend in development for the past 50 years or so has been outward into the suburban fringe. Stimulated by congestion and high costs downtown and by the steady improvement of transit, highways, and the automobile, industry, commerce, and housing have begun a great outward push. New patterns of development, a new distribution of land uses and of population, and new areal economic and social relationships are emerging.

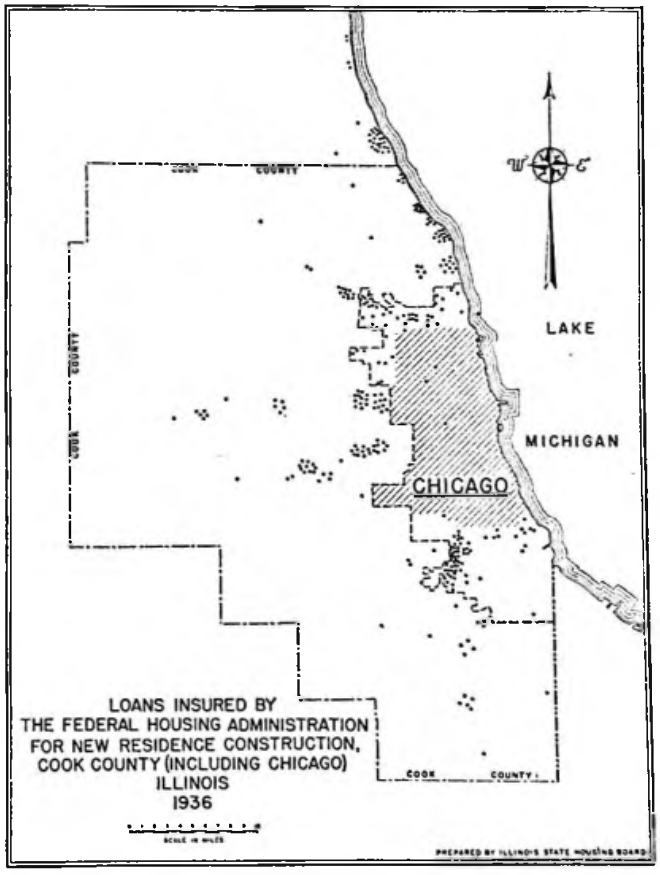

FIGURE 5.—Loans insured by the Federal Housing Administration for new residence construction, Cook County (including Chicago), Ill., 1936.

Only three loans were insured by Federal Housing Administration within the main portion of the city of Chicago; almost all were outlying in Chicago and its suburbs. The great bulk of this type of residential building seeks outlying situations.

Every house builder considers the location factors which we have brought out; and, while a complete and competent analysis is rarely made, the rational conclusions and the hunches on which decisions are based have placed the bulk of new private housing during recent years in the outlying parts of the metropolitan cities and in their suburban towns.

In that part of the Chicago metropolitan region lying within the State of Illinois, during the calendar year 1936, estimates furnished by the Illinois State Housing Board show that, of 2,100 residential units constructed, about 60 percent were built in the suburbs and about 40 percent in the city of Chicago. Of 377 mortgages insured by the Federal Housing Administration in the same area during 1936, 374 were mortgages on property situated in the far outer fringes of the city and in the suburban ring. (See fig. 5.)

TABLE III.—*Location of Public Works Administration projects, 1937*

Location	Number of projects	Percentage of projects	Number of dwelling units	Percentage of dwelling units
On slum-cleared land	20	48	13,004	53
Close-in on vacant land	13	24	4,468	18
On vacant city-fringe land	15	28	6,940	29
Total		100		100

Public housing has probably been more highly rationalized, both in the United States and abroad, and it has been directed toward social purposes rather than profits.

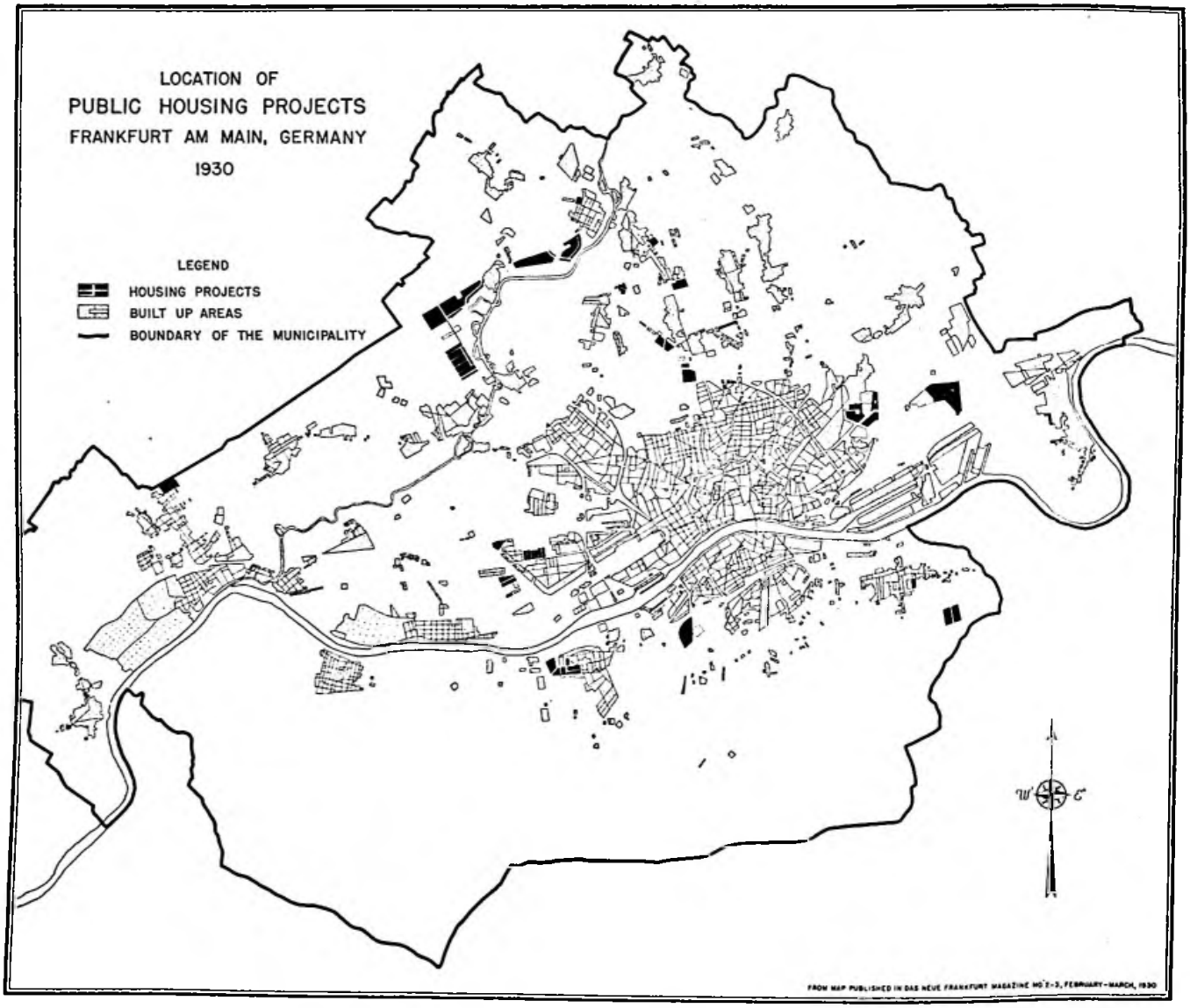

FIGURE 6.—Location of public housing projects, Frankfurt am Main, Germany, 1930.
In almost all European cities, the great preponderance of public housing is situated outlying.

The current (1937) projects of the Housing Division of the Federal Emergency Administration of Public Works within the continental United States (including limited-dividend projects), show a distribution in location categories as in table III.

The three suburban resettlement projects of the Resettlement Administration (now the Farm Security Administration) are located well outside the built-up urban areas but well within the metropolitan regions of Washington, Cincinnati, and Milwaukee.

A rough approximation seems to indicate that in western Europe at least 80 percent of all public housing of the past 30 years is situated on outlying sites, and only 20 percent or less on close-in slum sites. (See fig. 6.)

Now, both tradition and public policy in the United States have dealt with urban land as a commodity. Far in advance of the need, the subdividers, with the enthusiastic cooperation of the press, and with little discouragement from government, have platted and offered for sale a constant oversupply of building lots. The process all told constitutes a major catastrophe. For the purpose at hand, the chief result is that much (in some metropolitan districts almost all) of the land most suitable for house building has been temporarily lost. It is bogged down in a complex of unpaid purchase contracts, delinquent taxes and special assessments, and wastefully planned recorded plats.

For any long-range metropolitan housing program, these lands must be at least in part extricated from their present impasse. Millions of lots and billions of dollars are involved. Government will have to intercede more vigorously than hitherto, and, through government, the public will probably have to bear a good part of the enormous losses which are entailed.

No single formula can be given to treat all cases. Each defunct subdivision represents a separate and distinct problem. However, in each of the States a search for the solution will lead to municipal and State legislative and administrative provisions to deal with the situations as they are found to exist.

In Europe, notably in Scandinavia, Holland, and Germany, the problems of directing land subdividing into sensible channels have been matters of public interest and public management for a long time.

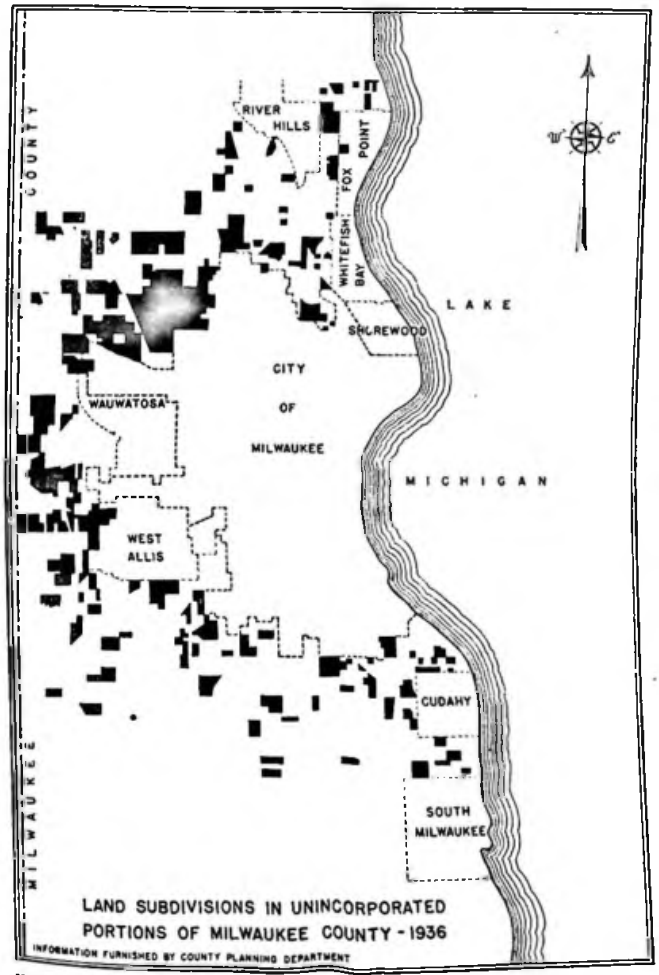

FIGURE 7.—Land subdivision in unincorporated portions of Milwaukee County, 1936.

Milwaukee County is relatively free from "wild-cat" subdividing. Nevertheless the open countryside is cut up by premature subdivisions. Similar and often more aggravated situations in metropolitan areas greatly complicate the problems of municipal development and locations for housing projects.

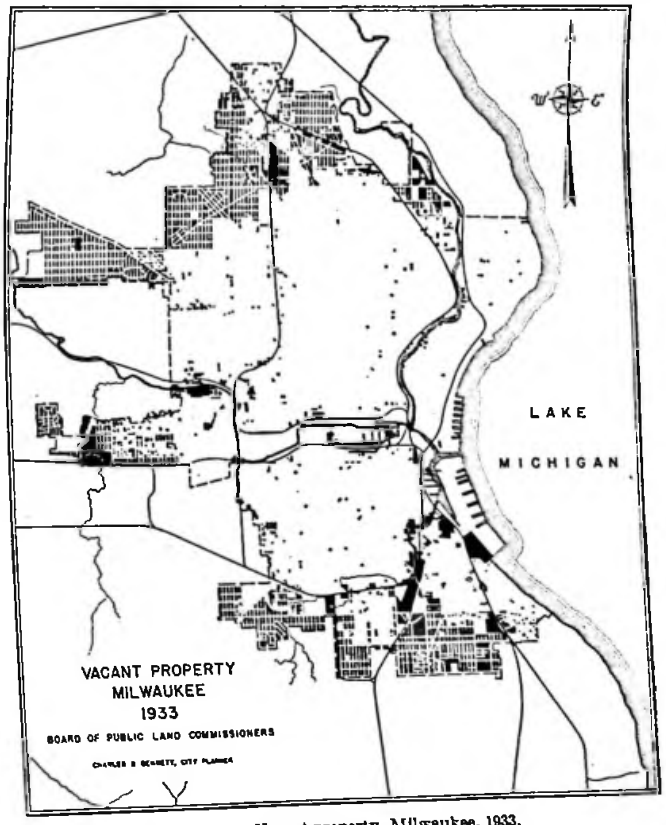

FIGURE 8.—Vacant property, Milwaukee, 1933.

Relatively orderly expansion; much vacant land now accessible to municipal services and utilities. Such lands are available for housing. This situation prevails in greater or lesser degree in most American cities.

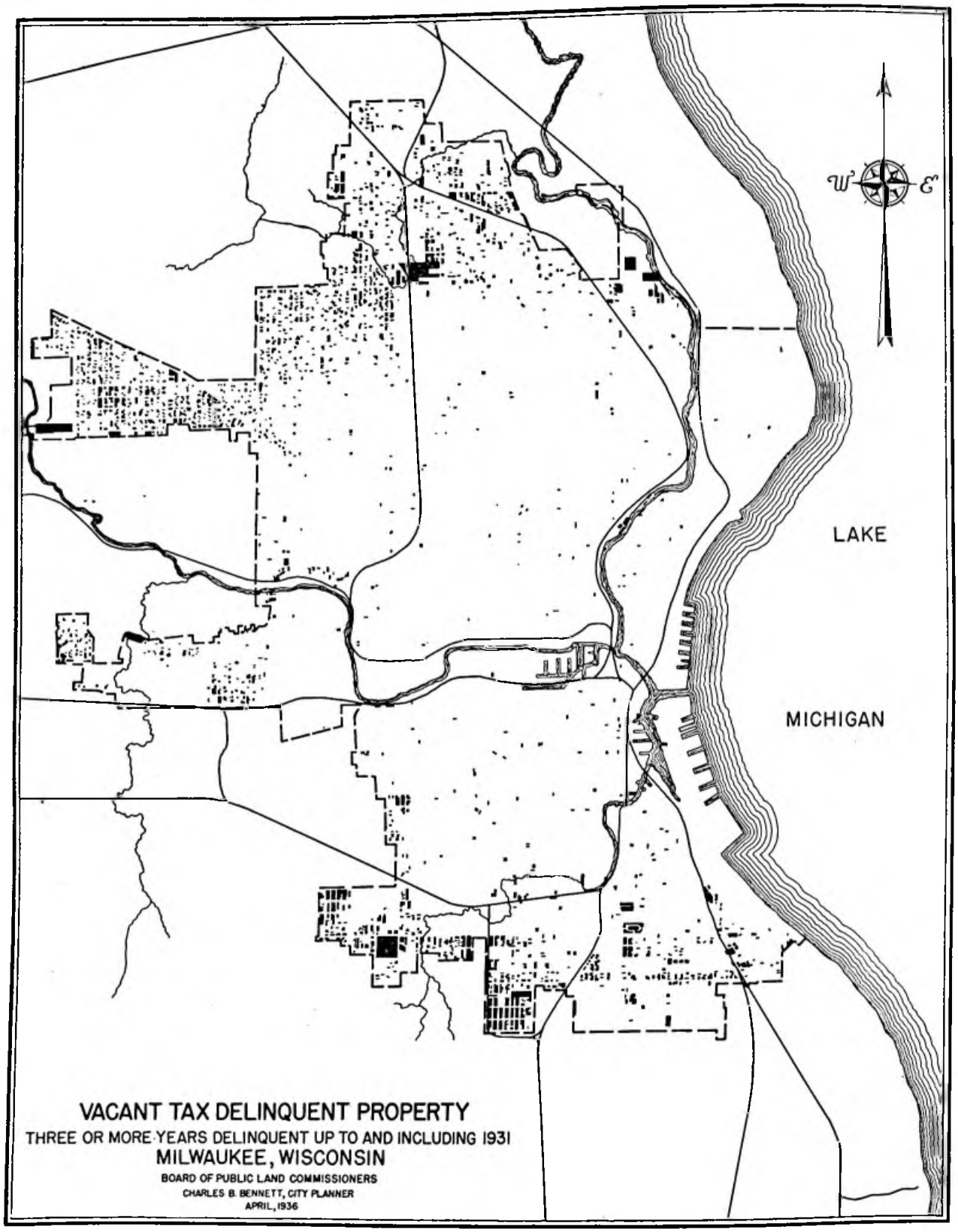

FIGURE 9.—Vacant tax delinquent property, 3 or more years delinquent up to and including 1931, Milwaukee.
Thousands of parcels of property are reverting to public ownership in American cities. Many of them are available for low-income housing.

There is much for us to consider in adapting European practices. But the measures suited to the United States must be devised in the light of our particular situation. Some of the steps may be mentioned here.

First of all, State, city, and metropolitan planning boards can very usefully appraise the defunct subdivision problem. A thorough examination of each such subdivision will in itself suggest remedies.

The most painless and genuinely sensible solution in some cases will be to facilitate rather than to retard the reversion of lots which have been abandoned for taxes. In some States it will help to get legislation or administrative arrangements for almost automatic transfer to the appropriate local government of the reverting lands which are needed by that local government. This is a point of great strategic importance in city planning and city rebuilding.

Legislation is needed for compulsory pooling and replatting of lots. Where all of the existing interests, both public and private, in a subdivision will benefit by putting the equities and claims into one pool for replatting and redivision, a small minority interest can still obstruct the reorganization. Thousands of poolings and replattings are needed; very few are effected because there is no machinery available. Compulsory pooling and replatting measures would be extremely valuable in aggravated cases, and they would lead to voluntary pooling and reorganization in many cases, as they have in Germany.

Pending the rectification of the chaos of the defunct and partially developed subdivisions, there still remain unplatted sites in or near most of the big cities and their suburbs and within reach of the essential utilities and services. The degree to which such sites are still available is almost literally a direct function of the public control exercised over subdividing during the great boom of the 1920's. In such metropolitan districts as those of Cincinnati and Milwaukee, the situation is relatively advantageous, while in others, like Chicago and Detroit, the scene is discouraging.

Further, out of the subdivision wreckage, two outstanding possibilities should be mentioned. First, thousands of lots are at the point of reversion or sale for unpaid taxes. As suggested above, those municipalities which are going about to recapture tax-abandoned vacant property are coming into possession of land which is useful for various public purposes and also for housing.[10] Only part of it, perhaps only the smaller part of it, is suitable from all standpoints for house-building purposes, but general municipal acquisition is desirable, for it brings land back into the available category.

Second, after each subdividing and building boom there remain unused lots in among utilized lots. Again, many of these plots are not suitable, but an actual count would bring hundreds or thousands of good ones to light. Between booms, they can be purchased at relatively low figures, often for less than the actual outlay for street improvements. The one-house-at-a-time builder, who, in fact, has provided most American housing, picks up and utilizes such lots. Where suitable, their absorption is advantageous to developer, builder, municipality, and occupant.

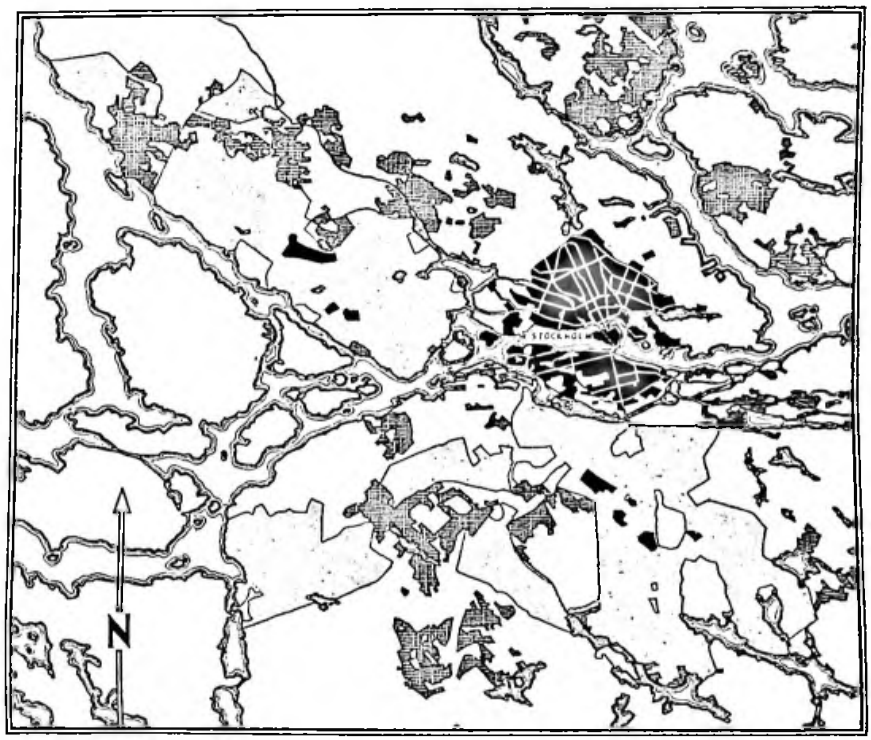

FIGURE 10.—Stockholm, Sweden, and its metropolitan land reserves, 1934.
Land reserves in gray; city area in black; suburban developed areas cross-hatched.

While scattered buildings are somewhat more difficult to operate and manage for rental housing projects than a large housing development on a single tract, these difficulties are more easily overcome than many others, so that for large-scale housing, either public or private, the selected tax-reverted lot and the selected post-boom, left-over lot should be considered among the good possibilities for satisfactory location.

Metropolitan land reserves.—During the past century, as the big industrial centers grew up, the governments in many countries have adopted the policy of acquiring

[10] See *Plan Age*, October 1936.

and holding what are here designated as metropolitan land reserves. Realizing that for many purposes, including housing, lands should be taken well in advance to obviate both high costs and distorted, uneconomic development, the metropolitan land reserve is a part of normal practice in some urban regions in Germany and Scandinavia, in China and Japan, in several Latin American countries, and more recently in England. In Russia, of course, the Gordian knot of land-for-housing was cut at one stroke when all lands were socialized. We cannot yet adequately appraise the outcome of this step.

The public land reserve is valuable as an instrument to combat speculation, it is useful for public parks, forests, parkways and highways, watersheds, etc., and in many cases it has been invaluable in making sites available for housing enterprises.

The metropolitan land reserve was introduced on a sizeable scale in this country for the first time in the tracts purchased for the greenbelt suburban resettlement projects. These reserves illustrate the principle; they give us an opportunity to see how it works out in the United States; they constitute one of the eligible locations for housing in their respective metropolitan districts. They are available for use at low cost, and without delay for assembly and purchase.[11]

[11] "Metropolitan Land Reserves," *The American City*, New York, July 1937.

As suggested in *Our Cities*,[12] an important strengthening of our public policy as it relates to urban problems could be effected through Federal aid to local governments for the advance purchase of needed lands.

Metropolitan regional planning.—Throughout this statement, the need for more adequate metropolitan regional planning has emerged again and again. The time may now be ripe to give it additional impetus. It is suggested as a possibility that the several Federal agencies concerned pool their interest in this matter, and also pool their resources of funds and manpower, to give concerted aid to local governments and private agencies in this vital field. It is considered that the following Federal agencies might collaborate: The National Resources Committee through its central office and its field offices, the Public Works Administration, the United States Housing Authority, the Federal Housing Administration, the Reconstruction Finance Corporation, the Home Loan Bank Board and Home Owners' Loan Corporation, the Works Progress Administration, and perhaps others. Economy and satisfaction in housing programs will be achieved quite largely in proportion to the relative maturity of our metropolitan regional planning work.

[12] *Op. cit.*

PART 2. SITE PLANNING

By Frederick Bigger [1]

The way in which site planning is influenced by the character of ownership and control of the site, by its relation to its immediate regional environment, and by the considerations both of initial cost as well as long-time maintenance and operation is shown. The need for advance planning and the considerations involved in contracting as contrasted with "force account" building of large projects are emphasized.

What is Site Planning?

The term "site planning" means little or nothing to those who have paid no attention to housing developments during the past several decades, or to those who have had no experience with or observation of technical planning procedure. The term has been generally applied to that particular kind of planning which has to do with determining the placement of dwellings and other buildings on the ground, and their relationship to each other, to open spaces for sunlight and fresh air, to open spaces for recreation and amenity, to the roads or streets which give access to the buildings, and to those surface and subsurface utilities which afford the buildings the services of water, sewerage, light, and power, and perhaps fuel.

Because old communities seldom if ever grew according to wise general plans; because they grew by accretion; because the buildings gradually crowded together on the land and eliminated light and air and sunshine; because spaces for play were lost, and became increasingly necessary as the land became more overcrowded and more costly—because of these conditions site planning became an effort to plan all the relationships within a tract of land in such a way as to assure the creation and maintenance of good physical conditions as essential to good community living and good health.

Only where land of considerable extent, under one ownership, was to be had could the site planner accomplish the desirable things he set out to do. In some instances, relatively few in number, this opportunity had been available to the owners of large tracts of land, to the land-and-building developer, to the larger employers who undertook to house their employees. But the modern housing projects of Great Britain and some of the continental countries were chiefly the fields in which modern efficient site planning became increasingly skillful and successful.

Of American cities it is not strictly true to say that there was, until recent years, no site planning of any consequence. There have been two kinds: First, and not ordinarily called site planning, the division of land into blocks and lots with streets to give access to them; and, second, those suburban layouts of special excellence for families of middle and upper middle level incomes, such, for example, as the Roland Park and Guilford developments at Baltimore, the Country Club district of Kansas City, Mo., and many others. Therefore, there has not been an absence of site planning so much as a lack of skill in site planning; a failure to provide for all the factors which should be taken into account in establishing the relationship of buildings to topography, to other buildings, to streets, etc. There has been an inability to cope with economic and legal factors which, although traditionally supposed to be outside the province of the physical planning technician, actually determined whether his planning would be successful with respect to more than one or two isolated buildings and their immediately adjacent open ground spaces.

To those concerned with providing new housing for families of low income, wherein quality, durability, and economy are desirable objectives, site planning may be offered as a means (*a*) of securing convenience of physical arrangement; (*b*) of securing attractiveness and amenity in the physical lay-out; (*c*) of achieving those results with a maximum of economy in relation to the quality produced; (*d*) of encouraging durability and permanence of the physical lay-out; (*e*) of discouraging those mistakes in the site plan lay-out which would destroy quality and social and financial value, and result in blight; (*f*) of assuring long-time social and financial value.

It is important to stress these considerations, lest there be those who are looking for an increasingly astute method of securing the lowest possible *first* cost of land and buildings and their development.

The Need for Thorough and Skillful Site Planning

Discussion of the site planning of well-designed suburban or "country club" districts appears out of place in this document because of the generously open character of such expensive lay-outs, unhampered by the rigid economies that must be considered if the lower income groups are to be housed.

[1] Frederick Bigger is Chairman of the Pittsburgh City Planning Commission; a director and technical consultant of the unofficial Pittsburgh Regional Planning Association. He was formerly Chief of Planning Staff of the Suburban Resettlement Division of the Farm Security Administration (Resettlement Administration).

On the other hand, it is important to reassert the inadequacies of the traditional urban land subdivision process, and to point out how that process, and the legal and economic points of view that have buttressed it, have been and continue to be major obstacles to the provision of permanently good housing for families of lower income. It is necessary to do this, not because it has not all been said before, but because relatively few persons have been intellectually interested enough, or financially disinterested enough, to study and understand the significance of the analyses that have been produced.

When private industry and private capital undertake large-scale housing projects, comprising lots and single-family houses for sale, there might be reviewed with profit some mistakes of the past. We quote two statements which together should be sufficient to prove the need of that kind of site planning which is described thereafter. The first of these statements is part of a report made in 1928 by a committee of the American City Planning Institute.

Control of Land Subdivision and Building Development

An outline of prevailing practices which produce great economic and social losses and a statement of principles and preventives which should be applied

Section 1. Preface

present conditions and practices

Lack of permanence, of economic stability, and of coordination are characteristic of much of the land and building development of our communities. Because of this, there are great economic and social losses. The prevailing practices which have brought about this result have arisen naturally from individual incentive and habit. Although they have become customary and traditional, they do not represent a concerted effort toward a "community objective" which is acknowledged to be superior to that individual incentive. The significance of these individual practices, viewed collectively, is seen in the following illustrations:

1. In many cases the subdivision and sale of lots is not related to any real demand for building sites, but to an existing or induced desire to speculate in land. * * *

2. There is an almost complete divorce between the subdivision of the land and an intelligent and socially constructive use of the land. Too often the land is not planned with reference to the types of building which are most suitable for erection in particular localities. * * *

3. The "standardized pattern" in land subdivision makes it impracticable to secure permanence in residence neighborhoods. * * *

4. Vast areas are being cut up into streets and lots, with no provisions whatever for small parks for recreation and amenity. * * *

5. Such official control as is at present exercised over the subdivision and zoning of unbuilt land is often inequitable as well as ineffective, owing to a failure to have a "master plan" * * *.

Section 2

principles and measures of control

To improve uneconomic, unattractive, unhealthful, and socially wasteful conditions, and to prevent their creation, there must be an effective control of land subdivision and building development. To this end the following principles and measures of control are essential:

1. The major purpose and controlling objective in all regulation of land and building development should be the better conservation of the health, safety, and general well-being of the people. The corollary to this principle is that the entire physical development of a community should be so planned in all its parts, and so constructed, as to assure health, comfort, convenience, and amenity. * * *

2. Effective and economic regulations must rest largely on preventive measures, which should be exercised under the police power and be based on a knowledge of the underlying causes of unhealthy, ugly, and wasteful conditions.

3. There should be prepared, officially adopted, actually developed, and enforced, a comprehensive master plan for every community. It should anticipate the community's needs for a considerable period of years. The plan must be accepted as a correlated skeleton or framework, along and within the lines of which physical construction may be progressively undertaken; * * *.

(A) The master plan should include the general lay-out and intercoordination of the various basic systems of public facilities and control; * * * These basic systems should include: (*a*) Water and sewerage systems; (*b*) a major street system; (*c*) systems of transit and transportation; (*d*) distribution systems of the several recognized types of public recreation areas and facilities; (*e*) a comprehensive system of zoning regulation.

(B) In making the master plan, regard should be had to the need for well-balanced growth on the most economic lines, and to the spread or distribution of the population over the entire community and its environs. * * *

(C) The master plan should provide opportunity in the unbuilt areas, and if possible in the built-up areas, to create neighborhood units of varying size and character, which may be so far as possible self-contained as to community needs for schools, churches, shops, and recreation space.

4. Subdivision control should be directed toward a thorough coordination between the master plan, the subdivision lay-out, and the proposed building developments.

(A) The planning board or other authority having subdivision control shall be instructed to encourage, in any appropriate tract to be subdivided, the development of a specific housing scheme not inconsistent with the general standards set up by the zoning ordinance; and, if necessary to achieve this end, to recommend such amendment of the zoning regulations or map as will reconcile the ordinance and the housing scheme to each other, provided there are the fullest safeguards against overintensive use, against the loss of amenities, and against the lowering of the standards set up by the zoning ordinance. * * *

5. The appropriate types of building upon which the design and approval of the subdivision are based should be made more enduring by restrictive covenants running with the land for a period of years.

Comment.—It is socially and economically desirable to perpetuate desirable forms of housing and other uses, and to secure the economies in connection with local improvements; but these results cannot be achieved unless the regulation of building development be at least fairly permanent. * * *

6. In the subdividing of land, small parks and playground areas of a usable capacity, proportioned to the proposed population density, should be provided to the extent reasonably justified. * * *

7. The developers should be required to install, or give bond to assure the installation of, all surface and subsurface street improvements that are reasonably necessary to render the lots suitable for building sites before the land is sold for building. * * *

8. Subdivision control should be exercised, both within a municipality and for a sufficient distance outside, to insure stability of development and a reasonable expansion of utility services.

Summary.—Land subdivision and building development should conform to an intelligently devised and comprehensive master plan. It should be one process, synthetic and coordinated, and no essential stage should be omitted or unduly delayed. The design should be such as to create healthful, economical, and attractive places in which to live. This requires:

a. That streets be adjusted to topographic conditions and be designed in relation to the character, use, and population density of the private properties served thereby; and that, individually and as a system, arterial or main streets be designed as channels wherein traffic may move with facility, safety, and but a minimum of delay.

b. That there be provision or guarantee of utilities, such as sewers, water, lights, sidewalks, and paving, as a part of the initial development.

c. That there be varying standards for utilities according to type of building use.

d. That the relationship be established between the open spaces and the density of population, both as to yard space on individual lots and as to general distribution and usable area of recreation spaces of different kinds.

e. That there be building and housing codes which will be productive of good standards for all types of building.

Submitted by the committee.

THOMAS ADAMS.
HARLAND BARTHOLOMEW.
ROBERT WHITTEN.
HENRY WRIGHT.
FREDERICK BIGGER, *Chairman.*

Even after improvements in procedure, and wise extension of control, along the lines recommended by the American City Planning Institute's committee, have been achieved, there will be efforts "to beat the game." To build shoddily will be alluring to those who are speculatively minded. Ingenious formulas for beating the financial game are beside the point; certainly they have nothing to do with the problem of site planning as it is approached here. Instead, we quote a document [2] in which housing projects are differentiated from each other with respect to the type of ownership and the objectives of the owners.

It is axiomatic that housing projects in cities necessarily constitute elements of the city plan. They may be alike in that each project is a group of dwellings. But beyond that, there are significant differences which of themselves raise questions of some importance to the planner.

We do not have any very specific and accepted picture in our minds when we use the phrase "housing project." Some classification and definition is necessary. Two major classifications are in order. That which concerns only physical characteristics is a more obvious one, and may be laid aside now. The other classification has to do with ownership, and its social and pecuniary objectives.

Category No. 1.—I would limit this to a housing project which is designed and built as one thing but is destined to be sold off, dwelling by dwelling, to future individual owners. To design this sort of a housing project is to design something as an entity which will not remain an entity afterward. By this I mean that the individually owned small properties, into which the project will have been converted, are hardly likely collectively to retain intact the wholesome characteristics of the original unified design. Each of the individual owners will be subject to the vicissitudes and hazards of small property ownership, to which in the past our communities have been altogether too oblivious, Changes in the family financial status, or sale of property to another family with a different point of view or different mode of living—these and other unpredictable conditions will tend to break down the original lay-out and character of the planned project. Therefore, from the point of view of the general public and from the point of view of the public officials, the kind of project here discussed may be nice to think of in the beginning, but is not an unqualified blessing for the urban community if the hazards of the future are considered. It cannot be emphasized too strongly that these hazards are real and serious. * * *

Category No. 2.—Here may be included a housing project designed as an entity, but destined to be rented to many individual families, at the generally prevailing rates. This is a commercial venture, in which one or the other of two alternatives must be noted: (*a*) either continuity of ownership is implied, with the housing project representing a long-term high-class *investment;* or (*b*) the ownership may shift from time to time, possibly quite frequently, with either gain or loss to the seller, in which case the method of handling the project makes it a venture of *speculation.*

In the case of the housing project which is an investment, the problem of the designer is to make a design for living, the conveniences and amenities for the occupants of the dwellings being a major consideration in order to prevent vacancies and to preserve tenant satisfaction and stability of income. In the case of the venture which is speculative, although the designer may have had comfort and amenity as one of his objectives, the actual manipulations of ownership have converted the project into something in which the housing is a mere commercial commodity, and the comfort and well-being of the occupants of the dwellings will in varying degree have less consideration than the primary pecuniary one.

Category No. 3.—In this group may be included all housing projects which might be carried out by a limited-dividend housing corporation or by a housing authority, wherein rentable dwellings are produced, calculated to serve people of modest or low income, and under a policy of limitation of rent and return on the invested capital. In this case there is a social objective, the promise of which is implied by the very undertaking itself; and the designer will provide all the comforts and conveniences that he can reasonably furnish with the money which is to be expended, and with a careful calculation of the probable rental that can be secured from modest-income and low-income families. The difference between this limited return on the invested capital and the return upon ordinary commercially invested capital represents the premium that is paid to achieve the social objective. This type of housing project, in theory at least, and, of course, if well designed, is a permanent asset as a part of the city pattern. However, it might very well be that such a project would be but one attractive oasis set down in the midst of other housing which is completely subject to commercial manipulation. In that event there would undoubtedly be a constant tendency for the desirable housing project to break down and become less desirable because of the conditions existing in the surrounding neighborhoods. This immediately suggests to the planner that, if at all possible, the future safety of a good project of this kind conceivably might be safeguarded if the project itself were completely surrounded by park areas which would effec-

[2] Read before the joint conference on planning of the American City Planning Institute, American Planning and Civic Association, and the American Society of Planning Officials, in May 1936, at Richmond, Va.

tively separate the project from the less desirable surrounding neighborhoods.

Category No. 4.—In this group we must include all projects which are similar to that described under category No. 3, but different only in that the ownership is different, i. e., the ownership here being vested in the occupants of the houses—each renter being also a part owner of the entire project. This is the same idea that we know as the traditional English copartnership housing, and it is not essentially different in its principle of ownership from that applied in the familiar cooperative apartment buildings. I reaffirm the warning to provide protection against the malign influences of blighted districts and undesirable housing which surround a well-designed housing project.

These four classifications, when reviewed, drive home to us the importance, to the planner, of knowing (*a*) whether a housing project is to be split up for ultimate sale to individuals; (*b*) whether it is to be utilized as a manipulated profit-and-loss commodity only, regardless of a paramount interest of the occupants of the dwellings; (*c*) whether there is a social objective contemplated, and in a measure secured by an effective limitation of income and of rent levels; and (*d*) whether or not the occupants of the dwellings are themselves the owners of the group of dwellings. The importance I assign personally to this matter may not have your concurrence; but I maintain that the issue is a vital one, even if we look at the entire matter without any bias favoring housing projects based on social objectives as contrasted with housing projects based on pecuniary objectives.

The joker about ownership.—If there were such a thing as a "realist," I think he would say something like this about ownership. He would admit that the possession of a title deed, and the complete freedom of the property from any lien or mortgage, could be called real ownership, since it involves complete control or opportunity to control on the part of the owner. On the other hand, if one holds a title deed to property, but continues to be obligated to pay considerable sums to some money-lending institution on a mortgage or a note of any kind related to the property in question, then certainly ownership is only partially vested in the so-called owner who holds the title deed. He is not free to control; he may not be able to meet the financial obligations upon his dwellings; he may very well have to give it up and turn the property over to someone else who can pay to the money-lending institution the monies that are due. In hundreds of thousands of instances of presumed ownership the ultimately effective and therefore the "real" owner is the holder of the mortgage. As I am not settling the affairs of the world, I pass on after posing the question: When is an owner not an owner?

Relationship of owner's objective to the problem.—Obviously, those who hold an equity in property, those who hold a financial interest in it, are owners. If these owners are not identical with the occupant families in the project, then we have divergent forces. The needs of the occupants for more space and better living pull in one direction, while the demand for return on investment, or profit from speculation, pulls in the opposite direction. * * *

Why so relatively great a proportion of my presentation is devoted to this issue will be somewhat clearer if I give an example. The planner necessarily is controlled by the over-all financial consideration arising out of the cost of his land, the cost of revamping or building new public utilities, the cost of dwellings, the cost of attractive landscaping, etc., in addition to the basic item of cost of financing of the project. If he thinks carefully, he knows that he may have to provide funds for, and to design and construct, for example, sewers or a public school, because the city itself has not yet provided them to serve the part of the town in which he is proposing to locate his project. The designer realizes that the city with which he is dealing has not completely developed its entire utility system and school system for the service of a comprehensively designed distribution of dwellings, commercial buildings, and industrial areas. If a purely pecuniary objective controls the designer, he will locate his housing project so that it can be subsidized by the existing community through an earlier provision of utilities and schools, even though some other location involving new construction of some of these facilities is a better one from the standpoint of the community's social and financial interest, i. e., better from the standpoint of the city plan.

Projects as assets and as liabilities.—We have seen that of the four categories of housing project listed in the beginning, No. 1 (that which becomes a multitude of separate ownerships later) and No. 2–b (commodity housing on a speculative basis) might very well be said to promise no permanence and no stable contribution to the community. Those types might be thought of as leeches whose nourishment is filched from the social and economic lifeblood of the more stable parts of the community. That would be a fair assumption, in the case of one because individual owners have no ability to cope with the disintegrating forces which surround them; and the other speculative one because its basic intention is to get the most out of the community with the least possible contribution by itself. On the other hand, long-term investment housing, copartnership housing, and limited-dividend and rental housing all share the need for certain stability and continuity of existence within the urban pattern. So we have every right to expect the community planner (city planner or town planner or regional planner) to look askance upon the two kinds of housing and with favor upon the others. That he must have an opinion is axiomatic, if he is to assist in the determination of the relationships of dwellings to open spaces, and of both to streets and other buildings—which relationships he must deal with as a planner.

Technique of Site Planning

A field as complex as that of site planning, in which there are so many variables and imponderables, cannot be reduced to a formula. How some of the most important factors are dealt with, and the extent to which their interrelationship is properly adjusted, largely will determine the success or failure of the site planning. These significant factors are:

1. The characteristics of ownership and control of the contemplated housing project.
2. The relationship of the site to its immediate and regional environment.
3. Initial cost of development versus the cost of maintenance and operation.
4. Time allowable for planning: when construction is to start.
5. Construction by a private contractor versus "force account" construction by a public agency.

1. *The characteristics of ownership and control* of a contemplated housing project, have already been discussed at considerable length and the significance of that point should be clear. It is really axiomatic that the site planning of property which is to be subdivided and parceled off to different owners later is a different problem from that of the site planning of a single tract which is to remain intact and be occupied by rented

housing. This difference in planning, ignored by the inexperienced and unknown to the layman, was mentioned by the late Henry Wright in a warning to the plan copyists. He stated that the best site plan for a one-ownership rented-housing type of development need not include some of those provisions which would be essential in the other type of development, where it is necessary to make it easy to divide the land into parcels for sale. He qualified this by saying that a project completely developed with everything, including buildings, is, of course, not in much danger of being drastically mutilated by what individual lot owners may do to it, at least not until the time arrives when there is need of, or advocacy of, the erection of new buildings or extension of old buildings on the originally unoccupied land which had been set aside as yard spaces for the dwellings. In the project intended to be parceled off to different lot owners, the compulsion to keep each lot free of all utility lines that serve other lots, and the effort to make all lots as saleable as possible, almost always restrict the ability of the designers of the utility systems to secure the maximum economies consistent with efficiency. In the case of the consolidated tract which is to remain intact and occupied by rented dwellings, the designers can run their utility lines across any part of the property, securing the shortest runs of trenches, water pipes, conduits, pole lines, sewer mains, etc., and there will result both economy and efficiency. Moreover, the stability of the project which remains under centralized ownership and control means permanence of financial value. It will mean assurance against breakdown of both character and value. It will be assured against the usual influences creating blight. Examples of this type of site planning are Sunnyside, Long Island, N. Y.; Chatham Village in Pittsburgh; the new town of the Farm Security Administration at Greenbelt, Md.

Even with the more acceptable type of property ownership and control, however, it is not always possible to assure the theoretically greatest economies in lay-out of underground and overhead utilities and services. Admitting that the topography itself is often the most significant factor, if there should be a need for a certain kind of street pattern, or for particular types of building and their placement and orientation, these requirements may modify the lay-out of utility systems sufficiently to lose some of the economies—economies which otherwise are derived out of the freedom to go anywhere throughout the one-ownership tract.

2. *The relationship of the site to its immediate and regional environment is significant—*

a. With respect to soil and drainage conditions; to climatic conditions; to prevailing winds and to sunlight.

b. With respect to the existence of, and accessibility to, water supply and distribution lines, trunk sewerage and sewage disposal facilities, fuel gas services, electric service, transportation of various kinds, recreation facilities, schools, adjacent or surrounding urban or rural land and development.

c. With respect to laws and ordinances (including building codes, highway construction regulations, zoning regulations, the control of official planning agencies, etc.).

It goes without saying that the theoretically cheapest development of a site from the standpoint of first cost could not be applied where there are great irregularities of ground contour; or where good subsoil bearings for foundations do not exist, or exist over but part of the area. Obviously, it is the job of the site planner to determine whether required grading and utility system installation will so increase the cost of the "ground prepared for building" as to warrant the abandonment of the site and the acquisition of another where, with a higher purchase price plus less expenditure to prepare the land for building, the aggregate cost is less. This fact, frequently disregarded by municipalities with resulting extravagance, points to the need of making preliminary examinations, studies, and estimates wherever possible prior to the acquisition of the land. Criticism of excessive site-development cost cannot be entirely valid if the site planner has had neither time nor opportunity to do this preliminary work and to accept or reject proposed sites on the basis of his findings. With respect to public housing projects particularly, an entirely unnecessary and deplorable extravagance will occur in many cases because sites are acquired, through political strategies or with undue stressing of the need for speed, without first having been technically and financially verified by preliminary study and planning and cost estimating.

As to prevailing winds and orientation, due consideration of these factors, not measurable directly in dollars, may very well indicate an arrangement of blocks and of buildings which will make the site development cost somewhat greater than if these factors are disregarded. There is no substitute here for practical common-sense judgment. In hot climates, to fail to take advantage of prevailing breezes would be stupid. The great crescent-shaped plateau on which Greenbelt is being built is swept by the prevailing breezes blowing through the low flat valley lying windward of the crescent. Again, if dwellings are themselves properly designed and do not exceed two rooms in depth, there is not so much need to place them in the most mathematically perfect relationship to receive maximum sunlight the year round in all or in specific rooms. I believe that, following certain interesting experiments in Germany, there has been shown in this country at times an inclination

to overstress orientation of buildings and the various rooms within them. Always, I would urge a common-sense decision, for there is no doubt that in the effort to secure theoretically perfect orientation there are added certain other costs and complications that could otherwise be avoided.

The factors of regional utility services and transportation must be approached with the same willingness to appraise alternatives. If no public supply of water is available, will the tapping of an original and independent source for the service of the site add a prohibitive extra cost to the project? Would selection of an alternative site make that extra cost unnecessary? If a public supply exists, how should the services be connected, at what cost for installation of trunk lines, and what price, if any, must be paid for the water? There is a similar analysis to be made with respect to sewerage and sewage disposal. Must the planner provide for a sewage-disposal plant on the site, and if so where will it be located to best advantage for economy of operation, for economy and absence of nuisance elements if an incineration plant is established in connection with it? Will separate systems for drainage and sewage be essential? Is the locality serviced now by a dual or a combined system, and must the proposed site's utility layout conform thereto? Gas and electric systems of public service companies are generally extendable at company expense when there is assurance of an adequate number of consumers or an adequate amount of consumption. Here, however, the alternatives that must be appraised, because there is no one generally applicable solution, include those of (*a*) locating and constructing an independent electric generating plant on the site; (*b*) agreeing with the utility company upon the location and type of extension into the site if done by the company; (*c*) agreeing upon the feasibility and cost and desirability of surface, subsurface, or part surface and part subsurface installation of the distribution system throughout the site; (*d*) determining location and character of transformer installations and the like; (*e*) comparing consumption rates if current is used for heating and cooking as well as for lighting as against the latter only, and the questions of metering that are involved in these decisions; (*f*) comparison of available gas service when and if installed, as against electricity or oil or other fuels, and the problem of possible consolidation of distribution lines in trenches with other utilities. There is not, and cannot be, any other procedure for the site planner but to analyze and appraise these and other alternatives thoroughly, with estimates of installation and maintenance and operation costs, if full advantage of competent planning technique is to be had. It is the absence of such comprehensive utility planning that represents one of the less-known but obviously great extravagances of ordinary municipal development and expansion. Although it is impossible to give fully adequate examples of the proper treatment of these subjects by planners, the technique itself and its possibilities are exemplified in the case of the three major Greenbelt town projects of the Suburban Resettlement Division of the Resettlement Administration.[3] In those cases there was a compulsion to begin construction simultaneously with the beginning of the planning study, and on a site already acquired and not previously studied in the preliminary manner suggested earlier herein. There was no alternative but to proceed, to make the best out of what was there, to waste no time checking up and properly verifying the desirable correlations of utility planning among the various services and in relation to the placement of buildings. Nevertheless, because the planners were experienced professional and technical men, their work was remarkably well correlated. Their reports and recommendations along these lines, as submitted to and approved by the Director of the Suburban Division, are the first (perhaps the only) and most comprehensive records of this technique that can be cited. They are too voluminous to quote in full, but two or three are submitted in the appendix of this document to illustrate the application of the technique. In the appendix also are listed the subjects covered by these "summary reports and recommendations" insofar as they concern site planning specifically.

Transportation is admittedly a matter of significance in the problem of developing housing. It sometimes requires no special study where the site is an urban one already accessible by transportation service. In the case of suburban or rural sites reachable by extension of existing transportation lines or the establishment of new lines, special study will be needed with respect to the routing of the lines into or through the site being studied. This may very well point the way to special differentiation of the proposed streets of the community, variations in grading and paving, etc. It may be an important factor in influencing the pattern of blocks and streets. And these, in turn, will affect the utility distribution systems. Obviously, the cost of transportation service to the families in a housing project is a part of the family budget and has its effect upon their ability to pay for shelter, food, and clothing.

Developed or even undeveloped recreation areas are so rarely provided in suburban and rural areas that the site planning for housing will perforce involve provision not only of the playgrounds and open spaces that are set up in any good site plan between and among the buildings, but also the designation of adequate park and athletic areas. In the case of urban sites, there is more likelihood that there are recreation areas in existence, but it is fair to state that only rarely are there

[3] Now the Farm Security Administration of the Department of Agriculture.

urban parks, playgrounds, and athletic fields adequate in size, sufficient in number, or properly placed to serve the people for whom they are ostensibly intended. Therefore, although the planner may sometimes legitimately allow for the known accessibility of a developed municipal recreation area outside the boundaries of his site, he will be compelled to assure adequate areas either on his site or outside it, or both. Here another vital question arises, answerable now only on a common-sense basis. The question is: In the effort to develop housing for those of low income, is an element such as a playground a needed standard or a luxury? Admitting the great lack of and great need for recreation spaces properly developed, to what extent can the developer make reservations on his site which will be kept clear of buildings and will be developed for the recreation of the occupants of the housing project? Upon whom will fall the cost of the recreation areas and their development?

Again, the site planner will allow for any school facilities that exist beyond his site, but in the interest of the future population of the site, he must be aware of the present and future needs for school facilities and his site plan must provide for their proper location within the site when that has been judged necessary. Who will pay for that school building plot? Will the cost of the educational facilities per family be prohibitive in terms of the family budget?

It is more difficult to point out in what manner there can be an effect upon site planning of building regulations, zoning ordinances, the regulations of State or local sanitary officials, the regulations and control of highway officials or of official planning agencies. The requirements for foundations, for sewerage and sewage disposal, for water supply, for road widths and design and types of paving, for sidewalks, for methods of procedure in construction, all these when applicable ordinarily would not seem to involve anything that the competent and thorough planner would not himself provide. However, the regulations are, on occasion, unduly stringent and sometimes administered inflexibly by officials with little imagination. Here, it is apparent that there can be much variation between what regulations must be coped with in urban as against suburban or rural localities. Those concerned with minimum legitimate costs of housing will recognize (*a*) the greater freedom of choice outside of urban areas, normally, although this will be weighed against probable greater costs of some other phases of site development; and (*b*) that again these questions are matters for common-sense analysis and judgment. Without undue or sweeping criticism, it might be ventured that official planning bodies, when they do exercise control, have at times exercised a too meticulous supervision of details of large-scale housing projects and required modifications of the site plan that could not be entirely justified. Certainly in the interest of good housing, new projects require proper planning, proper public services, proper recreation areas and other open spaces, even though those projects are intended to be occupied by people of modest or low income, and even though the ultimately developed and occupied site may not make sufficiently large tax contributions to maintain and operate those facilities. A cynic might well ask whether such admittedly desirable facilities can and should be developed fully and first in the low-income housing project sites, before supplying such facilities to the mass of people in congested urban areas. Again, and for the present, only a practical common-sense attitude is reasonable, because it is impossible now to devise and secure agreement upon a broad and theoretically perfect community policy that can be made to work.

3. There must be established in some fashion, as a matter of policy (arbitrarily, perhaps, at this time), the most reasonable relationship between the initial cost of a housing project (including, of course, its site development) and the estimated probable expenditures that will be required for maintenance and operation over a period of years during which the buildings will remain habitable and during which their first cost is being amortized. Any housing site must be as consistently developed in relation to these calculations as are the buildings. It is obvious that man can build cheaply, but it is not proven that what he builds most cheaply can be of a standard acceptable as a national housing norm. If cheap building of dwellings is undertaken, should utilities, for example, be more permanently conceived than are the buildings? Coming directly to the point, the cheapest and easiest thing to build (i. e., what some people advocate for what they meaninglessly call "low-cost housing") is certain to become increasingly costly to preserve and maintain over a period of years. This is true of buildings and of the public utility installations which are part of the site plan development. There is a point somewhere, not heretofore calculated, where there is a reasonable and common-sense balance of initial expenditure versus maintenance and operation expenditure. To discover that point is of no concern to the speculator or to the developer who builds to sell, both of whom leave a succession of sucker-purchasers to take the losses through the ensuing years. It is of vital concern to those who strive to solve the problems of providing living conditions of a proper standard which have some chance of remaining so. This is a basic issue in housing, broad, complex, and ramified in its implications, and not to be exhaustively treated here. However, there are related financial factors in the so-called value of the developed property during the ensuing years. When a

site is not intended to be sold off in pieces of "commodity housing" to endure the vicissitudes of a speculative real estate market, there is a difference in such factors as its sale value as a whole, its value as a part of the assessable wealth of the community, its value as a locality not requiring an excess of public or philanthropic expenditures because of substandard conditions. All these things imply that the present credit system ought not to accept lowest first cost as a determining factor in housing generally or in site planning and development specifically.

Whenever in the past this element of permanence of value has been disregarded, whenever entrepreneurs have essayed the task of reducing the cost of housing, the things that were sacrificed first were space, quality and durability of materials and workmanship. It is no innovation to have these latter expediencies suggested now; but efforts to reduce the cost of housing need first of all to be orientated with the problem itself, and the problem needs first to be stated. That part of this problem which falls into the category of site planning, this document attempts to clarify. As I have said or implied before, there is no formula; there are no cute graphs that show the advent of the millennium; there is no substitute for thought and sound judgment exercised by skilled persons in particular cases, on particular problems, with all the factors appraised individually and collectively.

4. *The time allowable for planning* cannot be determined by any generalization. Although the Suburban Resettlement Division of the Resettlement Administration, with an amazing degree of success, started the specific planning for its major projects almost simultaneously with the putting of large construction forces to work in the field, the procedure cannot be recommended. No satisfactory results can be definitely assured unless ample preliminary time is allowed for planning. Preferably, this should include the opportunity to make the previously suggested preliminary site plan studies and estimates *before the land is purchased.*

5. *Construction by private contractors versus "force account" construction by a public agency.*—Decision between these alternatives will affect site planning. In theory, the contract system implies some difficulty in making changes and adjusting claims therefor. In theory also, the force account method seems to imply more flexibility, greater freedom to adjust modifications in the field. Actually, a force account construction organization is tied to its related procurement agency which secures building materials; and freedom to make changes is limited by the status of ordered and delivered materials. Beyond that point, if the construction division thinks it knows better than the planners what and how to design and build, innumerable difficulties, delays, and sabotages will occur, unless, of course, there is a broad-visioned, astute, and competent administrator with authority to prevent these difficulties. The real points are (*a*) that economy in both planning and construction are reconcilable and not in any essential conflict if undertaken sequentially by competently manned agencies so related as to eliminate rivalry and sabotage; but (*b*) that under other circumstances the site planner will be compelled to design and redesign his site lay-out and his utilities systems to the point of entailing extra costs rather than securing the economies possible by proper and comprehensive site planning.

Special note on heating.—The factors discussed here are, of course, not all the considerations that are involved in site planning. The type of building construction, the architectural characteristics that are usually referred to as "style," the landscape treatment most suited to a particular region or best suited to land which is wooded or is traversed by streams—all these will be taken into account by the skillful site planner.

However, the problem of heating buildings is a factor of very considerable significance to the site planner. The installation of heating facilities is a factor of initial capital investment, and the operation of the heating facilities affects the economy of the individual family and the project management throughout a long period of years. Along with heat we must consider domestic hot water; and there should be analyses of the different fuels and the different modes of house heating, before giving final judgment.

In any case, the cost of construction of buildings is involved because of need or absence of need for chimneys, cellars, driveways for delivery of fuel and removal of ashes, etc. The planning and placement of buildings are both directly related to this problem, and the site planner must examine the problem with the architects and their mechanical and heating engineers, and with them reach a joint decision and adjust the site plan accordingly. By way of illustrating this point at some length, some (but not all) of the findings and recommendations of the project planners of the town of Greenbelt, Md., are attached. (See Appendix.)

From experience and observation, and from consideration of such factors as have been discussed herein, it is reasonable to conclude:

a. That centralized ownership and control of a site and housing development, together with a policy of dwelling occupancy by tenants or by copartnership owner-tenants, will allow the site planning to be most efficiently and economically completed, will assure maximum construction economies, and will assure longer duration of higher social and pecuniary value to the project.

b. That there are factors of relationship of site to immediate and regional environment that should encourage (1) preliminary tentative site planning and estimating prior to acquisition of land; (2) thorough and analytical appraisal of alternative solutions of the technical plan problems that are involved, with respect to efficiency, relative economy of first cost, and economy of maintenance and operation; (3) that there are no formulas for solutions of these problems capable of general application, and no substitute for thorough analytical study and skillful planning.

c. That the lowest first cost is not a desirable objective; that economy of maintenance and operation costs is highly important during ensuing decades; that there should be common-sense judgment applied to establishing a proper balance between initial first cost and the cost of maintenance and operation.

d. That all planning should be thoroughly done prior to the initiation of construction.

e. That construction by private contractors is preferable to public construction organizations operating on "force account"; that, if the latter is inescapable, the technical planning forces and the construction forces should be under the same broad-visioned, astute, and competent administrator.

Incomparability of Site Planning Values

No one has calculated, certainly not in any extensive way, what the absence of skilled site planning as we now know it has cost those communities which failed to apply it. No one has calculated, or could calculate, the smaller cost of any project which has been skillfully planned throughout, including the site planning, as against the cost of such a project if undertaken with little or no planning. By the same token, no one can calculate now what further economies can be achieved by skillful site planning alone. One reason is that we have in this country, as yet, but a very few skillfully planned housing projects; another is that existing well-planned projects have never been, and probably could not have been, made comparable with each other for the purpose of appraising relative economies. A final reason is that the socially beneficial characteristics of the physical lay-out are incalculable. Since these socially beneficial characteristics are what the site planner is trying to assure, and since they cannot be precisely compared or precisely measured in dollars, it is clear that both the planner and those who are merely dollar-minded will agree that good site planning is not a method of achieving lowest *first* cost in dollars.

Examples of Site Planning

The materials quoted in this section furnish examples of the kind of thinking that the site planner uses—the analyses upon which he bases his conclusions. These thinking processes are as much a part of site planning as are the maps and plans which show graphically the physical arrangements which are proposed. It is impossible now to enumerate all the technical analyses and plans which might be assembled to illustrate the planning process; and it is very doubtful, if they could be assembled, whether their relative validity or importance could be appraised in any useful way. One special study may be mentioned. Clarence S. Stein's "Studies of the relative improvement costs of various schemes of house grouping" were made in November 1935 for the Suburban Resettlement Division of the then-named Resettlement Administration. The purpose of the studies was "to measure the comparative efficiency of various methods of grouping houses as affecting street, yard, and park improvement costs." Inasmuch as that document, with its illustrative diagram plans, has never been published, only part of the general findings are submitted here. It must be remembered that any such analysis depends for its validity upon the arbitrary first selection of comparable standards upon which the calculations and comparisons are based. Mr. Stein stated:

1. The cost of improvements per house is greatest when houses are built facing on main roads. (Houses on main traffic ways are also probably the least desirable for good living.) Schemes 10 and 11 [not reproduced here] show similar arrangement of houses, the one on a lane and the other on a main road. The estimates of these two indicate that conditions of soil and contour being equal, the latter will cost about 38 percent more than the former.

2. Improvement costs of houses on lanes are increasingly cheaper per house as the length of lane increases. It is apparent that a superblock of 1,000 feet in width offers economic advantages over a block of half this width unless there are site conditions that overbalance the saving from decreased length of main highway and main lines of utilities per house.

3. The cheapest arrangement, as affecting improvement costs, is that of row houses on lanes without vehicular roads in the lanes, but with garages grouped at entrance to lanes. This arrangement has great advantages from the point of view of good living. It offers increased safety and quiet on the service side of the houses and at the same time it permits complete privacy on the garden side. On the other hand, some planners may prefer to sacrifice these advantages for the convenience of direct access to each house by automobile and greater ease in the delivery of bulky goods and fuel, and easier fire protection.

4. The lanes without roads show a cost advantage of about 18 percent over those with roads. However, the length of lanes without vehicular roads must be limited to facilitate delivery of heavy and bulky goods and of fuel. The proportionate difference of cost is greatly decreased when lanes with roads are increased to the greater length that their arrangement makes practical and acceptable. But, the economic advantage of the lane without roads will be increased on hilly sites where road construction is difficult and expensive.

In a second part of Mr. Stein's study, after calculating different elements of cost, exclusive of the cost of land, a table is shown in which five schemes are com-

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pared. The total cost per family, i. e., cost per dwelling unit, for these five schemes is $4,023.24, $4,194.56, $4,277.71, $4,484.32, and $4,721.00. Similar variations in cost estimate, based on different arrangements of buildings in relation to the streets and public utilities, have been produced in other studies. This is cited as an example of the fact that studies of site planning reveal less expensive ways of securing the same general result. It is an example of thoroughness and skill in site planning, rather than a proof that all site planning is skillfully done or that site planning produces economies if badly done.

Thomas Adams, in volume VI of the *Harvard City Planning Studies*, "Design of Residential Areas,"[4] presents comparable plan arrangements, and analyzes them so as to show the economies achievable without loss of quality. It is evident, for example, that the sole criterion is not the number of lots in the plan—that the cost of the lot developed with its street access and utilities is even more important. Certainly this is true on any long term basis, even if it is not true in a speculator's heaven where quantity and rapid turnover are the ministering angels and quality is ignored. We omit plan A, which shows the original three gridiron blocks, and reproduce the four studies as figure 11. About these Mr. Adams says, in part:

* * * I have made four replatting studies for an area composed of three blocks, each 588 by 200 feet and surrounded by 50-foot major streets and 40-foot secondary streets. (See figs. 21, B–E.) These are the dimensions used by Morris Knowles for the typical block of single houses in the assumed town plan on which he based his study, "The Relation of Size of Lots to Cost of Utilities and Street Improvements in Low Priced Housing Developments," prepared for the President's Conference on Home Building and Home Ownership.[5] It will be observed that the raw land cost is 2.5 cents per square foot. The local improvement costs are summarized on each diagram * * *.

Plan A shows the arrangement of this area on the gridiron system, with 84 lots, measuring 42 by 100 feet and costing $716.36 each for land, streets, and sewers. The center lines of the streets surrounding the area are taken as the boundary for replatting. In every proposal except plan D the cross streets have been eliminated and the three blocks have been thrown into one.

Plan B shows the conversion of the interior of this new enlarged block into a small park of 4.49 acres, and provides 50 lots, each 42 by 100 feet and costing $680.96. The apportionment of the cost of the open space to the lots would increase the cost per lot to $778.82.

Plan C is similar to B except that it provides 56 lots at a cost of $608.18 each, which would be increased to $695.38 with pro rata addition of the cost of the park.

Plan D attempts a less expensive arrangement, with more lots and a smaller park area, probably too small for efficient supervision. It shows 74 lots costing $586.64 or, with park cost added, $623.41.

Plan E is platted for semidetached houses and presents a more economical and otherwise better arrangement than the preceding

[4] 1934.

[5] Vol. 1, *Report of Committee on Utilities for Houses*, pp. 147–162.

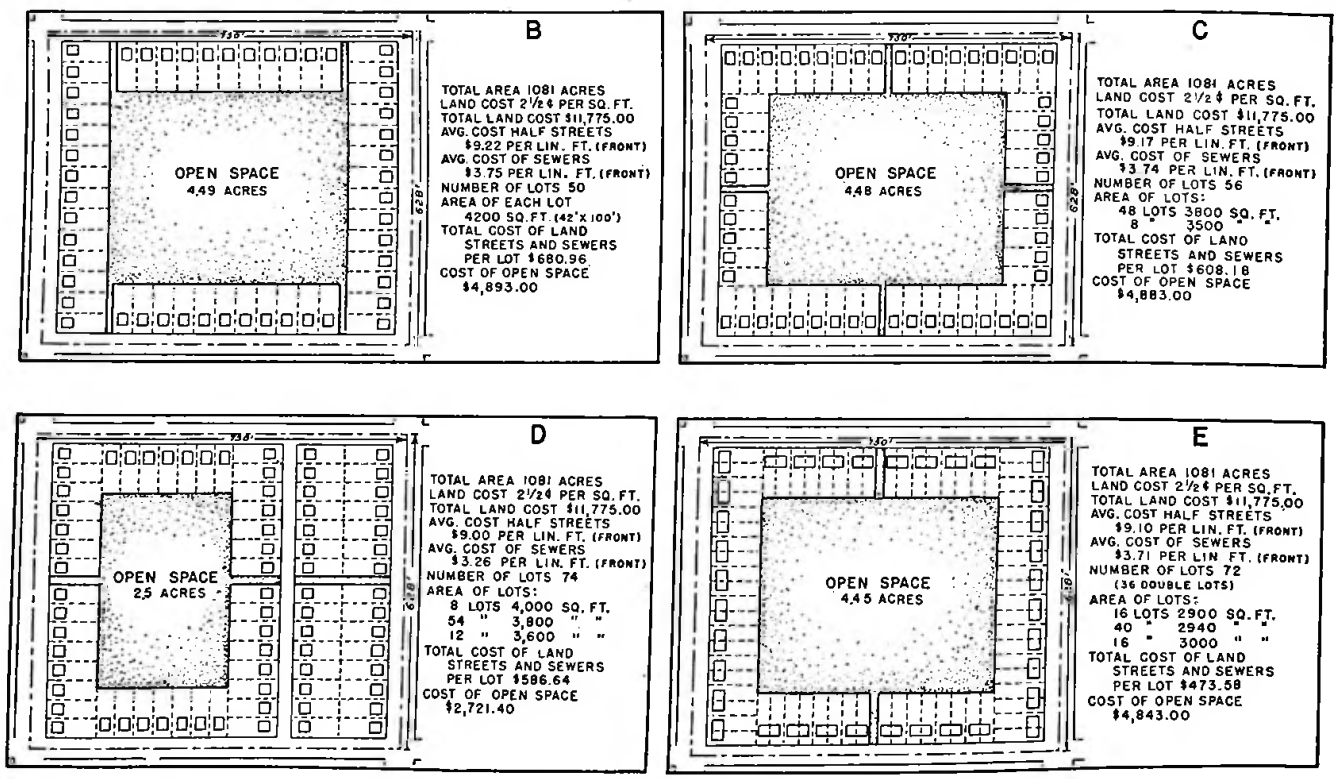

FIGURE 11.—Four ways of replatting a given city area.
These four studies are from the *Harvard City Planning Studies*, Vol. VI, "Design of Residential Areas," by Thomas Adams.

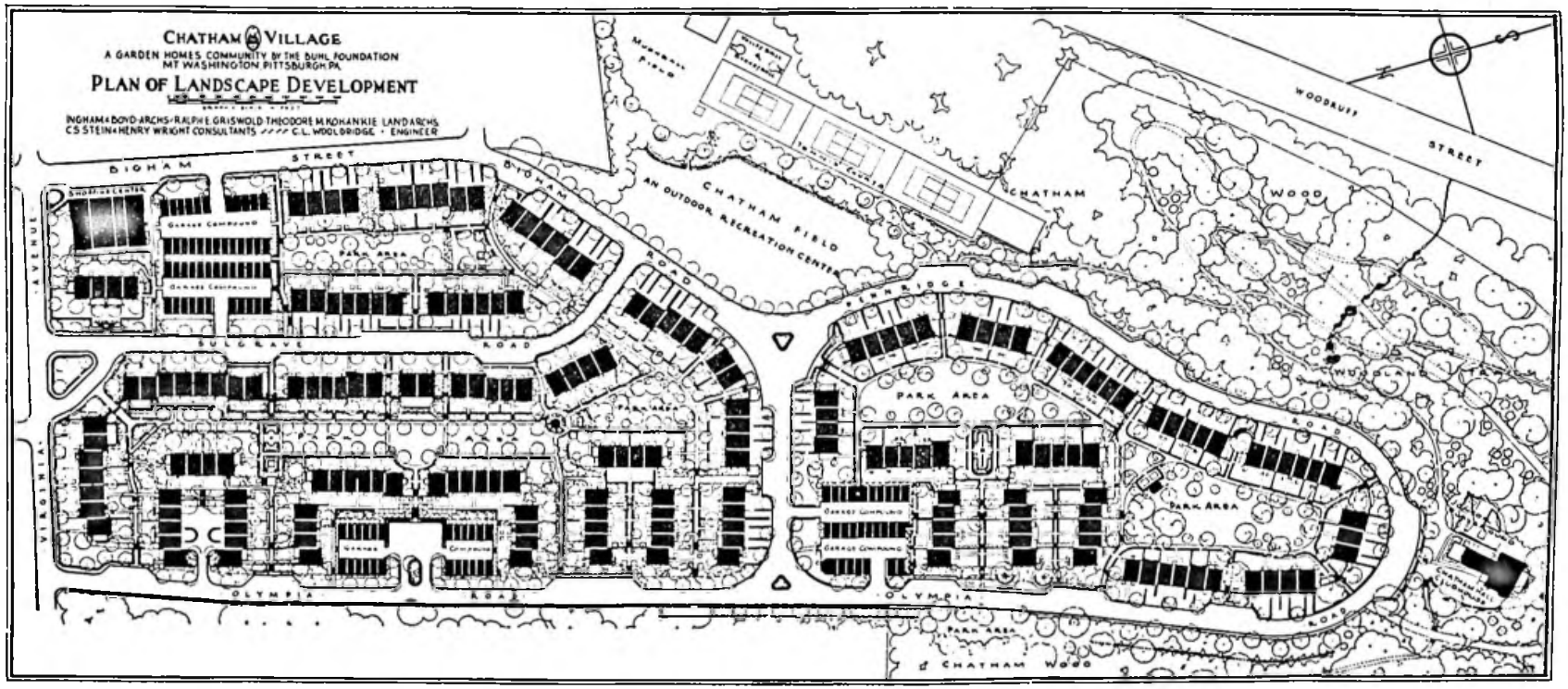

FIGURE 12.—Chatham Village, Pittsburgh: regional development

This plan is reprinted by permission of the Buhl Foundation, whose report for the period ended June 30, 1937, describes the village as follows:

In the past 5 years the Buhl Foundation has invested approximately $1,650,000 in Chatham Village, a project conceived and built to demonstrate the social advantages and economic soundness of carefully planned large-scale residential communities, built from the ground up in one operation and managed on a long-term investment basis.

The first unit of 129 homes and auxiliary commercial facilities, opened in May of 1932, has since been augmented by the construction of a second unit of 68 homes. Sixteen acres of land have been taken for residential use. Four acres of playfields are being developed. Twenty-five acres of woodland have been dedicated permanently for the use of residents, and a club house has been put at the disposal of the community.

The social purposes of Chatham Village, as originally conceived, were set forth in the report of June 30, 1931:

1. To demonstrate the social and economic advantages of the large-scale planned garden homes community.

2. To demonstrate the advantages of social and economic security that are to be had from rental rather than purchase in a community managed from a long-term investment viewpoint.

3. To demonstrate that it is possible to build and operate such a community so as to yield a satisfactory investment return. The project is in no sense philanthropic. It is designed to be commercially practicable.

4. To develop new ideas and higher standards in house design and large-scale community planning.

5. Particularly to develop an appreciation of the contributions which may be made by competent site planning to large-scale hillside developments.

After more than 5 years of experience it is gratifying to be able to report that in every particular Chatham Village has fulfilled the expectation of the Foundation, both socially and economically. One measure of the economic success of Chatham Village may be found in the record of productive occupancy of its homes. Opened in the middle of a depression, every home was rented in advance of completion. The only vacancies have been short-term vacancies caused by removal of families to other cities, and for more than 2 years there has been no vacancy of any house for any period. • • •

• • • Each year, after meeting all operating expenses and requirements for amortization and other reserves, the village has produced a net yield which the Foundation feels is satisfactory and adequately justifies this employment of investment funds.

From the beginning Chatham Village has attracted and retained exactly the kind of families for whom it was built. The quality of the community, socially, has been kept at a high level. No advertising or promotion efforts have been necessary. A long waiting list is composed largely of friends of village families.

diagrams, all of which are platted for detached houses. It shows a park area of approximately the same size as in B and C, but provides 72 lots ranging from 2,900 to 3,000 square feet in area and costing $473.58 or, with cost of park area added pro rata, $540.84.

In these plans it is assumed that side yards will be necessary, and adequate side yards are provided in every case. The distance between houses in plans A and B is 20 feet; in plans C and D it is 16 feet; and in plan E, along the major street, it is 15.8 feet.

The 15-foot setback in plan A is retained throughout along the 40-foot streets, but along the major streets a 10-foot setback is used. In the latter case, however, the distance between building fronts remains the same, since the street was widened from 50 to 60 feet.

Whereas plan A provides lots of sufficient area for healthful housing, plans B, C, D, and E, provide more desirable arrangements from both social and economic points of view. All four patterns provide for fewer families per acre than does plan A, and at the same time make possible appreciably lower costs per lot, even (with the sole exception of plan B) when the cost of the park area is added pro rata. Economy is obtained by savings of 26.7 to 43.9 percent in street improvements, 34.8 to 43.8 percent in sewers and by assessing the cost of the central open area upon the municipality. The usual criticism of interior playgrounds is that of the expense of supervision. This may, however, be considered as having been transferred from the eliminated streets, and therefore as not being entirely an added cost.

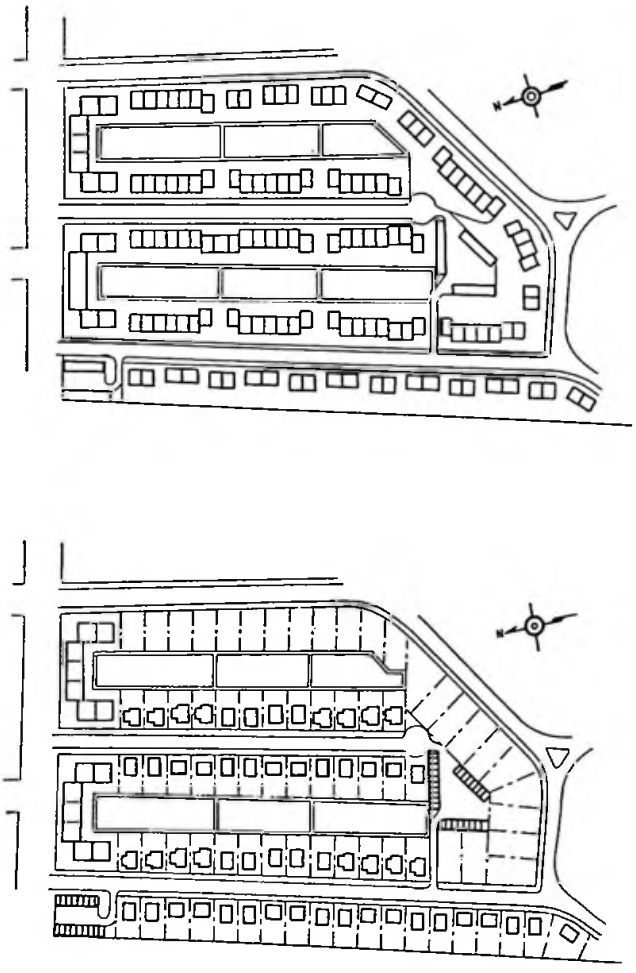

FIGURE 13.—Chatham Village, Pittsburgh: Two original studies, plan for 80 single houses, plan for 128 row houses.

The first study provides 80 six-room houses to sell at an average of $10,500. The 128 row houses shown in the second study, it was found, could be sold for between $7,860 and $9,042. The final plan followed the latter arrangement, but on the basis of a rental occupancy and not sale of lots and houses. See figure 24.

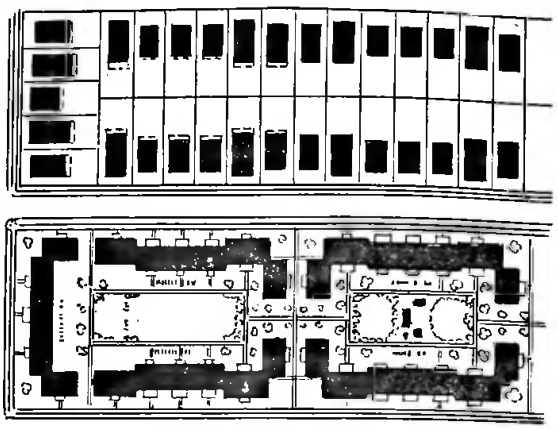

FIGURE 14.—Sunnyside, L. I., contrasted with New York City block plan.

A block of buildings at Sunnyside is contrasted with a so-called normal New York City block plan. The lower plan is at Sunnyside, uses shallow, attached, two-room-deep dwellings in both houses and flats. The upper block is the same building space as it is usually wastefully arranged in free-standing, individual buildings. The center park play space of the lower plan is about equal to the narrow side yards in the upper plan.

Larger blocks than have been customary are desirable to reduce the number of traffic intersections. Plans B, C, and E eliminate four of the street intersections of plan A, thus improving traffic conditions on minor streets.

Figures 12, 13, and 14 are indications of how the site planner's study of particular arrangements, in particular places, reveals less costly ways of securing desirable relationships. All are taken from Henry Wright's *Rehousing Urban America*,[6] figure 12 and 13 being examples from Chatham Village, and figure 14 from Sunnyside. They reveal, in a measure, how group planning assembles buildings and land for effective openness without extravagance.

Finally, there are shown different plans of the greenbelt towns, revealing (among other things) the relationships of the first town units to the ultimately expanded town, and to the sewer and water services.

Appendix

By way of illustrating the method of careful analyses of various alternatives in a planning study, there are submitted in this appendix the following:

1. A report and recommendations of the water supply and distribution system of Greenbelt, Md.

2. A portion of the reports and recommendations for heating of dwellings at Greenbelt, Md., and

[6] By permission of Columbia University Press, 1935.

3. A list of some of the principal phases of the planning study at Greenbelt, Md., suggesting the thoroughness with which the different problems were studied.

Water Supply System, Greenbelt, Md.

Recommendations for water supply and distribution.—It is recommended that the water supply for the Berwyn project be purchased in bulk from the Washington Suburban Sanitary Commission, whose water district is immediately adjacent to the development, requiring the laying of a supply line to, and the erection of a standpipe on the high point of the property for the maintenance of storage and pressure. This supply is both ample and safe and may be distributed to the homes at a reasonable cost to the consumer. It is also sufficient for all future needs of the community, including any projected extension.

It is likewise recommended that the distribution system be laid as outlined in the following report. This layout has been designed to maintain a minimum pressure of 40 pounds on the higher portions of the terrain for satisfactory house supply and fire protection.

For economy of service, as well as for the control of usage and the prevention of waste, it is recommended that all house, commercial, and community supplies be metered. * * *

Report on water supply and distribution.—Water supply: From a careful study of the various sources of water supply available at or near the Berwyn project, it has been recommended that a connection be made with the mains of the Washington Suburban Sanitary Commission and its water used. This supply is sufficient for both present and future needs, is economically sound and, therefore, becomes the logical choice.

A series of conferences with Robert B. Morse, chief engineer of the commission, developed the recommended scheme. This contemplates bringing a 16-inch main from a point on the Baltimore Pike across to the high point on the Hurley tract, at which point a 2,000,000-gallon standpipe will be erected to serve both as storage and pressure control. From here the water will be bought in bulk, through a meter, and distributed to the various parts of the project.

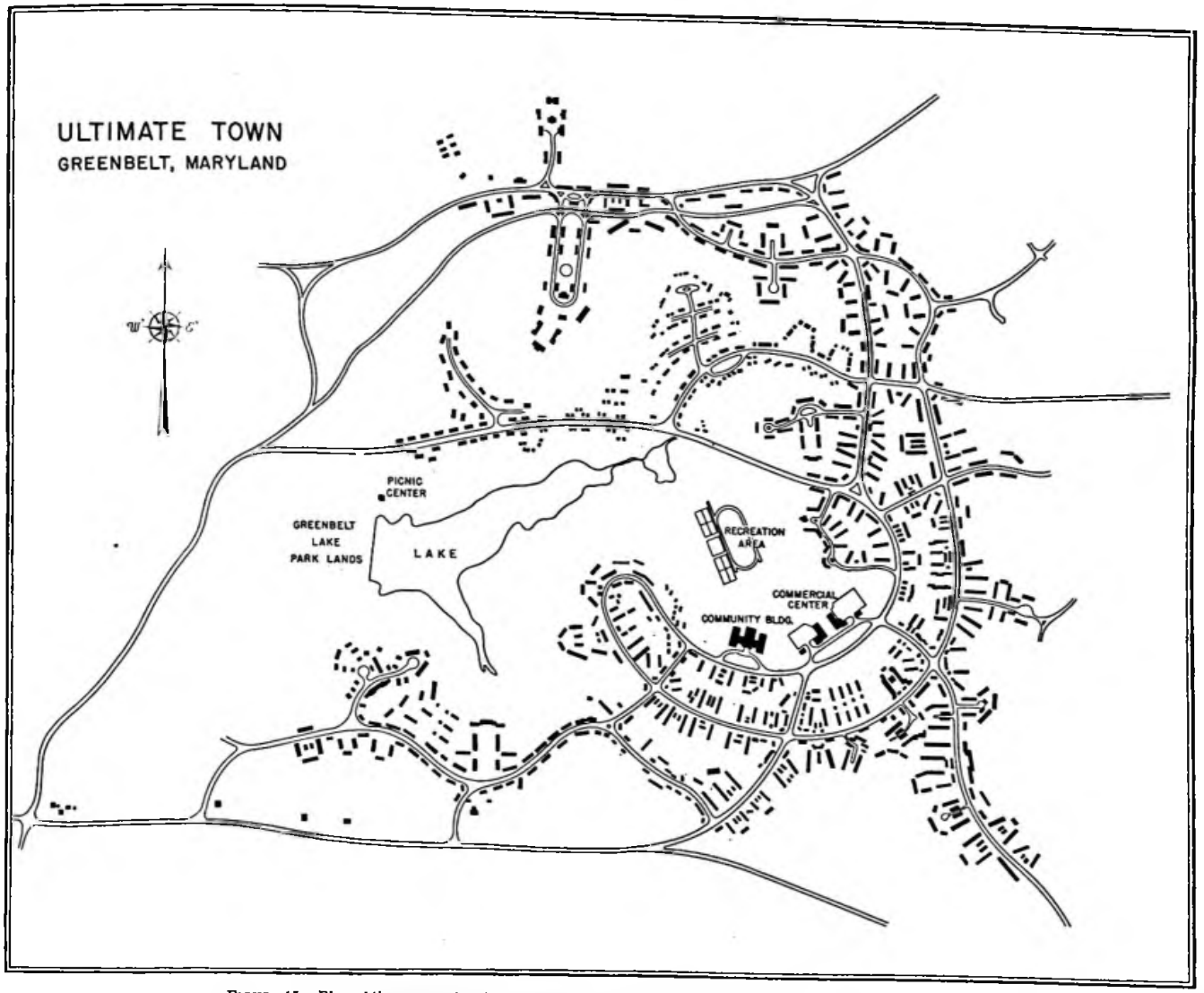

FIGURE 15.—Plan of the proposed ultimate town, Greenbelt, Md., a Farm Security Administration project.

The ultimate town of Greenbelt, 3,000 dwellings, is a demonstration of comprehensive planning of an entire suburban community. Designed by the technical staff of the Suburban Resettlement Division of the Resettlement Administration, it is already partially built.

Demand requirements: The immediate demand for water is based on a unit of 1,000 homes, with an average family of 4, plus such stores, schools, and other buildings as are contemplated for this community. General waterworks practice calls for a consumption of 100 gallons per capita per day for communities of this type, or an average demand for the project of 400,000 gallons per day.

For purposes of design, a demand requirement of 125 percent of the average, or 500,000 gallons per day, has been used, while future requirements, based on an additional 1,000 homes, would amount to 1,000,000 gallons. A minimum pressure of 40 pounds will be maintained at the higher points of the distribution system and an ample quantity of water will be available at all times for normal as well as for all emergency needs.

The size of the standpipe, though larger than would be required for the project itself, serves a double purpose in that it not only stabilizes the pressure and supply for the project, but also helps to maintain the pressures in the adjoining territory.[7] It also provides a wide margin of safety in case of fire.

Sources of supply: The major sources of supply, studied in connection with this project, are given below and the reasons for or against their further consideration stated.

Underground supply or wells: The entire development lies on what is known as the Coastal Plain, which is very uncertain throughout this entire area as a source of underground water supply. Wells have been drilled in the immediate neighborhood to depths of about 600 feet and have produced quantities varying from 40 to 100 gallons per minute. The uncertainty and expense as well as the limitation of this source of supply removes it from further consideration.

Surface water, i. e., Beaver Dam Creek: Beaver Dam Creek flows through the experimental farm of the Department of Agri-

[7] An interesting illustration of the way in which a soundly conceived development may react favorably on surrounding settled areas. From an economic standpoint it has symbolic significance.

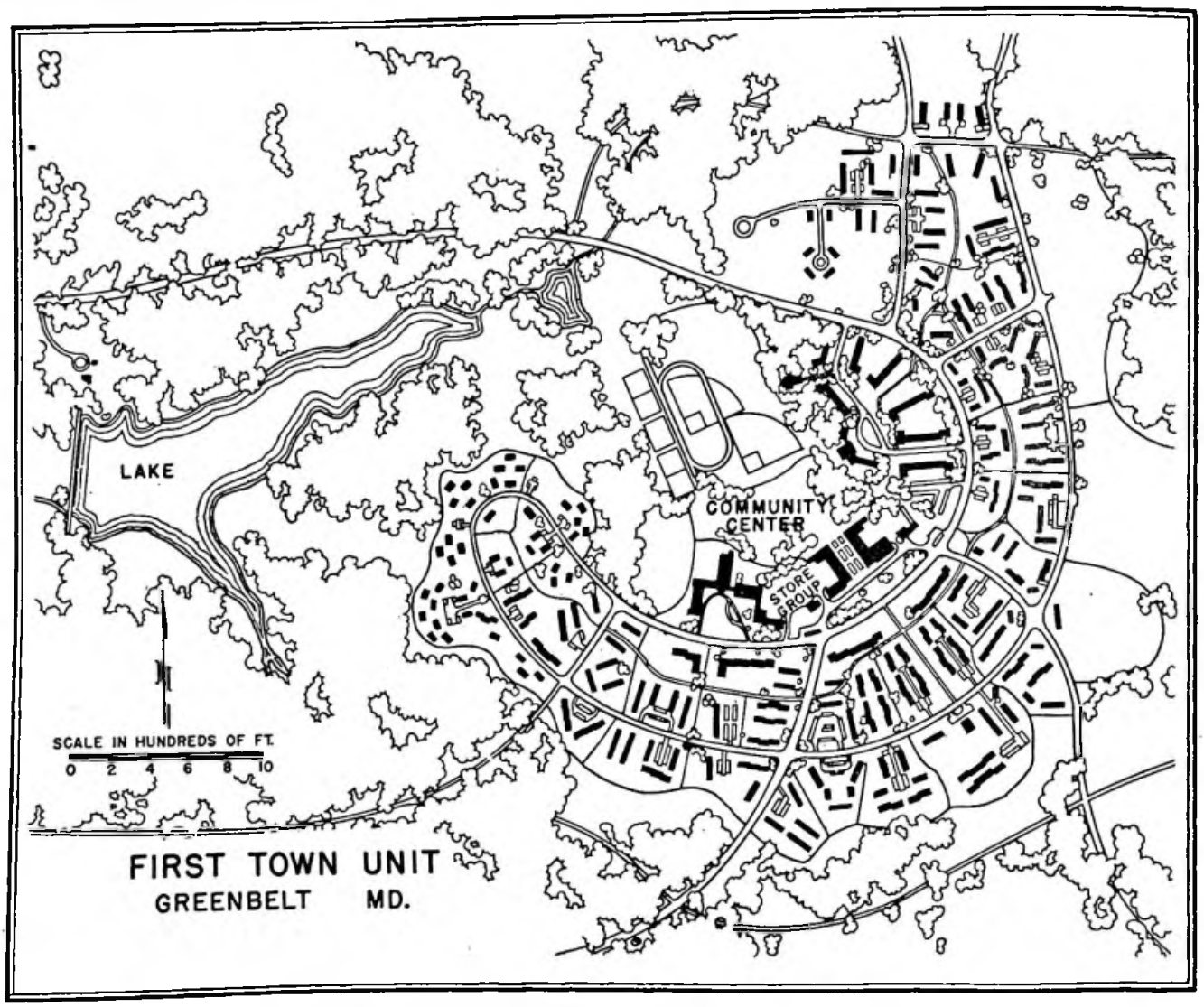

FIGURE 16.—Plan of the first unit of the town of Greenbelt, Md., Farm Security Administration project.

Approximately 1,000 dwellings, chiefly row houses but including apartments also, encircle the school, community center, store group, and recreation area. Allotment gardens lie outside the crescent plan of the street layout. Approaching roads are shown.

culture and has a drainage area of approximately 12 square miles. The normal flow of this brook at the point considered for the intake is about 4 second-feet. Three-fourths of this flow is required further downstream as dilution for the effluent of the farm's sewage-treatment plant. This leaves an available supply of 1 second-foot or approximately 650,000 gallons per day, which is more than enough for the first unit.

In times of drought, such as were experienced in 1931, there would be no water available from the creek and any expansion of the project would find this supply totally inadequate. In either case the proposed lake on the project would have to be used as a supplemental reservoir and at times as the sole source of supply. Both Beaver Dam Creek and the lake would require the most complete chemical treatment and filtration, necessitating the continuous attendance of a technically trained operator. An elevated storage tank of 500,000 gallons would also be required on the high point of the Hurley tract.

Because of the uncertainty of this source in times of drought and the known insufficiency in the case of further expansion of the project, it is deemed inadvisable for further consideration.

Washington Suburban Sanitary Commission: The Washington Suburban Sanitary Commission's water district is immediately adjacent to the project, and the future extension of their district would probably include the entire development. Their supply of water is ample for both present and future needs and seems, under all circumstances to be the logical source from which to draw. There are two places along the mains of the commission where suitable connections can be made, each of which will be discussed separately.

At the junction of the Edmonston and Branchville Roads: The commission's nearest main is laid to within 2,600 feet of this point, and could be extended to there by them to feed our system.

Owing to the present location of this main along the high ground of Berwyn Heights, it would be necessary to build a 500,000-gallon clear water storage reservoir near this corner in order to have a sufficient supply to carry over the periods of heaviest usage. It would also be necessary to install a booster pump at or near this reservoir and erect a 500,000-gallon elevated

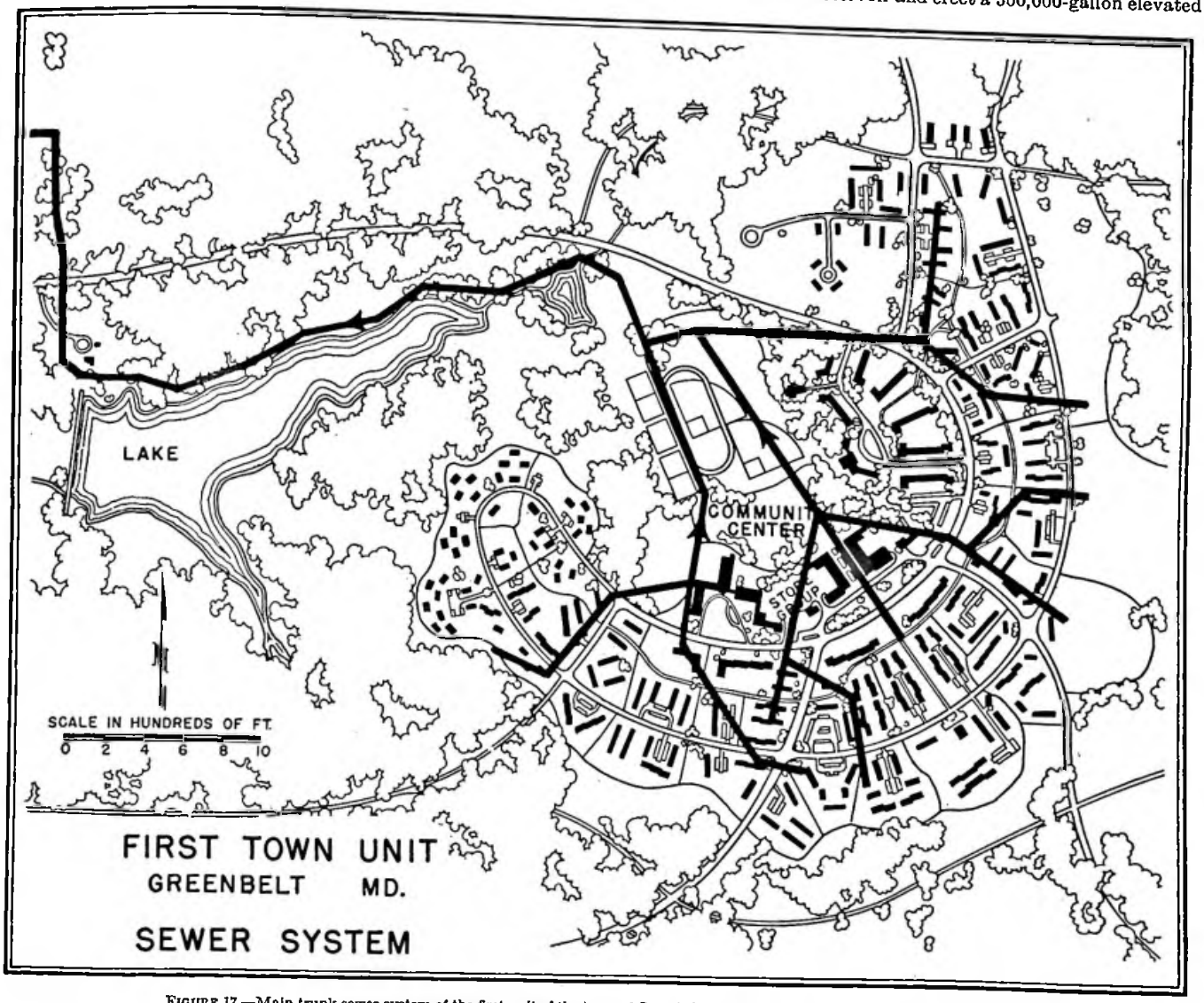

FIGURE 17.—Main trunk sewer system of the first unit of the town of Greenbelt, Md., Farm Security Administration project.

The sewers follow as directly as possible the fall of the ground and do not follow the street pattern. The capacity is ample for additional dwellings. In a town of tenant occupancy nothing prevents running utility lines across lots.

storage tank, on the high point of the Hurley tract, from which the distribution system will be run. This elevated storage tank is required to maintain the proper pressures in the lines and provides slightly more than 1 day's supply for the first unit. This line from the junction of the Edmonston and Branchville Roads to the Hurley tract, with its appurtenances, would necessitate a continuous operating and maintenance charge which would have to be added to the purchase price of the water. A cost to consumer comparison, given below, shows this to be more expensive than the recommended scheme.

Sixteen-inch main from Baltimore Pike to Hurley: One of the large water mains of the Washington Suburban Sanitary Commission follows along the west side of the Baltimore Pike. By making a connection at a point known as Edgewood, a 16-inch main can be run approximately due east to the road leading from the experimental farm to the project, and thence along this road to the high point of the Hurley tract, a total distance of 12,000 feet. This scheme calls for the erection of a 2,000,000-gallon standpipe at this point, from which the distribution system will be run.

Under this plan it is contemplated having the main laid, the standpipe erected, and a meter installed by the commission, but financed by the Resettlement Administration, and with the understanding that no taxes, assessments, or charges, other than the purchase price of water, will be made against the project, either now or in the future. It is also understood that all maintenance and replacements of the main, standpipe, and meter will be borne by the commission. The 2,000,000-gallon standpipe, though larger than would be necessary for the project itself, serves the double purpose of maintaining a constant pressure and supply for the development and for the adjacent territory of the water district. It also has the invaluable asset of being an ample supply for fire protection or other emergencies. A further point of interest lies in the fact that a reduction in the size of the tank from 2,000,000 to 1,000,000 gallons would bring a saving of only about $10,000.00, while reducing greatly the factors of safety in both supply and fire protection.

As shown by the data given below, this scheme provides not only the most satisfactory supply for both present and future

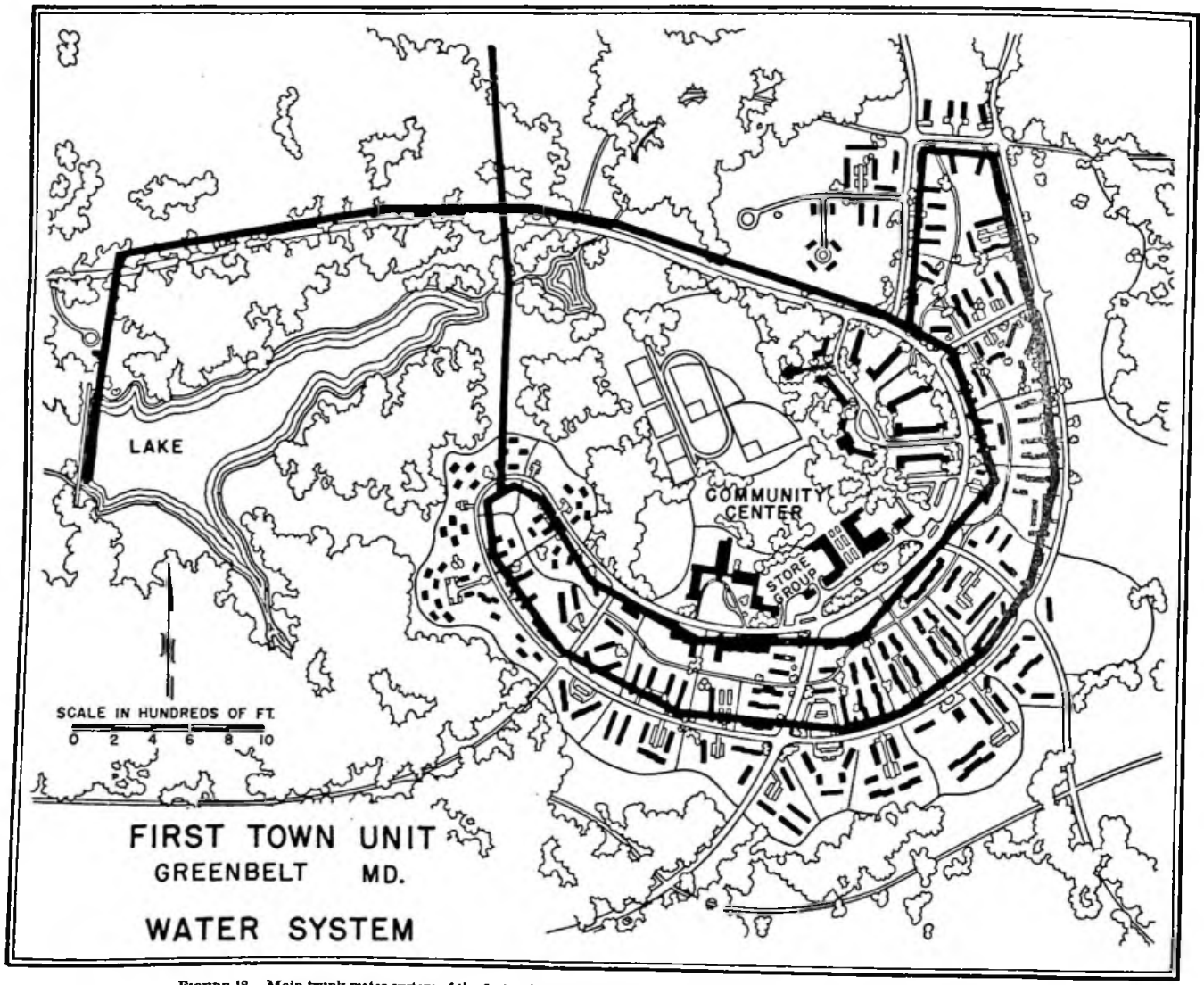

FIGURE 18.—Main trunk water system of the first unit of the town of Greenbelt, Md., Farm Security Administration project.

The system is designed to service additional dwellings. The storage tank is at the extreme north point. The line southward crosses a shallow valley to another high point at the tip of the crescent.

needs, but is economically sound when figured on the basis of cost to the consumer.

Distribution system: Owing to the fact that the development lies largely along the higher ground, and the necessity of bringing the water to the various parts of the tract with as little loss of pressure as possible, it has been recommended to lay a principal loop of 14-inch cast iron from the meter on the high point of the Hurley tract through the first unit of houses. From this main will be taken other portions of the distribution system to completely service the entire project.

Distribution mains—Fire hydrants: The distribution mains lead directly from the meter at the standpipe through the 14-inch loop previously mentioned, and into a secondary loop of 8-inch cast-iron pipe cross-connected at the end of each block to form a complete grid. This method insures the greatest uniformity of pressure and supply, and the least interruption of service at such times as repairs or maintenance work may be required. The size of all these lines is kept within the limits recommended by the American Water Works Association and the National Board of Fire Underwriters as proper for connections to fire hydrants. These hydrants will be spaced not only according to the recommendations of the above mentioned authorities, but also as strategically as possible in relation to the house groupings in each block.

An additional main will be carried to the sewage-treatment plant and a branch laid across the dam to serve as a connection to the future development of the project. This line across the dam should be laid during construction, as it would be very difficult to put it in this location at a later date.

The size and location of the mains as designed for the first unit are such that they may be connected at the proper places and supply the future extension of the project for both normal use and fire protection. The necessary fixtures for such connections are provided in the present lay-out.

House service lines: Owing to the group arrangement of the houses in the various blocks, the usual method of connecting

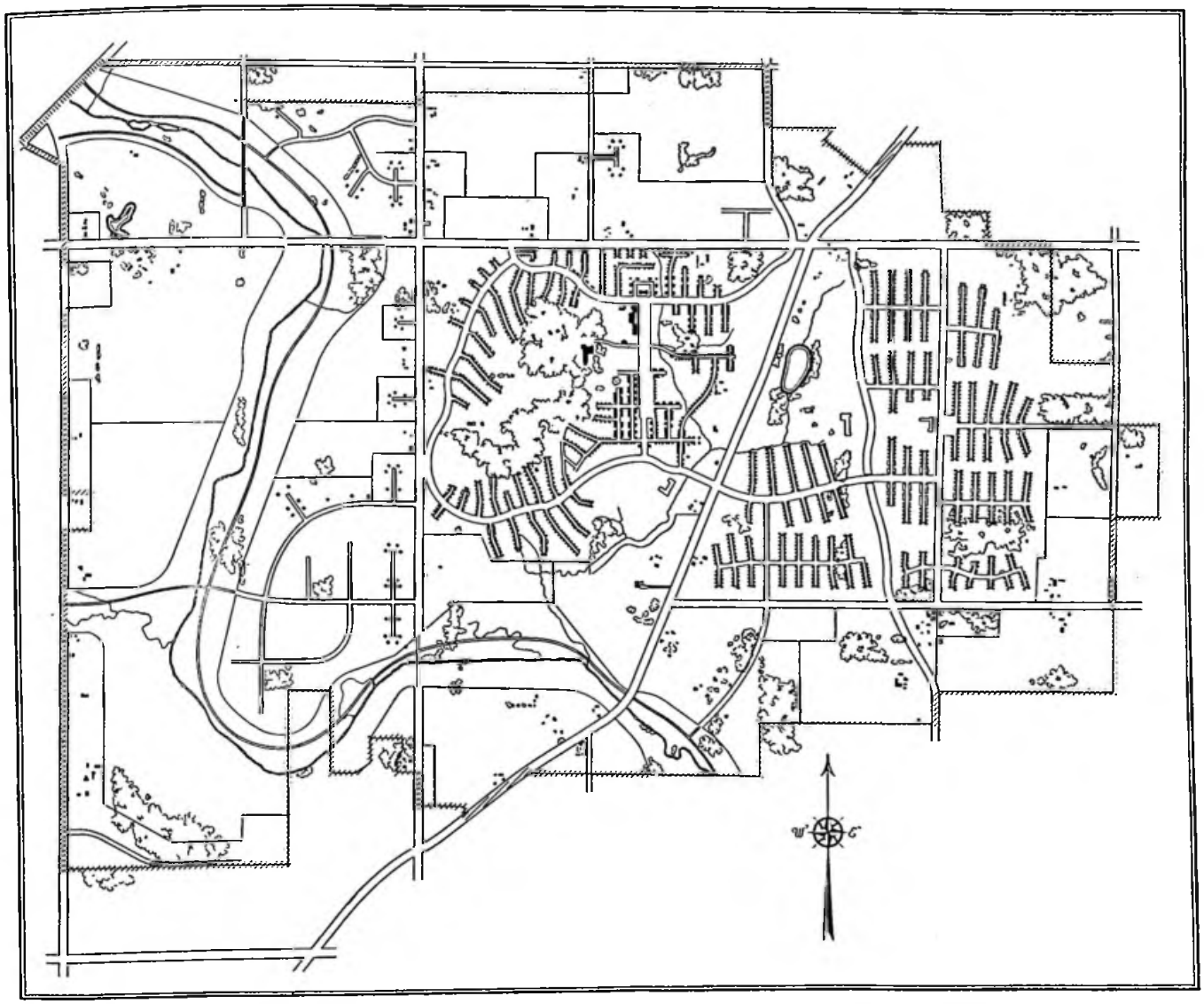

FIGURE 19.—Plan of the proposed ultimate development of Greendale, Wis., Farm Security Administration project.

This comprehensive land use plan, by the Suburban Resettlement Division of the Resettlement Administration, differentiates: the first town unit, future town units, land reserved for future suburban development of larger dwellings, small farmsteads, farms, allotment gardens, park areas including the stream and valley parkway of the Milwaukee regional plan, woodland, and wooded shelter belt. The project is partially built.

each house directly to the main has been found unsatisfactory and uneconomical. Careful studies are, therefore, being made of each block, and spur lines and loops are designed to supply one or more groups of houses in the most economical arrangement possible.

Pressure: The minimum pressure at the higher point of the system should never be less than 40 pounds under normal conditions, as recommended by the American Water Works Association.

Water meters: In order to make the cost of water to the consumer as low as possible, it is essential that all uses be kept under control. The only satisfactory method of doing this is through the use of meters for all services, whether they be domestic, community, or commercial. Unmetered service invites waste, as has been amply proved through studies in all parts of the country. This waste would require an increase of at least 50 percent in the average charge to the families.

The proposal to furnish hot water for domestic use adds a complication to this meter control as it would be out of the question to install two meters in each house and to have the hot water apparently "free" would tend to make its use excessive. A possible solution to this would be the installation of a meter on the feed water line to the heating unit and in this way control the prorated charges for the domestic hot water.

In any event, all water for community and commercial use should be metered in order that the proper charges can be made.

Cost of water to the consumer: As shown by the supporting data which follow, the cost of water under the recommended plan would be at the rate of $0.18 per 1,000 gallons until a write-off can be made of the cost of the supply line and standpipe, after which the charge should be reduced to $0.12. This would mean a monthly charge of about $1.09, which would later become approximately $0.73. These charges will remain practically unchanged with any increase in the project, and could not be reduced by any appreciable amount should it be determined to limit the project to the first unit only.

Supporting data: For purposes of comparison, estimates of cost of the various water supplies are given and the methods used for computing the cost to the consumer. An estimated cost of water to consumers in the territory adjacent to the project is also given.

I. Supply

a. Underground supply or wells.—As previously stated, the uncertainty, limitation and expense of this source makes further detailed studies unnecessary.

b. Surface water, i. e., Beaver Dam Creek:

Cost of installation		$50,000.00
Operating cost per year, including operators, chemicals, power, etc	$7,550.00	
Maintenance @ 5 percent on $50,000	2,500.00	
Depreciation, figured on 20-year replacement, @ 5 percent on $50,000	2,500.00	
Annual cost (without interest)		12,550.00
Cost over 20-year period (without interest)		251,000.00
Charge against cost of water, per 1,000 gallons		.07

c. Washington Suburban Sanitary Commission:—

1. At the junction of the Edmonston and Branchville Roads:

Cost of installation		78,746.00
Operating cost, pumping station	$4,150.00	
Maintenance @ 3 percent on $78,746	2,400.00	
Depreciation, figured on a 20-year replacement @ 5 percent on $78,746	3,960.00	
Annual cost (without interest)		10,510.00
Cost over 20-year period (without interest)		210,200.00
Charge against cost of water, per 1,000 gallons		.06

2. Sixteen-inch water main from Baltimore Pike to Hurley:

12,000 feet 16-inch main @ $4.50 per foot, in place	54,000.00
2,000,000-gallon standpipe	40,000.00
Meter charge	500.00

I. Supply—Continued

2. Sixteen-inch water main from Baltimore Pike to Hurley—Contd.

Total cost—all maintenance, operation charges, assessments, taxes, etc., assumed by the commission		$94,500.00
Annual charge to write off cost over 20-year period (without interest)		4,715.00
Charge against cost of water, per 1,000 gallons		.03

II. Distribution system

Estimated cost of installation		52,000.00
Maintenance @ 3 percent on $52,000	$1,560.00	
Depreciation, figured on 50-year replacement, 2 percent on $52,000	1,040.00	
Annual cost (without interest)		2,600.00
Charge against cost of water, per 1,000 gallons		.01½

III. Cost of water to consumer, per 1,000 gallons

a. Surface Water, i. e. Beaver Dam Creek.

Cost of water at source	0.60
Charge for supply lines, etc	.07
Charge for distribution system	.01½
Charge for interest	.02½
	.11
Contingencies and sinking fund	.02
Base charge to consumer	.13

b. Washington Suburban Sanitary Commission:—

1. At the junction of the Edmonston and Branchville Roads:

Cost of water at source	0.08
Charge for supply lines, etc	.06
Charge for distribution system	.01½
Charge for interest	.02½
	.18
Contingencies and sinking fund	.03
Base charge to customer	.21

2. Sixteen-inch main from Baltimore Pike to Hurley:

Cost of water at source	0.08
Charge for supply lines, etc	.03
Charge for distribution system	.01½
Charge for interest	.02½
	.15
Contingencies and sinking fund	.03
Base charge to consumers	.18

(a) Sixteen-inch main at end of write-off period:

Cost of water at source	0.08
Charge for supply lines, etc	.00
Charge for distribution system	.01½
Charge for interest	.01
	.10½
Contingencies and sinking fund	.01½
Base charge to consumer	.12

IV. Cost of water per month per family

a. Recommended system and supply.—Household use—4 persons @ 50 gallons—200 gallons per day, or 73,000 gallons per year:

73,000 gallons @ $0.18 per 1,000		13.14
Average cost per month		1.09½
Minimum monthly charge for metered service		1.00
At the end of write-off period of 20 years:		
73,000 gallons @ $0.12 per 1,000		8.76
Average cost per month		.73
Minimum monthly charge for metered service		.70

b. Cost to consumer in Washington Suburban Sanitary District:

Charge per 1,000 gallons		0.22
Yearly charge per front-foot of property		.14
Property tax per $100		.07
73,000 gallons @ $0.22 per 1,000	$16.06	
60 front feet (assumed) @ $0.14	8.40	
$3,500 (assumed) @ $0.07 per $100	2.45	
Total cost per year		26.91
Average cost per month		2.24

c. Unmetered service under recommended system and supply.—As previously stated, due to the waste of water in unmetered systems, the calculated charge should be increased by 50 percent, thereby making the monthly charge for water $1.65.

V. Comparison of costs—Recapitulation

Beaver Dam Creek not included for reasons previously stated. Source of supply—Washington Suburban Sanitary Commission.

	Edmonston and Branchville Roads	16-inch main from Baltimore Pike
First cost for supply	$78,740.00	$94,500.00
Total cost per 1,000 gallons to consumer	0.21	0.18
Average monthly charge to consumer	1.28	1.09½

Recommendation I.—With respect to the families living in the three-story multiple-family groups, it is recommended that the water distribution piping and the meters be so arranged that each building be controlled by either one or two meters so that control can be had by the management of the water consumed in each building.

Recommendation II.—With respect to selecting a group of dwellings in which the water distribution will be so arranged that the group of dwellings can be operated by the management without meters, it is recommended that group VII, buildings 26 and 32, area A, be selected for such operation; that the total water to this group be metered so that comparison of the water consumption of this group can be made with that of other similar groups; that connections be made for meters to the individual family dwellings, so that installation can be made at any time by the management.

Heating System, Greenbelt, Md.

Heating in relation to family and community.—Because the average layman may overlook the significance of the problem of house heating in a housing project such as this, we wish to emphasize the fact that a solution of the problem can be reached only after considering many factors. The effect of the installa-

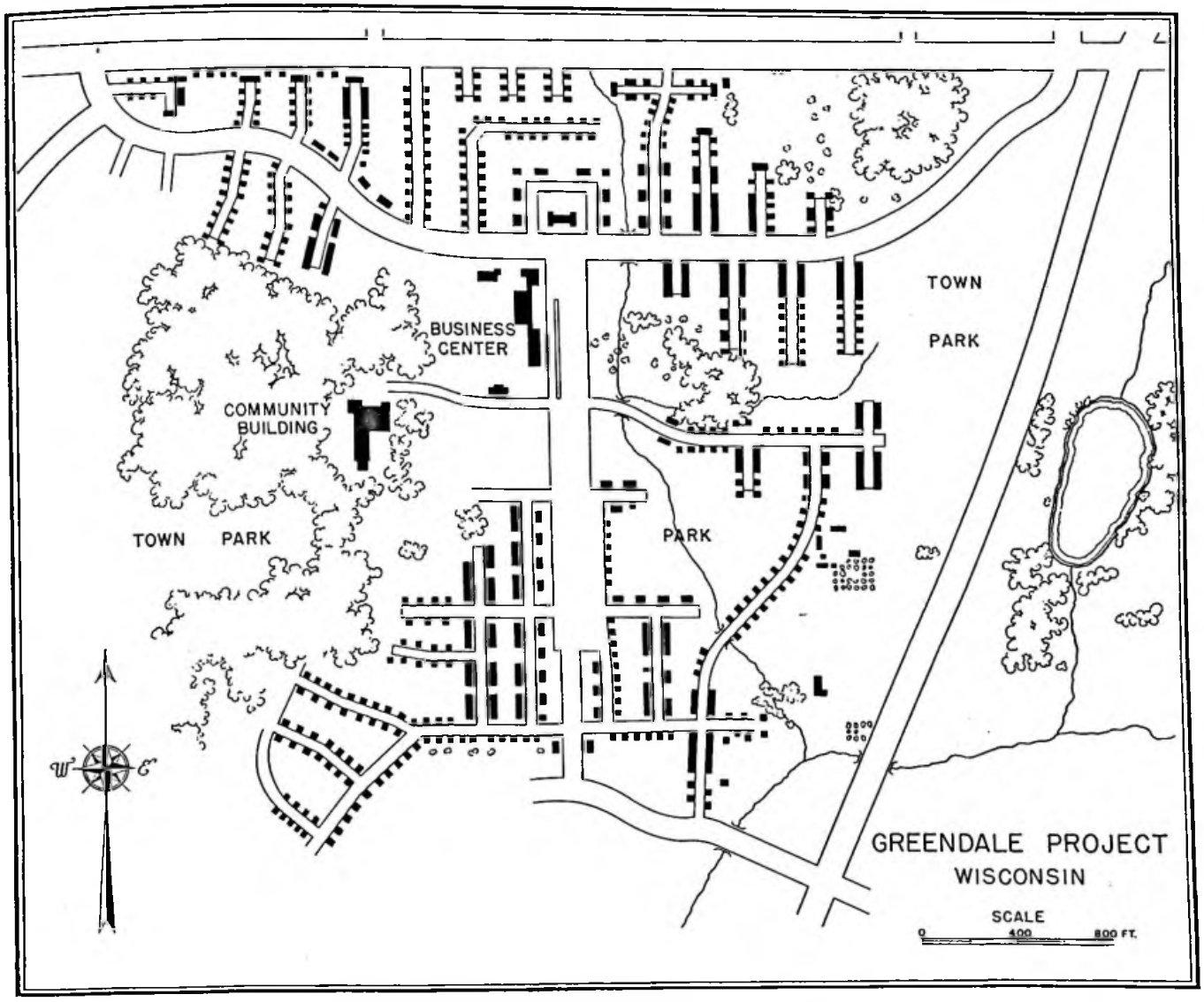

FIGURE 20.—Plan of the first town unit of Greendale, Wis., Farm Security Administration project.

The first unit of 750 dwellings has, chiefly, detached single houses, but includes row houses also. The community building (school) is withdrawn from the main street and business buildings. The street layout differentiates between roadways for practically no traffic as in the case of cul-de-sac, secondary roads with somewhat different dwelling frontage, and main thorofare for traffic movements on which no dwellings front.

tion method and the effect of the choice of fuel have a bearing upon family and community life, apart from the question of cost. The principal points to be noted are:

a. That housing management will be facilitated if individual families are placed upon substantially the same basis in receiving heat and domestic hot water, whereas added difficulties would be faced if each family were to handle the equipment and fuel and ashes (if any) with complete freedom and little effective responsibility to the interests of the community;

b. That the delivery of coal to, and the removal of ashes from, all the individual dwellings would be less desirable than such services for a fewer number of plant installations, and they would be even less desirable than the condition where a cleaner fuel is used and no ash removals at all would be necessary;

c. That a comparatively smoke-free atmosphere is not only an aesthetic and health factor, but will involve also less family labor in cleaning and laundering.

Construction to accommodate heating installation and fuel.—The costs for initial construction, and the costs of the maintenance and repair of that construction which will arise as the result of the choice of installation method and fuel, are outlined below. It is the construction involving these costs which must be shown upon, or omitted from, the drawings which now await completion. Three important decisions must be made.

a. Whether one cellar and chimney stack shall be provided for each group of dwellings, or whether there shall be a cellar and chimney for every dwelling.

Comment: Taking as a basis the plans of dwelling unit types which we have planned to date (and which have been tentatively approved by us and by Consultant Clarence S. Stein), there would be one cellar and chimney required for a multiple-group unit heat installation, as against several cellars and chimneys for the individual-dwelling unit installation. Obviously, the capital outlay for construction would be greater for the greater number

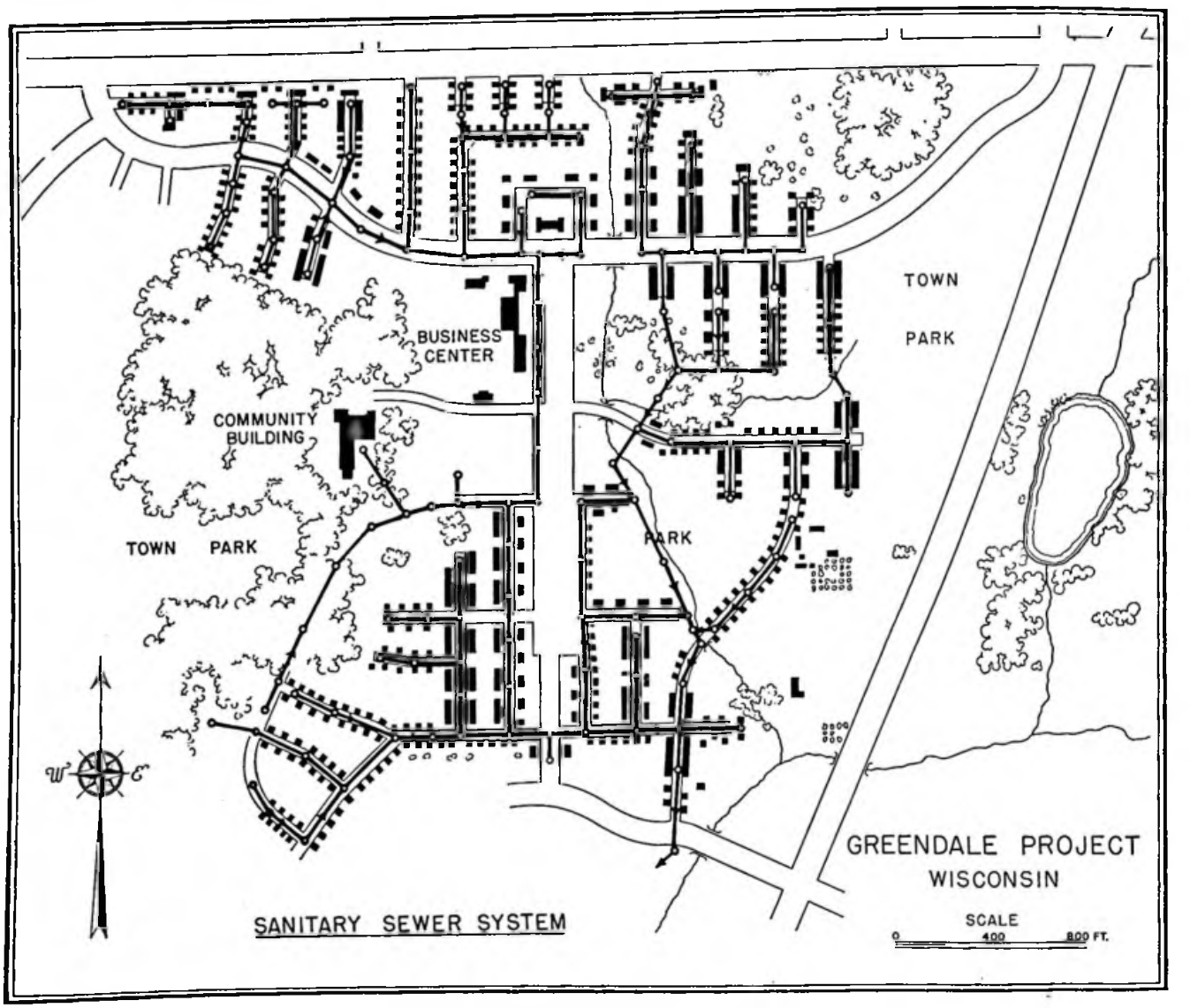

FIGURE 21.—Sanitary sewer system of the first town unit, Greendale, Wis.

The sanitary sewer system is in general a normal layout, following the street system, but also including a line following the small watercourse. Compare this layout with that for Greenbelt.

of cellars and chimneys. In either case, however, the charge to the tenant for the maintenance and repair of the cellars and chimney stacks would be practically negligible.

No serious problem of exterior design is involved in this decision.

b. The extent to which subsurface drainage will be required as a result of building cellars.

Comment: Owing to the presence of subsoil water in certain sections of the site, the building of cellars will require installation of subsurface protective drainage, and the building of every cellar implies installation of a drain in each. If there are cellars under every dwelling the installation cost of protective drainage will be greater than if fewer cellars are provided. The maintenance and repair of subsurface protective drainage need not be calculated; but floor drain maintenance and repair charges would be greater for the larger number as against fewer cellars, particularly if the hazard of tenant carelessness is considered.

No problem of exterior design is involved in this decision.

c. Whether a more extensive provision of paved service roadways will be undertaken to facilitate fuel delivery and any ash removal for all individual dwellings as against the minimum service roadways needed in the case of multiple-group unit installation of heating equipment.

Comment: We are recommending a very brief holding in abeyance of your decision upon the kind of fuel to be used. Nevertheless it is essential to present at this time the construction and maintenance costs which will be involved in providing for delivery and storage of any fuel which may be considered. Our analyses up to the present moment indicate that the choice of fuel might be either coal or oil.[1]

The delivery of coal and removal of ashes (whether to a multiple-group unit installation or to every dwelling) would necessitate considerable addition to the now planned economical layout of service driveways. At the present time it is practically impossible to make any accurate estimate of the amount of addi-

[1] Note that oil was finally selected.

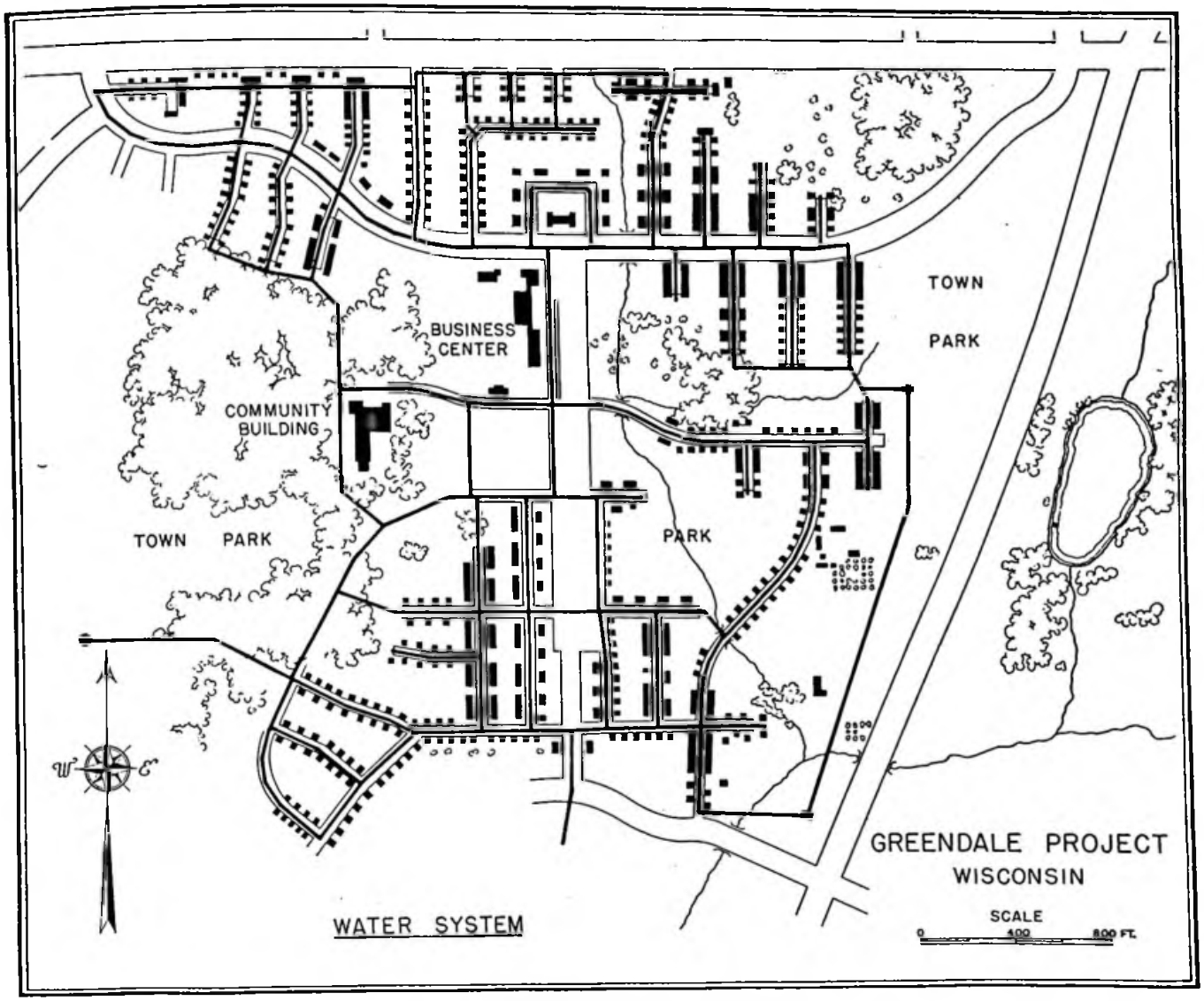

FIGURE 22.—Water system of the first town unit, Greendale, Wis.

Wells are located at the eastern edge of the layout, water tank at the western edge.

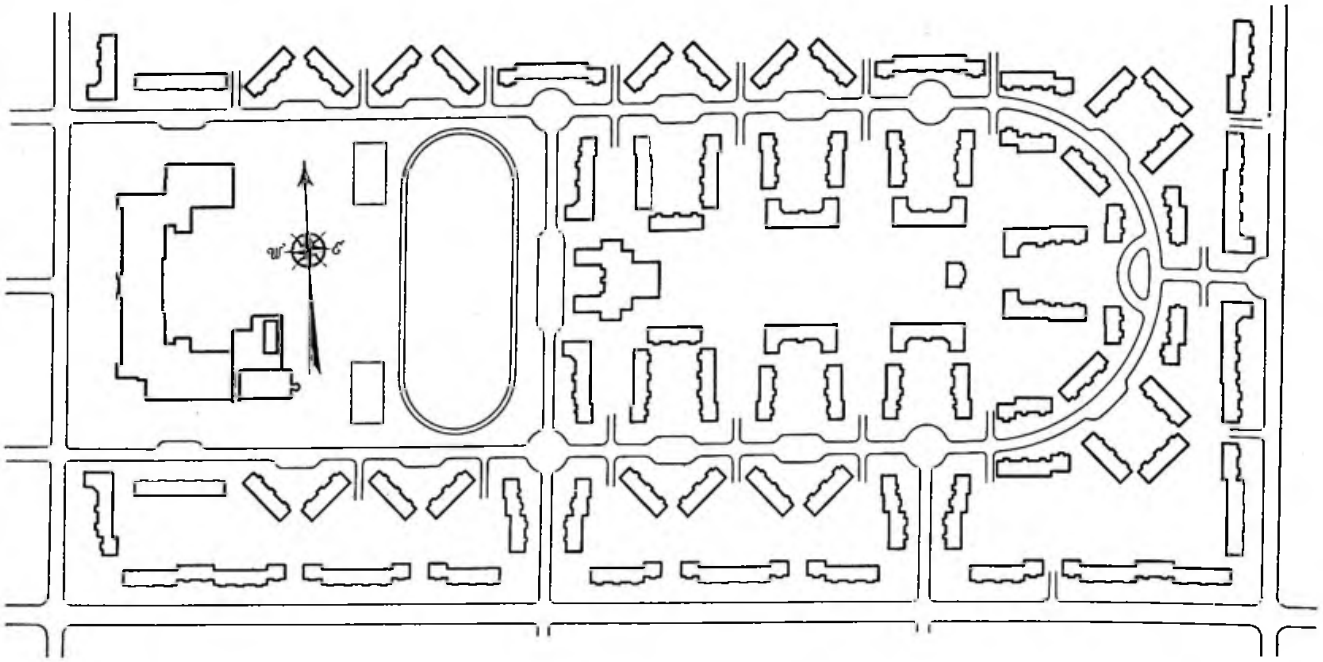

FIGURE 23.—Plan of Kenfield, Buffalo, N. Y.

The 65-acre plot on the outskirts of the city surrounds the Kensington High School on three sides. The site plan provides for a 6-acre playground directly behind the school and centrally located for children living in the project. Twenty acres are held vacant for future growth of the project. The 3-story apartments, 2-story row houses, and 2-story flats in Kenfield have 2,756 rooms accommodating 658 families.

tional paving required for the accommodation of this type of fuel, but obviously more paving would be required for separate heating units in each dwelling than for a multiple unit heater in one cellar of a group. The installation and maintenance costs of such pavement vary with the type of construction, and no estimates can be given now. However, the tenant may be expected in his rental to cover at least his individual share of the maintenance costs.

Over and beyond the question of costs, there is objection to the added service roadway pavement mentioned above, because it will tend to reduce the usefulness of the service yards to the various families, and because there is likely to be some loss also in attractiveness.

In the use of oil the additional service driveways would not be required, since the oil would be stored in underground tanks within easy filling distance of the garage driveways. Therefore no additional construction and maintenance charges would be involved.

Obviously, this latter arrangement makes for the fullest usefulness and the maximum attractiveness of the lay-out on the service side of the dwellings.

From the above comments it is obvious that additional costs would be involved if an individual heating system were installed in each dwelling rather than a multiple group unit installation, considering the decisions with respect to:

1. Cellars and chimneys.
2. Cellar drainage and drains.
3. Service driveways.

Summary of costs of installing and operating various sytems of heat and domestic hot water.—The installation, maintenance, and operation of equipment to supply heat and domestic hot water have been considered for a number of varieties of system, and for the use of alternate fuels. These considerations, which include reference to cost which must be borne by the tenant, have been assembled in a document, dated December 5, 1936, that will be kept as a record in our files, available for your files as required.

We summarize below the five principal systems which we have selected from the varieties studied, and which we believe merit consideration and comparison. We call attention to the fact that schemes D and E promise to be the most economical to install and to operate. The five schemes, and the basis of calculations for all, are covered in detail in a separate document submitted herewith as part of this report.

Summary of tentative rating of 5 heating schemes [1]

Type of installation and fuel	Rating of cost of installation	Rating of cost of operation
A. Coal, individual, hand-fired	3	3
B. Coal, individual, mechanical stoker	5	4
C. Oil, individual, automatic	4	5
D. Coal, multiple group, mechanical stoker	2	1
E. Oil, multiple group, automatic	1	2

[1] Costs range from lowest (1) to highest (5). Maintenance and replacement of equipment are calculated elsewhere under "General building maintenance."

A primary social consideration.—All of the considerations, and all of the calculations, up to this point appear to justify the choice of the systems noted in the table as D and E, i. e., a multiple-group unit installation using coal or a similar installation using oil. This implies, of course, the vending of heat to the tenants upon a presumably uniform basis as to quantity of heat. Such a proposal at once raises the questions whether the heating engineers have calculated an intensity of heating greater than an individual family might accept if under compulsion to reduce the heating to effect savings to the family budget and whether this housing project should itself accept a lower standard of heating in order to reach people of more precarious economic status.

We submit the proposition that the success of the new community as a conveniently and attractively planned town, with its protective belt of open land, will be measured in terms of physical lay-out and buildings, in terms of its social and community life, and in terms of its ability to meet the financial set-up established for it. In our judgment, the acceptance of tenants of such subnormal level of income as would be implied by this present discussion might jeopardize the success of the entire experiment—particularly when consideration is given to those effects upon the community which have already been discussed. We do not believe that this first community experiment can safely be directed to meeting the needs of the lowest income groups; we cite your desire to have the community a "tax paying participant in the region" when future housing has been added to that which is to be built now. However, we suggest that those with experience in management be asked to submit an opinion upon this basic social-economic question.

Conclusions: Inasmuch as all the considerations of cost, convenience, and amenity which are mentioned herein point to the choice of a heat and domestic hot water installation on the multiple-group unit system, inasmuch as the cost analyses contained in exhibit No. 1 are in fact the foundation of the cost portion of this report, and inasmuch as our consulting heating engineers have reviewed and approve these analyses and the conclusions arising out of them, we submit the recommendations of this report.

[The decisions on March 6, 1936, did not cover the heating of multi-family buildings, but only the twin dwellings and dwellings in rows. The consulting heating engineers concurred in this decision. The proposals and the reasons therefore are as follows:]

Recommendation No. 1.—a. That hot water circulated through direct cast-iron radiation be used for heating the dwelling units of the present building program (except in buildings Nos. 21, 22, and 23, group V of area D as noted in paragraph B of this recommendation, and as described later herein).

b. That buildings Nos. 21, 22, and 23, group V of area D be provided with heat by installing split systems, combining direct radiation and recirculated warm air, as described later herein, and as approved verbally by Major Walker, Chief of Management Division, to be a test and demonstration.

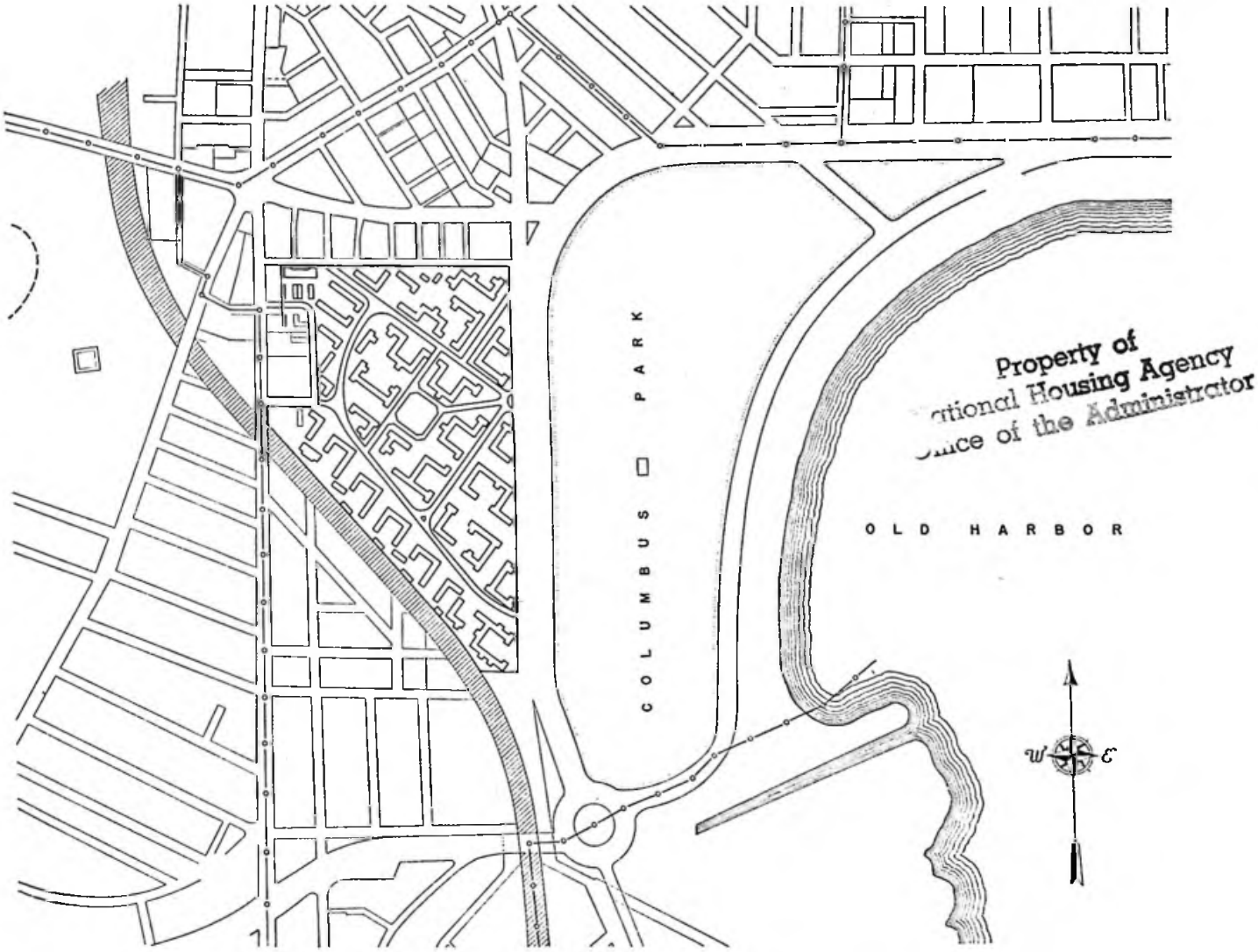

FIGURE 24.—Site plan of Old Harbor Village, Boston, Mass.
The plan shows the relation of the project to adjacent Columbus Park. See frontispiece for an air view of the project.

c. That the Management Division be officially advised of the test and demonstration installation in buildings Nos. 21, 22, and 23, of group V, area D; be requested to conduct and observe the results of the test and demonstration and report thereon to the Director of this Division; and that recommendations be then made relative to the adaptability of this method of heating to housing built in this community under a future building program.

d. That pending further development of the plans for the multiple-family dwellings and the further study of the heating problem for these groups, there will be presented for the consideration and approval of the Director a recommendation on this phase of the mechanical installation for these buildings in the near future.

Recommendation No. 2.—That oil be used as a fuel for firing the automatically controlled heating boilers, which will be installed with multiple-group unit heating systems for the dwelling units of this project.

Determining factors governing recommendation No. 1.—That the selection of the medium for heat distribution (such as steam, hot water, or hot air) shall take into consideration:

a. Uniformity of heat and regulation of temperature in dwelling units as affecting health of tenants.

b. Efficiency and simplicity of operation.

c. Economy of cost as affecting installation, maintenance, and operation.

That the selection of the type of heating system shall be based on conservative practical engineering experience in residential heating.

That consideration shall be given to providing an opportunity for employment of the greatest amount of field labor consistent with the total cost of the installation.

That the recommendation of heating systems for the dwelling units shall provide installations which may serve as a basis for conducting comparable tests and demonstrations available for consideration for any housing built in this community under a future building program.

Comment: The circulation of hot water through direct cast-iron radiation most readily conforms to the above program, because it can be economically circulated at minimum temperatures required for heat comfort within the dwelling units as related to variations of climatic temperatures.

Due to the lower temperatures at which hot water can be circulated this medium has less tendency to dry out the air than steam which must be kept at higher temperature in the radiators

Hot water provides a constant even heat at whatever temperature is required for predetermined room comfort and will be regulated by out-of-door thermostat to prevent excess tax on system due to neglect on the part of tenants.

The installation of piping and radiators will provide a greater proportion of field labor to cost per dwelling unit than other types of systems considered, such as circulated hot air systems which are factory-assembled.

The results of our investigations of the partial air conditioning heating units, which operate by means of a blower recirculating air heated by a single hot water radiator in the apparatus, were such that we feel that this type of heating should not be excluded from this present consideration. This conclusion is based on the advantages indicated by the cleaning and humidifying the air in winter and also by the opportunity to introduce recirculated air through the dwelling units during hot weather.

Because this type of heating for small houses is a recent practical development of the heating industry, which promises to provide greater living comfort for occupants, we have recommended its installation in one group of area D where its installation costs and adaptability can be carefully checked for multiple-group heating systems.

Comparative estimated costs.—Since the prorated cost of boiler and heating plant of the multiple group heating system below the first floor will be the same for either direct radiation or recirculated air units, the following comparison is based on that portion of the heating system above the connection to the dwelling unit:

1. *Heating and partial air-conditioning apparatus*

Cost of air unit complete with valve, thermostat, and extra electric circuit, switch, etc	$96.00
Piping, bathroom and kitchen radiators, valves, etc	40.00
Ducts	40.00
Humidity control	15.00
Waste connection and water connection	5.00
Labor	60.00
Amortization and maintenance approximately, per year, $5.00.	256.00

2. *Direct hot water radiator heating apparatus*

Radiators	$56.32
Piping	59.40
Radiator valves	18.00
Labor	120.00
Amortization and maintenance approximately, per year, $1.75.	253.72

Additional cost of operation to tenant.—The estimated cost of electric current for operating the air circulation fan would amount to approximately $4.50 per heating season based on current costing 2¢ per kilowatt-hour. This current would be measured on each tenant's electric meter and be included in his monthly electric bill.

The water costs for humidification would be negligible.

Determining factors considered in arriving at recommendation No. 2.—That the fuel used must be of a type which will not require:

a. The constant services of a janitor or fireman in the buildings.

b. The building and maintenance of additional service roads in order to deliver fuel to points of storage in buildings.

c. Require extra maintenance service for removal of residue.

That the fuel used shall be of a type that:

a. Can be readily obtained at a reasonable price.

b. Can be conveniently and safely stored in such quantities as will preclude any interruption of heating service.

c. Can be easily handled in delivery without damage to property or inconvenience to tenants.

d. Can be fired efficiently and automatically at all times.

e. Can be fired economically for the heating of domestic hot water during periods when house-heating apparatus is not in operation.

Comment: The fuel recommended meets with the above requirements most economically from a standpoint of both installation and operating costs. Based on market prices the costs of fuel oil and buckwheat anthracite coal, stoker-fired, in amounts required to fire the multiple-group unit heating systems are approximately the same.

The cost factors of handling of fuel are decidedly in favor of oil and represent a saving of cost of storage, fireman service in boiler rooms, ash removal, original installation and maintenance of additional service roads, all of which would be required if coal were used for fuel.

The estimated cost of 6½ cents per gallon for a good grade of fuel oil referred to in our recommendation of December 9, 1935, is based on market prices in this locality. If the management arranges for purchase in tank car deliveries, a saving of approximately 2 cents per gallon could be made on the above price. While purchasing fuel on this basis would involve a careful schedule of delivery at the siding, trucking costs by the management, and tanks for a moderate storage capacity for emergency, nevertheless a considerable saving in fuel costs should accrue.

Conclusion.—Inasmuch as the considerations of cost, convenience, and amenity, which are mentioned herein, point to the choice of the heating systems and the fuel herein recommended, and inasmuch as our consulting engineers have reviewed and approved these findings, and conclusions arriving out of them, we submit the recommendations of this report.

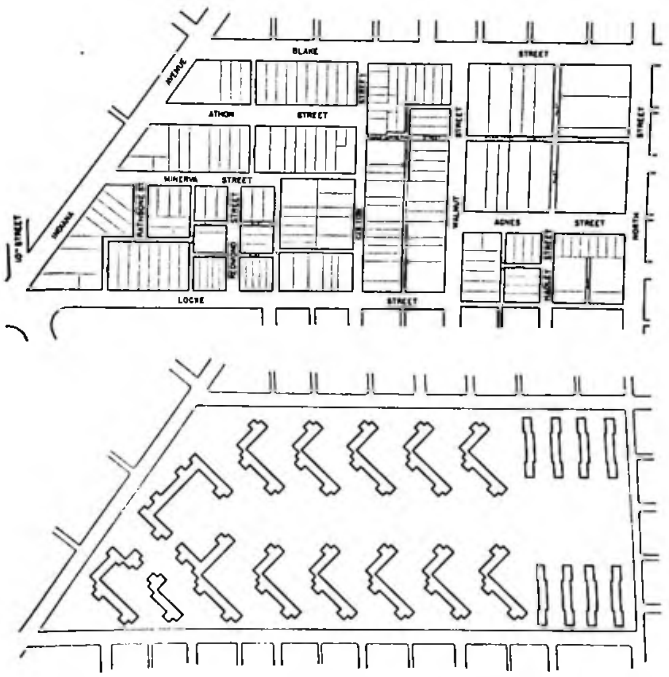

FIGURE 25.—Comparison of Original Street and Alley Layout and Site Plan of Lockefield Garden Apartments, at Indianapolis, Ind.

Replaning the 22-acre slum site eliminated many minor narrow streets, reduced building coverage to less than 20 percent, but rehoused the equivalent number of families who were living on the site prior to demolition. See frontispiece for an air view.

List of Planners' Reports and Recommendations for Greenbelt, Md.

They are given in the order of their official approval, the sequence being abnormal because planning was not done prior to initiation of construction work. Each of the items that is starred affects to a greater or less degree the site planning of the project. Either something was included or adjusted, or it was omitted, by virtue of the site planning analysis and decision.

*House heating and domestic hot water installation.
*Water system.
*Sanitary sewerage.
Electric wiring.
Lake and dam.
*Pedestrian underpasses.
*Sewage treatment and wastes: Disposal plant.
*Storm sewers.
Heating systems in dwelling units.
*Lighting, refrigeration, and cooking.
Easement limits.
*Heating systems in multifamily dwellings: Domestic hot water installation.
*Multifamily incinerators.
Water meters: Domestic hot water for dwelling units.
*Pavement widths and construction.
*Tanks for fuel oil.
*Nonresidential heating fuel and domestic hot water.
*Road pavements (revised).
Fuel oil purchase and distribution.
Electric ranges, refrigerators: Dwelling units and multifamily buildings.
*Electrical distribution and telephone systems.
*Garbage and wastes: Collection and handling.
*Business group (area L).
Telephone installation.
Budget revisions and economies.
Rural structures: Demolition.
Fire-alarm system.
*Elimination of wires near proposed inn.
*Beach—along lake.
Equipment for gasoline filling station.
*Rural dwellings.
*General development rural area.
Improvement of existing roads.
*Expansion of business center: Additional subcenters.
Disposal of sanitary sewage from rural community center.
Immediate construction of portion of sanitary sewer to serve rural community center.
Heating rural high school.
Water supply for lake recreational area.
*Fencing at sewage disposal plant.
*Recreation—General.
*Business—Industry.
Schedule of completion of town items.
Lake recreational building (revision).
Construction of fuel-oil storage and distribution plant.

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PART 3. THE SIGNIFICANCE OF SMALL-HOUSE DESIGN

By Pierre Blouke [1]

The Volume of Small-House Construction

Savings in the cost of building small homes will arise from the application of a large number of minor improvements in design and equipment. Heating units, plumbing units, and other equipment have been improved to a point where notable savings are possible. New materials make simpler design possible and yet bring better results than formerly. Most architects have not been able to afford to specialize in small-house design; new interest is being shown as the possibilities are developed.

The significance of small-house design in American housing architecture has been obscured by the capture of public imagination by large-scale housing schemes bearing promise of impressive social amelioration and by the distraction of the spectacular achievements of architects and builders in the sphere of the commercial and industrial structure. Yet the significant fact remains that the single-family, relatively low-value dwelling is the most important single form of shelter. It presents the broadest field of opportunity, the most stubborn obstacles, to the builder and designer. If the major part of American housing is to benefit from improved architectural standards and more economical methods of construction, it is this type of structure on which enormous effort and great talent must be concentrated.

The relative importance of the single-family structure in urban housing has been vividly indicated by the findings of the Real Property Inventory, a census of housing in 64 representative cities. About 6 out of 10 dwelling units in these cities were single-family houses, while about 8 out of 10 structures were single-family dwellings.[2] Nor is there evidence to indicate that the one-family structure is declining in relative importance at a significant rate. It has been estimated by David L. Wickens and Ray R. Foster that 62 percent of the aggregate number of nonfarm dwelling units built during the last 17 years were one-family dwelling units. Apartments were next in importance, accounting for 24 percent of total dwelling units, and two-family dwellings last, with 14 percent.[3] The relevant details are shown in tables II and III (pp. 41–42). These data probably give a fairly accurate idea of the situation in urban housing, but comparable information on rural housing is not available. Almost one-half of the 25,204,976 dwellings enumerated in the United States by the 1930 census were in rural areas, and the single-family structure is more predominant there than in the cities.

Most single-family dwellings have only moderate value, thereby indicating the financial limits within which the architect and builder must work. While

[1] Mr. Pierre Blouke is Architect Adviser to the Home Owners' Loan Corporation.

[2] U. S. Bureau of Foreign and Domestic Commerce. *Real Property Inventory.* Department of Commerce. Washington, Government Printing Office, 1934.

[3] *Nonfarm Residential Construction, 1920–36.* Bulletin 65, National Bureau of Economic Research, September 15, 1937.

TABLE I.—*Number and distribution of new nonfarm dwelling units built, by type of dwelling and by period, 1920–36*

ABSOLUTE NUMBERS IN THOUSANDS OF DWELLING UNITS

	1920–24	1925–29	1930–36	1920–36
One-family	2,001	2,270	791	5,062
Two-family	589	501	77	1,167
Apartments	586	1,088	239	1,913
Total	3,176	3,859	1,107	8,142

PERCENTAGE DISTRIBUTION

One-family	63.0	58.8	71.5	62.2
Two-family	18.6	13.0	6.9	14.3
Apartments	18.4	28.2	21.6	23.5
Total	100.0	100.0	100.0	100.0

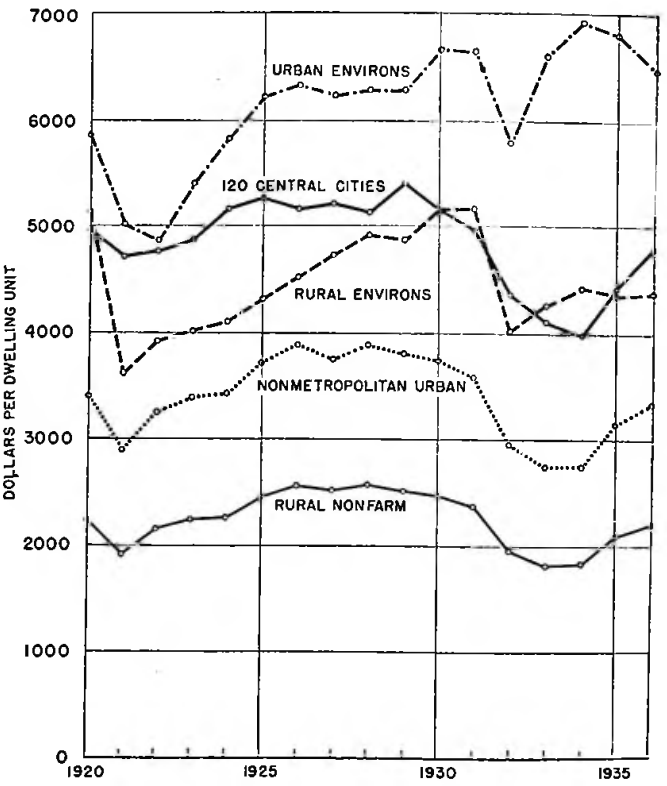


FIGURE 26.—Average cost of construction per dwelling unit, by class of city, 1920–36.

TABLE II.—*New nonfarm dwelling units built, estimated number, 1920–36*

[Thousands of dwelling units]

A—TYPE OF DWELLING

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
1-family	202	316	437	513	534	572	491	454	436	316	185	147	61	39	42	110	207
2-family	24	70	146	175	173	157	117	99	78	51	28	21	6	4	3	6	10
Apartments	21	63	133	183	186	208	241	257	239	142	73	44	7	11	10	28	65
Total	247	449	716	871	893	937	849	810	753	509	286	212	74	54	55	144	282

B—CLASS OF CITY

1. 120 central cities	95	192	319	393	404	431	396	355	313	203	113	83	24	17	19	51	104
2. Environs: 2,500 and over	36	71	120	152	156	166	156	157	143	90	53	38	12	9	8	20	40
3. Environs: Under 2,500	18	35	60	75	77	82	77	78	71	45	26	20	6	5	5	12	27
4. Total environs (2+3)	54	106	180	227	233	249	234	235	214	135	77	58	18	13	13	32	68
5. 96 metropolitan districts (1+4)	150	299	499	620	637	680	629	590	528	338	190	140	42	31	33	83	172
6. Nonmetropolitan urban	64	96	135	153	156	155	129	131	138	107	59	43	20	14	13	35	61
7. Total urban (5+6)	214	395	633	773	793	835	759	721	665	445	249	184	62	45	46	118	232
8. Rural nonfarm	33	55	82	97	100	103	90	89	88	64	36	28	12	9	9	26	50
9. Total nonfarm (7+8)	247	449	716	871	893	937	849	810	753	509	286	212	74	54	55	144	282

C—GEOGRAPHIC DIVISION

New England	11	20	37	45	53	60	45	44	45	28	15	14	5	4	3	4	01
Middle Atlantic	44	101	187	233	249	255	255	257	218	128	84	67	19	14	19	35	67
East North Central	50	74	134	181	191	192	186	178	160	110	37	19	5	3	4	17	37
West North Central	20	35	52	63	53	60	45	35	36	30	16	15	6	4	4	9	13
South Atlantic	37	57	83	91	106	118	101	85	81	49	29	29	13	9	9	36	58
East South Central	8	19	29	37	42	46	39	37	39	24	12	6	3	2	2	6	20
West South Central	33	56	66	66	59	64	56	63	68	59	37	24	8	7	6	16	32
Mountain	6	13	17	15	17	19	14	14	14	14	8	6	2	1	1	3	6
Pacific	38	74	111	140	123	123	108	97	92	67	48	32	13	10	7	18	39
Total	247	449	716	871	893	937	849	810	753	509	286	212	74	54	55	144	273

values do not represent costs, they do show the realm within which the architect must work. Nearly 90 percent of the owner-occupied, one-family dwelling properties enumerated by the Real Property Inventory were valued at less than $7,500, with approximately 65 percent being valued between $2,000 and $7,500. The value of the rented single-family units covered by the Inventory is reflected in their monthly rentals during 1933. Slightly less than 80 percent were rented for less than $30 per month; 94 percent, for less than $50 per month. The cost of construction of dwelling units, both single- and multi-family, to be sure, varies sharply from area to area. The data in

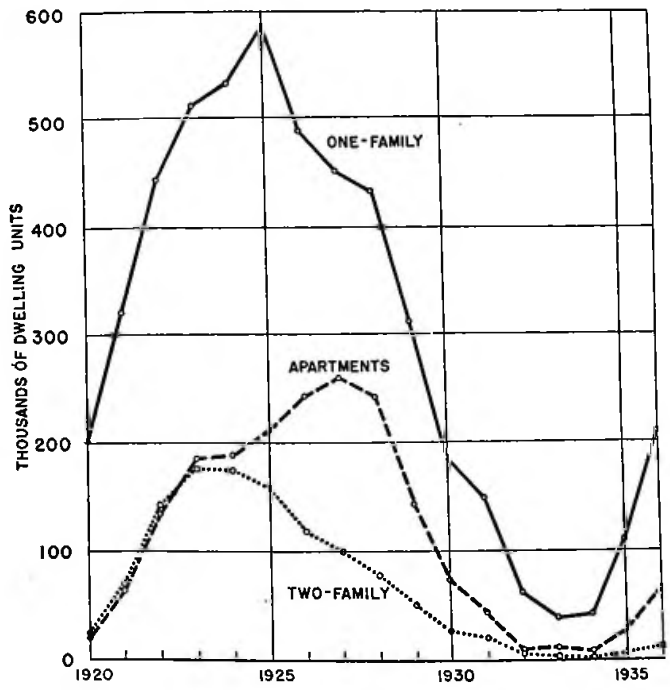


FIGURE 27.—Number of new dwelling units built by type of dwelling, 1920–36

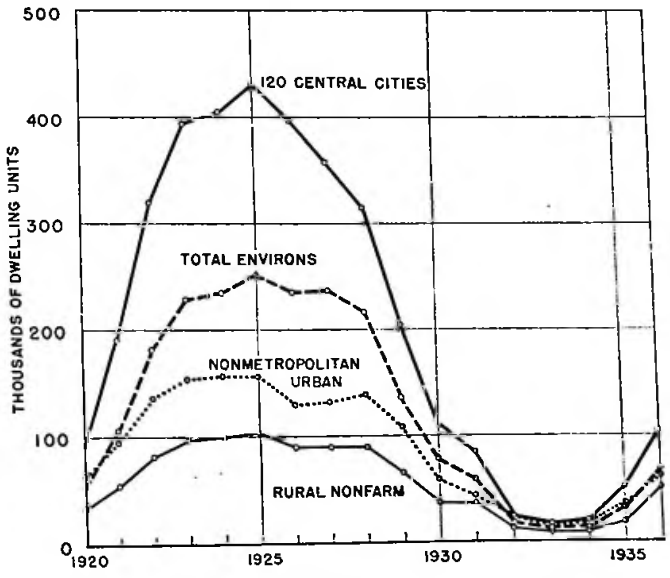


FIGURE 28.—Number of new dwelling units built by class of city, 1920–36.

TABLE III.—*Distribution of the number of new nonfarm dwelling units built, by class of city and by period, 1920–36*

	Number, thousands			Percentage distribution		
	1920–29	1930–36	1920–36	1920–29	1930–36	1920–36
120 central cities	3,102	411	3,513	44.1	37.1	43.1
Environs	1,867	280	2,147	26.5	25.3	26.4
Nonmetropolitan urban	1,263	244	1,507	18.0	22.1	18.5
Rural nonfarm [1]	803	171	974	11.4	15.5	12.0
Total nonfarm	7,035	1,106	8,141	100.0	100.0	100.0

[1] Excludes rural towns and villages (under 2,500 population) and unincorporated areas in environs of metropolitan districts, considered as urban.

TABLE IV.—*New nonfarm residential building, estimated aggregate value, by class of city, 1920–36*

[Millions of dollars]

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Housekeeping units only:																	
1. 120 central cities	475	910	1,524	1,924	2,086	2,263	2,043	1,851	1,612	1,102	585	412	106	71	77	225	499
2. Environs: 2,500 and over	213	356	589	821	911	1,036	960	978	899	569	345	254	68	57	58	139	261
3. Environs: Under 2,500	92	128	235	301	316	356	351	368	348	219	132	102	25	21	21	53	120
4. Total environs (2+3)	305	484	824	1,122	1,228	1,392	1,340	1,347	1,248	787	477	356	93	78	80	192	381
5. 96 metropolitan districts (1+4)	780	1,394	2,348	3,046	3,314	3,655	3,383	3,198	2,859	1,889	1,063	768	199	149	157	417	881
6. Nonmetropolitan urban	214	274	434	513	528	570	499	492	530	404	218	153	57	38	36	109	200
7. Total urban (5+6)	994	1,668	2,782	3,559	3,842	4,225	3,882	3,689	3,389	2,293	1,280	921	256	187	193	526	1,081
8. Rural nonfarm	74	104	175	216	223	250	230	221	223	160	89	66	23	16	17	54	109
9. Total nonfarm (7+8)	1,068	1,771	2,957	3,775	4,065	4,475	4,112	3,910	3,613	2,453	1,369	987	279	203	210	580	1,191
Nonhousekeeping units	54	70	157	206	179	279	202	154	200	171	86	17	3	2	3	5	11
Total new residential	1,122	1,841	3,115	3,980	4,244	4,754	4,314	4,064	3,813	2,623	1,456	1,005	282	204	214	585	1,202

[chart 6 (Appendix)] indicate that the largest outlay per dwelling unit is in the suburban cities while the lowest is in the rural nonfarm areas (towns and villages under 2,500 and unincorporated areas not farms). *The Financial Survey of Urban Housing* which covered 52 cities furnishes other evidence on value and rents. The average value of the one-family, owner-occupied dwellings in these cities was $4,447; of rented dwellings, $3,142. The average annual rental of one-family dwellings in these cities in 1933 was $248.

Let it not be assumed that even the most zealous efforts will remake the architectural landscape overnight. Soundly constructed new dwellings have an average life expectancy somewhere between 50 and 100 years. Since the supply of residential structures in use in this country has been expanding continually since the beginning, a comparatively small fraction of the present stock is of advanced age (only 8 percent of the housing in 64 cities covered by the Real Property Inventory was over 50 years old), and the volume of old age retirements is therefore relatively insignificant. The annual demolition and wreckage from all causes, including wind, fire, and flood, have averaged in recent years much less than one-half of 1 percent of the amount of housing in use. New construction is, therefore, the principal point at which influence may be brought to bear.

Plan and Design Values

Variations in climate and custom underlie regional differences in the general small-house pattern. The mode of life, the social structure, and the character of local materials tend to influence plan and design. Room for a degree of standardization exists, but the fidelity with which the architecture reflects the character of the people and their way of life determines the permanence, utility, and economy as well as the beauty of a style of construction. Conversely, the common error of transplanting architecture indigenous to a particular region to an uncongenial environment increases the costs of construction and maintenance and frequently produces quite bizarre effects.

In New England, where wealth was less concentrated and labor expensive, the early architecture of the Colonial period was closely adhered to by those of moderate means. The classic tradition, which found

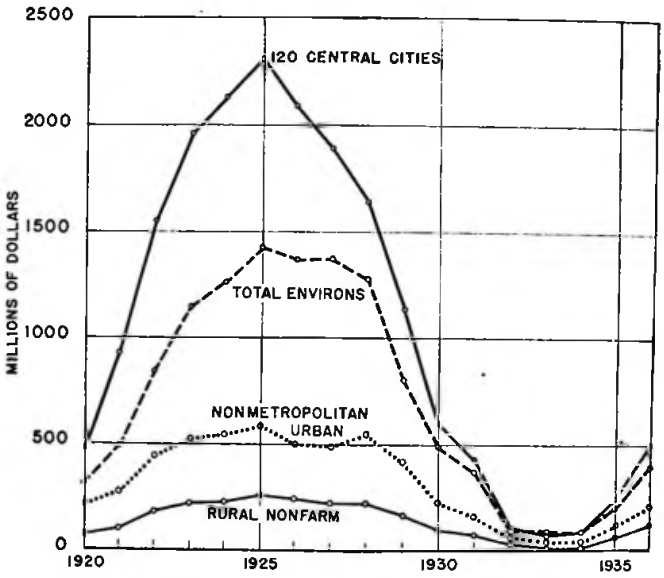


FIGURE 29.—Value of new dwelling units built by class of city, 1920–36.

its expression in the measured dignity of the Georgian architecture of New England and the plantation architecture of the deep south, belonged to a more elaborate manner of life.

The latter in particular required the service of many more hands than were generally available to those who were not slaveholders. The damp, hot climate of the southern seaboard was of great importance in the development of plantation life and architecture. The white man had difficulty in becoming acclimated to such excessive heat and humidity. The manner of life which he adopted was a direct result of his dependence upon the Negro for the manual labor that is necessary in tobacco and cotton farming.

The abundance of clay, the fact that unskilled slave labor could be used in making and laying brick, and the resistance of masonry to heat convection, quite naturally led to extensive use of brick in southern building.

The great variety of fine woods that were available and the familiarity of the people with their use in construction resulted in the fine forms and detail of the New England frame house—many of which are still in good condition and taste, after more than two centuries of use.

The general use of field stone in Pennsylvania was, of course, due to availability in large quantities.

The twice-transplanted architecture of the Spanish Mission settlements of the Southwest encountered a made-to-order climate, to which its traditionally thick walls, flat-pitched tile roofs, and small openings were admirably suited. The Southwest was indeed a new Spain.

The development of the Cape Cod house, like all good architecture, was based on the needs, ability and character of the people who built and lived in them. Their simplicity and fine workmanship were fundamental characteristics of the fisher folk who built them as they did their boats, for economy and service.

They were planned as they were built, a bit at a time, as need for more space developed in the family. This might be considered an extravagant method today. And it cannot be denied that such a system results in a large final cost. If, however, the family is able to procure its own home several years sooner by building only part of it in the beginning, then some additional cost may well be justified. Certainly the time and effort expended in caring for excess space for a number of years before it is needed, is a cost worthy of reckoning.

To men accustomed to the between-deck economy of space of sailing vessels, the low ceilings and duck-as-you-enter doors were quite satisfactory. Compared to ships' portholes, the small windows of the Cape Cod house were of more than ample dimensions. Of course, the heat economy combined with the high cost of glass contributed to the general adoption of small windows.

The prohibition of brick manufacture in the Colonies, which was established by Royal decree as a protection for English manufacturers, led to more extensive use of wood and stone, as well as bootleg traffic in native brick. In a similar way, the building code of today definitely influences construction practices and usage—with, it is needless to say, more admirable purposes in view.

The recent development of many new building materials, and the vast improvement in processes of manufacture, have given birth to radical variations and departures from the traditional construction of the past. Such of these new developments as lend themselves to rational analysis, and meet the approval of competent architects, should certainly be utilized fully.

Mistakes in planning and taste were costly in the past, as they are today. Time has played its part in removing much of the evidence of the errors of early architecture—which is proof of the axiom that only enduring architecture is good architecture.

Planning To Meet Requirements

The designer and builder of the small house must operate within confining economic limits. The financial limits have been suggested previously. Social considerations of another type impose other limits. In formulating policies for the improvement of housing, for example, there has been a tendency to emphasize the need for good housing as a factor in maintaining public health. But good housing without due consideration for its cost to the family may make too great inroads on the family budget. Families *can* be "oversold" on houses as well as on luxuries. Thus, there is no escaping the fact that good housing is no substitute for sufficient income. Both critics and proponents of housing development have sometimes overlooked this obvious fact, which, barring governmental subsidies, establishes a financial framework within which the designer must work if he is to meet the requirements of decent housing. It follows that lenders and builders have an obligation to make appropriate economic analyses to the end that housing shall not be too great a burden on the prospective home owner.

Family Requirements

Family requirements, as they concern planning and design of the small house, cannot be isolated as a separate quantity, free from technical, social, and economic restraint and limitation. Therefore, any analysis of family requirements must be preceded by an analysis of the conditions of family organization, manner of life,

and social and economic influences that are consequential both to technical planning and to execution.

Family organization and manner of living vary geographically, occupationally, and in size. Due to changes in these factors, family requirements as they affect planning and design cannot be considered as static. Consequently, the first "requirement" must be "flexibility of plan" which will provide adequately for changes within the family unit.

This requirement can be met in dealing with the construction of houses in populous areas by consideration of general family requirements. By the study of data relative to size, age, and sex division of families falling within particular income groups in particular areas, the numbers of houses of different sizes and types can be determined. This type of analysis is of further importance in connection with the ownership of houses by families with low income. The financing risk is not determined by economic stability of the occupant as an individual, but rather by the stability of the economic stratum (within the employment area) of which the occupant is a part. Thus, although the house is designed for a specific family, it must conform to the general requirements of local needs and income in order to assure to its owner the replacement (or resale) value. It naturally follows that the small house can no more be planned to meet only the personal tastes and desires of an individual low-income family than can an apartment.

When individual houses are built in less populous areas, the "future addition" may be planned as an integral part of the complete structure. ("Remodelling," on the other hand, has no place in the rational consideration of the small house problem.) The greater ultimate cost involved in building a future addition is more than balanced by the saving in housekeeping labor, maintenance and financing costs, insurance and taxes, etc., during the interval between the erection of the first unit and the future addition—provided, of course, that proper consideration is given to the various factors involved.

This method seems particularly adaptable to the solution of the rural housing problem—the future addition being built by owner labor, which would accomplish the maximum economy in the construction costs of the complete house. The most significant difference in the plan requirements of the urban house and the rural house becomes apparent when due consideration is given to the fact "that the urbanite goes to his work through the front door and the farmer goes to his work through the back door."

Small additions, such as a bedroom, are expensive in relation to their contribution to the total area of usable space. The question of expanding space requirements is, of course, one that concerns the individual family. However, it can be assumed that there is more likelihood of future expansion in the one or two bedroom house, than in the three, four or five bedroom house.

As sleeping space is added, the space per person of other living rooms is proportionately reduced, thus necessitating their expansion if congestion is to be avoided. Dining space may be increased very slightly for this purpose, as it has the highest space use ratio (square foot of floor space per person) of any area in the house.

The living room, on the other hand, though it has a lower space use ratio than the dining area, is of a more flexible nature. It may even be desirable to divide the living room space, particularly when there are older children in the family. The addition of a separate room to be used as a supplementary living room can rationally be made to coincide with the building of additional sleeping space. In the two-story house, one space may be added over the other, thus reducing foundations, roof area, and ground coverage.

In the one-story house—where the living room space has been limited—the living room may be divided to provide a bedroom, closets, and possibly hall space; and a larger living room attained by an addition to the structure.

Porches and attached garages occupy a greater proportion of the exterior wall of the small house than of larger houses. Hence, a separate garage with a gabled porch connecting house and garage is a rational solution. When basement and attic storage space are lacking, a utility room that may be used for general storage and laundry purposes may be combined with the garage which will serve as an excellent drying room—an old fashioned coal hot water heater providing hot water for laundry and heat for drying, thus eliminating long runs of heating and hot water pipes.

Space Requirements and Arrangements

Efficient space arrangement is of obvious importance in attempting to reduce costs without decreasing the quality of construction or the use value of the small house. The requirements of room relations and arrangement in small house planning are more rigid than for larger dwellings.

Space requirements are greatly influenced by local conditions, prejudices, and manner of living. Consequently, in dealing with such variables it is necessary to restrict the establishment of general plan requisites or the physical elements involved.

Because of reduced dimensions and concentrated use of space, circulation becomes the determining factor in the efficient functioning of the small house. Reduction of connecting halls should be accomplished to as great extent as will still allow for their function as a connecting unit, avoiding undesirable circulation and affording direct access between rooms of private nature and those common to the household. Wall space may

be preserved in living rooms by the use of a central circulation nucleus, the central hall, for passage between rooms.

Multiple-use areas, such as living-dining room, kitchen-dining room, and guest accommodations combined with the living room couch, are becoming common practice in the effort to attain concentrated space use. Such methods are of value particularly in the solution of the basic problem of small house planning, that of attaining room dimensions that are adequate in relation to architectural elements and household accessories (doors, stairs, furniture, etc.) that must conform to human dimensions.

The proportion of space that such plan factors occupy varies inversely in relation to room dimensions. Consequently small house plan solution is not merely a matter of uniform space reduction (or shrinking) of the larger dwelling to fit the cost limitations of the small house.

The requirements of room relation and arrangement in small house planning are more rigid than for larger dwellings.

Simplicity of structural form should be preserved if construction costs are to be controlled. Foundations, bearing walls, partitions, and roofs must be designed in strict conformity to the construction methods and materials employed.

Stock dimensions of lumber should be adhered to as far as is possible without disturbing the efficiency of plan and the simplicity of structural form. Plumbing and heating should be planned for maximum economy of space, labor, and materials. Cross ventilation is not difficult to attain as nearly every room in the small house—because it is small—has two exposures.

Such a review of the peculiar demands of small house design brings out an important point. In view of the extensive study required in small house planning and the small remuneration, imposed by economic limitations, it seems scarcely possible for the architect to base his practice on small house commissions—except by a definite departure from customary methods of rendering architectural service. Such adjustment demands not only change in technical methods, but a change in concept that will permit closer cooperation with the other elements of the building industry.

Materials

Present conditions make it difficult to analyze, to any conclusive degree, the merits of any but long-established materials and methods of fabrication. Information concerning newer materials, used in combination, and under varying conditions, humidity, temperature, etc., is very meager.

Though exhaustive laboratory tests were to prove the dependability and superior qualities of a new material, its wide use in small house construction would depend upon the slow process of adaptation by technicians and material dealers. Inasmuch as the technician is at present responsible for only a limited percentage of small house construction, the general use of a new material depends very largely on its commercial effect upon the local material dealers.

Further limitations that retard the adoption of new materials are imposed by the attitudes and technical ability of the ordinary building mechanic. Established practices of builders, mechanics, and building codes often place strong barriers in the path of the general use of new materials.[4]

Better Organization

While the use of new materials which give better service should be encouraged, in view of these difficulties it does not seem practicable that an attempt to produce better small houses at a lower cost should await solutions primarily based upon the use of new materials and new methods of construction. Equally satisfactory results may be obtained by better methods of utilizing those materials to which the building industry is accustomed.

The adoption of new materials and methods of construction may, fortunately, be a slow process. The cold, thin formality that is the dominant note in so many of our modern dwellings is definitely at variance with the manner of living to which the average citizen is accustomed. Nor is such barren severity a necessary expression of structural or operative functionalism.

New materials less devoid of texture and color are available in great variety and abundance. The use of these less impersonal materials would neither destroy the feeling of functional simplicity as expressed in the structural form, nor adversely affect the use of modern technics of construction.

Better planning and organized cooperative effort on the part of the planning element of the residential building industry would have a far-reaching effect on production and distribution costs of materials. The haphazard demand for unnecessary variation in architectural detail, dimensions, and structural elements results either in excessive stocks or in special orders, which greatly increases manufacturing costs. The risk to which the local material dealer is subject in attempting to carry a complete and varied material list including stock windows, doors, siding, mouldings, etc. results in considerable cost increases which are detrimental to all and of benefit to none.

Such practices have no place in any small house

[4] Many of the difficulties that must be overcome if we are to solve the problem of producing adequate shelter for low income groups are deeply rooted in the basic composition of the construction industry, and are perpetuated by city and state building ordinances with which the building industry must comply. The complexity of the difficulties involved in attaining better organization and more efficient methods of production and finance is admirably set forth in an anonymous article, "Facing the Facts on Housing," *Harpers Magazine* March 1937, p. 419. See also the discussion in section on building regulations.

program for low income groups. The only alternative is coordination of the planning charts of the industry to simplify materials demands.

The selection of proper materials to meet the technical, social, and economic requirements of small house construction is indeed a task for the highly trained specialists.

It is obvious from this analysis that reorganization of the building industry on a basis which will coordinate these elements so as to achieve a more satisfactory result must be a slow process, and that very complete reorganization will have to be made before the needs of those in low income brackets can be dealt with directly by any new residential construction program.

However, as the process takes place, starting with the improvement of coordination of the existing elements of the residential building industry, the volume of effective demand will increase in proportion to the volume of income of the new economic levels thus reached.

Inasmuch as the volume of mass income varies rapidly in inverse proportion to individual income level, it is reasonable to believe that a lower margin of profit would be accompanied by an expanding volume of profit.

Beginnings are being made at many points within the residential building industry, aided by the active cooperation of local and federal governments. New methods of building, new materials, new designs, new organizations are appearing, many of which are distinct improvements.

Maintenance

Though it may be trite to call attention to the fact that maintenance is a basic economic factor in low-cost housing, its importance is frequently neglected. Certainly, the possibility of error in relegating maintenance responsibility must be admitted in analyzing prevailing practice.

Some stress has been placed upon the necessity of good design (structural and aesthetic) and such supervision as would assure both the lender and owner of satisfactory execution. From a technical viewpoint, the proper maintenance of the structure is assumed. No attempt to create a house that would endure without maintenance for a protracted period has been successful, nor is it likely that such a possibility will occupy the serious considerations of the building industry within a calculable period of its operation.

Certainly, the maintenance of a house is of the greatest economic significance to those whose investment is dependent upon its durability and preservation. Despite this fact, the current practice of lending institutions allows the responsibility of maintenance to rest too heavily in the hands of the owner. It may be argued that the owner should be made responsible for the maintenance of the house he purchases, on the grounds that his interest in the preservation of its value is permanent, whereas that of the lending institution ceases upon the termination of the loan. Such a premise fails to deal with the limitations of the layman's knowledge of maintenance requirements or of his ability to supervise properly maintenance operations, and the fact that neglect (regardless of responsibility) can result in serious disintegration of the property in a fraction of the loan period.

If the low income purchaser cannot pay for such disintegration without jeopardizing other basic demands upon his income, it is not reasonable to make him responsible for the maintenance of the property.

Experience in Planning Small Houses

> In the modern skyscraper * * * the coordination of all factors—design, engineering, materials, form—has been brought to such perfection that structures of this sort are the outstanding contribution of this country to architecture. * * * It seems to dominate not only architecture but the architect as well. Attracted by the unit mass of the office-building he has overlooked the small home—its dominantly social motif and its bewildering conglomeration. * * *
>
> That the dwelling-house, serving a basic and indispensable need of mankind, is worthy of the best effort of the architect should be self-evident.[5]

While private builders and architects have studied the small house for many years, only recently has the Federal government given its attention to the problems of planning and design. As the result of the various influences which have made housing a national problem joint efforts between the government and private agencies have been focused on these problems.

This section deals with some of the experience of governmental agencies in their efforts to advance the art of planning and design in the small home. With the one exception of those interested in experimenting with prefabrication (which is treated below), the general effort to effect economy and efficiency has been through intelligent use of materials and rational designs; this is necessarily the first step towards reducing costs.

Federal Housing Administration

An essential part of the insured mortgage system which has been developed under the National Housing Act has been the establishment of physical standards for properties which are offered as mortgage security. Upon what basis have these standards been formulated and applied?

In approaching the task of establishing property standards which would advance these purposes, the Federal Housing Administration recognized that housing standards are relative and that they have little

[5] Bemis, Albert F. *The Evolving House.* Technology Press, Massachusetts Institute of Technology, Cambridge, Mass., 3 volumes, I, 1933; II, 1934; III, 1936.

meaning except as they are related to particular problems. They serve merely as measurements to determine the adequacy of housing in relation to its purposes. Minimum housing standards were conceived as the lowest standards which would satisfactorily accomplish those intended purposes.

Consequently, before setting up these minimum standards, it was necessary to analyze the purposes or essential functions of the housing which falls within the scope of the National Housing Act, and to extend this analysis to such conditioning factors as climate, location with particular reference to urban, suburban, or rural conditions; health and sanitation requirements; safety; income levels; custom; real-estate practice; and costs.

The standards which the Federal Housing Administration finally formulated necessarily had to be adapted to the existing fabric of the construction industry. If the administration were to encourage home building, it could not place its standards of construction nor its requirements for improved housing conditions at such high levels that costs would be raised unreasonably. Conversely, it could not place them at levels which would permit inadequate security for a long-term mortgage or which would impair public confidence in the soundness of the dwellings offered for purchase under the insured mortgage plan.

It chose, therefore, a level for its minimum physical standards which was generally recognized as being obtainable and as conforming with good practice. This level was not necessarily the most desirable one nor was it intended to be. However, it was intended to establish standards higher than those which had been generally achieved. It aimed to include only the fundamentals and to ignore what are generally termed the amenities.

Therefore, it stressed those factors which would assure substantial and durable structures, adequate light, ventilation, and sanitation, privacy in living, convenience and efficiency in arrangements, and protection against overcrowding and the disintegration of neighborhoods.

It was not considered essential to require the latest developments in convenience, equipment, fireproof construction, or garages. While these might be desirable, they were not considered minimum requirements, lacking which a property would be ineligible for mortgage insurance. Where, however, they are built into the property in such a manner as to represent real value, credit is given under the Administration's risk-rating system and their presence is recognized in the appraised values.

That these minimum requirements deal with fundamentals, rather than the amenities, was shown by the Administration's design of a house which would just comply with the minimum standards. This was house A, illustrated in Federal Housing Administration Technical Bulletin No. 4, *Principles of Planning Small Houses*. It was estimated that this house could have been built of conventional materials in the spring of 1937 in most communities at a cost of from $1,200 to $1,500, not including the cost of the lot, utilities, landscaping, drives, walks, basement, sales, and financing. While, to the Administration's knowledge, no houses actually have been built after this design, other low-rent house designs illustrated in the same bulletin have been followed in the construction of a number of homes whose costs have been within the Administration's estimates.

Tennessee Valley Authority

Of the several housing developments undertaken by Federal agencies, those of the Tennessee Valley Authority, at Norris, Tenn., have probably been watched as closely as any other for their contribution to the technique of small house design. It was assumed that construction should be of an enduring type to require a minimum of upkeep. The experiments were chiefly concerned with the economic effects of variations of size and form. Such experiments as were made with new materials and methods of construction were relatively of secondary importance. The variations in cost that resulted from the use of different materials were, surprisingly enough, of such negligible proportions that they can be ignored for all practical purposes. Economy was sought through the maximum use of space rather than by means of sleight of hand methods of construction.

Farm Security Administration

As an incident to its program of the rehabilitation of low-income farm families, the Farm Security administration has engaged in the construction of homes in a number of rural communities. Profiting by the experience of several years the Administration has modified and improved its building program in numerous ways. By establishing cost limits emphasis was focused on the highest possible quality within those limits. In 1937 the figure for rural homes was limited to between $1,200 and $2,100, and the cost of the entire farm unit, including outbuildings, to between $2,900 and $4,200. The variations in cost are established primarily to compensate for differences in construction necessitated by climatic factors and the requirements of different types of farming.

To keep within the cost limits design has been simplified and integrated with construction, building techniques on the site have been organized, and a degree of prefabrication introduced. Standard materials are used, and every gable, beam, and rafter not absolutely necessary has been eliminated. Nor are purely "deco-

rative" features included in these simple structures. As most of the buildings are of frame construction, it has been possible to pre-cut the lumber for a large number of houses at a central point. Pre-cutting in this manner requires only one-sixth the time required for hand-sawing on the site. Similarly, window and door frames are prefabricated. These methods enable speedy assembly at the site by relatively unskilled labor under proper direction. During 1937 some 3,370 of the 10,000 projected units were completed.

The rural construction by the Farm Security Administration is not to be confused with its well-publicized suburban projects. With the exception of Greendale, Wis., the suburban projects have involved multi-family construction. About one-half of the dwelling units at Greendale are single houses. In this community, careful study of the relation of house to site has resulted in a contribution to the problem of planning a small-house neighborhood compactly and economically without sacrificing safety, privacy, and the amenities of living.

Home Owners' Loan Corporation

The experience of the Corporation in refinancing over one million small home properties vividly disclosed deficiencies in planning and construction practice in the small house field. These deficiencies could have been corrected for the most part through insistence on the part of the lenders on efficient plans, intelligent use of materials, qualified contractors, and supervision of construction.

In the administration of its reconditioning work the Home Owners' Loan Corporation has made a forward step in the organizing of the construction industry with regard to repairing, remodeling, and modernizing. One of its principal contributions to simplified practices was the development of its master specifications now used in all sections of the country, which, in connection with preparation of papers for bidding purposes, has advanced standardization considerably to the benefit of all parties concerned. The experience of the Home Owners' Loan Corporation in the handling of over half a million building contracts effectively and economically through standardization of forms and procedure, suggests that similar patterns that might well be considered by those elements in the construction industry dealing with small home construction.

Conclusion

The Federal Government, in addition to requiring complete plans and specifications for all projects in which it is interested, supervises the construction with meticulous care. Commercial and industrial interests do likewise in their building programs. It is the exception rather than the rule when a home owner in the higher price class does not definitely concern himself regarding the fitness of the plan and value obtained in construction. Only in the small house field is found serious apathy and often positive avoidance on the part of the home owner and lender of the principles of construction practice cited above. If a major building boom should eventuate in the small house field without appropriate technical advice and supervision, there can be expected a repetition of the deficiencies in construction revealed by the experience of the Home Owners' Loan Corporation, only greatly intensified.

There has been a decided interest in the past two decades in encouraging closer cooperation between the many elements which make up the construction industry. These efforts have found expression in the activities of producers' councils, construction leagues, chambers of commerce, building congresses, and others more local and less representative, all of which are dedicated to a better understanding of the many problems of the industry. Some considerable accomplishment has been effected, but there is still sufficient reason for continuance and expansion of such agencies. Group thinking has not been sufficiently objective, and further, little of that thinking has been concerned with the small house problem. This neglect of the small house by these groups is natural. The small single family dwelling unit has in the past furnished little to stir the imagination of those builders of more pretentious homes who usually make up the membership of the organized groups just mentioned.

What nationally-organized elements in the housing field might best assume the leadership in correcting some of the varied problems having to do with small house construction? The architectural profession is one, since by training and professional background the architect is technically equipped, and free from influences which might develop from prejudiced vested interests. Home financing agencies might appropriately be another element, since they are for the most part trustees of the public's funds, and have a major investment interest in the financing of the projects.

These local factors cooperating under intelligent national leadership possess tremendous powers to correct abuses. The technicians can advance the art of planning and construction; the lenders, through their control of funds, can assure proper execution of the technical advance. By this cooperation a rallying point is established for the other important elements of the industry. Heretofore, the necessary focal point has been absent; and when at the end of innumerable industrial conferences resolutions have been passed to the effect that "something must be done," little has been done, because there has not been definitely established an

agency or device to which the unorganized group could look for leadership.

The Federal Housing Administration's efforts in this direction have been referred to above.

The Federal Home Loan Bank Board, in September 1936, approved a program known as the Federal Home Building Service Plan, which is a device to encourage local cooperation between the lender and qualified technicians to furnish an advisory and supervisory service to prospective home builders in the small house field. This program has the support of the leaders in the architectural profession and gained considerable momentum in its first 2 years of operation. The time is favorable for the expansion on a national basis of such instruments of service as have been promoted by the Federal Housing Administration and the Federal Loan Bank Board.

Prefabrication

For many years, the idea of designing a completely prefabricated dwelling unit has occupied the attention of both the amateur and the professional designer. Once bitten by the idea, there seems to be no escape from it. The idea is alluring and is a challenge to man's ingenuity and inventive powers. Because of far-reaching technological advance in so many fields, it would be unwise to conclude that a practical solution will not be developed.

There is sufficient evidence available at this time to make it apparent that the magic formula has not yet been found; moreover, in the past few years much unfortunate publicity connected with immature prefabrication developments has unquestionably delayed and discouraged the construction of many dwellings which might have been built under traditional methods. This publicity has been to the disadvantage of both processes of construction.

The problem is worthy of the best technical minds of the country; it is a problem also that extends beyond purely objective technological processes. The following outline lists the numerous reasons why current efforts to produce a prefabricated dwelling unit have not met with marked success.

Outline of Reasons for Failures in Prefabrication [6]

I. Failures inherent in the broad approach:
   1. Building only a wall, or floor, and so on.
   2. Designs fundamentally impossible to transfer to a factory.
   3. Superficial suggestions based on wishful thinking or desire for publicity.
   4. Prime purpose not achievement of a prefabricated house but obtaining a larger market for specific materials or equipment.
   5. Prefabricator not a businessman at all, but only a designer, doing no manufacturing himself.

II. Failure through insufficiently low cost.
   1. In the factory.
      A. Not enough purchasing power, involving.
         a. No low-cost commodities.
         b. No mass production.
         c. No control of production at all.
      B. Inadequate or no engineering study from the factory point of view; designs not suitable to high-speed production.
      C. Use of fundamentally costly materials or processes.
   2. In the field.
      A. Too little of the building a product of the manufacturer.
      B. Too much field work.
      C. Too great precision of erection required.
      D. Insufficient precision of erection afforded.
      E. No scheduled manner of erection.
      F. Too much equipment required for erection.
      G. Insufficient or no provision for easy installation of wiring and piping.
   3. Transport.
      A. Failure to use materials that can be delivered to the factory at low freight charges.
      B. Finished units too large to be shipped and handled economically.
   4. Excessive marketing costs due to insufficient capital or inexperience.

III. Failure because product nonmarketable.
   1. Architectural failure.
      A. Poor plans.
         a. Plans dictated by apartment thinking.
         b. Plans dictated by ultramodern logic not yet acceptable.
         c. Lack of flexibility of normal family patterns.
         d. Lack of studied equipment.
      B. Poor arrangement of equipment.
         a. Under-equipped.
         b. Inadequate provision for installation of piping and wiring.
         c. Over-equipped.
      C. No fundamental study of the house as a machine.
      D. However attractive by pure aesthetics, not keyed to popular taste.
   2. Structural failure.
      A. Dubious use of materials.
      B. Dubious use of flat roof.
      C. Dubious flimsiness (i. e. "though the thing may really be strong enough, if people can push against it or rap on it or do anything that makes it behave differently from what they are accustomed to, they are worried about it."
   3. Financing failure.
      A. Due to the theses of prefabrication, inability to obtain enough percentage loan from permanent financing institutions requiring too much down payment.
      B. No corporate possibility of bridging the financing gap.
         a. Insufficient financial power.
         b. Inability to do any marketing until price nearer the final price.
         c. Efforts to apply the fallacious renting thesis.
   4. Premature ballyhoo.

[6] This outline was read and elaborated before the Technology Housing Conference in Boston, June 7, 1937, by John Ely Burchard, architect in charge of housing research for Bemis Industries, Boston. In collaboration with the late Albert Farwell Bemis, Mr. Burchard wrote the three volume work *The Evolving House*, Volume I, *A History of the Home;* Volume II, *The Economics of Shelter*, Volume III, *Rational Design.*

IV. Failure because of insufficient quality (such as unscientific or unsound use of existing materials—rare).
  1. Wood.
    A. Dry wood next moist materials.
    B. Green unseasoned wood.
  2. Steel.
    A. So used as to cause condensation.
  3. Miscellaneous.
    A. Insufficient heat insulation.
    B. Cold floors.
    C. Use of unbalanced units.

While many minds have given thought to the problems involved, attention is called to the work of R. Buckminster Fuller as illustrating two methods of approach: first, the consideration of the complete house and second, the consideration of parts of the house. Mr. Fuller's *Dymaxion House* (1928) describes his approach. It is of interest to record Mr. Fuller's subsequent observations (1934) concerning his design: "The Dymaxion House is still as it has been for years—a theory only. Despite pragmatic criticism it has conscientiously been kept so. While theoretical it is immediately improvable by every scientific advance. Its monthly improvements and inclusions are vaster than the yearly refinements and inclusions in the automotive world, as it has never been burdened with overhead nor with heavy industrial-investment earning requirement."

This last statement has considerable significance to anyone interested in the development of a prefabricated dwelling unit. Perhaps a more immediately useful contribution in fundamental thinking by Mr. Fuller is found in his design and construction of what he calls an integrated bathroom unit. This unit is illustrative of one of Mr. Fuller's earlier convictions: that the factor of weight in relation to construction processes is of serious purport and too little attention has been given to this element in building construction.

The complete bathroom unit which includes floor, walls, ceiling and fixtures is designed in two sections and installation can easily be accomplished by two men. A total weight of 250 pounds for the complete bathroom compares with an average weight of over 1,000 pounds for a standard tiled bathroom of similar size and with luxury-size fixtures. Space is another consideration directed toward economy, as the unit occupies an area 5 by 5 feet.[7]

In carrying out research of this type, Mr. Fuller is not alone. The work of many others will doubtless add equally valuable results. The solution of such technical problems today is usually joint rather than individual. The probabilities in the field no one can predict. Some students are convinced that savings in the neighborhood of 15 percent of the cost of the structure are all that can be anticipated—even with complete success. Such savings are equally possible within the traditional framework of building. Nevertheless, inventions have a way of proving all predictions to be wrong.

[7] For photographs, drawings, and description of this unit see the January 1937 issue of *The Architectural Record*.

Conclusion

House building has long been regarded as the easy job of the building trade, requiring neither trained skill in planning and design, nor science in erection. While, in the past, science and skill have been devoted in an ever increasing measure to the betterment of office buildings, highways, hotels, bridges, and other large structural projects, no such attention has been paid dwelling construction. The popular belief that stock plans that need "only a little shifting around" plus a little knowledge of the fabrication of materials is sufficient to insure a satisfactory home accounts for many disappointed and disgruntled home owners.

If all the building industry hopes to do is to provide enough roofs to take care of the population increase, its vision is pitiful, particularly in view of the fact that the rate of population increase is declining steadily. If, however, it can realize that through cooperation in the solution of its technical problems it can raise the standard of American housing, and keep on raising it, then the industry can be established and not go bobbing along from boom to depression, selling contractors' liens at 50 cents on the dollar and trying to recoup from the next customer. It is obvious that in order to deal with the problem the individuals who supply the various ingredients in home building must be coordinated so that the problem may be attacked on all fronts simultaneously. When the problem becomes one of replacement rather than expansion, the salvation of the building industry will lie in improved replacement rather than new volume.

With long term loans and cheap money, lenders must take steps to assure themselves that homes will last longer than the loans. Moreover, under present day conditions the individual is less attached to the soil or to a particular community than formerly. The borrower may go away, but the home remains to be used by others. Therefore, increasing importance attaches to the home itself as the physical security for the loan.

The tendency to pass lightly over the real technical needs of the small house has caused such home building to gravitate to agencies not properly equipped or staffed to render the needed technical service. The architectural activities of those not qualified by education, training or experience to deal successfully with planning, design, and construction have resulted in eyesore after eyesore. Frequently entire neighborhoods of architectural "hair-raisers" grace the landscape. In some cases, the material dealer, attempting to act as architectural adviser and designer, is the one at fault. In others, it is the contractor.

Little can be done to eliminate these architectural fantasies which threaten land values and the demand for new homes unless some means is found to infiltrate competent technical advice and assistance concerning plan, design, and building into the small house field. The judicious use of well selected low-cost stock designs is quite reasonable. In many cases, such designs will suffice to meet average needs, provided that the home builder can be guided and advised in his selection by qualified technicians who will also provide the degree of building supervision necessary to insure good results.

Progress will come when all home building participants find a common ground upon which they can unite to offer the home builder a positive means of getting better design, better adapted to the site and the neighborhood, as well as the right kind of supervision. Only through such measures can the owner be assured of dollar for dollar value, the lender of a good loan, and the industry of a home that will encourage, rather than discourage, families contemplating home building.

The most valid criticism that can be leveled at the building industry is that each group within the industry is preoccupied with its own affairs and fails to be guided sufficiently by the equally important requirements of the other collaborators in the building project. Also, those who speak for the various industry groups are prone to view with alarm any movement aimed at the betterment of home construction, since such efforts must, of necessity, be based upon considerations other than those which appear of primary importance to the particular group affected. Seldom has there been a greater need for an appreciation of the other fellow's position and a willingness to drop petty differences in evolving some means of improving the serviceability, quality, and appearance of the Nation's houses.

It is perhaps only natural that those who have come to assume certain technical functions in home building should resist a more proper alignment of the technician in relation to other construction factors. However, it is becoming more and more apparent that, once the dealer or the contractor understands the harm being done him by jig-saw design, the use of improper materials and irresponsible construction, he will join hands with other responsible factors in any well-defined movement to insure better homes.

An incredible volume of small-home construction is built in rural, urban, and suburban areas in single units, and a housing program based on housing needs in these particular areas does not call for large-scale construction methods. In seeking economies in construction of the small home, the construction system as it exists today must be accepted but step by step changes necessary towards a final objective must be taken.

In the construction of a building it is a generally accepted fact that plans are desirable preliminary to commencing construction operations. In the small house field the country does not suffer from a lack of small house plans issuing from innumerable sources; and except in general room arrangement the prospective home builder has a wide selection of styles, materials, and equipment, both unique and bewildering in their variety. An examination of these plan services for the most part discloses inefficient planning, excessive costs due to structural lines, unwise use of materials and combinations of materials, and little regard for local construction methods.

The Federal Government in its different housing agencies has studied with care the plan and design of the small home. But the work to be done remains of large volume. These studies should be continued with a view to correlating the usable information and making it available to those elements in the industry best equipped to utilize it intelligently in their respective communities. To serve the small home builder adequately it is both possible and practical to develop a series of base plans (dimensions and arrangement of rooms and equipment) which will meet desirable standards for given sizes of families. This series might not exceed 30 plan types covering 4-, 5-, and 6-room houses, 1 and 2 stories, in which different elements susceptible to standardization may be fixed or recommended, such as kitchen layouts and equipment, bathroom sizes and equipment, window and door sizes and design, trim, stair design and other mill work. These base plans and recommendations could be then distributed to competent architects, in areas where local conditions have particular influence on design, for final development. There are many benefits, direct and indirect, to be gained through a program of this kind which can only be effected by a Federal agency in cooperation with the technical profession. Mass production of many of the above-enumerated items can be made possible; speed in construction can be accomplished through greater standardization. Design suited to local conditions should result in lower maintenance costs, and so on. An important result would be the elimination of the wasteful, ill-advised existent stock plan services. Such a program of better integration would not necessarily produce undesirable monotony, but would result in the development of local character in small home building. That community which is always found so attractive in the older New England towns, with its unity in scale and design pattern, is a form of local standardization which, although resultant from different factors than those of today, still points the way to indigenous building.

Continuing concentration on the small house problem by competent technicians is essential to the development of such a program.

PART 4. BUILDING MATERIALS AND THE COST OF HOUSING

By Theodore J. Kreps [1]

Introduction and Summary

Building materials are about twice as significant in the on-site cost of building as labor costs. Price inflexibility, restriction of production, and wastefulness of distribution characterize the building materials industries. These are important factors retarding home building. Their removal depends not only upon increased efficiency in industrial organization but also upon a reduction in the relative prices of some of them by elimination of interference with freedom of competition.

The importance of building materials in the housing problem is frequently underestimated. Building materials costs usually range from somewhere near equal to double the on-site wages bill. Thus, a change in the price of building materials may have as much as twice the effect of an equal percentage change in wage rates. Prices and practices in the building materials industries, therefore, deserve careful and continuous examination.

During 1936 and 1937 building materials caused more than twice the amount of increase in costs of residential construction that could be attributed to increases in wages. Some important building materials were from 20 to 30 percent higher in price than they were on the average throughout the building boom of the "twenties," notably Douglas fir, yellow pine and white pine lumber, plaster, various steel products and certain types of brick. In 1937 increases in the prices of important building materials may well have helped to stifle incipient recovery of residential building. This fact, together with consistent inflexibility of price movements, suggests that certain producer organizations may recently have perfected the technique of "closely adjusting production to consumption" to the point where the long-sought-for "stabilization" of prices was on the verge of realization. At any rate, the more important building materials continue to be restrictedly produced, inefficiently and even wastefully distributed, and assembled and utilized without benefit of the economies either of large-scale residential building operations or of vertical combinations integrating homebuilding from sawmill and brick factory to homeowner and investor.

Building Materials Versus Labor Costs

The first step toward assessing the place of building materials in the housing picture is to specify the type of house used as standard of reference. Attention will be focused upon the single detached one-family dwelling of wood or brick. That is the type in which 22,833,110 families out of a total of 29,904,663 families lived in 1930. In that year 16,164,429 out of a total of 18,536,295 nonfarm dwellings were one-family structures. A glance at figure 30 shows that they comprise three-fifths to three-fourths of the nonfarm dwelling units built since 1929. Judging from the experience of Great Britain and other countries that have made headway toward providing low-rental housing, they constitute the kind of structure promising the largest measure of success.

The most important type of construction is, of course, the wooden frame structure. In 1923–25, for example, a survey by the United States Department of Commerce [2] showed that about 80 percent of dwellings in communities of over 2,500 population, and fully 90 percent of those in smaller communities, were constructed of wood. Another survey by the Fidelity-Phoenix Fire Insurance Co. in 1932 covering 40 cities in the United States put the figure somewhat lower—at 68 percent.

There is, to be sure, wide variation in this regard between individual cities. In Los Angeles virtually all the single and two-family houses are of frame construction. In Detroit, according to an estimate of the Department of Buildings and Safety Engineering, from 65 to 75 percent of the dwellings are of frame construction. In Philadelphia in 1928, on the other hand, of 415,045 dwellings only 9,248, or less than 2.3 percent, were built of wood.[3] The general average none the less remains high, probably somewhat more than two-thirds. Consequently, by focusing attention upon single-family dwellings of wooden frame construction a large portion of housing is brought within consideration.

Even for the single-family house the ratio of materials expense to labor expense varies with the style of architecture, the size of the community, the composite of materials, the geographic area, and the method of building and financing. The simpler the plan of the house, the smaller the size of the community, the fewer the gadgets, the further south and West, usually the lower the labor expense. The ratios vary considerably

[1] Dr. Theodore Kreps is Associate Professor of Business Economics, Graduate School of Business, Stanford University. He was formerly Chief of the Statistical Section, Research and Planning Division, National Recovery Administration, and Chairman of the Coordinating Committee of the Central Statistical Board and the Works Progress Administration.

[2] *Domestic Market Possibilities for Sales of Paints and Varnishes* (Washington, 1925), pp. 18, 20.

[3] Newman, Bernard J., "What the Rest of the Country Can Learn from Philadelphia," in *Housing Problems in America* (National Housing Association, New York, 1929), vol. X, p. 40.

as between houses built to the specifications of the individual owner and those built for a market by a large-scale real estate operator or speculative builder. They also differ markedly as between projects financed and built by individual contractors and by Government agencies. Private contractors have greater leeway in the use of their bargaining strength to get concessions on materials or labor. Government agencies on the other hand must meet certain trade union standards and more often encounter uniform bids for material. These, among many other factors, cause a considerable variation in the ratios.

Nevertheless, during the last 10 years building materials have ordinarily comprised about two-thirds of the cost of the structure, and labor at the site slightly over one-third. In the *Census of Business* for 1935, general building contractors reported only 33.7 percent [4] of the cost of total work performed as consisting of payroll. The remainder consisted of materials, overhead, and profits.

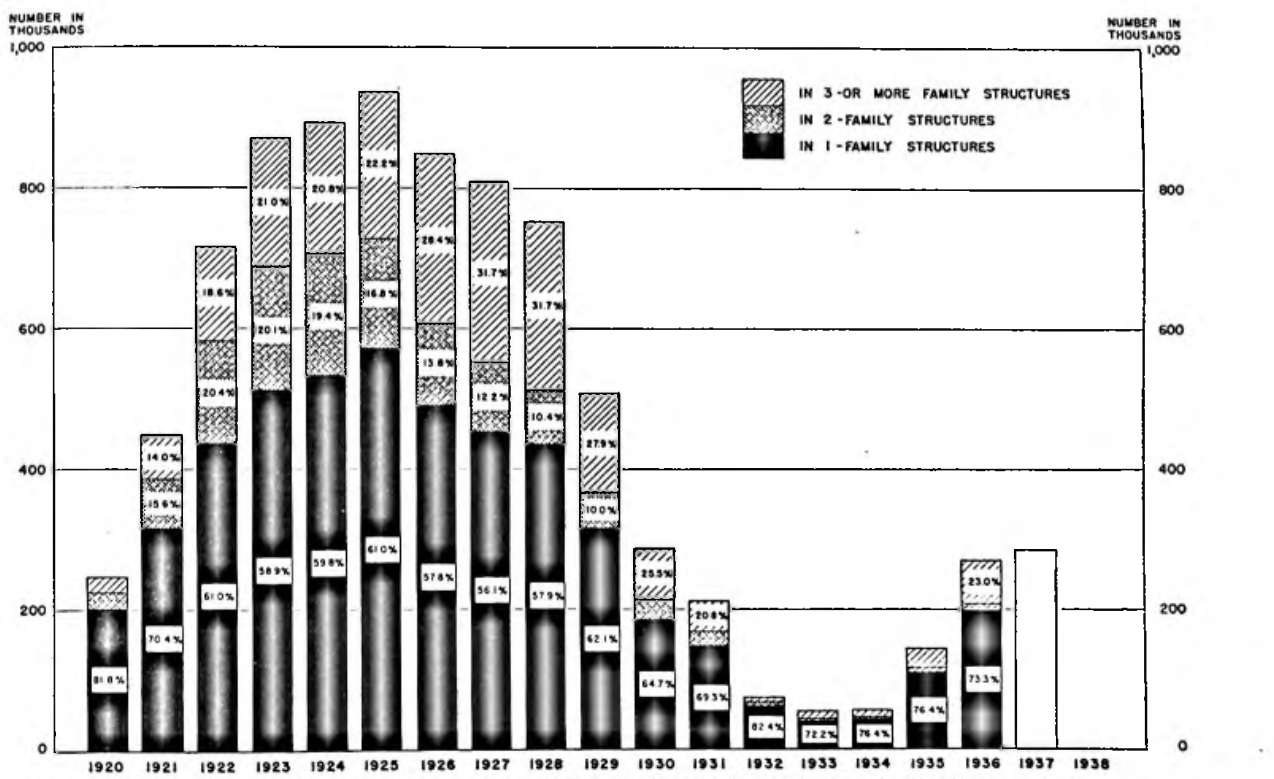
There is, of course, considerable variation within the same city and between various cities. In 1931–32, for example, the Bureau of Labor Statistics obtained the results shown in table I. Note that materials ratios are relatively high in the South but low in New England and New York, varying from percentages as high as 74 percent in Dallas, Tex., to figures as low as 56.9 percent in Boston, Mass. These variations in the ratios of cost of materials to total cost are, of course, due in large degree to differences in labor costs. The variation between individual residences in the same city is also striking, usually being about 10 points or roughly a sixth.

TABLE I.—*Percentage distribution of cost of construction between materials and labor for residential construction in cities, 1931–32* [1]

	Averages by cities		Range in individual buildings			
			Material		Labor	
	Material	Labor	High	Low	High	Low
Atlanta, Ga.	70.1	29.9	73.8	63.5	36.5	26.2
Boston, Mass.	56.9	43.1	60.9	43.8	56.2	39.1
Chicago, Ill.	65.1	34.9	65.9	60.3	39.7	34.1
Dallas, Tex.	74.0	26.0	80.2	68.8	31.2	19.8
Duluth, Minn.	66.3	33.7	70.1	62.3	37.7	29.9
Indianapolis, Ind.	59.7	40.3	72.3	56.3	43.7	27.7
Little Rock, Ark.	67.7	32.3	71.2	62.3	37.7	28.8
New Orleans, La.	69.4	30.6	73.1	60.8	39.2	26.9
New York, N. Y.	59.6	40.4	67.8	57.2	42.8	32.2
Roanoke, Va.	64.1	35.9	69.3	59.6	40.4	30.7
Saginaw, Mich.	66.5	33.5	67.8	54.1	45.9	32.2
St. Louis, Mo.	63.0	37.0	70.4	55.7	44.3	29.6
Salt Lake City, Utah.	65.6	34.4	67.9	61.8	38.2	32.1
Seattle, Wash.	57.5	42.5	68.5	55.5	44.5	31.5
Trenton, N. J.	59.0	41.0	62.7	52.4	47.6	37.3
Weighted average, 15 cities	62.7	37.3				

[4] *Census of Business, Construction Industry: 1935*, vol. I, p. 45, table 2.

[1] *Monthly Labor Review*, October 1932, pp. 764–765.



Source: Federal Housing Administration, Division of Economics and Statistics, Chart No. C 5, 553 A. December 30, 1936.

FIGURE 30.—Estimated number of nonfarm dwelling units by types of structure, 1920–37.

No accurate figures exist as to the number of dwelling units built annually in the United States. These estimates are based on census data and on building permit data reported by the Bureau of Labor Statistics. The National Bureau of Economic Research estimates were used for 1920–1935; estimates for 1936 to date were made by the Federal Housing Administration.

Even when identical quantities of materials and labor are compared, a considerable amount of variation occurs not only between cities but between different periods of time in the same city. The Federal Home Loan Bank Board has been collecting figures on identical quantities of materials and labor requisite to produce a standard wood-frame six-room house. These figures are obtained in 90 cities and grouped according to the areas established for the operations of the Board.

In table II data are presented for 26 of the more important of these cities. The rise and fall in costs is shown for months one year apart. The midsummer of 1937, being the period when building activity began to decline, is compared with the midsummer of 1936. Notice in the column showing percent of cost due to materials that the figures group themselves in the interval between 65 and 70 percent, though ranging from roughly 57 percent in Chicago to 76 percent in Wichita, Kans.

TABLE II.—*Cost of labor and materials for construction of the same standard house in 26 specified cities, 1936 and 1937* [1]

Federal Home Loan Bank Board districts and cities	Month and year	Total	Labor	Percent	Materials	Percent	Ratio of percent increase in materials to percent increase in combined costs [2]
District 1							
Boston, Mass.	June 1936	$5,039.91	$2,102.75	41.7	$2,937.16	58.3	
	June 1937	5,665.54	2,314.99	40.9	3,350.55	59.1	
Increase		625.63	212.24		413.39		1.14
Providence, R. I.	June 1936	4,812.38	1,713.60	35.6	3,098.78	64.4	
	June 1937	5,201.55	1,701.60	32.7	3,499.95	67.3	
Increase		389.17	−12.00		401.17		1.59
District 2							
Newark, N. J.	July 1936	5,055.89	2,167.10	42.9	2,888.79	57.1	
	July 1937	5,657.76	2,238.10	39.6	3,419.66	60.4	
Increase		601.87	71.0		530.87		1.55
Albany, N. Y.	July 1936	4,677.29	1,655.51	35.4	3,021.78	64.6	
	July 1937	5,294.21	1,919.59	36.3	3,374.62	63.7	
Increase		616.92	264.08		352.84		.80
District 3							
Philadelphia, Pa.	August 1936	4,321.48	1,425.53	33.0	2,895.95	67.0	
	August 1937	5,209.51	1,843.53	35.4	3,365.98	64.6	
Increase		888.03	418.00		470.03		.79
Pittsburgh, Pa.	August 1936	4,769.71	1,453.28	30.5	3,316.43	69.5	
	August 1937	5,944.45	1,956.82	33.4	3,957.63	66.6	
Increase		1,174.74	533.54		641.20		.78
District 4							
Birmingham, Ala.	June 1936	4,398.74	1,383.12	31.4	3,015.62	68.6	
	June 1937	5,326.02	1,789.14	33.6	3,537.48	66.4	
Increase		927.88	406.02		521.86		.82
Tampa, Fla.	June 1936	4,709.09	1,353.95	28.8	3,355.14	71.2	
	June 1937	5,025.39	1,373.83	27.3	3,651.56	72.7	
Increase		316.30	19.88		296.42		1.31
Richmond, Va.	June 1936	4,413.30	1,329.30	30.1	3,084.00	69.9	
	June 1937	4,608.65	1,376.70	29.9	3,231.95	70.1	
Increase		195.35	47.40		147.95		1.09
District 5							
Cleveland, Ohio	August 1936	5,386.98	2,154.73	40.0	3,232.25	60.0	
	August 1937	6,105.56	2,329.48	38.2	3,776.08	61.8	
Increase		718.58	174.75		543.83		1.26
Nashville, Tenn.	August 1936	4,472.10	1,400.42	31.3	3,071.68	68.7	
	August 1937	4,836.00	1,397.18	28.9	3,438.82	71.1	
Increase		363.90	−3.24		367.14		1.47
District 6							
Indianapolis, Ind.	July 1936	5,084.02	1,741.50	34.3	3,342.52	65.7	
	July 1937	5,167.21	1,644.43	31.8	3,522.78	68.2	
Increase		83.19	−97.07		180.26		[3]
Grand Rapids, Mich.	July 1936	4,543.29	1,355.48	29.8	3,187.81	70.2	
	July 1937	4,884.72	1,409.93	28.9	3,474.79	71.1	
Increase		341.43	54.45		286.98		1.20
Detroit, Mich.	July 1936	4,639.38	1,562.30	33.7	3,077.08	66.3	
	July 1937	5,585.42	2,007.05	35.9	3,578.37	64.1	
Increase		946.04	444.75		501.29		.80
District 7							
Chicago, Ill.	June 1936	5,790.34	2,537.03	43.8	3,253.31	56.2	
	June 1937	6,336.27	2,678.11	42.3	3,658.16	57.7	
Increase		545.93	141.08		404.85		1.32
Milwaukee, Wis.	June 1936	4,858.06	1,592.61	32.8	3,265.45	67.2	
	June 1937	5,957.19	1,710.66	28.7	4,246.53	71.3	
Increase		1,099.13	118.05		981.08		1.33
Oshkosh, Wis.	June 1936	4,924.55	1,541.10	31.3	3,383.45	68.7	
	June 1937	5,057.19	1,522.73	30.1	3,534.46	69.9	
Increase		132.64	−18.37		151.01		1.67
District 8							
St. Paul, Minn.	July 1936	4,838.61	1,676.65	34.7	3,161.96	65.3	
	July 1937	6,051.58	2,152.36	35.6	3,899.22	64.4	
Increase		1,212.97	475.71		737.26		.93
St. Louis, Mo.	July 1936	5,160.82	2,225.46	43.1	2,935.36	56.9	
	July 1937	5,697.36	2,136.87	37.5	3,560.49	62.5	
Increase		536.54	−88.59		625.13		[3]
District 9							
New Orleans, La.	August 1936	4,504.27	1,252.40	27.8	3,251.87	72.2	
	August 1937	5,298.32	1,458.54	27.5	3,839.78	72.5	
Increase		794.05	206.14		587.91		1.03
Houston, Tex.	August 1936	5,098.24	1,590.26	31.2	3,507.98	68.8	
	August 1937	5,328.33	1,678.31	31.5	3,650.02	68.5	
Increase		230.09	88.05		142.04		.89
District 10							
Wichita, Kans.	June 1936	4,547.75	1,098.50	24.2	3,449.25	75.8	
	June 1937	5,223.06	1,184.35	22.7	4,038.71	77.3	
Increase		675.31	85.85		589.46		1.16
Omaha, Nebr.	June 1936	4,896.35	1,565.60	32.0	3,330.75	68.0	
	June 1937	4,736.18	1,168.38	24.7	3,567.80	75.3	
Decrease		−160.17	−397.22		237.05		[3]
District 11							
Portland, Oreg.	July 1936	4,647.72	1,648.30	35.5	2,999.42	64.5	
	July 1937	5,306.57	1,854.65	35.0	3,451.02	65.0	
Increase		658.85	206.35		452.50		1.06
Spokane, Wash.	July 1936	5,009.36	1,634.13	32.6	3,375.23	67.4	
	July 1937	5,944.84	2,235.43	37.6	3,709.41	62.4	
Increase		935.48	601.30		334.18		.53
District 12							
Los Angeles, Calif.	August 1936	4,644.52	1,604.44	34.5	3,040.08	65.5	
	August 1937	5,260.76	1,758.51	33.4	3,502.25	66.6	
Increase		616.24	154.07		462.17		1.14

[1] Source: Cost data from the Federal Home Loan Bank Board. The house on which costs are reported is a detached 6-room home of 21,000 cubic feet volume. Living room, dining room, kitchen, and lavatory on first floor; 3 bedrooms and bath on second floor. Exterior is wide-board siding with brick and stucco as features of design. Best quality materials and workmanship used throughout. The house is not completed ready for occupancy. It includes all fundamental structural elements, an attached 1-car garage, an unfinished cellar, an unfinished attic, a fireplace, essential heating, plumbing, and electric wiring equipment, and complete insulation. It does not include wallpaper nor other wall nor ceiling finish on interior plastered surfaces, lighting fixtures, refrigerators, water heaters, ranges, screens, weather stripping, nor window shades. The total figures in the above table include only labor and material. The discrepancies between the total figures in this table and those in table IX are explained by the fact that in table IX the costs shown include, in addition to material and labor costs, compensation insurance, an allowance for contractor's overhead and transportation of materials, plus 10 percent for builder's profit. Reported costs do not include the cost of land nor of surveying the land, the cost of planting the lot, nor of providing walks and driveways; they do not include architect's fee, cost of building permit, financing charges, nor sales costs. In figuring costs, current prices on the same building materials list are obtained from the same reputable contractors and operative builders.

[2] When ratio is more than 1.0 materials cost increased at a greater rate than combined materials and labor; when the ratio is less than 1.0 materials increased at a lesser rate, i. e., labor costs advanced at a greater rate than the combined increase.

[3] Ratios not shown because the decrease in labor costs so minimized the rise in total costs as to give an exaggerated impression of the significance of changes in material costs.

The figures in the last column deserve careful attention. In six cities, Providence, Nashville, Indianapolis, Oshkosh, St. Louis, and Omaha, all of the increase in building costs from June 1936 to June 1937 was due to increases in the prices of materials, none to labor. Since outlays for materials constitute from 60 to 70 percent of the on-site building costs, if materials and labor rise at the same rate, the increase in materials prices would account for 60 to 70 cents of each dollar of increase in total costs. When the ratio shown in the table exceeds one, the rise in materials prices was more rapid than that of total costs. This was the case in 18 of the 26 cities for the period from June 1936 to June 1937. How much greater is shown by the values of the ratios. In only eight cities did materials prices rise less rapidly than total costs, but in no case sufficiently less to make their absolute contribution toward increases in total building costs smaller than that of increases in labor costs.

It is also to be noted from table II that the material-labor ratios do not remain constant, since material prices and labor costs do not move uniformly at the same rate in the same direction. In the short period covered by this tabulation, the proportion of expense chargeable to materials increased in 18 of the 26 cities because materials prices increased more rapidly than did wages. Nevertheless, the tabulation indicates that the short-time fluctuations in the materials and labor ratios are limited to a rather narrow range.[5]

One further fact should be noted in table II, namely, the considerable differences in outlay required in the various cities to obtain the same quantity of building materials. In 1936 the figure varied from as low as $2,900 in Newark, N. J., to $3,500 in Houston, Tex. In 1937 the lowest figure of $3,200 in Richmond, Va., was a fourth lower than the highest figure of $4,250 for Milwaukee, Wis. Clearly these differences, while in part due to differences in freight rates, shift temporally and regionally in accordance with variations in distributive mark-ups, contractor bargaining power, and the like.

Thus far the discussion has centered upon the wooden frame single-family dwelling built under ordinary conditions. When other materials are used, or when multiple-family dwellings are erected, the ratios will differ considerably. In table III is contained a limited sample of diverse conditions, comparable only in a rough way. It shows the proportion of total costs attributable to wages to have been uniformly higher on multi-family dwellings than it was for single-family houses.

These data indicate that building materials constitute roughly from 50 to 70 percent of the combined cost of labor and materials. But building materials constitute

[5] For further discussion of labor costs, see section on "Labor and the Cost of Housing."

TABLE III.—*Material costs vs. labor costs in various types of construction* [1]

Location	Type of structure	100=combined cost of material and labor	
		Material	Labor
Single-family houses (private contracts):			
Pontiac, Mich.[2]	150 houses built by the Oakland Housing Corporation.	62.8	37.2
Purdue University: [3]			
House No. 1	Wood frame and stucco	66.3	33.7
House No. 4, "steel house."	Walls and roof of prefabricated panels.	72.0	28.0
Multifamily houses (public contracts): [4]			
Atlanta, Ga	Techwood Apartments, P. W. A.	63.0	37.0
Miami, Fla	Liberty Square project, P. W. A.	56.2	43.8
Montgomery, Ala	Paterson Courts, P. W. A.	59.2	40.8
Montgomery, Ala	Riverside Heights, P. W. A.	58.9	41.1
Cleveland, Ohio	Cedar Central Apartments, P. W. A.	52.3	47.7
Washington, D. C.	Alley Dwelling Authority, row type houses.	50.9	49.1

[1] Overhead and profit are not included. Building on these projects took place roughly in the period 1935–36.
[2] Source: *Architectural Record*, October 1936, vol. 80, No. 4, pp. 253–274.
[3] Source: *Better Homes in America*. House No. 1, vol. 1, Nos. 14 and 15, July and August 1936. House No. 4, vol. 1, Nos. 10 and 11, May and June 1936. Purdue University, Lafayette, Ind.
[4] Source of data for governmental projects: Bureau of Labor Statistics, Division of Construction and Employment.

a smaller percentage of the total capital cost of the home to the builder and to the buyer. To the cost of the structure itself must be added the price of the land.

The proportion of total cost due to land varies from time to time and from locality to locality, even within the same city or same portion of the city. In general, a figure in the neighborhood of 20 percent seems typical. In 1928, for example, the Veterans' Welfare Board of California reported that of the cost of veterans' homes, 22 percent on the average was charged against the lot, and that "the lot, unless under exceptional circumstances, should represent from 20 to 25 percent of the total cost of the home." [6]

Another study [7] summarizing information gathered from builders in 25 cities found that the average ratio of improved lot cost to total cost of house and lot was 20.2 percent, ranging from 17.7 percent in cities with 50,000 to 100,000 population to 25.7 percent in those with 500,000 to 1,000,000. Subdividers and officials of real estate boards in 64 cities gave a general average ratio of 18.1 percent between the cost of the improved lot and the total cost of house and lot. Thus, building materials form from 42 to 52 percent of the capital costs of the home.[8]

The Relative Significance of Different Building Materials

It has been shown that expenditures for material account for a larger proportion of the cost of hom

[6] Veterans Welfare Board of California, *Annual Report, 1928* (California State Printing Office, Sacramento, 1928), p. 33.
[7] Whitten, Robert, and Adams, Thomas. *Neighborhoods of Small Homes; Economic Density of Low-Cost Housing in America and England* (Harvard University Press, Cambridge, 1931), pp. 34–35, 155–157.
[8] Assuming that building materials range from 60 to 65 percent of the cost of the structure, and that the structure forms 70 to 80 percent of the cost of the home.

construction than do labor costs. To lay the foundation for further analysis of building material prices in relationship to home construction, it is necessary to ascertain what materials are most important in this type of building.

The answer to such a query will, of course, depend on several factors: the type of house, its style of architecture, the locality, freight rates, engineering economies, local supplies of building materials, their relative prices, individual shrewdness and bargaining ability in purchasing them, quantities purchased and specifications demanded by the architect, the building code, or the owner's whim.

Inasmuch as the house upon which major attention has been focused here is the detached frame dwelling, the figures in table IV provide a reasonable perspective concerning the importance of individual materials in the low-cost housing picture. It indicates that lumber is even more important than one might at first surmise. In fact, it takes from 45 to 55 cents of the building materials dollar, 6 to 11 cents going for unfinished lumber, 15 to 21 cents going for millwork (frames, doors, trim, etc.), and 19 to 23 cents going for finished lumber (shingles, siding, sheathing, flooring, etc.).

TABLE IV.—*Percentage distribution of expenditure for building materials in construction of a standard house in 26 cities, summer, 1937* [1]

Federal Home Loan Bank Board Districts and cities	Grand total	Lumber				Miscellaneous items	Mason materials	Hardware, miscellaneous	Painters' materials	Boiler, radiators and fittings	Plumbing
		Total	Unfinished	Millwork	Finished						
District 1:											
Boston, Mass.	100.0	47.7	11.6	14.8	21.3	7.4	17.8	3.2	2.5	7.7	13.7
Providence, R. I.	100.0	49.6	10.5	15.9	23.2	7.5	17.9	3.2	2.3	7.1	12.4
District 2:											
Newark, N. J.	100.0	48.1	11.4	16.7	20.0	10.7	17.8	2.7	2.7	7.2	10.8
Albany, N. Y.	100.0	49.4	10.5	19.4	19.5	6.6	18.9	2.6	2.5	7.1	12.9
District 3:											
Philadelphia, Pa.	100.0	50.3	9.5	20.0	20.8	6.8	18.5	3.0	2.5	6.9	12.0
Pittsburgh, Pa.	100.0	53.0	10.0	19.4	23.6	7.0	18.2	2.4	2.2	6.2	11.0
District 4:											
Birmingham, Ala.	100.0	47.4	9.7	19.7	18.0	6.1	21.6	2.4	2.7	8.0	11.8
Tampa, Fla.	100.0	50.5	9.2	17.9	23.4	5.6	19.7	2.9	2.6	7.3	11.4
Richmond, Va.	100.0	47.4	8.0	17.2	22.2	5.9	19.7	2.9	2.9	8.2	13.0
District 5:											
Cleveland, Ohio	100.0	54.0	11.1	18.9	24.0	7.4	14.6	2.3	2.3	7.5	11.9
Nashville, Tenn.	100.0	49.9	11.6	16.4	21.9	6.2	19.7	2.6	2.8	7.0	11.8
District 6:											
Indianapolis, Ind.	100.0	49.7	10.2	19.1	20.4	7.0	16.5	2.8	2.6	10.0	11.4
Grand Rapids, Mich.	100.0	53.4	11.7	20.1	21.5	6.3	16.8	2.7	2.4	7.2	11.2
Detroit, Mich.	100.0	52.3	10.6	19.8	21.9	7.7	14.9	2.6	2.6	8.8	11.1
District 7:											
Chicago, Ill.	100.0	54.2	10.8	19.8	23.5	6.7	14.0	2.6	2.4	7.5	12.6
Milwaukee, Wis.	100.0	53.8	9.8	27.5	16.5	5.5	12.3	2.6	2.1	9.4	14.3
Oshkosh, Wis.	100.0	46.9	11.3	15.2	20.4	6.9	19.1	2.9	2.6	8.8	12.9
District 8:											
St. Paul, Minn.	100.0	55.4	11.2	21.7	22.5	5.3	15.9	2.5	2.3	7.0	11.6
St. Louis, Mo.	100.0	49.4	9.5	18.7	21.2	7.0	16.8	2.6	2.3	9.5	12.4
District 9:											
New Orleans, La.	100.0	53.5	10.3	21.1	22.1	4.3	19.5	2.7	2.8	6.8	10.4
Houston, Tex.	100.0	41.4	9.0	18.0	14.4	6.1	22.3	3.4	3.1	9.4	14.3
District 10:											
Wichita, Kans.	100.0	54.3	10.7	21.4	22.2	6.3	16.1	3.2	2.3	6.8	11.0
Omaha, Nebr.	100.0	48.7	10.1	18.6	20.0	5.3	19.0	2.9	2.6	9.0	12.5
District 11:											
Portland, Oreg.	100.0	44.2	5.4	19.4	19.4	5.4	20.2	2.6	2.9	9.5	15.2
Spokane, Wash.	100.0	44.8	7.4	17.0	20.4	5.4	20.5	3.2	2.8	10.1	13.2
District 12:											
Los Angeles, Calif.	100.0	52.0	8.1	24.0	19.9	6.6	15.1	3.4	2.6	8.2	12.1

[1] Source: Computed from data in files of Federal Home Loan Bank Board, Division of Research and Statistics. For a description of the house on which these costs are based, see the explanatory note to table II.

As between regions of the country the pattern is most irregular, greater differences appearing between two relatively contiguous cities such as New Orleans, La. (53.5), and Houston, Tex. (41.4), than between any two areas. In general the figures are low in lumber-surplus sections, such as Oregon and Washington, and high in interior lumber-deficit areas such as Ohio and Illinois. The variations as between localities for the various grades of lumber is even more striking, unfinished lumber in the Middle West taking more than twice the slice out of the materials dollar that it does in Portland, Oregon.

The next largest slice of the building materials dollar goes for mason's materials (brick, plaster, cement, lime), roughly 16 to 19 cents. Next in order comes plumbing, about 11 to 13 cents; then heating equipment, from 7 to 9 cents; and finally miscellaneous items, none of which individually takes more than 2 or 3 cents.

The building materials dollar has a different distribution when structural steel becomes part of the cost in other types of construction (see table VII). But even in the small frame house the cost of steel is important because so much equipment such as plumbing, stove, refrigerator, hardware, and lighting fixtures, have steel as part of their raw material.

Even when lumber was at 1931 and 1932 prices (30 to 40 percent lower than in 1937), its importance, especially for the cheaper houses, was almost equal to that of all other materials combined, and easily three times as great as any other set of materials, such as brick or plumbing equipment. In table V, for example, in the range of dwellings then costing less than $2,000, lumber, brick, plumbing equipment and plaster account for nearly 80 cents out of every dollar spent for building materials. In houses costing between $2,000 and $4,000 these four items account for about 70 cents out of every dollar. In the first type of house the lumber dealer

TABLE V.—*Percentage that cost of each class of material formed of total material cost of residential buildings, in 15 cities, 1931–32, by cost classes* [1]

Materials used in—	Cost class						
	All cost classes	Up to $1,999	$2,000 to $3,999	$4,000 to $5,999	$6,000 to $7,999	$8,000 to $9,999	Over $10,000
Total all classes	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Excavating and grading	.1	0	(2)	.1	.1	.4	.1
Brickwork	12.9	8.1	10.6	16.0	14.6	9.0	10.2
Carpenter work	39.1	50.1	41.7	36.5	38.5	40.3	40.8
Tile work	3.1	1.2	2.5	3.2	3.9	2.7	3.1
Concrete and cement work	6.7	4.1	8.1	7.4	6.6	7.1	4.8
Electric wiring and fixtures	3.4	3.0	3.4	3.0	3.4	3.4	3.2
Heating	8.4	3.0	6.8	7.1	8.6	10.9	10.8
Plumbing	11.2	14.3	10.3	11.7	10.4	9.6	11.5
Plastering and lathing	6.4	6.1	5.8	7.5	5.8	6.4	5.3
Painting	3.2	3.3	4.0	2.8	2.3	2.9	3.9
Papering	.2	.6	.5	.2	.3	.3	(2)
Roofing	4.4	6.2	4.3	3.4	4.3	5.0	5.7
Miscellaneous	.9	-------	2.0	.5	1.2	2.0	.6

[1] Source: Bureau of Labor Statistics, Division of Construction and Public Employment.

[2] Less than one-tenth of 1 percent.

gets one-half of the building materials dollar; in the second he gets two-fifths.

Another arrangement of the data, showing the materials not only in the structure, but those used around the yard in driveways, sidewalks, and so on, is depicted in table VI. In these residences, costing slightly over $4,000, lumber was economized, brick and cement being used instead. Even in such instances the lumber bill is about a third of the materials bill, indicating how limited is the amount of substitution that is practical even when lumber prices rise relative to alternative materials. The consumer has little leeway. Always the important materials remain lumber, brick, cement, and plumbing.

Table VI, it should be remarked parenthetically, adds an interesting detail to the previous discussion concerning materials versus labor expense. It shows that in plumbing, carpenter work, and masonry, where the expenditures for labor are ordinarily regarded as most likely to be out of line, practically two-thirds of the expense is incurred for materials and only one-third for plumbers, carpenters, and bricklayers.

TABLE VI.—*Percentage distribution of labor and materials cost for certain residential building in 15 cities of the United States by major operations; 1931–32* [1]

Cost item	Combined cost	Percent of combined cost	
		Labor	Materials
Excavating and grading	1.3	98.5	1.5
Brickwork	14.8	41.6	58.4
Carpenter work	27.3	32.9	67.1
Tile work	3.5	44.0	56.0
Concrete work	11.7	36.5	63.5
Electric wiring and fixtures	4.5	36.0	64.0
Heating and ventilating	6.6	24.7	75.3
Plumbing	10.1	20.3	79.7
Plastering and lathing	8.2	66.6	33.4
Painting	4.2	61.5	38.5
Papering	0.5	55.4	44.6
Roofing	1.8	32.3	67.7
Miscellaneous	5.5	24.8	75.2
Total	100.0	37.3	62.7

[1] Source: U. S. Bureau of Labor Statistics. *Monthly Labor Review*, October 1932, pp. 766–769.

The fact has already been mentioned that in certain parts of the United States, notably in and near our large metropolitan centers, the ordinary detached type of frame house so characteristic of small communities is not being constructed to nearly so great an extent as multiple-family or row-type dwellings. Now the latter, while continuing to use lumber and brick, ordinarily use a good deal of iron and steel and their products.

In table VII are given figures illustrating this metropolitan type of housing development. The noteworthy item in this table is the amazingly small percentage of the dollar spent for lumber in column A, and the high percentage spent for steel. In these government-constructed projects even the doors, window sashes, molding, and trim were made of steel.

TABLE VII.—*Percentage distribution of materials costs for low-cost housing projects, 1936* [1]

Type of materials	Value of material orders placed [2]	Percent of total		
		A [3]	B [4]	C [5]
All materials	$3,078,314	100.0	100.0	100.0
Electrical wiring, fixtures, equipment, and supplies	182,682	5.9	3.3	4.4
Forest products	261,328	8.5	28.3	31.9
Cork	16,484	.5	------	------
Lumber and timber	128,650	4.2	14.7	19.3
Millwork	116,194	3.8	13.6	12.5
Iron and steel, and their products	856,238	27.8	16.2	10.4
Cast iron pipe	58,030	1.9	3.7	------
Doors, window sash, frames, molding, trim, etc.	241,431	7.9	------	5.2
Hardware, builders	71,826	2.3	3.9	2.4
Metal furniture	57,952	1.9	.4	------
Metal lath and channels	46,393	1.5	.2	.4
Reinforcing and structural steel	264,887	8.6	3.0	2.1
Wire and wireworks products, not elsewhere classified	7,534	.2	2.7	.1
Other products of iron and steel	108,185	3.5	1.3	.2
Composition flooring and linoleum	27,793	.9	.5	------
Paints and varnishes	42,831	1.4	3.8	------
Heating and ventilating equipment and supplies	251,178	8.2	6.2	13.5
Plumbing supplies and fixtures, not elsewhere classified	304,086	9.9	10.2	13.1
Roofing, waterproofing, and caulking materials, not elsewhere classified	72,694	2.4	1.2	2.4
Sheet metal (copper)	15,789	.5	------	.2
Stone, clay, and glass products	1,004,536	32.6	29.7	18.1
Brick, hollow tile, and other clay products	248,245	8.1	8.1	1.0
Cement	117,634	3.8	3.6	1.3
Ceramic tile	15,277	.5	------	------
Concrete products, including premixed concrete	384,063	12.5	12.0	7.0
Glass	19,665	.6	------	1.0
Marble, granite, limestone, and other stone products	40,160	1.3	------	------
Sand and gravel	71,925	2.3	1.3	.9
Wall plaster, wallboard and insulating materials, not elsewhere classified	107,567	3.5	4.7	6.9
Materials not classified	59,159	1.9	.6	6.0

[1] Source: Materials cost data (except column C) assembled and prepared by the Bureau of Labor Statistics, Division of Construction and Public Employment.

[2] Contracts let by Procurement Division of the United States Treasury for materials for five low-cost housing projects financed from PWA funds; namely, the Techwood project, Atlanta, Ga. (21 buildings containing 604 dwelling units, 1 dormitory of 194 rooms, 11 buildings forming 186 garages, 1 building with stores, etc.); the Liberty Square project, Miami, Fla. (35 buildings with 243 dwelling units, etc.); the Paterson Courts project, Montgomery, Ala. (17 buildings with 156 dwelling units); the Riverside Heights project, Montgomery, Ala. (11 buildings with 100 dwelling units, etc.) and the Cedar Central project, Cleveland, Ohio (19 buildings with 650 dwelling units, etc.)

[3] Column A, computed from figures in preceding column.

[4] Column B, computed from figures not recorded here of amounts spent by the Alley Dwelling Authority of Washington, D. C., for materials to construct 12 row-type single dwellings in the Hopkins Place project.

[5] Column C, average per house on Westacres project of 150 houses built by the Oakland Housing Corporation, Pontiac, Mich. Copper pipe was used; no separate figure was given for paints and varnishes. *Architectural Forum*, vol. 80, No. 4, Oct. 1936, p. 260.

In general, however, table VII corroborates the evidence of the preceding tables and charts which indicated that lumber, brick, cement, and plumbing account for more than two-thirds of the ordinary expenditure for building materials. If these items rise considerably in price, they are bound to cause an increase almost as large in the cost of building, for they constitute 70 percent of the total outlays for building materials, or from 42 to 45 percent of the cost of the structure and 30 to 33 percent of the cost of the home. If they rise 20 percent, a 9 to 10 percent rise in building costs results. Conversely, if they decline 20 percent in price, a substantial reduction in the costs of construction occurs.

The Behavior of Building Materials Prices

It has been demonstrated that the cost of materials accounts for from one-half to three-fourths of the cost of residential construction and that the major items in the materials bill are lumber, brick, cement, and plumbing. The prices of materials, therefore, constitute an important influence in the final cost of construction. Fluctuations in material costs, other factors remaining constant, would presumably exert a powerful influence in retarding or stimulating construction. It is not, of course, the absolute price of materials that matters. It is the price of materials in relationship to the prices of other commodities and services that is significant. Therefore, an analysis of the movements of construction costs and building material prices is necessary in order to show the nature of their relationship to prices in general and to indicate the peculiarities in the movements of the prices of individual building materials. For illustrative purposes, price data for 1936 and 1937 will be used primarily.

Trends in Construction and Materials Costs

In 1936 and 1937 building costs rose sharply. Was the level from which building costs rose high or relatively low? In short, was the movement in the nature of a recovery from distress and depression levels or did it proceed from levels already high with relation to other prices?

Figure 31, depicting certain indexes of construction costs, affords the initial portion of the answer. While the indexes, due to different systems of weighting and construction, show considerable dissimilarity of movement, and though all of them are faulty,[9] none of them shows a drop in building costs during the depression (1930–33) exceeding 20 to 25 percent. Moreover, during the heyday of the NRA the indexes rose on the

[9] See Lowell J. Chawner, "Construction Cost Indexes as Influenced by Technological Change and Other Factors", *Journal of the American Statistical Association*, Sept. 1935, Supplement Vol. 30, pp. 561-570. Chawner points out that general national averages based on quoted prices hide an enormous amount of local variation in the actual costs at which residences are built. Furthermore, the component items of indexes like those described above are not limited to those going into residences, nor are they weighted in accordance with their importance in residential building. The net result is that certain materials are underweighted (in relationship to their significance in residential building) and others are overweighted because the amounts sold for other purposes are considerably larger than the amount sold for new residences.

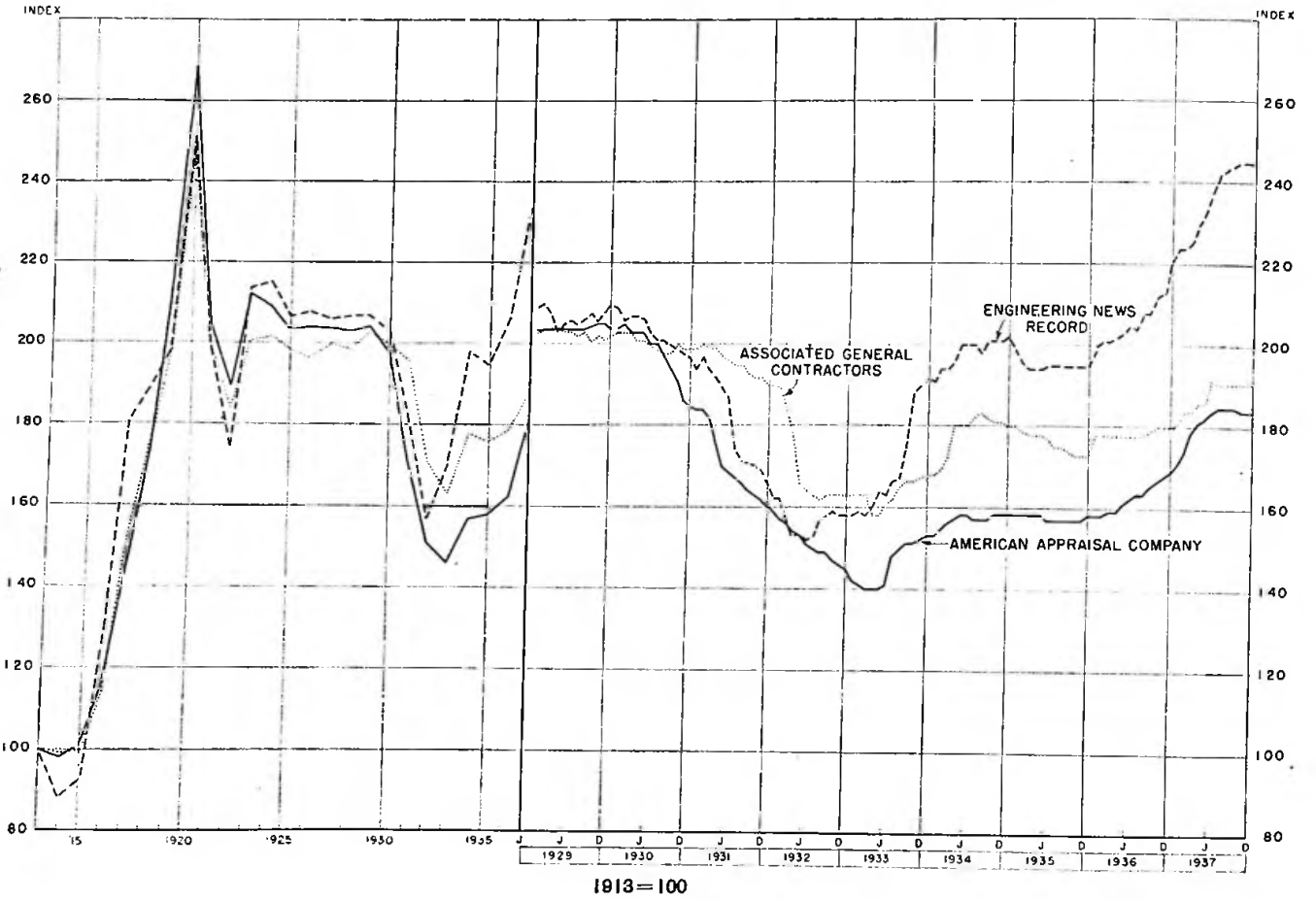


FIGURE 31.—Construction cost indexes, 1913-37.

Source: Survey of Current Business.

average to within 10 percent of predepression levels. In 1937, one of them, that of the Engineering News-Record (so compounded as to be significant for heavy construction), showed a rise to levels more than 10 percent above any attained during the twenties and unmatched at any time in recent building history except during 1920.

The level from which the sudden jump of prices in 1937 took place was already high. The building materials index declined only 25.3 points between July of 1929 and February of 1933 while the index of prices in general declined 36.7 points. See figure 32. This disparity Dr. Frederick C. Mills declared to be an "important barrier to resumption of normal activity." [10]

Building materials prices rose so much more rapidly than general prices in 1933 that their real costs became prohibitive. In 1934 the gap closed somewhat and still more so in 1935. As the relative dearness of building materials diminished, in many places beginnings of a recovery in building activity made their appearance.

But the marked price increases during 1937 again widened the gap. In July, in terms of general commodities, the exchange value of building materials not only exceeded 1926 levels by 10 percent but surpassed 1913 levels by more than 30 percent. In short, the prices of building materials were out of line not only with rents but with general prices and national income. The strength of the business urge to build houses, consequently, was seriously impaired.

The inescapable conclusion is that there has been a maladjustment between the materials industries and the whole economy because of the disparity in the rates of change of materials prices and other prices. Materials prices did not fall as far or as rapidly after 1929 as did other prices. Materials prices rose more rapidly and higher than did other prices after 1932. Moreover, from the summer of 1937 to the spring of 1938, materials prices did not decline as rapidly or as far as other prices.

Geographical Variations in Material Prices

The national averages in costs and prices shown in figures 31 and 32 conceal significant local variations. The absolute levels and the rate and time of change differ sharply from place to place. Moreover, wholesale prices of materials, such as those shown in figure 32, do not always move in consonance with labor costs, transportation rates, and other such elements entering into the final cost of construction, which are also important in geographical variations.

[10] Frederick C. Mills, *Prices in Recession and Recovery* (National Bureau of Economic Research, 1936), p. 141.

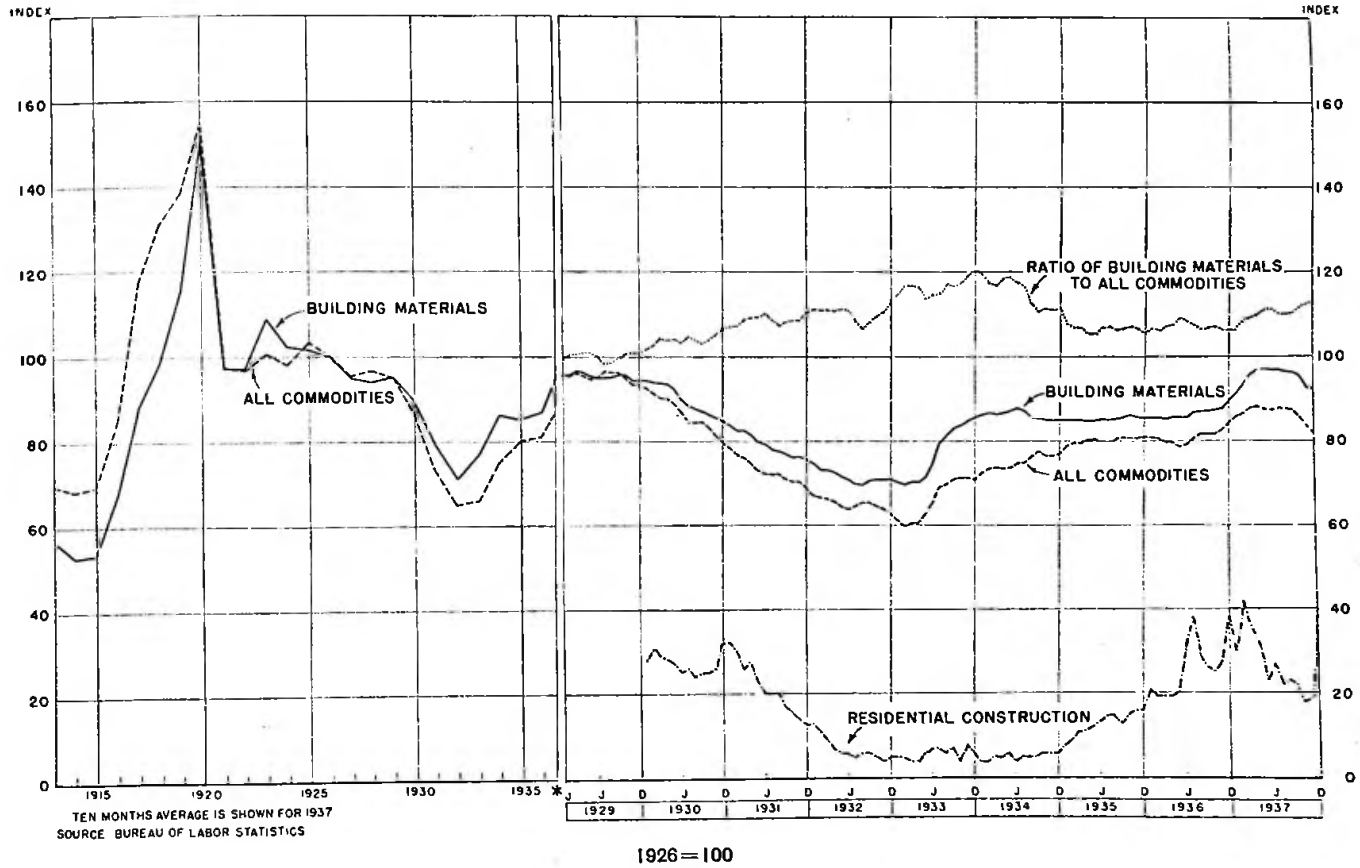


FIGURE 32.—Comparison between building materials prices and all commodities wholesale prices, 1913–37.

The variation in residential construction costs from city to city is shown by the Boeckh index in table VIII. These variations in costs reflect, of course, such factors as differences in building code requirements, in transportation costs, in amount of competition among local contractors and suppliers of building materials, differences in types of building, in productivity of labor, in wage rates, and changes in engineering practices. In addition to the yearly average for 1937, the June 1937 figures are given in order to show the higher levels reached during that year. Note that in Cincinnati, Cleveland, Minneapolis, San Francisco, and Seattle, June costs were higher than the 1926–29 levels, and that in only four cities, Baltimore, Dallas, New York, and St. Louis, were costs more than 10 points lower. Particularly outstanding was the rise in the 1937 figures over costs in 1936.

The precise amount of this jump, and the variation between localities in this matter, are shown in table IX. The type of six-room frame house to which these figures apply is the same as that described in table II. Notice the unevenness of the pattern even within relatively small areas. As great a difference occurs between Milwaukee and Oshkosh, Wisconsin, for example, as exists between any two cities on opposite sides of the American continent. The largest increases took place in Washington, D. C., St. Paul, Pittsburgh, Philadelphia, Birmingham, and Milwaukee, all over 20 percent. The smallest increases took place in Indianapolis and Little Rock, only 1 percent. The modal increase was about 10 to 12 percent.

TABLE VIII.—*Cost of residential building in 16 metropolitan areas, 1935–37*

[U. S. average prices 1926–29 = 100]

Area	Frame					Brick				
	1926–29 average	June 1937	1937	1936	1935	1926–29 average	June 1937	1937	1936	1935
Atlanta	82.7	82.3	79.0	68.4	68.4	87.0	88.3	85.1	72.4	72.4
Baltimore	107.2	91.0	88.8	80.9	80.0	112.0	94.4	93.2	85.8	85.5
Boston	116.3	104.8	103.3	87.9	91.2	120.3	111.5	110.5	94.2	97.6
Chicago	109.2	104.8	104.8	97.2	91.5	114.2	111.1	110.7	102.9	97.9
Cincinnati	100.5	101.1	98.8	84.5	86.4	105.0	108.4	106.1	89.9	92.3
Cleveland	107.2	109.2	105.1	91.7	87.6	113.4	116.6	112.3	98.8	94.5
Dallas	103.1	91.4	89.9	82.5	82.8	107.3	96.9	95.2	87.1	88.9
Detroit	103.3	95.3	93.9	80.6	78.1	108.4	101.8	100.7	85.9	83.4
Minneapolis	92.8	103.7	101.6	88.6	82.7	98.2	109.2	107.6	93.6	88.6
New Orleans	93.3	84.9	83.4	73.4	76.2	96.3	88.2	87.0	78.8	81.3
New York	133.3	115.0	110.5	96.4	92.2	138.4	119.4	115.8	101.8	92.5
Philadelphia	100.3	91.0	91.4	88.7	85.4	106.3	97.7	98.0	95.5	91.9
Pittsburgh	113.3	107.1	109.8	92.8	84.1	118.8	114.5	117.5	100.4	90.5
St. Louis	118.6	99.2	98.2	91.0	91.6	121.1	107.8	106.5	99.1	99.7
San Francisco	87.7	96.4	96.7	86.5	84.1	93.7	104.9	104.3	95.6	91.6
Seattle	84.5	94.4	92.6	79.8	81.1	92.2	105.5	103.5	86.5	88.6

Source: Index of E. H. Boeckh & Associates, Inc., consulting valuation engineers, Cincinnati, Ohio. Reprinted by permission.

Trends in the Prices of Individual Materials

General indexes of building material prices, such as those shown in figure 32, do not reveal the characteristics of the behavior of the prices of individual materials just as they do not show geographical variations. Information with reference to recent price movements

TABLE IX.—*Cost of building the same standard house in representative cities in June 1936 and June 1937* [1]

Federal Home Loan Bank districts, States, and cities	Total building cost, June 1937	Cubic-foot cost		Percent increase June 1936–June 1937 [2]
		June 1937	June 1936	
No. 1—Boston:				
Connecticut:				
Hartford	$6,365	$0.265	$0.236	12.3
New Haven	5,933	.247	.231	6.9
Maine:				
Portland	5,916	.247	.214	15.4
Massachusetts:				
Boston	6,487	.270	.241	12.0
New Hampshire:				
Manchester	5,888	.245	.228	7.5
Rhode Island:				
Providence	5,932	.247	.229	7.9
Vermont:				
Rutland	5,710	.238	.222	7.2
No. 4—Winston-Salem:				
Alabama:				
Birmingham	6,077	.253	.209	21.1
District of Columbia:				
Washington	6,234	.260	.207	25.6
Florida:				
Tampa	5,716	.238	.223	6.7
West Palm Beach	6,411	.267	.246	8.5
Georgia:				
Atlanta	5,410	.225	.204	10.3
Maryland:				
Baltimore	5,402	.225	.205	9.8
Cumberland	5,732	.239	.226	5.8
North Carolina:				
Asheville	4,968	.207	.199	4.0
Raleigh	5,580	.232	.211	10.0
Salisbury	4,746	.198		
South Carolina:				
Columbia	4,886	.204	.196	4.1
Virginia:				
Richmond	5,248	.219	.209	4.8
Roanoke	5,391	.225	.202	11.4
No. 7—Chicago:				
Illinois:				
Chicago	7,260	.302	.277	9.0
Peoria	6,833	.285	.267	6.7
Springfield	6,980	.291	.269	8.2
Wisconsin:				
Milwaukee	6,780	.282	.231	22.1
Oshkosh	6,087	.254	.234	8.5
No. 10—Topeka:				
Colorado:				
Denver	6,712	.280	.252	11.1
Kansas:				
Wichita	5,927	.247	.215	14.9
Nebraska:				
Omaha	5,969	.249	.233	6.9
Oklahoma:				
Oklahoma City	5,823	.243	.232	4.7
No. 2.—New York: [3]				
New Jersey:				
Atlantic City	6,173	.257	.239	7.5
Camden	5,866	.244	.211	15.6
Newark	6,474	.270	.241	12.0
New York:				
Albany	6,048	.252	.222	13.5
Buffalo	6,501	.271	.237	14.3
Syracuse			.232	
White Plains	6,857	.286	.241	18.7
No. 6—Indianapolis: [3]				
Indiana:				
Evansville	5,816	.242	.233	3.9
Indianapolis	5,890	.245	.242	1.2
South Bend	6,395	.266	.244	9.0
Michigan:				
Detroit	6,379	.266	.221	20.4
Grand Rapids	5,560	.232	.216	7.4
No. 8—Des Moines: [3]				
Iowa:				
Des Moines	6,483	.270	.255	5.9
Minnesota:				
Duluth	6,373	.266	.236	12.7
St. Paul	6,911	.288	.230	25.2
Missouri:				
Kansas City	6,198	.258	.221	16.7
St. Louis	6,512	.271	.246	10.2
North Dakota:				
Fargo	6,062	.253	.234	8.1
South Dakota:				
Sioux Falls	6,263	.261	.238	9.7
No. 11—Portland: [3]				
Idaho:				
Boise	6,273	.261	.234	11.5
Montana:				
Great Falls	7,134	.297	.275	8.0
Oregon:				
Portland	5,990	.250	.221	13.1
Utah:				
Salt Lake City	6,375	.266	.241	10.4
Washington:				
Seattle	6,642	.277	.237	16.9
Spokane	6,796	.283	.238	18.9
Wyoming:				
Casper			.261	

TABLE IX.—*Cost of building the same standard house in representative cities in June 1936 and June 1937* [1]—Continued

Federal Home Loan Bank districts, States, and cities	Total building cost, June 1937	Cubic-foot cost		Percent increase June 1936–June 1937 [2]
		June 1937	June 1936	
No. 3—Pittsburgh: [4]				
Delaware:				
Wilmington	5,737	.239	.220	8.6
Pennsylvania:				
Harrisburg	6,180	.258	.227	13.7
Philadelphia	5,944	.248	.203	22.2
Pittsburgh	6,730	.280	.225	24.4
West Virginia:				
Charleston	5,857	.244	.228	7.0
No. 5—Cincinnati: [4]				
Kentucky:				
Lexington	5,887	.245	.213	15.0
Louisville	6,111	.255	.222	14.9
Ohio:				
Cincinnati	6,321	.263	.243	8.2
Cleveland	6,756	.281	.256	9.8
Columbus	6,352	.265	.230	15.2
Tennessee:				
Memphis	5,704	.238	.213	11.7
Nashville	5,421	.226	.212	6.6
No. 9—Little Rock. [4]				
Arkansas:				
Little Rock	5,285	.220	.217	1.4
Louisiana:				
New Orleans	5,911	.246	.211	16.6
Shreveport	5,961	.248	----------	----------
Mississippi:				
Jackson	5,849	.244	.222	9.9
New Mexico:				
Albuquerque	6,358	.265	.234	13.2
Texas:				
Dallas	6,143	.256	.234	9.4
Houston	6,391	.266	.247	7.7
San Antonio	6,284	.262	.231	13.4
No. 12—Los Angeles: [4]				
Arizona:				
Phoenix	6,742	.281	.255	10.2
California:				
Los Angeles	6,015	.251	.218	15.1
San Diego	6,141	.256	.224	14.3
San Francisco	6,407	.267	.251	6.4
Nevada:				
Reno	6,641	.277	.263	5.3

[1] Source: Federal Home Loan Bank Board. Figures subject to correction. For a description of the house on which costs are reported, see the explanatory note to Table II.

[2] Computed. [3] July data. [4] May data.

of individual materials will indicate more clearly the nature of the price behavior of building materials and will point toward an explanation of some of the underlying factors governing that behavior.

Some of the important facts concerning the prices of lumber, brick, steel, and cement are shown in figure 33 Notice the steep rise after December 1936, especially in lumber and steel, the items mainly responsible for the rise in the wholesale price index of building materials. Both of them in 1937 exceeded 1926 levels. The increase from June 1936 to June 1937 was 20.1 points for lumber and 22.4 points for steel. During the same period the building materials index rose 11.1 points and the all commodities index rose 8.0 points. Lumber and brick were making considerable readjustment downward before the end of 1937, but steel and cement remained high. The other constituents of the general building materials index, in addition to being of lesser importance, rose little; paint and paint materials 4.1 points, plumbing and heating equipment 4.9 points, and miscellaneous materials 11.0 points.

Particularly noteworthy in figure 33 are the "staircase" movements in the prices of steel and cement, both of them being in that group of prices often referred to as "administered" or "managed." Their movements indicate infrequent and sluggish response to changes in demand, curious ability to stick at high levels, singular resistance to the impact of even so severe a depression as that of 1932, and rapid post-depression attainment of high levels. Staircase movements not dissimilar to those in cement and steel are typically found for the materials which show periods of prolonged inflexibility in prices in table X.

The fact must, however, be recognized that, though wholesale list price quotations remain identical, individual buyers may obtain varying actual net prices because of varying discounts, terms, and allowances. With due regard to this consideration, it is still difficult to label these prices highly competitive. The situation indicates control by business men over market prices, a control which is an aid to, and results from, the exercise of something akin to monopolistic power.[11]

Under a competitive system in which individual producers have no control over market price and each producer makes full adjustment of his output to market price, production would not drop, if the price remained steady. Supply falls off only when price falls off. Yet in the autumn of 1937 the volume of steel production went down to less than 25 percent of capacity, while prices remained unchanged. In short, the fundamental reasons for the rise or decline of many building material prices are those which influenced the decisions of business executives in certain of the materials industries, not those forces usually referred to as competitive.

Limitations of space do not permit a detailed study of the forces behind the data in table X. These data show first of all that the prices of the most important kinds of lumber were, in June 1937, from 15 to 25 percent higher than in 1929, and one important item was as much as 34 percent higher than in the base year 1926 Plaster was double what it was in 1929, cast-iron soil pipe 49 percent higher, even sand and face brick were more than 10 percent higher.

The last column, likewise, merits particular study. It shows that the prices of commodities in those industries in which the lower price levels prevail are as inflexible as the prices of those industries in which higher price levels prevail. The crucial difference, however, lies in the fact that the former are finished products such as plumbing and heating equipment, paint, and specialty hardware, products ready to be delivered to the consumer often under advertised trade-marks,[12] while the latter are raw materials or semiprocessed goods such as softwood lumber, structural steel products, sand, and

[11] See especially Dr. J. K. Galbraith's "Monopoly and Price Rigidities," *Quarterly Journal of Economics*, May 1936, vol. 4, No. 3, pp. 456–475.

[12] In some cases, however, the actual installed cost to the consumer of these finished products which did not rise to 1929 wholesale price levels were in some localities raised to high levels through the competitive practices prevailing among contractors and subcontractors.

cement. Moreover, the former usually apply to the products of one firm in one market, while the latter are in many cases composite figures of prices quoted by many plants in many markets. Needless to say, such composites show a larger degree of flexibility than actually exists, for they change whenever price quotations change in any one of the several markets covered.

Prices of Lumber, Brick, Steel, and Cement

Limitations of space again preclude showing the variations in price that exist for nearly every one of the 39 items listed above, variations between wholesale and retail prices, variations between distributing outlets, shifts in the pattern of price spreads geographically and through time. The extent of such variations from the single figure given above should not be underestimated. In table XI, for example, a cross section of geographic price spreads is given for typical building materials, as purchased under standard specifications by the Works Progress Administration in June 1937. Notice in the column on the extreme right that combined cost in Montana, Colorado, North Dakota, and Wisconsin was a third higher than that in California, Florida, Oregon, Texas, or Illinois.

The interstate variation in the individual items was even larger. Lumber in Washington, South Carolina, and Alabama cost less than half the sum required in Wisconsin, Utah, New York, and Iowa. Cement was nearly twice as high in Washington as in California or Michigan. Ten yards of crushed stone or gravel cost only $9.80 in Massachusetts and $30.75 in South Carolina. Concrete reenforcing bars were twice as

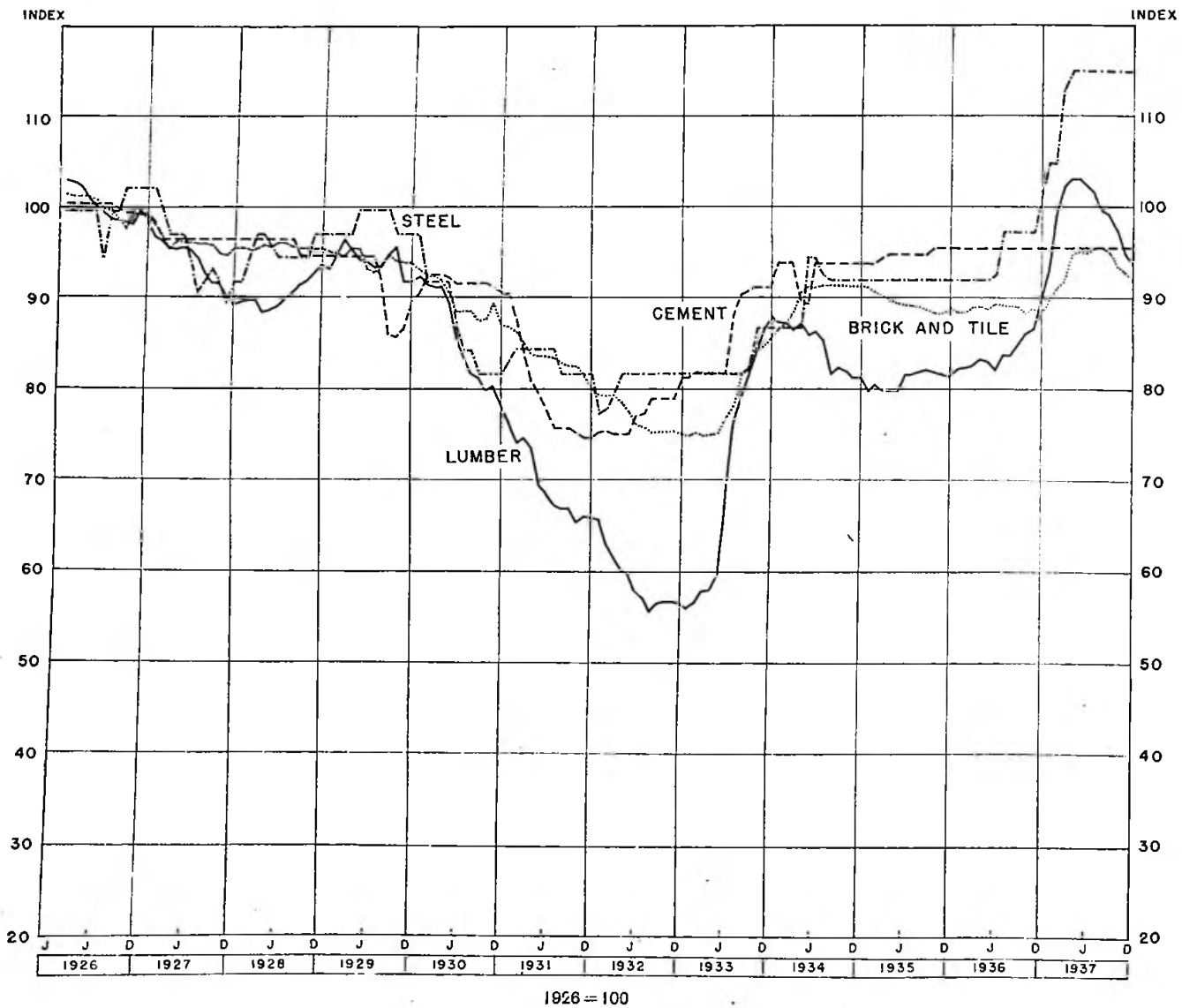


FIGURE 33.—Wholesale price trends of four principal building materials, 1926-37.

Source: U. S. Bureau of Labor Statistics (wholesale prices).

TABLE X.—*Price increases in the most important individual building materials 1929, 1936, and 1937* [1]

Building material	Price index (1926=100)			Percent change 1929–37	Periods of price inflexibility	
	June 1929	June 1936	June 1937		Period	Level
Materials above 1929 levels in price in 1937:						
Douglas fir boards, 1 inch by 8 inches.	113.7	-----	134.3	18	April 1927 to April 1928	98.5
Douglas fir drop siding.[2]	102.1	-----	105.1	3	-----	-----
Douglas fir plaster lath.	84.1	97.0	97.0	15	January 1936 to January 1937.	110.6
White pine window sash.[3]	100.0	93.7	128.7	20	January 1926 to June 1930.	100.0
					August 1935 to November 1936.	93.7
Western pine window frames.[4]	98.5	84.8	103.0	5	January 1926 to March 1928.	100.0
					August 1934 to April 1936	77.6
White pine standard doors.[3]	101.6	94.1	121.4	19	January 1926 to December 1928.	100.0
					January 1929 to June 1930	101.6
					August 1935 to November 1936.	94.1
White pine door frames.[3]	98.7	83.7	106.2	8	January 1926 to March 1928.	100.0
					August 1934 to April 1936	76.5
Yellow pine flooring [3]	82.1	80.7	96.5	18	-----	-----
Red cedar shingles [4]	114.2	114.8	124.9	9	(5)	(5)
Prepared roofing, individual shingles.[2]	76.2	85.3	103.0	35	(5)	(5)
Prepared roofing, strip shingles.[3]	76.2	85.3	103.6	36	(5)	(5)
Plaster, per ton	62.5	125.0	125.0	100	January 1926 to November 1927.	100.0
					February 1931 to December 1933.	112.5
					February 1934 to December 1937.	125.0
Cement	94.6	95.6	95.6	1	April 1935 to December 1937.	95.6
Common building brick.[3]	66.8	63.2	91.3	37	-----	-----
Light colored front brick.[3]	84.9	82.9	94.4	11	July 1929 to January 1931	82.2
					June 1932 to June 1933	74.2
					May 1934 to August 1935	89.0
Building sand [4]	90.6	98.2	102.2	13	-----	-----
Structural steel [3]	99.6	92.4	114.9	15	-----	-----
Asbestos pipe covering.[2]	92.0	92.0	108.0	17	October 1928 to August 1930.	92.0
					September 1931 to July 1933.	80.0
					November 1935 to July 1936.	92.0
8-penny wire nails [3]	100.0	80.0	103.6	4	-----	-----
Cast iron 6-inch soil pipe.[2]	69.3	88.0	103.2	49	July 1935 to November 1936.	88.0
Galvanized sheets [3]	91.9	71.0	96.2	5	August 1934 to May 1936	78.5
Materials which did not reach 1929 levels in price in 1937:						
Rough barn white pine No. 2.[2]	99.9	81.9	93.4	−6	December 1934 to May 1935.	79.0
Plain white oak No. 1 [3]	87.9	68.2	83.0	−6	July 1932 to May 1933	60.6
					July 1935 to December 1936.	68.2
Insulation building board.	82.8	75.9	75.9	−8	July 1926 to November 1928.	94.3
					December 1928 to August 1930.	82.8
					October 1933 to August 1935 and since May 1936.	75.9
						75.9
Mason's lump lime	87.4	79.2	78.5	−10	-----	-----
Builder's varnish	100.0	95.3	95.3	−5	January 1926 to January 1931.	100.0
					December 1933 to December 1935.	86.1
					January 1936 to December 1937.	95.3
House paint, all shades.	100.0	92.3	92.3	−8	January 1926 to July 1929.	100.0
					December 1933 to December 1935.	88.0
Inside flat wall paints, all shades.	85.0	78.0	76.5	−10	January 1926 to October 1927.	100.0
					September 1929 to December 1930.	90.0
					February 1931 to May 1932.	84.0
					July 1933 to December 1936.	78.0
Hollow building tile	97.1	89.9	89.9	−7	January 1927 to August 1930.	97.1
					April 1934 to June 1937	89.9
Linoleum [4]	107.4	90.6	95.1	−11	January 1926 to November 1927.	100.0
					October 1933 to September 1934.	94.3
					January 1935 to December 1936.	90.6

TABLE X.—*Price increases in the most important individual building materials 1929, 1936, and 1937* [1]—Continued

Building material	Price index (1926=100)			Percent change 1929–37	Periods of price inflexibility	
	June 1929	June 1936	June 1937		Period	Level
Materials which did not reach 1929 levels in price in 1937—Con.						
Window glass, American grade A.	107.7	76.7	60.7	−35	(6)	(6)
Black steel pipe, ¾-inch.[3]	100.0	83.3	96.2	−4	January 1926 to January 1928.	100.0
					May 1934 to January 1936.	92.6
Galvanized steel pipe [3]	100.0	82.0	94.0	−6	January 1926 to February 1928.	100.0
					May 1934 to January 1936.	91.2
Radiation by steam or water.[4]	118.1	93.1	99.8	−16	December 1928 to June 1930.	118.1
					July 1936 to August 1937	99.8
Heating boilers [4]	97.0	77.0	87.8	−9	August 1935 to June 1936	77.0
					July 1936 to August 1937	82.8
Bathtubs, enameled	79.0	66.7	66.7	−16	January 1926 to January 1927.	100.0
					March 1927 to April 1928	85.0
					January 1931 to December 1931.	74.1
					February 1936 to December 1937.	66.7
Water closets	111.5	63.1	63.1	−43	February 1936 to July 1937.	63.1
Sinks, ordinary kitchen.	80.3	55.7	55.7	−31	January 1926 to January 1927.	100.0
					March 1927 to April 1928	85.0
					February 1929 to February 1930.	80.3
					January 1931 to December 1931.	77.9
					February 1936 to December 1937.	55.7
Common mortise locks.[3]	120.3	66.2	84.2	−30	-----	-----
Knobs, steel, bronze plated.[3]	114.3	57.1	74.3	−35	January 1926 to December 1927.	100.0

[1] Data from Bureau of Labor Statistics, Division of Wholesale Prices. Percentages computed.
[2] Increases in price from June 1936 to June 1937 more than 10 percent but less than 20 percent.
[3] Increases more than 20 percent.
[4] Increases under 10 percent.
[5] Staircase price movements.
[6] Chaotic shifts in price in 1937.
Those with no superior figures did not increase in price, June 1936 to June 1937.

cheap along the Atlantic and Pacific seaboard as in the Rocky Mountain area. Even brick costs varied by 75 percent, 600 brick costing $6 in Illinois, Texas, and New Mexico, and $10.50 in Washington and Colorado, $10.80 in Wyoming and Minnesota. The figure of $16.20 in North Dakota is, of course, exceptional.

How far the price increases noted in table X occurred in each of the various States and cities is, of course, a matter of too great detail to present here. *A priori*, there seems no reason to believe that these price rises were either uniform in time and amount or horizontal in character to such an extent as to maintain substantially the price contours indicated in table XI. The forces which lead to price changes could hardly be of equivalent strength and effectiveness in each region.

Factors of demand as registered by the volume of residential construction balanced against factors of supply as measured by production, shipments, costs, or stocks, in 1937 would have retarded rather than supported rising prices. No one can say that the embryonic building boom shown in figure 30 represented an insistent demand of proportions strong enough to send

TABLE XI.—*Prices of 5 principal construction materials in 27 States as of June 15, 1937*

	Lumber (440 feet)	Cement (6 barrels)	Crushed stone or gravel (10 yards)	Steel (280 pounds reinforcing bars)	Brick (600)	Total
Alabama	$9.24	$12.00	$19.90	$7.62	$7.63	$56.39
Arizona	18.11			13.02		
Arkansas	11.00	15.36	16.00	10.28	9.00	61.64
California	16.17	10.50	10.70	8.62	7.20	53.19
Colorado	17.09	14.64	15.00	14.73	10.50	71.96
Connecticut		14.58	29.70		7.20	
Delaware	14.30	13.08	14.50			
Florida	11.75	12.00	16.10	6.83	6.60	53.28
Georgia	11.00	12.06	23.50	8.40	6.58	61.54
Idaho	13.06	16.98	12.00	12.49	6.60	61.13
Illinois	13.55	12.48	16.00	6.92	6.00	54.95
Indiana	15.40	13.98	15.00	9.52	9.30	63.20
Iowa	21.12	14.16	20.00	8.92		
Kansas	18.48	13.44				
Kentucky	15.40	13.56	17.50	8.57	8.10	63.13
Louisiana	11.48	12.90	21.40	7.22	9.14	62.14
Maryland	10.92	13.08	14.50	10.64	9.60	58.14
Massachusetts	17.24	12.42	9.80	8.57	9.30	57.33
Michigan	14.74	10.50	18.60	9.24	9.40	62.48
Minnesota	14.52	15.00	14.00	8.68	10.80	63.00
Mississippi	12.10	15.48	15.90	8.54	6.30	58.32
Missouri	13.42	13.02	16.40	8.96	9.00	60.80
Montana						83.91
Nebraska	18.48	15.54		9.04	8.55	
Nevada	15.40	17.40	20.00			
New Hampshire		13.53	14.50			
New Jersey	16.13	11.25	13.90	7.53	6.88	55.69
New Mexico	13.20	19.08		8.96	6.00	
New York	18.73	11.58	12.50	8.86	6.90	58.57
North Carolina		15.21	27.04		8.70	
North Dakota	17.16	18.66	29.25	8.32	16.20	89.59
Ohio	12.76	13.32	14.00	8.40	9.55	58.03
Oklahoma	17.60	14.10	16.70	7.56	7.50	63.46
Oregon	10.68	14.10	15.70	6.83	8.40	55.71
Pennsylvania	15.40	13.20	16.90	8.85	9.00	63.35
South Carolina	10.19	12.60	30.75			
South Dakota		14.88				
Tennessee	12.32	15.18	15.37	9.34	8.25	60.46
Texas	16.28	12.90	12.00	8.57	6.00	55.75
Utah	18.80	16.80		14.00	8.10	
Virginia	14.70	14.46	21.60		9.00	
Washington	9.20	19.80	19.60	6.83	10.50	65.93
West Virginia		13.32	26.00		8.40	
Wisconsin	19.36	14.58	18.75	8.74	8.70	70.13
Wyoming	18.70	17.64		10.10	10.80	

Source: Works Progress Administration, Construction Statistics Section.

prices skyrocketing. Nor were shipments particularly heavy. As is shown in table XII, they at no time reached volumes even 60 percent as high as were accomplished at lower levels of prices in 1927 and 1928. There was scarcely a semblance of a strain on productive capacity.

While wages and other costs of producing materials rose noticeably in some cases, such increases did not occur exclusively in the areas or in the plants of the manufacturers producing the building materials the prices of which rose most. Plumbing and heating equipment and paints, for example, are produced precisely in the centers of the most highly publicized wage increases and utilize craft labor of highest skill. Nor does the factor of wage increase explain why the prices of lumber, for example, should rise in areas where it is produced by low-paid labor. Nor does labor expense constitute in most cases a sufficiently large proportion of total costs to make a 20 or 30 percent rise in wages mean more than a 4 or 6 or 8 percent increase in total costs.

In short, the balance of general forces during 1936 and 1937 would seem to have favored at most only moderate price rises in building materials.

This presents a puzzle to which hardly any clue exists save that shown in the column on the extreme right in table X. There, it will be remembered, the fact

TABLE XII.—*Shipments of construction materials, 1925–38*

[Index of 30 items unadjusted for seasonal variation (monthly average 1929=100)]

	1925	1926	1927	1928	1929	1930	1931
January	68	69	67	71	69	57	49
February	73	67	73	71	67	59	45
March	95	90	95	95	90	72	54
April	116	106	107	102	103	88	69
May	125	130	119	125	114	98	79
June	124	133	128	125	116	99	82
July	129	131	123	125	121	101	81
August	134	137	139	138	134	102	79
September	129	134	131	129	120	102	77
October	126	133	126	137	121	97	76
November	95	102	97	101	84	62	51
December	80	73	71	74	61	47	34
Average	108	109	106	108	100	82	65

	1932	1933	1934	1935	1936	1937	1938
January	34	25	32	34	45	58	45
February	32	24	29	34	43	59	43
March	36	31	39	43	59	73	66
April	45	38	48	54	71	83	
May	48	51	58	59	78	85	
June	51	57	53	58	80	88	
July	47	59	50	60	91	85	
August	57	51	60	67	95	90	
September	56	52	55	70	104	98	
October	55	52	64	75	106	86	
November	34	36	46	51	75	60	
December	24	29	33	42	62	43	
Average	43	42	47	54	76	76	

Source: Compiled by the Federal Employment Stabilization Board, the Public Works Administration, and the National Resources Committee.

emerged clearly that at no time in recent industrial history save possibly the period from 1926 to 1929 have more building materials enjoyed longer periods of stability and inflexibility in price than in the years 1935 and 1936.

Factors Influencing the Prices of Individual Building Materials

For detailed analyses of the bottle-necks which restrict the flow of production in individual industries, the reader is referred to competent industrial monographs such as that of Professors Daugherty, de Chazeau, and Stratton in the *Economics of the Iron and Steel Industry*[13] or that of the National Recovery Administration in *Economic Problems of the Lumber and Timber Products Industry*.[14] Here, only the briefest of thumb-nail sketches can be given of two industries, lumber and steel. The first was selected because of its overwhelming importance in residential construction and its framework of competition moderated by able trade association leadership; the second, because of its potential role in some types of residential construction and its underlying importance as a raw material in many of the items which are used in house equipment and accessories. These two industries with brick, cement, and plumbing equipment, it will be remembered, account for most of the building materials dollar. Although brick prices also rose in 1936 and 1937, lumber and steel price increases were among the most formidable obstacles to the recovery of the construction industry.

[13] McGraw-Hill, New York, 1937, 2 vols.

[14] Division of Review, *Work Materials No. 79*, March 1936 (mimeo).

Lumber Prices

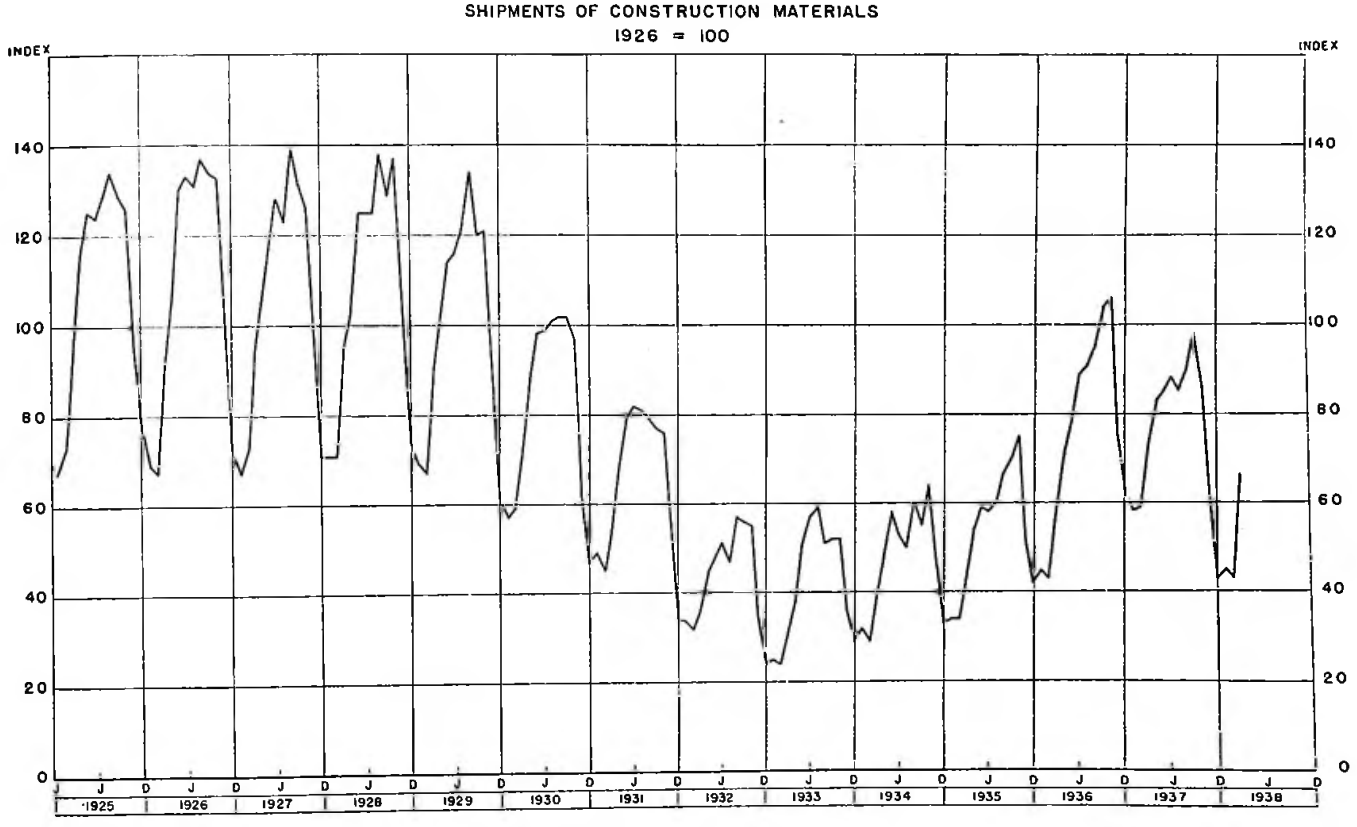
Beginning with lumber, let us recall a few well-known facts. Some sort of lumber is manufactured in practically every State of the Union, and it is both imported and exported, often from and to the same foreign country. Within the industry there are really several entirely different businesses. Moreover, there are well over 25,000 saw mills, about 35,000 retail lumber yards, and several thousand wholesalers. Among these exist a variety of manufacturing, distributing, and selling policies, and combinations thereof.

It is at once the industry of small cross-roads enterprises and gigantic corporations. Numerous competitive complications exist: Competition with lumber substitutes; unequal freight rates between manufacturers and consumers equally distanced; competition between species suitable to the same purpose; competition of various grades; smaller manufacturers compelled to undersell larger manufacturers to offset the advantages the latter have in more economical and extensive distribution facilities in a product of superior quality and of a greater degree of refinement (such as drying methods, use of preservative treatments, the production of completed items); competition created by the disorganization in the channels of trade; and, finally, the effect of various transportation methods and fluctuation in water rates.

The importance of transportation is sometimes inadequately realized. At Atlantic seaports the average landed price paid for west coast lumber in 1936 was $26.03 per thousand; during the same period, the water freight rate was $12 per thousand until August, when it advanced to $12.50. Thus freight rates account for nearly 50 percent of the price of loaded lumber from the West Coast. In 1934, the cost to the retailer of western pine was $40.23, $23.33 of which represented total mill costs, and $16.79 of which went for freight.[15]

When intercoastal rates are high or when there is a tonnage scarcity in eastern markets usually in part supplied by Pacific coast shippers, southern mills will increase their shipments into such markets. The western pine mills which ship by rail also acquire a new relative advantage in eastern markets over Pacific coast competitors. Such developments were among the results of the west coast shipping strike, which from November 1936 until February 1937 tied up and delayed (water) shipments of lumber from the Pacific Northwest. West coast water shipments to the Atlantic coast fell from 657 million feet in October 1936 to 396

[15] U. S. Department of Commerce, N. R. A. Division of Review, *Works Materials No. 79*, March 1936.



SOURCE: PUBLIC WORKS ADMINISTRATION, PROJECTS DIVISION, AND FEDERAL HOUSING ADMINISTRATION, DIVISION OF ECONOMICS AND STATISTICS.

FIGURE 34.—Shipments of construction materials, January 1925–March 1938.

million feet in December and 325 million feet in January 1937 (far more than a seasonal decline); and southern pine shipments during this same period increased from 699 million feet in October 1926 to 701 million feet in December (a remarkable increase, since the seasonal trend is downward during the winter months)[16] and 659 million feet in January 1937. Shipments of western pine from the Inland Empire during November–February likewise were heavier than usual.

It is difficult to determine the extent to which lumber price behavior indicated in table X was due to the effects of the west coast shipping strike, and to what extent it was due to other factors in the industry already mentioned. Total shipments for the strike period held up remarkably well,[17] stocks on hand for the year decreased (fig. 35) less than might be expected under the circumstances, and production continued at a reasonably constant rate.[18]

The strike itself undoubtedly had some effect on the supplies of certain lumber types in eastern markets, and temporarily damaged the competitive position of the west coast lumber operators. Moreover, the increased demand for lumber in January 1937, directly related to the increase in volume of building, may be considered a factor in the price rise during the winter and spring of 1937.

[16] National Lumber Manufacturers Association. *Total Shipments by Months*, February 1938.
[17] *Ibid.*, 1937.
[18] *Ibid.*, 1936 and 1937.

TABLE XIII.—*Weekly earnings and hourly wage rates in the sawmill industry in various lumber-producing areas, July 1936 and July 1937* [1]

State	Weekly earnings [2]		Hourly wage rates		
	July 1936	July 1937	July 1936	July 1937	Percent increase
			Cents	*Cents*	
Wisconsin	$14.12	$16.01	34.2	41.4	21.1
Minnesota	10.11	17.96	46.7	54.7	17.1
California	23.09	26.37	60.7	69.3	14.2
Washington	23.20	25.82	67.1	76.9	14.6
Louisiana	9.68	10.95	28.8	31.6	9.7
North and South Carolina	13.34	14.75	21.7	24.8	14.3

[1] Source: U. S. Bureau of Labor Statistics. Percent increase computed.
[2] Includes part-time workers.

Furthermore, in some areas there were moderate wage increases of varying amounts during 1936 and early 1937, as is indicated in table XIII. However, labor costs are only a minor portion of total costs (see table XX). Moreover, the increases in wage rates were unequal in different parts of the country. They should be checked against rising lumber prices in corresponding areas. However, while the Bureau of Labor Statistics index of wholesale prices for lumber increased 21 percent from July 1936 to July 1937, detailed price data for geographical areas for comparison with the above wage rates are not available. Historically, the unfavorable earnings record of the industry suggests little immediate relationship between costs and prices. In the main, other considerations explain price increases.

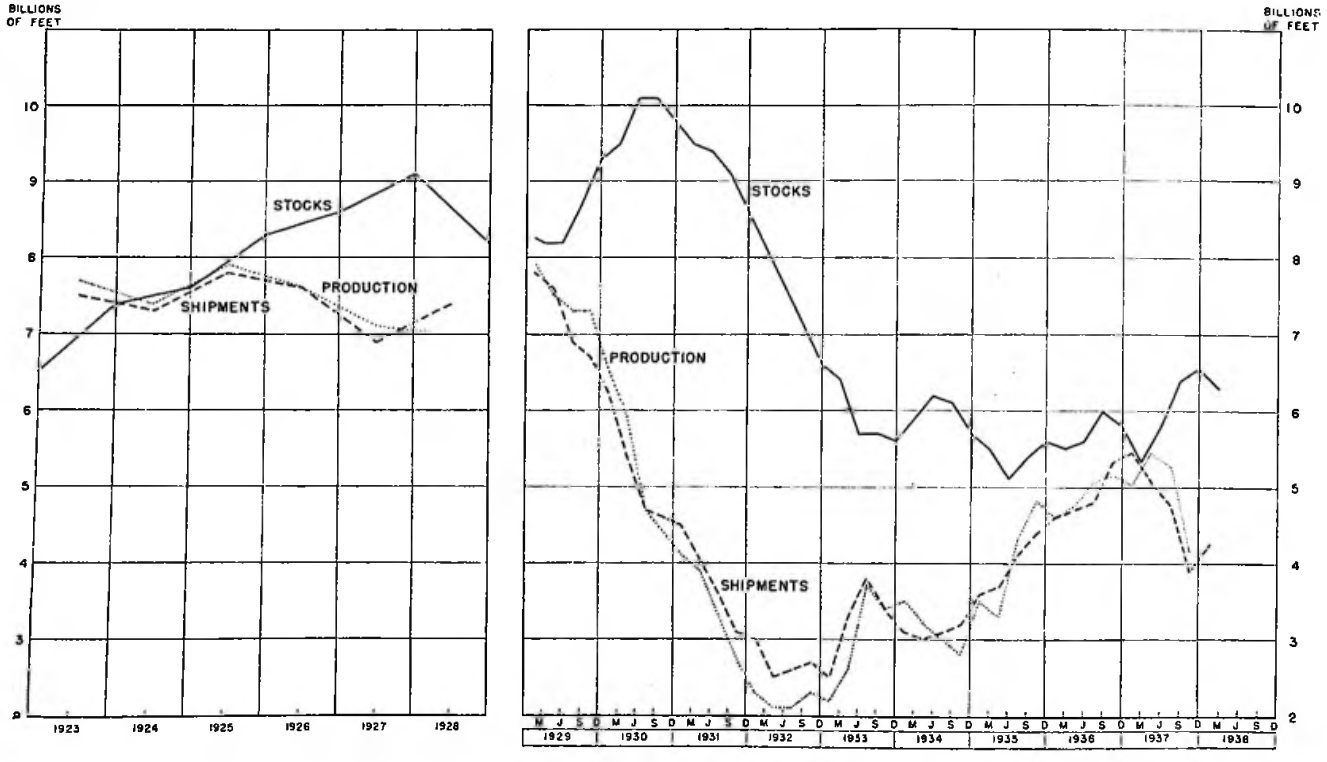


FIGURE 35.—Softwood production, shipments, stocks.

Source: National Lumber Manufacturers Association.

Figure 35 indicates to a substantial degree those factors generally classified under such headings as demand and supply. It shows the relationship of production, shipments, and stocks of lumber, from 1923 to the end of 1937. The scissors effect both in 1923 and 1937, in production and stocks, should be noted particularly. In both years the prices of lumber reached high peaks. In both periods a subsequent widening of the gap impelled prices of lumber to weaken.

In the lumber industry, dominated as it is by various types of competition, it is only natural for attempts to be made to bring supplies and prices under control. The industry has many regional trade associations as well as a national association, which have for many years distributed information on production, stocks, orders, and shipments, so that individual producers can operate more intelligently. For a generation, complaints have appeared from time to time charging the industry with various types of combination and only after decisions by the Supreme Court has the legality of certain practices of the associations been established.[19] In 1931 a Timber Conservation Board was appointed by the Federal Government. One of the committees of this Board was the Lumber Survey Committee,[20] which reports quarterly to the Department of Commerce. It is clear that such an agency may make recommendations which could in no wise be interpreted as being collusion or conspiracy on the part of the industry. Indeed, "if the board found that among the difficulties of the industry was that of overproduction, they could so state and set forth the remedy in a much more authoritative way than could any other organization." [21]

During the decline in demand in the fall of 1937, the Committee said:

> Although the Committee recommends that further increases in lumber stocks should follow, but not anticipate, revival in demand, it finds that the weakness in the lumber manufacturing industry in most regions is not in its stocks but in the low point to which unfilled orders have now declined and the continuing general decline in new business. Due consideration should be given * * * to the combined effects of large stocks, lower volume of unfilled orders, lower expected demand during the next quarter and the momentum of current production schedules. Effort to adjust current production more closely to current demand should be continued in both the lumber and plywood manufacturing industries.[22]

The reasoning behind such recommendations ran as follows:

> Price stability in the lumber industry is preeminently desirable. In some regions fluctuations in the past three months have been small. More dependable price levels will aid building revival. The record of the past few years indicates that building does not increase in an era of declining prices and costs; rather the contrary, as evidenced by the boom years of 1925–29 and the low years of 1932–34.[23]

The recommendation was continued in February 1938:

> The current effort to reduce stocks and build up order files is bringing the industry to a more balanced market condition. The present determined efforts to reduce heavy surpluses should be continued.[24]

Not too much weight should be assigned to the recommendations of such a committee as a factor influencing prices. Even when supported by information collected and distributed by the various lumber manufacturers associations, the control by such activities can easily be overestimated. Probably the advice would result more easily in price rises during periods of favorable demand than in holding prices up during periods of declining demand. But since the ultimate control over prices lies in the control of production, these attempts at supply control cannot be discounted completely in a discussion of price increases.

It should be noted also that in the spring of 1937 when lumber prices were rising rapidly the Lumber Survey Committee referred not so much to increasing costs of producing lumber as to distortions produced in the lumber market by other disturbing factors. The Committee called attention to the fact that there were adequate supplies except in a limited number of items. There was no danger of lumber shortage. Furthermore, it expressed the judgment that prices were rising in a manner which was apt to destroy demand and interfere with the marked growth in residential building characteristic of that period. "The lumber industry should discourage 'lumber famine' propaganda and should resist artificial pricing of its products." [25] The Committee's warning was amply supported by the events of the summer and fall of 1937.

A final word of caution should be kept in mind. The sketchy analysis given above throws light on only one circumstance; namely, the movement of lumber prices in 1936 and 1937. It does not cover such facts as costs, consumption, production, profits, taxes, wastes, and the like, nor does it deal with long range problems such as the reasons for the fact that lumber prices during the twenties stayed on a plateau about twice as high as the pre-war levels. It points out that after breaking somewhat during the depression (though not as did the prices of other commodities to lower than

[19] *U. S.* v. *American Column and Lumber Company*, 257 U. S. 377 (1921); *U. S.* v. *American Linseed Company*, 262 U. S. 371 (1923); *Maple Flooring Manufacturers' Association* v. *U. S.* 268 U. S. 563.

[20] The Lumber Survey Committee appointed on July 9, 1931, consists of Thomas S. Holden, vice president, F. W. Dodge Corporation, New York; M. W. Stark, economist, Columbus, Ohio; Calvin Fentress, chairman of the board, Fentress & Co., Chicago; Phillips A. Hayward, Chief, Forest Products Division, Department of Commerce; and Wilson Compton, secretary and manager, National Lumber Manufacturers' Association.

[21] A. C. Dixon, in *"Economic Problems of the Lumber and Timber Products Industry,"* by Peter Stone et al., N. R. A. Division of Review, *Work Materials No. 79*, March 1936, pp. 247–49.

[22] Lumber Survey Committee. Release of November 15, accompanying report of November 8, 1937, to the Department of Commerce (mimeograph).

[23] *Ibid.*, report of Nov. 8, p. 1.

[24] *Ibid.*, report of Feb. 12, 1938, p. 1.

[25] *Ibid.*, report of Feb. 10, 1937, p. 2.

pre-war levels) lumber prices promptly rose to levels which, "out of line" in 1926,[26] came in 1937 to be even more out of balance with prices in general, with rents and with consumer incomes.

Nor does the above discussion consider, in explaining the post-war shift of lumber prices to higher levels, such other factors as the gradual reduction in the total stand of certain kinds of timber, the depletion in certain instances of readily available cheaply processed stumpage, the dispersion of the lumber industry to points of new or more abundant supply further removed from principal consuming markets, together with countervailing technological improvements in methods not only of cutting and logging the raw timber but also of manufacturing, transporting, and handling lumber.[27]

In short, the lumber industry is suffering from an aggravation of old maladies, not from anything new.[28] At bottom collectivistic business attempts at production and price control are symptoms rather than causes, symptoms, namely, of basic economic ills of long standing for which the lumber industry has found no cure, ills which have been analyzed in numerous official State and Federal documents and elsewhere.[29]

Steel Prices

Turning to the steel industry let us keep in mind the same caution. Without attempting to summarize the many penetrating analyses of the fundamental economic structure of the iron and steel industry [30] let us try briefly to single out the factors that may have accounted for the abrupt jump in steel prices in 1936 and 1937.

In contrast with the lumber industry which produced in the summer of 1937 only 56.6 percent of its average weekly cut in the period 1926–29, and operated its plants only 4 days a week, the steel industry operated then at unusually high levels of capacity. This means for an industry of such heavy capitalization as steel with its relatively large percentage of fixed costs that overhead costs per ton of steel were substantially reduced.

[26] For a complete and authoritative discussion of these propositions see Mills, Frederick C., *Prices in Recession and Recovery* (National Bureau of Economic Research, publication No. 31, 1936), especially pp. 364-9.

[27] For a description of these trends, see U. S. Forest Service, *A National Plan for American Forestry*, Senate Doc. No. 12, 73d Cong., 1st sess., 1933.

[28] More than 30 years ago congressional resolutions inquiring about high prices and combinations in the lumber industry ordered the Bureau of Corporations of the Department of Commerce and Labor to conduct an investigation which lasted from 1907 to 1910, the results of which, entitled *The Lumber Industry*, were published in 3 parts in 1913 and 1914 (Washington, Government Printing Office). See also: Appendix I, "Efforts of the Lumber Industry at Production Control." N. R. A. *Work Materials No. 79, op. cit.*

[29] U. S. Federal Trade Commission. *Report of the Federal Trade Commission on Lumber Manufacturers' Trade Associations*, incorporating reports of Jan. 10, 1921, Feb. 18, 1921, June 9, 1921, Feb. 15, 1922, Washington, Government Printing Office, 1922; *The Red Cedar Shingle Industry*, report of the United States Tariff Commission to the President of the United States upon the red cedar shingle industry in the United States and Canada, Washington, Government Printing Office, 1927; Forest Service, *Timber Depletion, Lumber Prices, Lumber Exports, and Concentration of Timber Ownership*, report on Senate Resolution 311, June 1, 1920; Forest Service, *A National Plan for American Forestry*, Senate Document No. 12, 73d Cong., 1st sess., 1933, Washington, Government Printing Office.

[30] See especially the study of *Daugherty, et al.*, mentioned above and the extensive bibliography quoted therein.

The actual amount of reduction varies of course from plant to plant, and from operation to operation, so that even were detailed cost figures available they would portray the general situation less adequately than those given in table XIV. Notice that overhead costs per ton of output were lower for the first half of 1937 than in any year of recent steel history. It is also apparent that there was a rapid increase in the autumn as steel production was reduced.

TABLE XIV.—*Hypothetical overhead costs per ton of steel output (assuming interest and depreciation at 5 percent of total investment)*

A. AT VARIOUS LEVELS OF PRODUCTION WITH 1937 CAPITALIZATION

Percent of capacity operation	Output of finished steel (gross tons, at assumed capacity)	5 percent of total 1937 capitalization	Cost per ton of output
80	39,200,000	$220,000,000	$5.61
70	34,300,000	220,000,000	6.41
60	29,400,000	220,000,000	7.48
50	24,500,000	220,000,000	8.98
40	19,600,000	220,000,000	11.22
30	14,700,000	220,000,000	14.96
20	9,800,000	220,000,000	22.45

B. HISTORICALLY AT LEVELS OF OUTPUT AND CAPITALIZATION THEN EXISTING

Year	Average percent of capacity [1]	Approximate out put of finished steel (gross tons) [2]	5 percent of total capitalization [3]	Cost per ton of output
1920	83.5	33,805,000	$197,708,500	$5.85
1929	88.5	40,633,000	200,172,150	4.93
1932	19.5	10,352,000	203,680,000	19.68
1933	33.1	16,605,000	198,973,000	11.98
1936	68.4	32,000,000	191,668,000	5.99
1937	72.4	32,531,800	220,000,000	6.76
1937 [4]	84.8	40,000,000	220,000,000	5.50

[1] *Annual Statistical Report of the American Iron and Steel Institute* (350 5th Ave., New York), 1936, p. 15; and *The Iron Age*, Mar. 10, 1938, p. 55.
[2] *The Iron Age*, Mar. 10, 1938, p. 58. Output for 1937 [4] estimated.
[3] Estimate for the entire industry based on figures given in *Steel*, Apr. 11, 1938.
[4] At rate of first half.

It is clear that overhead costs per ton vary inversely with the volume produced. The cost of raw materials, however, used to manufacture steel has a more direct relation to the cost of the finished product and these costs were rising. Due to the insistent export demand for scrap, combined with heavy domestic demand, in the first half of 1937 the price was 103 percent above that for the corresponding half of 1936. The best grade of steel scrap sold for $22.50 per gross ton at Pittsburgh in comparison with a quotation of $19 per ton in 1929. One grade of pig iron sold at $23.50 in comparison with $18.50 per ton in 1929.

Labor costs are often assumed to have the same relation to costs as raw materials. However, the higher hourly rates paid to labor in 1937 seem not to have been reflected in proportionate increases in labor costs per ton. (See table XV, column 5.) Although the hourly rate rose from 0.670 to 0.819 (22.2 percent) the wage

bill per ton of structural steel rose only from 10.52 to 12.29 (16.8 percent).

The reason for this becomes apparent when reference is made to the fact that, as output increases, the number of man-hours required to produce a ton of steel decreases.[31]

Another noteworthy feature here is the fact that the proportion going into pay rolls was almost exactly the same in 1936 as it was in 1929. In other words, while the steel industry paid its labor in 1937 higher average rates per hour than any other industry in the country except the automobile industry (Bureau of Labor Statistics figures were $36.20 per week and 85.0 cents per hour for steel in April 1937 as opposed to $35.90 per week and 65.0 cents in 1929) "total monthly pay rolls of the industry" by July 1937 had "risen 175 percent since 1933 while production * * * increased 173 percent."[32] Interest, taxes, depreciation and depletion, and pay rolls took the same share of the sales dollar in 1936 that they did in 1929.. The slice of the sales dollar spent for materials, however, was nearly a third larger.

TABLE XV.—*Fluctuations in cost of items entering into the manufacture of structural steel shapes, 1926–37*

Year	Pig iron, per ton [1]	Scrap, per ton [2]	Average hourly wages [3]	Average man-hours per ton of structural steel [4]	Wage bill per ton of structural steel	Taxes paid per ton of finished steel [5]	Selling price of structural steel per ton [6]
1926	$18.55	$15.48	$0.636	14.3	$9.09	$2.60	$43.68
1929	18.19	16.30	.654	14.3	9.35	2.91	43.01
1932	13.98	7.54	.531	23.6	12.53	5.97	35.17
1933	15.24	9.47	.523	22.2	11.61	3.06	37.63
1936	19.10	14.75	.070	15.7	10.52	3.34	41.44
1937	22.90	18.02	.819	15.0	12.29	4.00	49.50

[1] Basic Pig Iron at Mahoning or Shenango Valley Furnace, Gross Ton, *The Iron Age* Annual Review Number, Jan. 6, 1938, p. 102.
[2] No. 1 Heavy Melting Steel Scrap Composite Price, *Ibid.*, p. 113.
[3] 1926-32 from *Wages, Hours and Employment in the United States, 1914-36*, National Industrial Conference Board, September, 1936; 1933-37 from U. S. Bureau of Labor Statistics.
[4] Exclusive of pig iron. The amount varies with rate of operations (see first column, B section of table XV). These computations are estimates based on the figures contained in Man-Hours of Labor per Unit of Output in Steel Manufacture. *Monthly Labor Review*, May 1935, p. 1155 ff. (reprinted as U. S. Department of Labor Bulletin No. R 240), which gives 17.46 man-hours as required for making structural shapes (not fabricated) with plants operating at 55–60 percent of capacity. At capacities above 55–60 percent, the index of man-hours required per ton was extrapolated as follows: 60–65, 95; 65–70, 90; 70–75, 86; 75 and over, 82.
[5] Taxes from *Steel Facts*, April, 1938, p. 1.
[6] Structural Shapes at Pittsburgh, *The Iron Age*, Jan. 6, 1938, p. 107. Computed from cents per pound.

The main conclusion to be drawn from this sketchy analysis is that there is little relationship between the costs of production of steel at any particular time and the price at which the steel is sold at that time, a fact well known to cost accountants and other persons acquainted with the industry.

Evidently those persons who judge the market in establishing steel prices are not dominated wholly by cost elements. They no doubt also consider what the "traffic will bear" in pushing prices up. They probably again take this demand element into account in making any adjustments downward.

One could hardly expect steel producers to refuse to take advantage of the situation in 1937. Whether they marketed their product as pig iron, scrap, plates, shapes or structural steel was obviously a matter of indifference. But so long as steel prices remain high they will continue to obstruct recovery in housing construction.

In conclusion the fact should be emphasized that long-range factors in the steel industry have not been considered in this analysis. The industry has a long record of increasing efficiency, of technological change, of price control.

It is hoped that the two examples given here—lumber and steel—have revealed to some extent the knotty character of the problem, the interindustry entanglements, the various monopolistic obstructions, and other difficulties which enter into the complicated behavior of building materials prices.

Inefficiencies in Distribution of Building Materials

The inefficiencies of retail and wholesale distribution of building materials are a matter of common knowledge. The editors of *Fortune* in their book, *Housing America*, have characterized the situation as follows:

> Since so much material is, or has been in the past, ordered in special lots and special quantities and special sizes selling necessarily at special prices, the material men have come to think of their products universally in those terms. Nothing else explains the notorious price spread in building materials, certainly averaging 100 percent, nor the fact that a man finds himself in a completely new and different world of values, a sort of fairyland of prices, the moment he undertakes to buy anything having to do with a house. A brass bowl which applied to another use might possibly cost $25 will cost $200 if he wishes to attach it to his ceiling for the purpose of diffusing light. And 15 cents' worth of metal and enamel may in an extreme case cost him $15 by the time it has been applied as a replacement to the top of his water-closet reservoir. As an example of the ripening of prices in the jobber's warehouse, the history of plain copper gutter has considerable eloquence:

		Cents
Ingot copper	per pound	7½
Cost of melting, rolling, cutting, etc., including freight and manufacturer's overhead and profit	per pound	6¾
Manufacturer's price	per pound	14½
Which amounts to	per foot	11½
Wholesaler's selling costs and profit, including freight, warehousing, overhead, and profit	per foot	6½
Roofer's selling costs and profit, including costs of handling and storing	per foot	18
Retail price	per foot	36
Which amounts to	per pound	45

(Or three times the manufacturer's price).

Obviously, then, the man of means who wishes a house after his own heart, although he may justly demand of the building

[31] "Man-Hours of Labor per Unit of Output in Steel Manufacture," *Monthly Labor Review*, May 1935, p. 1155 ff. (Reprinted as U. S. Department of Labor Bulletin No. R240.)
[32] *Steel Facts*, July 1937, p. 1.

industry that it find some means of selling him his materials and his labor and his financing at prices commensurate with the prices holding in other industries, has no right to compare housing costs with, say, automobile costs, for if he built his $2,000 car as he builds his house, it would cost him for parts alone upward of $5,000.[33]

Retailing Building Materials

The manner in which materials are purchased for the ordinary home is shown in table XVI. The net result of such buying practices is, of course, a multiplicity of dealers in the business of furnishing building supplies. In 1935, according to the Census of Business, there were more than 73,000 retail dealers in the lumber-building-hardware group with average volume of sales of only $24,000. Almost a fourth of them had total sales of less than $5,000 each. In fact, only 139 lumber and building materials dealers in the United States sold more than $300,000 worth of product, and they made only one-eleventh of all sales.

Probably in no industry is the criss-cross pattern of distribution more complex than in the building materials industries. Some materials are ordinarily delivered direct to the customer, as, for example, sand and gravel. Some are obtained at general merchandise stores, some at hardware stores, some direct from the manufacturer or the wholesaler. Building materials dealers frequently handle other products, lumber yards handling fuel, oil, coal, garden supplies and the like.

The pattern of distribution in the industry has been profoundly influenced by the development of trade associations which have sought to prevent drastic readjustments in the distributive processes in this industry. The associations are sometimes composed of local building material dealers, or of dealers in a particular commodity, or of manufacturers of materials; all of which proliferate into both regional and national organizations. The spheres of influence of the organizations of manufacturers and retailers often overlap and interlock, both within themselves and with each other.

The activities of these organizations on behalf of their members have varying economic implications. The associations of manufacturers have rendered useful services in the standardization of grades and the compilation of trade statistics. Likewise, the associations of dealers have provided technical services and protected the legitimate interests of their constituencies. A major effect, however, of the efforts of these groups has been to check the development of new and more economical methods of distribution. In numerous types of building material manufacture there has been a long history of concerted action to mitigate the severity of the competitive struggle. Among distributors there have been widespread efforts to reach the same objective. These activities tend to become interwoven and to result in a crystallization of the prevailing distributive channels.

Many of these activities have been challenged during the history of these associations by various State and Federal authorities. A recent example is a cease and desist order issued by the Federal Trade Commission in December 1937 against the National Federation of Builders' Supply Associations, the membership of which consisted of 41 federated units located in 32 States, and

[33] New York, Harcourt, Brace & Co., 1932, pp. 52-53.

TABLE XVI.—*List of miscellaneous purchases made in 2 selected months by general contractor in building a single-family house* [1]

Dec. 5.	15 barrels cement	$32. 25
	Copper wire nails	1. 70
8.	Reinforcing rods	6. 91
9.	Sixpenny cut finish nails	5. 40
	65 pounds eightpenny nails	2. 93
	Miscellaneous	1. 50
10.	30 bags cement	16. 13
	2 steel sash	7. 00
	20 bags cement	10. 75
11.	100 cubic feet insulation	20. 00
12.	Lead, oil, turpentine	9. 53
	6 joist hangers	5. 30
	5 brushes	1. 95
	23 feet lead pipe	8. 80
	5 rolls Bermico	6. 25
	2 rolls insulating paper	4. 50
	35 feet asbestos paper	2. 80
	10 pounds roofing cement	1. 25
	2 kegs eightpenny common nails	7. 60
	1 keg twentypenny nails	3. 50
	2 thermometers	1. 60
15.	20 feet spruce	1. 29
	Pipes and bends for drains	2. 67
16.	Lead flashing	. 90
17.	Pipe and drain bends	9. 33
18.	1 roll insulating paper	2. 25
	3 rolls Bermico	3. 75
	16 lights wire glass	2. 58
	12½ pounds putty	. 69
	Express	. 56
	1 keg eightpenny common nails	4. 00
	Paint pot	. 25
	Copper flashing	1. 88
	Sheet lead	. 88
	Coupling	1. 43
20.	30 cement blocks	4. 20
26.	Wallboard and boards	23. 65
30.	Lumber	30. 31
	Boards	170. 00
Mar. 1.	200 gallons fuel oil	15. 00
3.	Lag screws	. 52
6.	Nails	8. 75
10.	1 brush	. 35
	250 gallon fuel oil	18. 75
11.	Drawer pulls and bolts	5. 65
	7 rolls Bermico	8. 75
	Sandpaper	. 73
20.	1 light wire glass	. 25
23.	1 angle iron	1. 50
	2 bags lime	. 90
	1 bundle lath	1. 12
24.	Miscellaneous	1. 97
	7½ barrels cement	16. 14
27.	1 push button	2. 00
28.	Bermico paper	1. 00
	Cesspool grate and ring	7. 50
31.	Pipe, bends and cement	19. 22
	8 tons blue dust	24. 00
	2 sets sash balances	4. 28

[1] Source: Bemis, *Economics of Shelter*, vol. II, p. 187.

various other dealer associations. Among the practices inhibited by the order were the following:

> Preparing, publishing, and circulating among manufacturers and producers of building materials and builders' supplies lists or directories containing the names of "recognized" dealers, for the purpose or with the effect of indicating that the specified persons or concerns are recognized as entitled to buy direct from said manufacturers and producers, and that other persons, concerns, or classes thereof are not so entitled.
>
> Using boycott, threats of boycott, either with or without other coercive methods, to persuade, induce, or compel manufacturers and producers to refrain from selling building materials and builders' supplies to the so-called irregular dealers, or to others, or to refrain from so selling, except on unfair, discriminatory, or prohibitive terms and condition fixed by respondents.
>
> Cooperating with other dealer organizations and with manufacturers and producers for the purpose of confining sale and distribution of building materials and builders' supplies to so-called regular channels, and preventing their sale and distribution otherwise.
>
> Fixing or establishing uniform prices at which respondent dealer members or others, in particular communities, shall sell their materials and supplies.

Whatever may be the legality of the activities of these trade groups, they undoubtedly introduce rigidities and inflexibilities into the pricing of building materials. To attempt a detailed analysis of these influences or to present a detailed description of the many channels of distribution through which building materials reach the consumer is out of the question. Nor does space permit presenting evidence on the mark-ups, terms of sale, organization of outlets, and the like as they vary between regions, between stores, between building materials, between modes of distribution, between phases of the ups and downs of building, and so on. The nature of these complications can readily be inferred from a few selected facts on lumber.

Distribution of Lumber From Plants

Needless to say, the extraordinary expensiveness of our system of distribution has been fully realized by the manufacturers, retailers, and wholesalers of building materials for a long period of time. Almost every conceivable type of experiment to reduce the spread has been tried or is in operation.

Table XVII illustrates how planing mill operators distributed their product in 1935. Little was sold to their own wholesale branches or to their own retail stores. More than a third was sold directly to industrial and other large users, a fifth to wholesalers and jobbers, a fifth to retailers, and about one-eighth directly to household consumers.

A clue to the handling costs of building materials, exclusive of freight charges, which are incurred between the manufacturer and the retailer is contained in table XVIII. While these figures cover only that portion of lumber and other building materials that is handled by wholesale and industrial distributors, they show nevertheless the character of the cost that is incurred when building materials are put into the hands of the retailers through these channels. Notice that a large share of the total goes to the wholesale group which does between $100,000 and $200,000 worth of business. Those doing over a million dollars worth sell only one-fifth of the total amount reported sold, despite the fact that the ratio of expenses to net sales for the group selling between 1 and 2 million dollars worth of "lumber and millwork" is the lowest of the list, 15.5 percent. On the average, the ratio for "lumber and millwork" is 19.1 percent. In short, about a fifth of the dollar which the wholesaler receives from his customers, i. e., the retailers, goes for expenses. The proportion going into profits is, of course, not included.

Retailing Lumber

But once in the retailer's hands the process of cumulating costs has by no means ended, for retailers of building materials incur the same variety of expense as do retailers of other merchandise, expenses for handling and delivery, for advertising, maintenance and repair of premises, taxes, insurance, and so on. The amount of this expense when translated into mark-up varies with the size and type of business, with merchandising policies, and the like. It differs from time to time in the same store, from item to item, from store to store, and from place to place.

An example of the amazing variation that exists in this regard between geographic areas is given in table XIX. This variation is, of course, quite the ordinary run of affairs and exists in no less striking a fashion between stores in the same city as well as between stores in a metropolitan city and those in the suburbs. Notice that the average mark-up on cost is about 40 percent, although it varies from percentages as high as 60 in certain southern states to figures below 30 percent in South Dakota and the District of Columbia.

Another noteworthy feature is the relatively high amount of interest and bad debts expense, indicating the marked extent to which building materials dealers endeavor to encourage homebuilding by financing the builder and homeowner. The enormous variation in 1934 probably reflects depression conditions, for the percentage on cost of goods sold is less than 2 percent in the Carolinas, Delaware, Vermont, North Dakota, and the District of Columbia and over 10 percent in Idaho, Rhode Island, and Southern New Jersey.

One other fact remains to be observed and emphasized: the magnitude of, and variation in, selling and administrative expense. It is uniformly from one-half to two-thirds of total expense. Its components as reported in the volume from which this table is taken are in order of size: officers' or partners' salaries, 28 per-

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TABLE XVII.—*Distribution of sales from plants*

Planing-mill products (including general millwork) [1]

Number of plants,[2] 2,561 Total sales reported, $221,938,000[3]

Channels of primary distribution	1935					1929		
	Amount of net sales (add 000)	Percent total net sales	Percent distributed sales	Number of plants		Percent distributed sales	Number of plants	
				Total	Selling exclusively		Total	Selling exclusively
Total for industry	$221,938	100.0		2,561			3,746	
To own wholesale branches	8,013	3.6	3.9	59	24	7.1	395	144
To industrial and other large users	76,727	34.6	37.5	1,227	577	56.0	2,870	2,030
To wholesalers and jobbers	47,970	21.6	23.4	717	211	36.9	1,469	650
To own retail stores	4,979	2.2	2.4	119	53	(4)		
To retailers (including chain stores)	39,360	17.8	19.2	788	198	(4)		
To household consumers	27,851	12.5	13.6	962	328	(4)		
Total distributed sales	204,900	92.3	100.0			100.0		
Transfer to other plants in own organization	5,051	2.3		61	25	No comparable information is available for 1929 on these items.		
Sales not allocated to usual channels	11,987	5.4		189	147			
Sales negotiated through agents, brokers, and commission houses	13,509	6.1		194	29			

[1] Source: *Census of Business, 1935; Distribution of Manufacturer's Sales*, p. 96.
[2] The plants in this classification are "independent" planing mills; that is, planing mills not operated in conjunction with sawmills. (Planing mills operated in conjunction with sawmills are classified in the "Lumber and timber products" industry.) Principal products are dressed lumber, sash, doors, frames, interior woodwork, and molding. The *Census of Manufactures* reports a preliminary value of products for this industry of $196,272,000 in 1935.
[3] Includes $17,098,000 purchased merchandise sold without processing and $571,000 received for processing materials owned by others.
[4] Sales to household consumers were combined with sales to industrial users; sales to retailers were combined with sales to wholesalers; and sales to own retail stores were combined with sales to own wholesale branches, all because of incomplete reports.

TABLE XVIII.—*Sales and expenses of wholesale merchants and industrial distributors of lumber and construction materials by business size groups* [1]

Kind of business	Total, all establishments				Establishments with sales of—													
					Under $10,000				$10,000 to $49,999				$50,000 to $99,999				$100,000 to $199,999			
	No.	Net sales (add 000)	Expenses (add 000)	Expenses percent to sales	No.	Net sales (add 000)	Expenses (add 000)	Expenses, percent to sales	No.	Net sales (add 000)	Expenses (add 000)	Expenses, percent to sales	No.	Net sales (add 000)	Expenses (add 000)	Expenses, percent to sales	No.	Net sales (add 000)	Expenses (add 000)	Expenses, percent to sales
Lumber and construction materials	2,263	$338,949	$69,902	20.6	191	$906	$310	34.2	692	$19,333	$5,124	26.5	470	$33,446	$7,905	23.6	461	$65,875	$15,182	22.7
Builders' supplies (full line)	503	74,442	16,025	21.5	26	119	35	29.4	152	4,539	1,095	24.1	113	8,379	1,742	20.8	107	15,429	3,106	20.1
Lumber and millwork	1,082	190,342	36,376	19.1	75	349	113	32.4	288	8,176	2,044	25.0	213	15,103	3,383	22.4	242	35,784	7,802	21.8
Brick, tile, and terra cotta	112	8,309	1,606	21.7	9	36	7	19.4	47	1,261	292	23.2	29	2,094	494	23.6	17	2,157	484	22.4
Cement, lime, and plaster	123	18,374	3,358	18.3	9	47	20	42.6	40	1,200	298	23.1	26	1,747	359	20.5	27	4,155	877	21.1
Glass	258	21,544	6,653	30.9	42	203	73	36.0	105	2,452	861	35.1	46	3,200	1,190	37.1	41	5,604	1,898	33.9
Sand, gravel, and crushed stone	96	9,575	2,770	28.9	17	90	36	40.0	31	832	285	34.3	20	1,409	423	30.0	13	1,774	546	30.8
All other	89	16,363	2,914	17.8	13	62	26	41.9	29	783	249	31.8	23	1,508	314	20.8	14	1,962	469	23.9

Kind of business	Establishments with sales of—																			
	$200,000 to $299,999				$300,000 to $499,999				$500,000 to $999,999				$1,000,000 to $1,999,999				$2,000,000 and over			
	No.	Net sales (add 000)	Expenses (add 000)	Expenses, percent to sales	No.	Net sales (add 000)	Expenses (add 000)	Expenses, percent to sales	No.	Net sales (add 000)	Expenses (add 000)	Expenses, percent to sales	No.	Net sales (add 000)	Expenses (add 000)	Expenses, percent to sales	No.	Net sales (add 000)	Expenses (add 000)	Expenses, percent to sales
Lumber and construction materials	191	$46,330	$9,450	20.4	140	$53,043	$10,481	19.8	81	$52,504	$9,509	18.1	29	$40,521	$6,262	15.5	8	$25,991	$5,679	21.8
Builders' supplies (full line)	52	12,563	2,503	19.9	35	13,497	2,643	19.6	12	7,909	1,531	19.2	4	(2)	(2)	(2)	2	(2)	(2)	(2)
Lumber and millwork	105	25,554	4,980	19.5	81	30,768	5,532	18.0	53	33,394	5,783	17.3	20	27,204	3,967	14.6	5	14,010	2,772	19.8
Brick, tile, and terra cotta	8	1,999	369	18.5	2	(2)	(2)	(2)												
Cement, lime, and plaster	8	1,828	396	21.7	6	2,027	336	16.6	4	2,563	439	17.1	3	4,707	633	13.4				
Glass	10	2,448	724	29.6	7	2,628	789	30.0	7	5,003	1,118	22.3								
Sand, gravel, and crushed stone	6	1,431	405	28.3	7	2,679	743	27.7	2	1,360	332	24.4								
All other	2	507	73	14.4	2	(2)	(2)	(2)	3	2,215	306	13.8	2	(2)	(2)	(2)	1	(2)	(2)	(2)

[1] Source: *Census of Business, Wholesale Distribution, 1935*, v. 1, p. 88.
[2] Withheld to avoid disclosure of individual operations.

cent of the total for this item; office wages, 20 percent; salesmen's salaries, commissions, and travel, 13 percent; insurance, 10 percent; taxes, 5 percent; rent, 4 percent; advertising, 3 percent; postage, telephone, heat, accounting fees, legal fees, donations, office maintenance, etc., 17 percent.

On the whole, losses tend to occur wherever selling and administrative expenses are high (Rhode Island,

TABLE XIX.—*Profits and expenses, retail lumber dealers, 1934* [1]

[Known dealers, 23,531. Dealers reporting, 3,554]

State	Sales volume, 000 omitted	Percentage of each to total cost of goods sold						
		Gross mark-up realized	Rework mill expense	Handling delivery expense	Selling and administration expense	Interest and bad debts expense	Total expense	Profit or loss (−)
United States	$166,763	38.39	1.04	9.85	23.64	4.53	39.06	−0.67
Alabama	1,409	53.87	5.93	12.37	26.43	4.02	49.05	4.22
Northern California	2,426	37.80	1.41	9.80	20.38	4.38	35.97	1.83
Carolinas	107	60.21	9.45	12.53	32.87	1.89	56.74	3.47
Florida	6,068	41.56	1.53	9.59	20.64	4.49	36.25	5.31
Georgia	1,786	39.49	3.13	10.49	19.28	2.69	35.59	3.90
Illinois	3,871	37.86	.17	9.89	23.29	4.43	37.78	.08
Indiana	6,307	38.47	.73	9.22	24.42	4.65	39.02	−.55
Kentucky	1,842	45.11	1.09	10.14	28.27	4.57	44.07	1.04
Louisiana	1,630	37.32	.15	9.84	22.97	2.13	35.09	2.23
Southern Michigan	6,099	38.87	.96	11.06	22.93	4.41	39.36	−.49
Delaware	548	40.58	------	10.21	21.06	1.75	33.02	7.56
District of Columbia	193	27.12	------	6.87	10.95	1.63	19.45	7.67
Maryland	1,827	38.23	1.25	9.61	21.88	3.98	36.72	1.15
Southern New Jersey	1,282	38.91	1.16	11.79	30.65	14.32	57.92	−19.01
Eastern Pennsylvania	9,030	39.31	.84	12.35	23.04	4.11	40.34	−1.03
Mississippi	551	44.46	.08	10.73	30.70	7.27	48.78	−4.32
Colorado	3,435	32.74	.16	7.72	20.99	3.02	31.89	.85
New Mexico	813	35.05	.16	5.43	21.63	3.48	30.70	4.35
Wyoming	823	44.54	------	6.85	26.75	6.66	40.26	4.28
Nebraska	3,784	30.35	.01	7.80	20.84	2.84	31.49	−1.14
Northern New Jersey	3,111	48.01	.57	14.73	31.42	5.39	52.11	−4.10
New York City	3,914	46.29	.90	16.29	27.80	3.95	49.00	−2.71
Connecticut	4,085	41.64	.07	12.71	22.45	6.20	41.43	.21
Maine	661	43.40	3.60	8.09	23.18	3.82	38.69	4.71
Massachusetts	6,349	41.26	1.71	13.78	24.73	4.46	44.68	−3.42
New Hampshire	405	48.59	7.73	15.08	22.01	5.08	49.90	−1.31
New York State	9,340	39.78	1.23	10.95	25.21	4.84	42.23	−2.45
Pennsylvania, part	183	52.88	13.19	9.12	16.82	7.14	46.27	6.61
Rhode Island	883	45.97	.95	14.37	35.47	12.09	62.88	−16.91
Vermont	353	40.24	2.45	7.13	31.17	1.43	42.18	4.06
Iowa	3,680	31.75	------	9.74	15.62	2.55	27.91	3.84
Minnesota	2,538	33.11	------	9.14	17.96	3.55	30.65	2.46
North Dakota	1,381	33.43	------	4.43	24.40	1.26	30.09	3.34
South Dakota	1,047	28.81	------	3.33	24.50	2.88	30.80	−1.99
Ohio	10,590	44.21	1.53	11.07	26.89	5.62	45.11	−.90
Western Pennsylvania	4,268	42.08	1.36	10.76	27.45	5.80	45.37	−3.29
Arkansas	167	38.92	------	11.99	20.06	6.29	38.34	.58
Kansas	3,013	37.74	.01	5.50	25.87	4.41	35.79	1.95
Missouri	5,039	34.47	.43	6.05	22.75	3.04	32.87	1.60
Oklahoma	5,354	33.74	------	4.42	22.91	4.37	31.70	2.04
Tennessee	1,275	43.78	1.28	8.91	29.04	4.04	43.87	−.09
Texas	6,914	38.10	.25	3.14	27.27	4.69	35.35	2.75
Utah	551	32.48	.55	7.78	18.27	6.54	33.14	−.66
Virginia	3,203	37.46	2.97	9.69	20.03	3.78	37.37	.09
Idaho	280	37.10	------	6.35	18.44	13.64	38.43	−1.33
Montana	2,078	41.48	.44	9.20	21.59	6.03	38.25	3.23
Nevada	96	37.03	------	7.27	28.84	3.28	39.39	−2.36
Oregon	633	47.38	.03	9.34	29.95	3.74	43.06	4.32
Washington	1,917	43.06	.92	13.41	23.52	5.11	42.96	.10
West Virginia	1,001	38.14	1.05	9.33	20.71	6.30	37.39	.75
Northern Michigan	210	35.43	------	10.95	16.49	2.86	30.30	5.13
Wisconsin	8,031	32.49	.20	8.81	19.00	4.05	32.15	.34
Cook County, Ill.	3,509	42.15	.35	11.61	29.13	4.92	46.01	−3.86
St. Louis County	1,855	45.07	2.66	10.81	31.10	3.02	50.68	−5.61
Arizona	2,535	38.84	.01	10.75	24.03	4.35	39.14	−.30
Southern California	10,547	30.20	3.12	9.08	21.26	4.64	38.00	−8.20

[1] Source: Arranged from Table XLIX, *Economic Problems of the Lumber and Timber Products Industry*, National Recovery Administration, Industrial Studies Section, March 1936, p. 320 (mimeo).

N. and S. New Jersey, Mississippi, St. Louis County). *Per contra*, regions with a low selling and administrative figure tend to show the highest percentage of net profit. (Florida, District of Columbia, Delaware, part of Pennsylvania, Iowa, N. Michigan.) None the less, despite the relatively large mark-up, notice that on balance lumber dealers as a whole lost money in 1934. In a nutshell, the distributive lumber problem consists of large price spreads, hordes of dealers, enormous duplication of selling and administrative expense, and small net profits, if any.

In table XX is presented a vertical cross section of the lumber industry from stump to consumer. While it applies to a particular market, New York, for a particular period of time, for particular kinds of lumber sold direct from mill to retailer, it gives an approximate picture of general conditions and suggests the numerous possibilities of variation. Cost to the consumer is in every case over twice total mill cost.

TABLE XX.—*Lumber cost at New York, N. Y., code period January to March 1934* [1]

	Douglas fir water	Douglas fir	Southern pine	Western pine	Oak
Shipping weight per M feet (pounds)	3,100	2,800	3,000	2,300	4,300
Freight rate per 100 pounds	------	$0.87	$0.37	$0.73	$0.41½
Costs per M. B. M.:					
Stumpage	$2.42	2.42	4.31	2.11	6.31
Logging and milling:					
Labor	5.11	5.11	7.58	6.35	9.27
Other costs	6.58	6.58	6.13	7.77	6.91
Shipping and selling:					
Labor	1.06	1.06	1.61	1.90	2.35
Other costs	1.21	1.21	1.07	1.95	1.53
Overhead and administrative:					
Officers and owners pay	.62	.62	1.05	.76	4.11
Other costs	1.80	1.80	3.50	2.60	------
Total mill cost [2]	18.80	18.80	25.25	23.44	30.48
Freight	10.20	24.36	11.10	16.79	17.75
Cost to retailer	29.00	43.16	36.35	40.23	48.33
Retail costs: [3]					
Labor	6.51	9.69	18.16	9.08	10.83
Officers and owners pay	1.77	2.64	2.22	2.46	2.95
Other costs	5.96	8.88	7.48	8.28	9.94
Total cost to consumer	43.24	64.37	54.21	60.00	71.95
Recapitulation:					
Stumpage	2.42	2.42	4.31	2.11	6.31
Logging and milling	11.69	11.69	13.71	14.12	16.18
Selling and administrative	4.69	4.69	7.23	7.21	7.99
Freight	10.20	24.36	11.10	16.79	17.75
Retailers costs	14.24	21.21	17.86	19.77	23.72
Total cost to consumer	43.24	64.37	54.21	60.00	71.95

[1] Source: *Economic Problems of the Lumber and Timber Products Industry*, National Recovery Administration, Industries Studies Section, March, 1936, p. 323 (mimeo.).
[2] Total mill costs derived from industry cost questionnaires.
[3] Retail costs derived from industry cost questionnaires.

Notice particularly that logging and mill labor, even under National Recovery Administration regulations, in no case got more than 15 cents of the consumer dollar, and in the case of West Coast labor, 12 cents. The railroads generally got twice that amount and the retailer usually more than the railroad. In fact, if logging and sawmill laborers' National Recovery Administration wages had been halved, the reduction in the price to the consumer, even if passed on 100 percent, would be less than 7 percent and usually fail to exceed 6 percent.

There is no assumption in the analysis given above of a parallel trend, constant spread, or continuously identical or proportional relationships between the prices of labor plus other production costs of building materials on one hand, and wholesale prices, retail prices, building costs, and selling prices of houses to consumers on the other. Obviously such an assumption would not fit the facts. Each of these sets of prices is subject to special influences and special market conditions. The prices of houses to homeowners bear little, if any, fixed relationship to reproduction costs of the structure, since factors like style of house, local population pressures

and movements, and general business conditions [34] are more important.

Similarly building costs correspond but loosely with local retail prices of building materials, for not only do types of materials used depend somewhat on changing consumer fancy but the quantity absorbed varies with price and technological progress. Retail prices of building materials, like those of commodities in general, follow wholesale prices only sluggishly, depending to a large extent on local distributor competition.

As has been shown above, changes in building materials wholesale prices, like those of wholesale prices in general, take place for a variety of special monetary, financial, and even political reasons wholly dissociated with changes in wage rates or in other direct costs. Numerous interstitial price shifts take place vertically within the industry and geographically between uses and users, types of outlets, and modes of distribution.

In sum, the prices of building materials cannot be understood by adding together the "costs" at various points along the stream from the original producer to the consumer. The maze into which one finds himself drawn in the attempt to understand them cannot be threaded by any simple analysis. Even extended experience with these prices leaves the student in a quandary. The attempt to bring prices to levels which will mean lower costs of construction calls for a many-sided attack.

How Can the Cost of Building Materials Be Reduced?

To reduce the cost of building materials and equipment in order to secure more housing requires activities of several kinds, (1) those tending to increase the efficiency of production and distribution and thus lower the prices of building materials, (2) those designed to encourage a high degree of competition within the materials industries, and (3) those which bring about maximum economy in assembly at the site and incidentally economies in the purchase of materials.

Business and governmental efforts towards getting more materials at lower prices will, of course, vary with the particular industry concerned, but they fortunately need concern only a handful of such industries. As was noted above most of the construction dollar goes for four or five items—lumber, steel, brick, cement, and heating and plumbing equipment. The materials problem so far as manufacture is concerned is mainly concentrated in the industrial areas covered by the lumber, steel, brick, and cement industries.

A complete program of action would, of course, require tackling each problem individually after careful investigation and consultation with the trade associations and leading producers in each field. In the lumber industry certain forces were at work late in 1937 causing stocks to accumulate, a development which brought further declines in lumber prices; but no such promise of relaxation of the grip of collectivistic restrictive activity of business exists in the other industries. Steel and cement have for years operated on a basing point system for the control of prices. Both are produced by large scale production methods and controlled by gigantic aggregates of capital.

It is fairly obvious that the individual consumer has available no ready means of obtaining lower prices of materials. There are, however, governmental devices which can be used if the aim of government policy were solely to reduce prices. Modification of tariff schedules might be influential in some cases. Another device which is available is the more rigid enforcement of the antitrust laws. Difficulties exist in breaking up collusive practices even where they are known to constitute effective economic monopoly or where they introduce rigidities into the mechanism for making prices. However, many of the agreements and trade practices are so woven into the business structure that only industrial reorganization will make any real difference.

A third device open to the consumer is that of utilizing to the full his own bargaining power, particularly insofar as it is concentrated in the purchases by cities, counties, States, and national governments. Stronger units might help weaker units, putting in a competitive bid to supply neighboring local governments at reasonable prices. Governmental purchasing agents could co-ordinate their purchases and concentrate the bargaining power inherent in large-scale buying, operating in the same manner, for example, as does the bargaining power of the large automobile concerns to secure concessions from the steel industry.

Policies of public buying should be critically reexamined. It might be true, for example, that instead of trying to secure bids on individual contracts, cities and other governmental units might initiate a well-known practice of certain highly successful chain stores and small mail order houses; namely, contract to take all of an individual's output for a period of years. If governmental agencies find that even this inducement is insufficient to establish competition between individual producers, it is theoretically possible to follow sound business and corporate practice by producing their own materials. Many large American business units, both manufacturers and distributors, find such cost control necessary to guarantee adequate supplies of raw materials at reasonable prices. Municipal purchasing agents have demonstrated the method of combined purchasing City fire departments manufacture parts of their own equipment. The Federal Government has let inde-

[34] See Frank R. Garfield and William M. Hood, "Construction Costs and Real Property Values," *Journal of the American Statistical Association*, December 1937, vol. 32, No. 200, pp. 643-54.

pendent contracts where evidence of collusive bidding could be shown.

Many other devices will suggest themselves as detailed examination is made of the individual industries—devices such as changes in tax policies, reduction or readjustment of freight charges, manufacture and distribution of building materials for low-cost houses by relief labor, reduction of wholesale and retail expenses by factory-to-site operations, and the like.

To rest on the demand for more competition is, however, considerably to oversimplify the problem. Much of the combination and collusion which have developed in the industry have come directly from the character of the building industry. In its distributive phases the industry consists of a multitude of competing units which compound the expenses of competition and overlook the efficiencies of better organization. Large-scale operations in themselves do not make for efficiency, and even when efficient they may develop antisocial practices. But the organization of the distribution of materials so as to bring about efficient purchasing will probably only come when large-scale operations in building homes are actually undertaken. For this reason, we turn to a brief discussion of the savings in material costs which can be achieved through large-scale construction operations.

Handicraft Character of House Building

High as some prices are, houses could be built more cheaply if the process of assembly were less disorganized. At present, the job of putting up a house is one of assembling hundreds of parts, including many which are ordered to specifications. It involves numerous operations, requires a score of individual skills or trades, and utilizes several hundred items of equipment, varying from transits to concrete mixers. Usually a dozen or more separate contracts must be negotiated. On nearly every job is found a group of sub-subcontractors whose accounting methods are rudimentary. Each bidder figures the cost of materials, adds on a percentage for waste, incurs the overhead of running from job to job for labor and equipment, and adds a profit which is as much as he thinks he can get considering the bid of his competitors and the shrewdness or bargaining leverage of the contractor or purchaser.

The need for integrating such various activities has long been felt. Almost universally there have grown up local tie-ups, reciprocity arrangements between contractors and building materials dealers, between architects, building supply houses, and building and loan associations or banks, and between contractors and labor organizations. Local pressure is often utilized to keep the contracts in the community, particularly where local dealers or contractors have perfected arrangements for dividing the local market between them.

Contractors who know their subcontractors and who have semipermanent arrangements with them add an element of efficiency to the building operation which can otherwise be achieved only by corporate integration or large-scale operators. Competitive bidding contains large elements of waste. Duplicate designing of slipshod character, collusive bidding within narrowly-agreed ranges, cleared bids dominated by an association, overhead for contracts not received are all expensive. They account to some extent for irregular operation and high overhead as well as high labor costs.

Existing organizations always tend to oppose change. Accepted methods are the easiest to use. When they seem to react to the financial advantage of all concerned it would be strange to find any other attitude. Nor is it strange to find that those who have investment in high-cost construction lack interest in lower reproduction costs.

With so many powerful forces opposed to change, the traditional method of building tailor-made homes has experienced little change or improvement. Use of labor-saving devices is the exception. Often contractors recruit laborers for each job and operate on such slender resources that they even lack the capital to take advantage of quantity and cash discounts. Materials are dumped on the site and fitted by the "cut-try-and-cut-again" procedure. There are few operative builders able to put up a block or row of houses, this type of construction accounting even in 1929 for only 2 percent of the total value of residences built. Most building is done by small contractors, as table XXI indicates. The small volume of business done, the small number of employees per establishment, and the meager amounts of materials installed by the firms contained in this sample depict the small retail character of the business.

TABLE XXI.—*Building contractors in 1935* [1]

Type of contractor	Number of establishments		Value of work performed		Employees (average per year)		Cost of materials installed	
	Total	In this sample	Total (add 000)	Average per firm	Total	Average per firm	Total (add 000)	Average per firm
General building	8,337	7,139	$352,329	$49,000	105,302	14.7	$162,641	$22,800
Carpentering	7,853	5,698	25,129	4,400	6,038	1.1	9,677	1,700
Concreting	981	869	10,465	12,000	3,609	4.1	4,383	5,000
Electrical	8,473	3,413	70,371	21,000	16,299	4.8	28,997	8,500
Excavating and/or foundation	375	342	11,716	34,000	3,938	11.5	2,478	7,200
Glass and glazing	141	86	1,851	21,000	404	4.7	756	8,800
Heating and plumbing	23,856	13,741	214,642	15,800	45,752	3.3	103,005	7,500
Roofing and sheet metal	5,927	2,889	47,844	16,500	12,209	4.2	20,836	7,200
Masonry	1,288	823	10,203	12,000	2,996	3.6	3,980	4,800
Ornamental iron	158	145	1,369	9,400	316	2.2	618	4,300
Painting, paperhanging, decorating	11,078	6,186	38,605	6,200	12,394	2.0	9,464	1,500
Plastering	899	720	9,476	13,000	3,180	4.4	3,261	4,500
Tile and mantel	891	665	13,686	20,600	3,793	5.7	6,478	9,700
Wrecking and demolition	129	108	2,325	21,000	931	8.6	124	1,100

[1] Source: Data are taken or computed from the *Census of Business. Construction Industry: 1935*, table 2, vol. I, p. 45. Figure for total number of firms, *ibid.*, table 1, vol. I, p. 1.

Are There Economies in Large Scale Operations?

This suggests, in conclusion, possibly one of the most promising ways of reducing the high cost of building materials; namely that of large scale building through which can be realized the economies of large order purchasing and transportation of materials, and of central planning and control of development. The experience of a few such large scale operations may well be worth describing.

According to President N. M. Ruben of a Chicago appraisal company, as quoted in the *Architectural Forum* for August 1937, a saving of 13 percent can be realized in a development of only 10 houses. He took bids from Chicago subcontractors on a two-story colonial brick veneer home complete with winter air conditioning, and on the same house built 10 times over. His comparative figures are based on actual plans and specifications and on the bids received from the subcontractors approached.

Significant deductions from Appraiser Ruben's comparative figures:

The pipe trades—heating, ventilating, and plumbing—are fields showing relatively slight differentials.

Plastering likewise is a trade in which the operative builder can effect only a slight saving, and then only if he is a shrewd buyer.

Greatest savings can be marked up in the shell of the building. Concrete, masonry, and lumber—those items over which the general contractor has chief control—are all fields where bulk purchase of materials and a large covering contract will reduce costs.

Carpentry and millwork, embracing staircases, provide another category where savings can be effected.

The obvious corollary to Appraiser Ruben's comparison is that multiplying his base house by 10 is not enough to effect as appreciable savings as with a larger project. Thus the roofing contractor might well have figured that his reduction in materials for 10 houses would be offset by the spasmodic use of his labor.

Bids received on the most important items entering into Appraiser Ruben's hypothetical house are listed under "Individual Buying." Average costs for the same structure duplicated 10 times are listed under "Operative Buying." [35]

The article gives the following tabulation which well merits detailed study:

	Individual buying	*Operative buying*
Excavation, backfill, grading	$250	$250
Foundations, dampproofing	750	680
Structural steel	50	50
Masonry walls	1,030	950
Carpentry, including millwork, hardware, insulation, and stairs	2,978	2,429
Plastering	710	615
Sheet metal	80	70
Roofing	125	125
Tile	145	145
Painting and decorating	650	535
Glass and glazing	70	70
Plumbing, sewerage, gas fitting	850	760
Heating, air conditioning	$685	$600
Electric wiring, service	232	174
Electric fixtures	75	75
Calking, weatherstrips	45	35
Shades and blinds	25	25
Linoleum	75	75
Building permit	52	52
Total	$8,877	$7,715

[35] *Architectural Forum*, August 1937, vol. 67, No. 2, p. 54.

Again, the firm, American Houses, Inc., has found in putting up their new plywood asbestos shingle houses (prefabricated) that the cost of structure for building a single house was $1,356.64 and for numbers of houses was $1,249.66, or $107 less, of which $27 represented saving in excavation and $40 represented saving in laying foundations.

Another indication of the economies of large-scale operations is the fact that the Westacres project at Pontiac, Mich., built more than 150 houses of roughly the same type as Purdue University's house No. 1, the former at a cost of structure of $3,477.48, the latter at a cost of structure of $4,852.45, a difference of nearly 40 percent. While not precisely comparable, the differences in these costs are significant.

A final bit of evidence on this point should be cited, the Meadville, Pa., project where in 1936 a wooded hillside was transformed into a community of 202 houses in 8 months. The Federal Housing Administration insured a 4-percent loan of $1,012,000 amortizable in 30 years. "Corporation officials estimate that the houses built under this plan cost 25 percent less than individually-built houses of comparable size and quality." [36]

Large-scale operations, however, require not only a far larger investment per contractor than the industry now has. They also require the ability to operate on one tract or in one neighborhood. Otherwise, difficulties in supervision and organization cause increases in overhead which more than offset other savings.[37]

Some Examples of Vertically-Organized Building Operations [38]

At present in the United States it seems that genuinely low-cost housing can only be built by special groups of persons. Trailer manufacturers are providing accommodations for hundreds of thousands of families in mobile houses. Cottage camps and auto courts have provided inexpensive and moderately comfortable accommodations for tourists. Many industrial firms have built good but inexpensive company houses for their workers. The Newport News Shipbuilding &

[36] "The Construction Industry Yearbook," 1037 edition, published by the *Engineering News Record*, p. 79.

[37] In Great Britain large firms build houses in groups of 50 or 100 in about 10 weeks, the house selling for about $2,250 and the land costing about $275. One such firm was recently building simultaneously in 21 communities, and proudly boasted that in less than 10 years it had marketed 30,000 houses.

[38] For a parallel discussion, see section on "The Significance of Small-House Design," pp. 47–49.

Drydock Corporation recently completed 75 two- and three-bedroom frame houses for its Negro laborers at a cost completely furnished of only $2,400. The two prefabricating companies of the American Rolling Mills Co. have built 300 houses, and General Houses, Inc., has built about 40.

Other examples can be cited, such as the Westacres project at Pontiac, Mich., which has been mentioned previously in this discussion. It constructed two-story houses with an acre of land for $4,439. Still another development is that of the Gross Morton project, Long Island, where 232 of a projected 1,000 1½-story houses have been built at a cost of $5,298 each. Another example is that of Colonial Garden Homes, Long Island, which consists of a house 26 by 36 feet plus a garage on a lot 53 feet by 100 feet, all for $3,000. The development producing the cheapest house is that of Realty Associates, Inc., on Long Island who provide 4-room frame cottages on lots 43 feet by 100 feet for $2,500.[39]

These illustrations give an idea of the fact that low-cost houses can be built. Study of their cost indicates that savings can be made in buying materials. These savings can be supplemented by better organization on the site. Furthermore, such changes in industrial organization are gradually demonstrating their practicability. They will, of course, be fought by those attached to the older ways of building.

The process of obtaining a reduction in the high prices of building materials, of lowering freight charges, of reducing distributive margins, and of integrating the various craft operations on the site is beset with difficulties. Rationalization will be slow. But there are indications that it is making headway.

[39] It should not be assumed that these prices are for houses of the same quality. Likewise, the question of cost is a matter of the character of financing and the length of life of the house and the community. These factors are discussed elsewhere in this series.

PART 5. LABOR AND THE COST OF HOUSING[1]

By Mercer G. Evans[2]

Introduction and Summary

Available data indicate that wage rates of building-trade workers viewed in terms of national earnings are not out of line with wage rates of workers in comparable lines of employment. Shortages of labor have occurred only in relatively few crafts involving highly skilled workers. Lower labor costs are probable only with guaranties of more full-time employment. Vertical integration is one possible method of achieving this end. An additional method is through the regularization of Government building operations.

Recent discussions have tended to emphasize the high price of construction labor as one of the principal factors retarding the development of adequate housing facilities for families in the lower income groups. An examination of available data indicates that wage rates of building trades workers, when viewed in terms of their annual earnings, or when compared to the wage rates of similarly skilled workers in manufacturing industries, are not out of line with the wage rates of workers in other lines of employment. On the other hand, a review of the organization and operations of the construction industry discloses conditions responsible for higher unit labor costs than would be necessary if the industry could be established on a more stable basis and could provide greater continuity of employment and greater income security. With regard to the immediate future, however, it appears that the achievement of any major economies in labor costs will result from better organization both of the industrial relations and the management of labor on the building job. Such development can be encouraged by the type of practice which the Government might cultivate on projects under its direction. Private builders interested in better management have also demonstrated some of the possibilities which lie in this field.

Relationship of Labor Costs to Total Construction Costs

Data concerning labor-cost ratios in the building industry are limited. The information that is available, however, indicates that direct labor costs of private and public house builders range from 25 to 60 percent of direct construction costs.[3] The ratios were higher for large-scale housing projects undertaken or financed by the Government than for small-scale operations of private builders. These large-scale undertakings provided possibilities of economies in materials purchases that could not be equaled in the utilization of labor. Governmental influence, furthermore, especially because of the provisions of the antikickback statute, caused actual hourly wage payments to be higher than was the case in certain private undertakings. The labor-cost ratios, also, were higher on government projects erected by force-account methods[4] than on government projects erected by contract. On most of these force-account projects, however, certain conditions of relief employment had to be observed. This resulted, in many cases, in the employment of surplus workers, the use of hand methods instead of machine methods, staggered crews employed for varying short periods of time, and, to a degree, the employment of less qualified workmen.

The available data do not reveal a significant correlation between hourly wage payments and labor-cost ratios. This was not unexpected, for other evidence appears to indicate that in many instances higher wages have enabled builders to secure more efficient workers; and higher wages, also, have tended to inspire more efficient management of labor, and to encourage the utilization of more effective mechanical aids.[5] The wide range of relationships between hourly wage payments and labor-cost ratios, both with regard to all of the data available and with regard to the data as segregated for the several conditions indicated in the accompanying tables, points to other factors which are more significant than hourly wage rates in determining labor-cost ratios in the house construction industry.

Wages and Earnings of Building Trades Workers

It is frequently assumed that the construction industry, with regard to labor-cost ratios and rates of wages,

[1] This report will be limited to the consideration of direct labor costs, as indirect labor costs appear in the costs of material. It might be pointed out, however, that stabilization of construction activities, as well as standardization of the materials used, should effect economies in the utilization of labor as well as capital investments in the manufacture of materials. Large-scale operations in the construction of houses has already indicated that material costs can be substantially reduced when orders can be placed on a large-scale basis. If housing activities in general were regularized, these economies should be several times multiplied.

[2] Dr. Mercer G. Evans is Director, Labor Relations Division, Farm Security Administration (Resettlement Administration), Department of Agriculture. Mr. Evans was assisted in his analysis by Dr. N. G. Silvermaster, senior economist of his staff.

[3] "Construction costs," as used in this chapter, will refer only to costs of materials plus cost of direct labor; "labor costs" will refer only to the wages paid to foremen and manual workers on the job site. "Labor-cost ratio" is used to refer to the percentage which "labor cost" is of "construction cost."

[4] "Force account" refers to construction carried on by the Government as contrasted with work done by contract.

[5] These paragraphs are based on the figures presented in tables I, II, III, and IV.

stands out in marked contrast to other industries. It is important to know, however, what values are being compared when the rates of pay and labor-cost ratios of the construction industry are contrasted with similar figures of other industries. An industry with an overwhelming proportion of unskilled labor will naturally have a much lower average hourly rate for all workers than an industry where the labor force is primarily composed of highly skilled men. Similarly, the labor-cost ratio in the construction industry may be high when compared with that in a mass production industry with a continuous, unidirectional flow of output, but it may not be high when compared with industries where the productive processes have not been transferred to automatic or semiautomatic machines and where operations depend on highly skilled personnel.

TABLE I.—*Labor-cost ratios and average hourly wage payments, Federal housing projects* [1]

Project	Average hourly earnings	Labor-cost ratio [2]
District of Columbia, Alley Dwelling Authority, row houses, 1936	$1.100	49.1
Atlanta, Ga., Techwood Apartments, P. W. A. 1935-36	.707	37.0
Miami, Fla., Liberty Square houses, P. W. A., 1936	.686	43.8
Montgomery, Ala., Paterson Courts, P. W. A., 1935-36	.663	40.8
Montgomery, Ala., Riverside Heights, P. W. A., 1935-36	.658	41.1
Cleveland, Ohio, Cedar Central Apartments, P. W. A., 1935-37	1.119	47.7
New York City, Knickerbocker Apartments, R. F. C. funds, 1933-34	1.148	43.4

[1] Source: Bureau of Labor Statistics.
[2] Stated in percentages of total construction costs chargeable to labor at the site.

TABLE II.—*Labor-cost ratios and average hourly wage payments: averages of 13 cities, representative buildings, 1932*

Project	Average hourly earnings [1]	Labor cost ratio [2]
Atlanta, Ga.	$0.658	29.9
Boston, Mass.	1.062	43.1
Chicago, Ill.	1.234	34.9
Dallas, Tex.	.673	26.0
Duluth, Minn.	.730	33.7
Indianapolis, Ind.	.874	40.3
Little Rock, Ark.	.574	32.3
New Orleans, La.	.568	30.6
New York, N. Y.	1.199	40.4
St. Louis, Mo.	1.084	37.0
Salt Lake City, Utah	.863	34.4
Seattle, Wash.	1.052	42.5
Trenton, N. J.	.833	41.0

[1] These are average hourly wage payments, union and nonunion, as reported in 1936-37. It is believed that they are fairly proportionate in most cases to actual wage payments in these cities in 1932.
[2] Reported in *Monthly Labor Review*, October 1932, p. 764. "Labor-cost ratio" indicated in percentages of total construction cost chargeable to labor at the site.

TABLE III.—*Labor-cost ratios and hourly wage payments, Resettlement Administration, 13 projects, 1935–37* [1]

Project	Average hourly earnings [2]	Labor-cost ratio [3]
Great Falls, Mont., frame	$1.112	61.5
Hightstown, N. J., cement block	.825	55.1
Malta, Mont., frame	.788	61.6
Alamosa, Colo., adobe	.775	63.1
Duluth, Minn., frame	.751	55.0
Phoenix, Ariz., adobe	.717	[4] 54.9
Phoenix, Ariz., frame	.716	[4] 63.5
Birmingham, Ala., frame	.675	53.9
Ironwood, Mich., frame	.642	60.5
Wichita Valley, Tex., frame	.606	[4] 49.6
Newport News, Va., brick veneer	.514	57.7
Pine Bluff, Ark., frame	.500	[5] 48.6
Penderlea, N. C., frame	.483	57.0

[1] Compiled by the Labor Relations Division, Farm Security Administration.
[2] Based on all project wage payments, including large amounts of outside development work, road building, sewer and water mains, land clearing, ditching and landscaping, and including community buildings and other community appurtenances. In most cases, however, these figures are believed to be proportionately lower than corresponding figures on house construction only.
[3] Based on house construction alone. Ratio stated in percentages of total construction cost chargeable to labor at the site.
[4] These houses not equipped with heating systems.
[5] These houses not wired or equipped with inside toilets or heating systems.

The relatively high labor-cost ratio in the construction industry is not unique, as on first glance it appears to be, for an analysis of the *Census of Manufactures* for 1929 shows that a number of major industries have as high or even higher ratios of labor cost than that found in the construction industry. Thus, the *Census of Manufactures* lists 16 major manufacturing groups, 5 of which have labor-cost ratios ranging from 37.7 to 53.7 percent. Of these, the printing, publishing, and allied industries have a labor-cost ratio of 45.4 percent: stone, clay, and glass products, 45.2 percent; machinery, not including transportation equipment, 37.7 percent; forest products 38.2 percent; and railroad repair shops 53.7 percent. In the other manufacturing industries, the labor-cost ratios range from 8.2 percent for products of petroleum and coal, to 26.4 percent in the rubber products industries. On the same basis, using the *Census of Construction*, the labor-cost ratio for the construction industry as a whole was 41.7 percent in 1929.[6]

It may be stated that, as a general rule, industries with high labor-cost ratios are those which are not well adapted to standardized quantity production on a machine basis. They are industries which depend to a great extent on the skill of the worker, that is, industries where a large percentage of operations in the productive process depend upon handicraft skills, or where the mechanical processes must be guided by highly skilled men; or industries where the inroad of machine technology has not been important and where operations require a large expenditure of unskilled labor.

One noticeable trend of modern technology has been and is in the direction of the displacement of skilled and unskilled labor by the semi-skilled type of labor. This has been particularly true of those industries where the productive processes have been shifted more and more to automatic or semi-automatic machines operated by workers having only limited training, as in the automobile, shoe, chemical, food, and textile industries. The successful adoption of the machine method of production is conditioned, however, upon several factors. The productive process must be

[6] The figures used in this paragraph and in table V are admittedly defective; they represent, however, the only generalized statistical measures available for this type of analysis. The figures on labor-cost ratios are defective because of the varying amounts of work performed on materials before delivery to firms in the several census classifications and because of the quantities of work contracted out, in some industries, to firms in other census classifications. The figures on skilled labor, in table V, are defective because of migrations of workers from one industry to another, resulting in heavier weightings of industries at seasonal peaks on the census-taking date. The high percentage of skilled workers reported for the construction industry, also, is due at least in part to the intermittency of employment available to building trades workers. Other evidence indicates that less than three-fourths of the man-hours of labor employed by the construction industry is performed by skilled workers.

TABLE IV.—*Labor-cost ratios and hourly wage payments, education buildings erected with NIRA funds, 1933–36* [1]

State	Number of buildings	Average hourly earnings	Labor-cost ratio [2]
SOUTHERN STATES			
North Carolina	25	$0.799	35.5
Kentucky	6	.770	33.8
Florida	1	.758	38.6
Tennessee	5	.739	35.4
Virginia	37	.737	35.3
Alabama	10	.712	37.7
Oklahoma	30	.708	30.6
Georgia	11	.698	37.6
South Carolina	8	.696	30.7
Arkansas	10	.694	28.8
Mississippi	11	.648	34.4
INDUSTRIAL STATES			
Illinois	24	1.014	34.8
New Jersey	11	1.013	37.8
Connecticut	6	.977	37.5
Indiana	5	.933	38.7
New Hampshire	4	.933	36.6
Wisconsin	12	.932	31.6
Missouri	26	.910	37.4
Minnesota	14	.895	31.8
Iowa	19	.892	34.9
Rhode Island	5	.887	34.0
Maine	2	.874	37.5
Pennsylvania	13	.843	34.6
West Virginia	2	.792	37.6
Delaware	3	.758	36.9
GREAT PLAINS STATES			
North Dakota	10	.845	31.8
South Dakota	8	.808	30.2
New Mexico	4	.788	33.9
Kansas	18	.781	33.1
Nebraska	11	.769	32.0
Arizona	6	.694	28.8
FAR WESTERN STATES			
Nevada	3	1.085	30.6
Montana	17	1.035	33.2
Washington	20	.961	33.7
Idaho	4	.925	28.6
Wyoming	2	.919	37.8
Oregon	16	.918	35.7
Colorado	3	.901	28.1
Utah	6	.847	26.7

[1] Information supplied by the Bureau of Labor Statistics.
[2] Stated in percentages of total construction costs chargeable to labor at the site.

TABLE V.—*Ratio of labor cost and percentage skilled wage earners, by industrial groups, 1929*

Industry	Labor cost ratio [1]	Percent skilled workers [2]
Railroad repair shops	53.7	45.1
Printing, publishing, and allied industries	45.4	69.2
Stone, clay, and glass products	45.2	15.2
Construction	[3] 41.7	78.6
Forest products	38.2	23.8
Machinery, not including transportation equipment	37.7	47.6
Rubber products	26.4	8.9
Iron and steel and their products, not including machinery	26.3	25.8
Textiles and their products	25.4	13.3
Leather and its manufactures	24.1	2.4
Paper and allied products	20.8	13.4
Transportation equipment	20.4	37.7
Nonferrous metals and their products	15.2	29.5
Chemical and allied products	15.2	13.5
Food and kindred products	9.5	7.5
Products of petroleum and coal	8.2	27.2

[1] *Biennial Census of Manufactures*, 1931, pp. 37–38, except for construction.
[2] Computed from *Census of Population*, vol. V, General Report on Occupations, ch. 7, 1930.
[3] *Construction Industry Census*, 1930, p. 23.

capable of being organized as a continuous flow; it must be possible to break the operations to be performed into simple parts so that they may be turned over to specialized machines; and, finally, the material used and the end product must be relatively standardized, uniform and constant in size and shape.

It is, of course, patent that, at the present time, none of these conditions exist in the residential construction industry, and that by its very nature the industry will find it difficult to meet the requirements of modern technology. It does not follow that the construction industry is entirely closed to the introduction of mechancial appliances, for, as a matter of fact, certain operations formerly performed by human labor have already been mechanized. The trenching machine, the excavator, the crane, the bucket conveyor, the plaster and cement mixer, have already mechanized many operations and have displaced numerous workers. The mechanization of certain simple operations, however, is not the same thing as the introduction of machine technology in the productive process as a whole; for the latter presupposes a development of a system of machines which makes possible not only a considerable displacement of labor in general, but also the replacement of highly skilled by semiskilled labor.

Despite a certain degree of mechanization already obtained, the construction industry in general, and residential construction in particular, remains essentially a handicraft industry where building operations depend largely on highly skilled labor. In this respect, as shown in table V, the construction industry indeed stands out in marked contrast to all other major industries.

According to the 1930 *Census of Occupations*, 78.6 percent of all labor in the construction industry was listed as skilled labor.[7] The nearest approach to this percentage of skilled labor to the total is found in the printing, publishing and allied industries where it was 69.2 percent; followed by machinery, not including transportation equipment, with 47.6 percent; and railroad repair shops with 45.1 percent. If we compare column 2, percentages of skilled workers, with column 1, labor cost ratios, in table V, we note that, in most

[7] See footnote 8, p. 81.

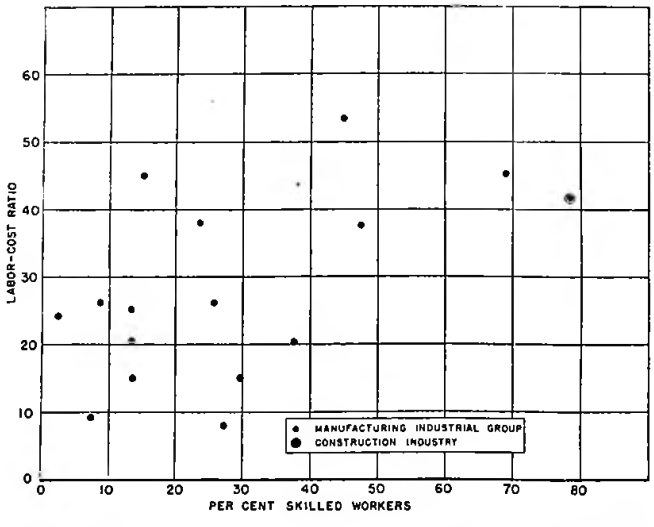

FIGURE 36.—Correlation of labor cost ratios and percentage skilled workers to all wage earners, 15 manufacturing industrial groups, and the construction industry.

cases, the industries with high labor-cost ratios are also the industries with relatively high proportions of skilled workers.[8]

Rates of Pay and Annual Earnings

The hourly rates of pay for skilled workers in the construction industry are admittedly high when contrasted with the hourly rates of pay for semi-skilled and unskilled labor in the manufacturing industries. They do not seem to be out of line, however, with the hourly rates paid to highly skilled workers in the manufacturing industries, and the average actual annual earnings of skilled construction workers are in reality lower than the annual earnings of similarly qualified workers engaged in the manufacturing industries.

A comparison of the rates of pay in the construction industry with the rates of pay in other industries based on averaging the hourly rates of pay for all groups of workers, skilled, semiskilled, and unskilled, and including, in many cases, large numbers of women and young people, is obviously inadequate and misleading because of the disproportionately high ratio of skilled workers in the construction industry as compared to other industries. The only significant method of comparison is to contrast the rates of pay for skilled workers in the construction industry with the rates of pay of skilled workers in other industries. Table VI presents data for 1929 on the average hourly rates of pay for selected groups of skilled workers in the construction industry, printing and publishing, metal trades, and iron and steel industry.

From the standpoint of standards of living, comparison of hourly rates are not as significant as comparison of annual earnings. Analysis of total wage payments, in terms of the average number of workers employed throughout the year, as reported in the 1930 *Census of Construction*, indicates that the average earnings of such workers was $1,770. On the basis of similar analyses, with the exception of the printing, publishing, and allied industries, where the average annual earnings were $1,775 for the year, the average annual earnings were higher in the construction industry than in any others. The range for other industries was from $1,015 for textiles and their products, to $1,617 for the transportation equipment industry.[9]

TABLE VI.—*Average wage rate per hour of selected groups of workers in building trades, metal trades, printing and publishing, and iron and steel industry, 1929* [1]

	Hourly rate		Hourly rate
Building Trades: [2]		Metal trades—Continued.	
Bricklayers	$1.48	Pattern makers	$1.21
Carpenters	1.16	Molders	1.15
Painters	1.22	Iron and steel industry:	
Plumbers	1.30	Heaters (average for puddling mills, blooming mills, and plate mills)	1.31
Plasterers	1.45	Rollers (average for puddling, blooming, plate, standard rail, bar, sheet and tin plate mills)	1.64
Sheet metal workers	1.20	Blowers (Bessemer converters)	1.30
Printing and publishing (book and job): [2]		Vesselmen (Bessemer converters)	1.21
Hand compositors	1.05		
Electrotypers	1.13		
Machine operators	1.10		
Photo engravers	1.26		
Metal trades: [3]			
Blacksmiths	1.27		
Boilermakers (outside)	1.35		
Machinists, erection, press repair and maintenance	1.29		

[1] Source: Data for building trades, printing and publishing, and metal trades compiled from *Union Scale of Wages and Hours of Labor*, May 15, 1930. U. S. Department of Labor, Washington, 1931. Data for iron and steel industry compiled from *Wages and Hours of Labor in the Iron and Steel Industry*, 1931. U. S. Department of Labor, Washington, 1932.

[2] The rate of pay is an average of union rates in seven selected cities: Atlanta, Ga.; Birmingham, Ala.; Cincinnati, Ohio; Chicago, Ill.; Milwaukee, Wis.; San Francisco, Calif.; and Washington, D. C.

[3] For each craft, the rate of pay is an average of the union rate for several cities, varying from three cities for machinists to eleven cities for pattern makers.

These averages are for all classes of workers, skilled, semiskilled, and unskilled, actually employed during the year. If the annual wage payments of the manufacturing industries are compared with the percentages that the skilled workers are of the total wage-earners employed, by industrial groups, a striking correlation is found to exist. These figures are presented in table VII, and their relationship is graphically revealed in the accompanying chart, figure 37.

These figures become relevant, however, only when considered in terms of the total numbers of workers available for employment in the various industries, as compared to the average numbers employed through the year. There are no definite figures to permit accurate determination of these relationships. Several estimates, however, lead to the conclusion that there were from 1.5 to 3 building trades workers available for every full man-year's employment in 1929, and only from 1 to 1.5 workers available for each full man-year's employment in the manufacturing industry. Such a high ratio is apparently required by an industry which concentrates its employment in particular seasons and in which a high degree of correlation between job specialization and labor skills is established.

[8] It should be observed that the column "percentages of skilled workers," is based on the *Census of Occupations* and refers only to those claiming a given skill in a given industry; it does not represent the actual relationship of those actively employed in industry. Comparison of the numbers of workers by industries, as given in the 1930 *Census of Occupations*, with the figures given in the *Census of Manufactures* tends to confirm the belief, although minor discrepancies are present, that the distribution of workers by occupational classification in the *Census of Occupations* is essentially similar to that given in the *Census of Manufactures*.

[9] On the same basis, average annual wage payments to certain classes of skilled workers have been obtained with regard to employment on railroads in 1930. Skilled maintenance of way and maintenance of equipment workers, on this basis, received from $1,453, in the case of bridge and building painters, to $2,033 in the case of class A electrical workers. The figures, by groups of workers, were as follows:

Electrical workers, class A	$2,033
Electrical workers, class C	1,940
Portable steam equipment operators	1,919
Sheet metal workers	1,876
Bridge and building iron workers	1,852
Masons, bricklayers, plasterers, and plumbers	1,844
Electrical workers, class B	1,838
Blacksmiths	1,770
Bridge and building carpenters	1,486
Bridge and building painters	1,453
Skilled trade helpers	1,179

Data from monthly *Wage Statistics, Class I Steam Railways in the United States*, for the 12 months ending December 1930. Interstate Commerce Commission, Bureau of Statistics.

TABLE VII.—*Average annual wage payments and percentage skilled workers of all wage-earners, by manufacturing industries and the construction industry, 1929*

Industrial group	Average annual wage payments [1]	Percent skilled workers of all wage-earners [2]
Printing, publishing, and allied products	$1,775	69.2
Construction	1,770	78.6
Transportation equipment	1,617	37.7
Railroad repair shops	1,600	45.1
Iron and steel and their products, not including machinery	1,568	25.8
Products of petroleum and coal	1,556	27.2
Machinery, not including transportation equipment	1,497	47.6
Nonferrous metals and their products	1,409	29.5
Rubber products	1,389	8.9
Stone, clay and glass products	1,317	15.2
Chemicals and allied products	1,261	20.2
Paper and allied products	1,231	13.4
Food and kindred products	1,198	7.5
Leather and its manufacture	1,129	2.4
Forest products	1,072	23.8
Textiles and their products	1,015	13.3

[1] Based on *Census of Manufactures.*
[2] Based on *Industrial Census of Occupations*, 1930.

The American Federation of Labor, reporting unemployment among union members that year, estimated unemployment among union building trades workers at 25 percent; the corresponding figure for metal trades workers was only 7 percent, and for typographical workers only 4 percent. Paul H. Douglas, surveying the experience of the first quarter of this century, estimated that unemployment among building trades workers, on the average, amounted to 22 percent, as compared to 7 percent for workers in the manufacturing and transportation industries. Reducing the annual earnings figures given above, by Douglas' percentages, as a matter of rough illustration, the average annual earnings for all building trades workers becomes $1,381, and for all workers, including women and young persons, in the manufacturing industries, $1,223. When it is recalled

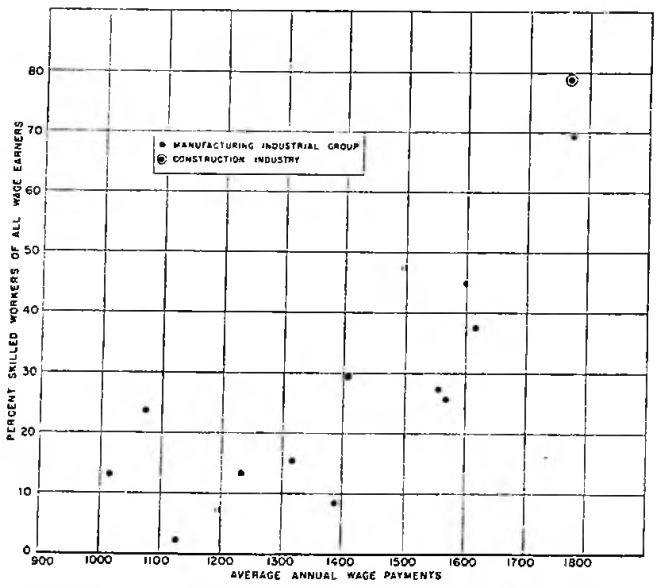

FIGURE 37.—Correlation of average annual wage payments to wage earners and percentage skilled workers of all wage earners, 15 manufacturing industrial groups, and the construction industry

that 78.6 percent of the building trades workers, as reported in the industrial breakdown of the Census of Occupations, were skilled mechanics, as against 27.5 percent of the workers in the manufacturing industries, it is apparent that the assumption that building trades workers are grossly overpaid is at least an exaggeration.

A similar comparison of average annual wage payments, with a clearer definition of the manufacturing industries, is available from figures collected by the Ohio Division of Labor Statistics.[10] During the 6-year period, 1924 to 1929, the average annual wage payments to wage earners in the construction industry was $1,635, and to wage earners in all manufacturing industries, $1,467. In order to make comparison more realistic, however, the construction industry should be contrasted with industries not employing women and young people and which are dependent to a considerable degree on skilled workers. The $1,635 average annual wage payments of the construction industry should be compared, therefore, with the figures of $1,873 for the blast furnace products industry and of $1,877 for steel works and rolling mills. The rubber products industry, important to Ohio, but employing a considerable number of women and a relatively small number of skilled workers, made average annual wage payments of $1,568.

If the total annual wage payments, however, had been distributed among the average maximum numbers of workers in the construction industry and in the steel works and rolling mills, the average annual earnings of the construction workers would have been $1,317, and of the steel works and rolling mills workers $1,742. Since the average maximum numbers of workers tend to approximate, in times of normal employment, the working forces available for employment in the several industries, these figures are more representative of probable average annual earnings than are the figures given in the preceding paragraph. It is likely, however, that the average maximum numbers of workers underestimate the total available labor forces more in the case of the construction industry than in the case of the steel works and rolling mills, or of any of the manufacturing industries. Exactly similar comparisons cannot be made for the other manufacturing industries, or for all manufacturing industries, because corresponding figures are not available. Such figures as are available, however, indicate that such adjustments would probably result in average annual payments to the average maximum numbers of workers in excess of those made to construction workers, even in the case of all manufacturing industries.

The possibilities of underemployment in the building trades are greater than in the manufacturing industries.

[10] Presented in Bulletin 613, *Average Annual Wage and Salary Payments in Ohio, 1916 to 1932*, Bureau of Labor Statistics, U. S. Department of Labor.

Both types of employment are subject to short-time interruptions because of delays in the delivery of material, because of irregularities in the completion of steps in the processes of production,[11] because of irregularities in the receipt of orders, and because of seasonal variations in demand for their products. The construction industry, however, involving extensive out-door operations dependent on weather conditions, subject to wide seasonal variations in employment, amounting, in 1929, to a difference of 76 percent between the minimum and the maximum employment conditions, and to recurrent daily interruptions, is probably less able to provide full-time weekly employment than the indoor manufacturing industries. The only available figures concerning underemployment are based on the experience of union members. Figures compiled by the American Federation of Labor indicate that in 1936 (the series was begun in 1930), in addition to the 25 percent of the union building trades workers unemployed, 29 percent were employed on a part-time basis only. Underemployment of metal trades workers amounted to 13 percent; of printing trades workers, 27 percent; of other trades, 18 percent; and the average of all trades was 20 percent.

According to these reports, in 1936, an average of only 46 percent of the workers in the building trades were fully employed, as against 79 percent for the metal trades, 63 percent for the printing trades, and 72 percent for all other trades; the average for all trades was 68 percent. No figures are available concerning the percentage of time lost by workers employed on a part-time basis.

TABLE VIII.—*Unemployment, underemployment, and full-time employment, A. F. of L. union members, 1931–37* [1]

	All trades		Building trades		Metal trades		Printing trades		Other trades		Fully employed				
	Unemployment	Part-time employment	Unemployment	Part-time employment	Unemployment	Part-time employment	Unemployment	Part-time employment	Unemployment	Part-time employment	All trades	Building trades	Metal trades	Printing trades	Other trades
1931	26	19	52	17	30	25	13	24	17	18	55	31	45	63	65
1932	32	21	64	15	42	26	19	38	20	20	47	21	32	43	60
1933	31	21	67	16	43	24	22	38	20	20	48	17	33	40	60
1934	26	24	57	22	27	18	18	37	18	22	50	21	55	45	60
1935	23	23	52	25	22	27	15	34	17	20	54	23	51	51	63
1936	17	21	33	29	13	20	12	31	14	18	62	38	67	57	68
1937 [2]	12	20	25	29	8	13	10	27	10	68	68	46	79	63	72

[1] Average of monthly percentages of union members reported unemployed, part-time employed, or fully employed.
[2] First 9 months only.

Compiled from monthly *Trade Union Unemployment Report*, American Federation of Labor.

Aside from seasonal interruptions in the construction industry, and other irregularities due to weather conditions, the continuity of employment with any given contractor is always of short duration. In 1920, for example, an investigator was able to secure a record of employment of a Philadelphia bricklayer over a period of several years. His record indicated that in 1913 he was hired 12 times by 9 different contractors over a period of 9 months; in 1917 he was hired 14 times by 11 different contractors. He was hired 28 times by 18 different contractors in 1915, and 22 times by 19 contractors in 1916.[12]

That the percentages of unemployment among skilled building trades workers are not exaggerated is confirmed by a number of studies of time lost by various crafts in the building industry. An examination of a number of individual workers' time books in Philadelphia in 1920 indicated that, out of an average of 275 possible effective working days in that year, an average of only 189 days' employment was available to these workers, a loss of 31 percent of their potential working time.[13]

Another study in the same city in 1922 indicated that the skilled workers involved in the study received actual earnings equal to only 70 percent of what they might have earned if they had been able to secure employment on all of the effective working days of that year. The average actual earnings of these skilled workers amounted to only $1,540.95; if they had been able to work full time on the effective working days of the year they would have earned an average of $2,194.36. Plasterers were unemployed an average of 84 working days, or 33 percent of the possible working time; carpenters, 80 days, or 29 percent; bricklayers, 93 days, or 34 percent, etc.[14]

Records kept by a small number of Philadelphia bricklayers during the period 1909 to 1920 indicated that the number of days work per year varied from a minimum of 138 to a maximum of 231, and annual earnings varied from $789.29 in one of the earlier years to $2,403.52 in 1920.[15] In Rochester, N. Y., in 1920, the actual annual earnings of 519 skilled workers amounted to only $1,381.58.[16]

Tentative figures collected under the auspices of the National Recovery Administration, representing average annual earnings of organized building trades workers in varying numbers of cities, indicated that, in 1929, painters in 9 cities received average incomes of less than $1,000; in 14 cities, from $1,000 to $1,199; in 8 other cities, from $1,200 to $1,499; in the one remaining city reported, the average was $2,200. Electricians in one city received annual earnings of less than $1,200; in two cities, from $1,500 to $1,799; and in two other cities,

[11] On this point, see "Employment in the Construction of an Apartment House," *Monthly Labor Review*, October 1932, p. 782.

[12] Haber, W. T., *Industrial Relations in the Building Industry*, pp. 100–101, quoted from *Waste in Industry*, p. 65.

[13] Haber, *op. cit.*, p. 98; quoted from *Waste in Industry*, p. 64; also in *Monthly Labor Review*, May 1921.

[14] Haber, *op. cit.*, p. 99; quoted from *Waste in Industry*, p. 63; taken from *Engineering News Record*, January 11, 1923.

[15] Haber, *op. cit.*, p. 100; taken from *Engineering News Record*, January 11, 1923.

[16] Haber, *op. cit.*, p. 105.

Detroit and Pittsburgh, more than $1,800. Plumbers in two cities received from $1,200 to $1,499; in one city, over $1,500. Brick masons in one city received less than $1,500 on the average, and in two others, New York and St. Louis, from $1,800 to $2,000. Tile setters received an average, in the two cities reported, of a little more than $2,000 per year. Plasterers in California received an average of $1,265 and lathers received $937. While these reports did not include figures for some of the highest paid crafts, and in some cases did not include the highest wage rate areas, on the other hand, the cities covered were fairly representative, and none of the crafts covered are of the lower paid groups. Furthermore, the reports were for the year 1929, which was a year of fairly normal activity and employment. Hourly wage rates were as high as they had ever been. The annual earnings reported, however, are distinctly not high, when compared to the earnings of skilled workers in other branches of employment in that year.[17]

The Farm Security (Resettlement) Administration collected information on the earnings of workers on seven of its projects which had been under construction for 12 months or longer. The records were secured only for workers who had been continuously on assignment for 12-month periods at the peaks of employment. Hours of work were limited to 140 monthly, but every effort was made to provide continuous employment, including winter operations throughout the year. Even under these circumstances, however, interruptions due to delayed arrival of materials, delays in receipt of plans, or impossible weather conditions, reduced the workers' earnings to only 86.3 percent of the possible maximum allowed by the 140-hour month. Furthermore, of a maximum of 5,957 skilled workers employed on these projects during the peak months, only 1,002, or 16.8 percent of them, were able to maintain a full year's employment relationship with the projects.[18]

The average annual earnings of these full-time skilled workers exceeded $2,000 only on the Greenbelt project near Washington, D. C. Here, the average earnings amounted to $2,010. On four other projects, the averages lay between $1,500 and $2,000. These figures were as follows: At Cincinnati, $1,970 (the lower-paid skills averaged $1,203); at Milwaukee, $1,897; near Trenton, N. J., $1,634; and near Birmingham, Ala., $1,656. The average earnings at Duluth, Minn., amounted to $1,370, and at Newport News, Va., $1,007.

On several other projects, initiated too recently to permit gathering information on the basis of a full year's experience, data were collected for six, eight, and ten

[17] From an unpublished report of the National Recovery Administration, *Characteristics of Area Agreements Approved by the President, and Characteristics of Divisions and Areas Covered by Them.*

[18] See table IX.

TABLE IX.—*Number of skilled workers on continuous assignment for twelve-month period, 7 Resettlement Administration projects; maximum number skilled workers employed in any pay roll period (15 days), minimum number, and average number, 1936–1937* [1]

Project	Number continuously employed	Maximum employment	Minimum employment	Average employment
Newport News	54	409	112	200
Cahaba	14	350	62	270
Duluth Homesteads	12	250	24	101
Jersey Homesteads	45	423	86	263
Greendale	217	1,382	516	791
Greenhills	453	1,337	810	1,090
Greenbelt	207	1,806	651	1,302
Total	1,002	5,957	2,261	4,017

[1] Compiled by the Labor Relations Division, Farm Security Administration.

months' periods, and adjusted to an annual basis. The results of these surveys indicated average annual earnings of full-time skilled workers as follows: At Ironwood, Mich., $1,110; near Wilmington, N. C., $1,018; near Pine Bluff, Ark., $1,161; and at Wichita Falls, Tex., $1,555.[19]

The economic position of construction workers as a whole was more drastically undermined in the period of 1929 to 1936 than that of any other wage-earning group. Not only was the decline in employment in construction greater than in other industries, but since the recovery following 1933, it has shown far less improvement, as is indicated by table XI. The construction industry was one of the first to be hit by the last depression, and its decline was more pronounced than that of the manufacturing industries. On the other hand, the process of recovery started later in the construction industry than in the manufacturing industry, and it continues to lag badly.

Within the construction industry itself, residential building tends to lag in comparison with the other branches of construction. The ratio of residential construction to total construction during the period 1928 to 1936 declined from 42.1 percent in 1928 to 16.1 percent in 1934, rising to 26 percent in 1935, and to 30 percent in 1936.

Explanations of these lags have not been clearly established. It has been argued that high costs of labor in the construction industry have much to do with the inability of the industry as a whole to expand and that they prevent private industry or govenment from operating on a scale adequate to meet the needs of low-income groups. Many of these arguments have been directed at reputed high wage scales of the building trade unions and at alleged costly employment regulations imposed by unions upon contractors. It must not be overlooked with regard to these arguments, that little detached residential construction in this country has been performed by union labor, and that union labor has been employed on large-scale, privately erected,

[19] See table X.

TABLE X.—*Average hourly and annual earnings of skilled workers on continuous assignment to Resettlement Administration housing projects* [1]

	Carpenters		Painters		Plumbers		Bricklayers		Electricians		Cement finishers		Sheet metal workers	
	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings
Greenbelt	$1.40	$2,006.40	$1.409	$2,087.18	$1.502	$2,255.18	$1.558	$1,942.08	$1.66	$2,449.08	$1.376	$2,107.05	$1.504	$2,087.70
Greenhills	1.35	1,937.55	1.240	1,720.50	1.314	2,037.87	1.466	2,008.59	1.304	2,037.35	1.264	1,892.52	1.228	1,748.53
Greendale	1.144	1,718.61	1.04	1,549.50	1.254	1,992.89	1.290	1,862.54	1.27	1,990.33	1.23	1,867.97	1.084	1,733.85
Jersey Homesteads	1.10	1,601.47	1.02	1,504.21	1.264	1,985.75	1.25	1,567.70	1.65	1,592.66	1.25	1,603.12	.942	1,415.50
Ironwood [2]	.83	1,120.05			.979	1,212.14			.838	1,113.98	.506	634.20		
Duluth	.987	1,345.36	1.024	1,527.67	1.1315	1,456.25								
Cahaba	1.00	1,583.00	1.012	1,501.20	1.28	2,096.55	1.30	1,942.79	1.24	1,868.45			1.015	1,628.16
Penderlea [3]	.733	1,007.54					.941	1,131.60			.60	788.40		
Wrights Plant [4]	.85	1,181.56	.820	1,121.10	.85	1,203.00	1.00	1,122.00	.85	1,218.90				
Shenandoah Parks [3]	.57	927.46												
Newport News	.6718	1,001.93	.6295	857.93	1.037	1,567.56								
Wichita Valley [4]	1.026	1,618.23	.82	1,235.32			1.25	1,513.09						
Western Slope [3]	1.10	1,703.58					1.25	900.00						
Arizona [3]	1.00	1,544.86							1.00	1,278.00				

	Composition roofer		Reinforcing rodman		Glazier		Steamfitter		Structural iron worker		Plasterers		Shovel operators	
	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings	Hourly rate	Annual earnings
Greenbelt			$1.378	$1,835.77	$1.293	$1,855.45	$1.495	$2,227.24			$1.587	$2,197.87	$1,842	$2,522.98
Greenhills	$1.10	$1,342.33					1.352	2,063.11	$1.372	$1,885.25	1.354	2,008.25		
Greendale									1.293	1,930.12				
Jersey Homesteads	1.225	1,678.14												
Cahaba													1.255	1,967.11
Arizona [3]											1.00	1,228.00		

[1] Figures on projects so indicated based on employment for less than a year's time, adjusted.
[2] 10 months only.
[3] 6 months only.
[4] 8 months only.

multiple-unit dwellings in only a relatively small number of cities. In view of these circumstances, and of the inactivity pervading the unorganized field as well as the organized field of construction work, it appears that the search for obstacles in the way of extensive housing for low-income groups must be pursued in other directions.

Efficient Utilization of Labor

Analysis of labor costs in residential construction indicates that the most important factors are: concrete work (in large-scale buildings only), carpentry work (the most important item in detached houses, but relatively unimportant in large-scale buildings), brickwork (except in frame houses), plumbing and heating, lathing and plastering, and painting. Most of the efforts to discover savings with regard to these items have revolved around a search for substitute materials, or around the simplification of designs and installations in the case of plumbing and heating. Little has been discovered so far, however, in the way of satisfactory substitutes which will result in economies in the use of labor without increasing the costs of materials.

The major economies in labor costs appear to lie in the simplification and standardization of designs, materials, and processes. This does not mean that it is necessary to use a monotonous factory design of houses, but it does mean that the designs of the details should be standardized. Practicing journeymen have been unanimous in their statements that, with a simplified and standardized design, it would be possible for crews of workmen to familiarize themselves with the work to

TABLE XI.—*Percent decrease of employment indices in construction and other industrial groups, 1929–33 and 1929–36* [1]

Index	Percent decrease	
	1929–33	1929–36
Employment in construction industry [2]	52.1	33.0
Employment in manufacturing	35.5	17.1
Employment in mining	41.2	21.0
Employment in transportation	34.9	27.0
Employment in public utilities	26.5	24.4
Employment of casual workers	14.6	4.0

[1] Based on data of the U. S. Bureau of Labor Statistics.
[2] Construction includes all contract construction, as well as force account construction by public authorities, including the Public Works Administration. No Federal projects are included except those supervised by the Public Works Administration and the Bureau of Public Roads.

TABLE XII.—*Percentage distribution of labor costs in residential construction* [1]

	Detached [2] residence	Large-scale [3] apartments	Expensive [4] residence
Excavation and grading	4.4	4.9	3.8
Brickwork	7.8	25.8	19.6
Carpenter work	42.9	6.6	33.1
Tile work	1.8	2.2	2.8
Concrete and cement work	4.3	15.0	5.4
Electric wiring and fixtures	2.0	5.1	1.4
Heating	8.4	4.6	5.5
Plumbing	8.5	9.8	4.9
Plastering and lathing	4.8	12.9	8.8
Painting	7.9	4.6	5.4
Papering	3.0		1.0
Roofing	4.1	.7	6.3
Miscellaneous	.1	7.8	2.0

[1] Data supplied by Bureau of Labor Statistics.
[2] Washington, D. C., 1936–37, frame buildings, $4,000–$5,999.
[3] Knickerbocker Village, New York City, in *Monthly Labor Review*, September 1935.
[4] Washington, D. C., 1936–37, brick buildings, $10,000–$11,999.

be done on the first units of a housing project, and to apply that familiarity on the succeeding units with resulting efficiency and economy. Standardized materials, also, permit the workers to become acquainted with the production processes so that they, in later units, increase the efficiency with which they work. The experience of contractors and of government agencies indicates that the economies resulting from such increased efficiency would probably exceed any economies that could, within the limits of possible realization, be secured from wage rate reductions.

Simplification and standardization of designs, materials, and processes also offer the possibilities of new techniques and developments which may result in worth-while labor economies. Simplified and standardized designs and materials make it possible to set up on-site "factories" for precutting or prefabrication of certain units used in the building process. This is particularly true with regard to precut plants for lumber and for the prefabrication of a number of minor items. The principles of the factory assembly line may be adopted on large-scale developments, through organization of crews in such a way that they can begin work at one point of the development, and repeat the operations throughout the job. This results in the development of a group of men accustomed to working with each other and quickly familiarized with all the processes in which they are involved. A considerable increase in the efficiency of the whole working force is thereby secured. Economies from either of these possibilities, it is reiterated, are dependent upon the development of simplified and standardized designs, materials, and processes and upon large scale operations.

More important labor economies may be found, in the case of large-scale residential developments, in careful organization and management of the labor force. To secure the most efficient results from the labor force, more careful planning of construction operations will be necessary. No efficient manufacturer would begin operations on a large scale until he possessed the detailed plans for his work and until he had most carefully considered the relationship of every worker to be employed to every other worker, and to the flow of materials through the factory from one process to another, and until he was relatively well assured concerning the flow of raw materials to his plant. Similarly, if the greatest economy in the employment of labor is to be secured, the builder, before beginning his first operations, must have carefully laid out the types and sizes of labor crews which he expects to employ, the beginning dates of their employment, the relationship of the employment of each crew to every other crew; and he must have timed the delivery of his materials to fit into the schedule of developments in such a way that lost motion, recurrent unemployment of crews or of individuals, has been eliminated except for those eventualities over which no builder can exercise control.

If efficient results are to be achieved in building activities, the development of a fully rounded force for operations must not be sacrificed for speed in getting projects initiated. Agencies must not be rushed into building operations before they have had time to complete the details of their development, and contracts must make allowances with regard to elapsed time before beginning work in order to permit the builders to develop efficient working programs. Parties responsible for the project must give consideration, also, to local labor situations and to other building developments that may be undertaken, and consultation must be had and arrangements made with the local representatives responsible for the control of the labor supply to assure effective compliance with the working program that is developed.

Many students of housing have advocated making the labor economies outlined above even more effective through the transfer of many of the jobs performed on the production site to the factory. Such an achievement, it was felt, would make possible the use of more power, would make possible greater specialization of labor, which might result in lower hourly wage payments (perhaps accompanied by greater continuity of employment), and would reduce the tasks to be performed on the erection site to a relatively small number of considerably simplified operations. Some of the explorers of such possibilities have apparently felt that they might result in the elimination of a need for highly skilled labor and make possible the employment of specially trained semiskilled workers at hourly rates of pay proportionate to those received by the semiskilled workers employed as factory operatives.

An investigation of one enterprise engaged in prefabrication of housing revealed that, according to tentative estimates, the labor-cost ratio on a $3,500 house (building construction cost only) amounted to approximately 34 percent; 28 percent of the cost was for on-site labor, and 6 percent was in the factory. In this case, all plumbing, heating, and electrical installations were of the orthodox type, with minor qualifications, and were performed in the usual methods. It was not clear, however, that the cost of the substitute materials used in this house was not higher than in similar houses of orthodox construction, or that the actual expenditures for labor were not as large as they would have been in erecting equivalent houses of orthodox materials.

Organized Labor and Building Labor Costs

Organized building trades unions are the objects of extensive criticism in almost every discussion of the

problem of providing adequate housing for low-income groups. First, it is charged that their hourly wage rates are abnormally high and that they undertake to secure unduly large earnings for themselves at the expense of low-income families seeking decent living quarters. Second, they are charged with restricting the labor supply through unnecessary restrictions on apprenticeship and through closed shop requirements and closed union memberships, by means of which they obtain monopolistic privileges. Third, it is claimed that, through the imposition of restrictions on output they interfere with the efficient performance of labor and with efficient operations.

High Wage Rate

The evidence presented in the first section of this report makes it clear that the wage rates of building trades workers, when compared to similarly qualified workers in other industries, are not unduly high. The annual earnings of skilled building trades workers, especially those in unions, are, of course, higher than those of the lowest income groups it is desired to house; but the same is true of the professional, technical, and clerical workers employed in the building industry.

Under these circumstances, it cannot be maintained that the unions are in any improper way responsible for unduly high wage costs, unless it can be shown that they have created artificial market conditions. Such conditions could be created through limitation of the supply of labor, or, at least, the flow of that supply to the market, or through manipulation of the effectiveness of the supply after it reaches the market.

Restricted Labor Supply

Union rules usually require from 2 to 4 years apprenticeship, usually limit the number of apprentices who can be employed in terms of ratios to journeyman craftsmen, usually provide minimum or maximum age limits, or in some cases, both, and usually provide relatively low wage rates and limited hours of work for the period of apprenticement. These rules were developed primarily for the purposes of insuring adequate training, avoiding child labor, prohibiting the employer from substituting low-wage apprentice labor for higher-wage journeyman labor, and insuring the apprentice opportunities for employment which would not result in displacement of already qualified craftsmen. On the other hand, a requirement that the apprentices shall be indentured for the entire training period to one given employer, who, in turn, is required to give him sufficient employment and experience for the purpose of his training, has caused employers to object to participation in the program. As a result, these rules have had the effect of discouraging young persons from entering the trades, and of practically prohibiting adult workers, transferring from other trades, from hiring out as apprentices. Workers transferring from other trades, therefore, usually enter the building trades with little experience or training, and because of their incompetency, they are willing to accept wage rates definitely below the scales established by union workers. In view of these circumstances and of the abundant supply of persons offering themselves for employment as skilled construction workers, it is not surprising that the unions should undertake to limit membership in their organizations.

Unions limit membership, especially in well-organized communities, by means of high initiation fees and trade examinations. Local unions sometimes "close their books" and refuse to accept new members under any circumstances. By a system of permit cards, they sometimes shut out of local employment union workers from other cities who have found it desirable to seek work away from home. On the other hand, in boom periods, when the unions are obligated by their contracts to secure more workers than their memberships will provide, they sometimes arrange for the importation of union members from elsewhere rather than permit employment of local nonunionists. At other times, they will permit the employment of local nonunionists under a permit system, involving the payment of weekly fees by persons whom they will not allow to affiliate with their organizations. Such arrangements meet the local demand for labor without permitting a permanent increase in the local supply of union craftsmen. Some unions, also, have adopted racial criteria as a means of restricting the supply of local union craftsmen, and as a result, they tend to shut out of the building trades members of the races against whom prejudice exists.

These restrictions sometimes give the impression that the local unionists are attempting to maintain a monopoly on employment for the benefit of the selected workers who are members of the unions. The public cannot reconcile these regulations with the announced objectives of the unions to organize all workers, or with their recurrent organization campaigns. The unions usually attempt to meet the public reactions to these regulations with rationalized statements concerning the asset value of membership in the organizations or the qualification standards which they have established for journeymen workers. The fundamental basis for their policies, however, lies in the fact that unions are primarily interested in an attempt to limit the supply of building trades workers to the number of jobs to which they can be assigned. Their organization drives are necessary to secure control of the desirable jobs; but once control has been secured, the primary concern of the union becomes one of insuring employment to all of its members.

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Nevertheless, it must be frankly recognized that the unions, when they control entry into the building trades, at times overstep reasonable bounds. There are instances in particular localities where a limited number of craftsmen in a particular trade have interfered with the flow of work and thus unduly raised the costs of construction. When individual unions overreach themselves in this way, it is doubtful whether the interest of the labor group itself is protected, since the restrictions are likely to encourage the use of substitute materials employing different labor skills or to discourage construction.

Furthermore, in view of the limited number of workers entering the trades by the apprenticeship route[20] and of the large number of workers entering after maturity, without supervised training, the organized labor movement as well as the construction industry would probably benefit from a reconsideration of their apprenticeship program. If the training of young persons for the trades could be revitalized through modifications of the indenture provisions, and if training programs were further broadened to cover mature persons who find it necessary to adopt new trades and to give further training to skilled mechanics who need to learn new processes and new materials, the unions would probably secure a better control over an unstable market and the industry would benefit from the availability of better qualified mechanics.

Restrictions on Output

The most usual types of restrictions that have been discussed can be summarized as follows:

1. *Rules limiting output.*—A few unions specifically prescribe limitations on production. Some painters' locals have limited the width of the paint brush; some lathing locals have limited the number of laths that may be put up in a day; some local unions of bricklayers have "understandings" concerning the number of brick to be laid in a day. More generally, it is asserted that, at the union meeting, the leaders advise their members that on certain jobs they were working too fast, or criticize certain members for producing too much.

2. *Rules restricting the use of machinery or other labor saving devices.*—There are few specific cases that can be cited with regard to limitations upon the use of machinery. The painters' union again is most often cited for its opposition to the use of the spray gun. The plumbers are cited for their opposition to the performance of work in the shop, and for an outworn rule forbidding the use of a bicycle in going to and from work. The cement masons are cited for their objection, sometime in the past, to the use of the cement mixer or to the use of accelerators in concrete or of more efficient leveling devices; and so on.

3. *Specification of the number of workers to be employed.*—A few unions can be cited for rules specifying "full crews" which must be used in the construction processes. The engineers are probably most often referred to because of their rules, in some cases, requiring one man to a machine or on heavy machinery requiring an engineer and an oiler, where it is thought that the engineer alone could perform the necessary work. Reference is also made to the requirement of the steamfitters that every journeyman be accompanied by a helper or to the ironworkers who regulate the number of men in a riveting gang. Most unions also regulate the number of men who can work for a foreman or the number of men who can work without one man being employed at the higher foreman's rate. In some cases, it is required that where only one journeyman is employed, he must be paid the foreman's rate in spite of the fact that he has no supervisory functions. On the other hand, reference is made to the effect of jurisdictional claims which often result in the requirement that the contractor assign men from competing crafts to do the work that the men of one craft only should be required to do or to the fact that, as a result of jurisdictional claims, several men must be present for the performance of one relatively simple job. An example of the first case would be the necessity of employing an electrician and an engineer to operate an electric motor because of the fact that both unions claimed the jurisdiction for its own members. An example in the second case would appear in a minor renovation of a steam boiler which would require a brickmason for the removal and replacement of firebrick, an asbestos worker for the removal and replacement of asbestos, a steamfitter for the unjointing and recutting of pipes, etc.; cases have been cited where three or four men and their helpers were required to do the work that could reasonably be done by one man and a helper in a period of one or two hours.

4. *Jurisdictional disputes between skilled crafts and between skilled and unskilled workers.*—Probably the most emphasized of the restrictive provisions of labor unions have been those resulting in jurisdictional disputes. The disputes have most often occurred as a result of changes in construction materials, tools, or processes, wherein every organization has attempted to protect its claim to work which it has previously done, while other organizations have attempted to assert claims based upon the type of materials used, the tools used, or the nature of the work Less extensively publicized, but perhaps more bitterly denounced, have been the jurisdictional claims of skilled crafts for work that could be done by unskilled workers and for work that, in nonunion jobs, is usually done by unskilled workers

[20] In 1920, the *Census of Occupations* reported 24,572 building trades apprentices; in 1930, 16,623, a reduction of 32.3 percent. Between the same years, the number of skilled workers in the building trades increased from 1,911,380 to 2,379,149, an increase of 24.5 percent.

at rates of pay equal only to one-third or one-half of that demanded by the skilled workers. A notable case of this character involves the claim of the painters for the work required in moving scaffolds and canvasses, and cleaning paint spots resulting from their work.

The unions usually rationalize these regulations in terms of such arguments as: the protection of health against overspeeding; the avoidance of respiratory diseases from the use of the spray gun, or the protection of older workers from the competition of younger and more efficient workers; the protection of the quality of work or the protection of the skill of the craft; the avoidance of dangerous work practices or the meeting of hazardous conditions with the presence of a sufficient number of adequately trained workmen; preventing the employer from using "bellwethers" or leaders who, usually for a privately paid extra compensation, set high standards of productivity against which the accomplishments of all workers can be measured, and by means of which employers frequently attempt to force reductions in wage rates on the basis of the claim that the men are substandard workmen. Most of these claims of the unions have some justification, but it is probably fair to say that many of their arguments lack substantial validity and that, in any case, practically all of them avoid the statement of the basic reason for the development of restrictive regulations.

The basic reason for the development of restrictive regulations by the labor unions lies in their desire to protect the worker's income status and job security and to protect the professional prestige which is vested in the skilled workman because of his mastery of the craft. As has already been pointed out, the status of the building trades worker is one of great and constant insecurity. It is not unexpected that, with the introduction of any innovation in the building trades processes, a worker whose status is already insecure should immediately examine the innovation to see what further elements of insecurity it brings to him. Every innovation arouses the worker's fears concerning its possible consequences, even in cases where he cannot reasonably see any dangerous consequences to himself. It is his reaction, therefore, to oppose any innovation the results of which he cannot entirely foresee, and to oppose every innovation which appears to forecast an increase in his insecurity.

These considerations, however, do not constitute a justification of practices which increase building costs. They constitute justifications of protective devices only to the extent that such devices are made necessary by the usually hazardous practices of the industry itself. To the extent that these restrictive practices of the unions cannot be justified by considerations of health and safety, the economy of the industry demands not only their elimination, but the elimination of the conditions which called them into being.

If the construction industry and its labor forces could be so organized as to guarantee reasonable job and income security to all of its members, the ever latent opposition to innovations would be greatly diminished. If innovations did not raise fears of greater insecurity, there would not be new restrictions to govern more efficient processes. If, with every innovation, an understandable guarantee of the protection of the interests of the workers was provided, the only basic obstacle to its introduction would lie in the traditional inertia and habits of the group, which can be overcome. Each of the restrictive limitations outlined above can easily be analyzed as an attempt on the part of the organized group to protect its job security and to improve its income position. If and when a program involving new processes of construction as one of the considerations in the development of greater job security and improved income status for a considerable mass of the building trades workers can be offered to the construction industry, it is reasonable to expect that, after consultation and negotiation, it would not be difficult to secure the cooperation of the labor groups in the development of the program.[21] At any rate, it probably can be forecast that the readiness of the labor group to accept and cooperate with such a program will, at least, be no harder to secure than the acceptance by and cooperation of the interested business groups.[22]

[21] Instances have occurred in which operative builders have undertaken such negotiations with union groups and secured their sympathetic cooperation in private low-cost housing programs.

[22] The restrictions discussed above are not to be confused with racketeering, which is sometimes charged to the building trades unions and which is sometimes discussed by writers on housing problems as a major characteristic of the organized building trades. Bona fide efforts to maintain observance of established labor conditions, by means of strikes, boycotts, sabotage, and fines imposed on workers or employers, must be clearly distinguished from the imposition of fines for the personal enrichment of the business agent (with, perhaps, a cut for the union treasury), and from strikes or other tactics to injure one employer in return for payments or favors from other employers. Recurrently, in a few large centers, a few business agents who adopt racketeering policies reach positions of leadership. Such instances, however, are definitely isolated, and it is quite unfair to charge that they are representative of building trades unionism.

Studies of such racketeering have indicated that it has developed when clever, but not too scrupulous, men have achieved local union leadership. They have been men who were able to secure desirable working conditions for the union members. As business agents, they were successful; and as a result, the membership was willing to condone their practices, as least until such time as public pressure or their overreaching abuses began to injure the union's standing. In all cases, however, they have been able to operate only with the tolerance of most of the contractors, and usually with the connivance of many of them. Under certain conditions, cooperating contractors are able to secure definite advantages over their competitors, and in some cases, can increase their commissions from the owners.

In general, it is the nature of the organization of the industry that makes racketeering possible. Reorganization of the industry, with the elimination of the subcontracting arrangements which dominate it, would tend to eliminate the possibility of the development of racketeer leaders.

Unfortunately, the attacks on building trades union racketeering usually emanate from bitterly anti-union sources. As a result, both union members and national union leaders tend to discount the charges and to defend the unscrupulous local leaders. The amount of misrepresentation that has occurred, tends to justify their position. Sometimes, also, internal union politics makes it difficult for them to act, even in acknowledged cases of racketeering leadership. If attacks on racketeering were not so often spearheads of attacks on unionism as such, the unions would be much less hesitant about cleaning their houses when they are found out of order. No considerations, however, can justify racketeering practices, or the tolerance of racketeering leaders by union organizations. Sound public policy, as well as best union interests, call for aggressive action by organized labor as well as by all other bodies, to eliminate the racketeer whenever and wherever he makes his appearance.

The Influence of Governmental Planning and Policy

Economies from Stabilization

For the immediate future, the primary economies that may be effected in the construction industry with regard to labor costs must, it appears, be the result of the development of building programs and the adoption of coordinated policies by governmental agencies. The chaotic nature of the organization of the residential building economy at the present time is such that a reorganization along more rational lines can be effected only over a period of years. The primary factors through which a reduction of labor costs may be secured are: a decrease in the hourly wage rates, and an increase in efficiency of the utilization of the workers' services.

Reductions in wage rates will be attractive to workers only when sufficient guarantees of full time employment can be made to supply adequate annual incomes. The provision of full-time employment has been considered to be dependent upon overcoming the difficulties of operations during winter seasons.[23] In a large part of the country, of course, the winter seasons do not offer serious obstacles to the continuation of the construction work. In the States of Florida and California, however, the seasonal variations in construction employment are almost as great as the seasonal variations occurring in States along the northern border. Even in States which suffer severe winter seasons, new processes have made winter building economical when slight financial incentives are offered to overcome the cost of artificial heating and other arrangements.

In a number of Federal housing projects prosecuted during recent years, the winter seasons appear to have offered insignificant barriers to the continuation of construction work. In many cases, the winter seasons appear to have had little effect upon the numbers of workers employed. Most reports indicate that the winter season offers a serious obstacle only with regard to the completion of concrete work. Reports of one agency indicated that, if foundations were completed before the first freeze, work could be continued with interruptions only for severe cold spells of short duration.

More important than overcoming the periods of seasonal unemployment is the problem of insecurity which results from the dependence of the workers upon the occasional or haphazard demands of an indefinite number of individual contractors. This problem results particularly from the small-scale basis upon which most of the construction idusntry of the United States is erected. With building operations in every community conducted by a large number of builders and small contractors, no employer is in such a position that he can undertake to give employment for any considerable length of time to any individual worker. Each contractor and subcontractor completes a contract within a few weeks' time. His employees must then shift for job opportunities with other contractors. As a result, there is a well-recognized tendency for workers to slow down as any job approaches completion, and particularly, as the winter season approaches. There is, furthermore, a deterioration of skill over the winter season and especially after a longer period of unemployment. The accompanying discontinuity of employment also has led workers to demand higher hourly wage levels.

If residential building and the construction industry in any locality were concentrated in the hands of larger-scale operators who, in turn, were able to carry on their building activities on a larger scale, it would be possible for each contractor to employ his workers on a more continuous basis. Because of the larger-scale operations on each contract, a longer period of employment would be provided to the workers on each job, and it would be possible to shift them, in planned sequences, from job to job under the same contractor. The highest degree of employment stabilization, however, will probably not be obtained until there has been a vertical reorganization of the construction industry; this would tend to result in the displacement of current subcontracting arrangements.

Progress toward stabilization of employment has been made in many communities in the absence of the development of large-scale building promoters and contracting firms. Through cooperative operations of contractors, the available local supplies of labor have been pooled and distributed through a central clearing house; a more even distribution of employment among the whole force and greater continuity of employment of individual workers has been the result. This function is usually performed by labor unions; in at least one case, however, a similar arrangement was made by non-union contractors.

Eventually, the construction industry may be reorganized on a basis which will enable the individual employers to employ their workers on the equivalent of an annual salary basis. When so reorganized, with adequate capital and able to plan its production program over a period of years, the construction industry will find it possible to develop wage relationships with its employees, which will greatly reduce the labor costs of construction operations.

Pending such developments, it may be possible for the federal government, under the U. S. Housing Act, in conjunction with local housing authorities, to under-

[23] The local institution of "leasing dates" has also been mentioned as an obstacle to continuous building employment. The history of the construction industry indicates, however, that "leasing dates" evolved from the practice of concentrating residential building in the summer months. The development of year-round building activities would tend, of itself, to break down the institution of "leasing dates."

take long-range planning of large-scale residential construction, either by force account or by contract, subject to limitations which could provide continuity of employment to individual workers. Such guarantees of continuous employment should be made contingent upon agreements with responsible working forces for concessions in hourly wage rates in return for higher annual incomes.

Such a proposal would not be entirely new to the industry or to building trades unions. Several unions maintain differential rates for maintenance employees engaged on a monthly or annual basis. They have often agreed to the employment of foremen and other supervisory employees on a monthly basis, and there are a few recorded cases providing for employment of construction workers on annual salaries. Building trades workers have no objection to such arrangements, as such. They justifiably want to know, however, that the plans for annual payments are made in good faith, will be honestly adhered to, and, in the absence of general acceptance, will not embarrass them in maintaining wage scales developed for an industry operating on another basis.

Governmental Influence and Stabilization

The recognition of the need for stabilization of the construction industry in order to obtain reduced building costs is not new with this report. It has been the subject of several studies made heretofore. Previous studies, however, have been based primarily upon consideration of private building enterprise only, and it is only within the last few years that there has been any substantial agreement that government held any responsibility with regard to housing. With the acceptance of the principles of governmental responsibility, as evidenced by various legislative acts, the problem poses itself as to whether or not government should take cognizance of the instability of the industry and attempt to encourage its reorganization. Government, in any case, is confronted with an opportunity to direct its activities in such a way as (a) to stabilize that portion of the industry which engages in the erection of buildings under governmental influence, and (b) through demonstrating the possibilities of stabilization, to influence thereby the much larger portion of the industry which remains entirely under private operations. If government fails to make the most of this opportunity to assist in the stabilization of the construction industry, it is likely that progress towards this end will be delayed for several decades.

If government agencies accept the responsibility of attempting to influence the building industry towards stabilization, those agencies must accept such a principle as one of their primary responsibilities, and make it a part of their philosophy, policies, and general program. To effectuate such a policy, the responsible agencies should plan their operations on a large-scale basis. The location of projects should, in part, at least, be determined by conditions of employment prevailing in the communities. The initiation of the several projects in any community should be timed in such a way that relatively continuous employment could be provided to given numbers of workers.

Haste in developing projects would have to be made subordinate to other considerations. The general program, first, would have to be planned in terms of the continuous employment to be afforded. Careful plans for building would have to be developed, based, among other things, upon the types of labor available in the communities. Scheduling of operations by the builder in order to fit the several crafts into a program of continuous work would follow. Finally, the delivery of materials would be scheduled to fit the work program. Deadlines for initiation and completion of work would be determined, on a flexible basis, in terms of employment arrangements.

To accomplish the most effective results, it will be necessary to secure the understanding cooperation of all private parties involved in the program. The agencies cannot depend upon a general acceptance of their policies by other parties, if no specific effort is made to outline the bases of operation, and to secure the voluntary acceptance of these bases and of the principles of operation founded thereon, unless there has been consultation with the private parties in advance. It is particularly important that the organized building trades unions should be consulted concerning these plans, their advice requested, and their assistance sought in the execution of the programs of the agencies.

Once the policies have been agreed upon, the execution of operations within their limits must be secured. This means that the contractual relationships of the government agencies with all private and public parties concerned—municipalities, contractors, labor organizations—must be expressed in terms of the general policies; that is, insofar as construction is undertaken by contract, the contractor and the organizations with which he deals must be bound to operate within the program.

The agencies should be left free to adopt such programs of execution as will permit fullest adherence to the stabilized program. In many respects, the prosecution of their work by force-account methods will have advantages over prosecution by means of contracts with private builders. The experience of the last few years has not proved the superiority of the force-account method over the contract method or vice versa. The peculiarity of the conditions surrounding much of the work done by contract and surrounding all of the work done by force-account methods has been such as to

make valid conclusions impossible. While the contract method throws the onus of financial risk upon the contractors, unless contractual provisions are carefully developed, it may fail to give the best results from the point of view of stabilization. The force-account method of construction should not be used, however, unless it is adopted as a long run principle and unless an adequate organization of relatively permanent personnel, selected with regard to qualifications and carefully trained with regard to the employment features of the program, is developed.

In conclusion, it would be appropriate to point out that the experience of the last few years does not provide a sufficient criterion for judgment as to what might be done with a carefully planned and well executed building program, either with regard to the possibilities of stabilization or with regard to costs. The programs of the last few years have been compounded with many other objectives and conditions, such as: the employment of persons on relief, the distribution of purchasing power, assistance to private contractors, aid to the heavy industries, experimentation with new building materials, relief to mortgage holders and finance houses, influencing interest rates, resettlement of population, and conflicting ideas concerning residential construction.

PART 6. BUILDING REGULATIONS AND THE HOUSING PROBLEM

By George N. Thompson [1]

Building Regulations and the Construction Industry

No housing is worth while if it is unsafe or unhealthful. This would seem to be an elementary statement of fact requiring no elaboration. Yet there is considerable misunderstanding of those legal measures known as building regulations through which communities seek to assure safe and sanitary conditions.

The primary objective of building regulations and codes is to protect the public against injury, disease, and death. Any proposal to make a saving either in time or money by abrogating or modifying building regulations or codes may result in a final economic and social cost that is incalculable. Any economies sought within our extant building regulations should be carefully considered by technicians and experts who are entirely disinterested and impartial.

There are two approaches to this problem of building regulations—the disorderly process and the orderly process. The disorderly process is characterized by sporadic outbursts of criticism, usually not substantiated by evidence, to the effect that regulations are hampering progress in the construction industry or that they are deficient in their requirements. The orderly process is characterized by continuous study of disease, injuries, and loss of life due to faulty buildings, by systematic testing of structural materials and building equipment, by development of standards of quality and of performance, and by preparation of minimum requirements incorporating the best obtainable expert judgment.

The disorderly process proceeds as a rule from two reactions. The first is impatience with some existing requirement because it is believed to be unduly restrictive. The second is an emotional response to some great disaster, such as a conflagration or a major loss of life. The first insists on lowered requirements and the second on drastically increased ones. The orderly process recognizes that there may be justification for each attitude but that yielding too much to the demands of one may produce the undesirable conditions criticized by the other. For example, existing fire protection requirements may be felt to increase the cost of construction beyond reason, but relaxation too far may expose building occupants to the horrors of fire, with subsequent remorse on the part of those who advocated letting down the bars.

The orderly process is aware of the complicated and delicate adjustment necessary to achieve balance in protecting the public without discouraging construction. It seeks to act constructively in production of more rational requirements. Unfortunately, the fact that it is operating continuously is often unknown to those who periodically rediscover the admitted fact that there is still room for improvement.

This discussion is presented with the object of creating a better understanding of the fundamental nature of building regulations and of their impact on the construction industry. It recognizes the value of the disorderly process as a stimulant which rouses public interest and tends to prevent a too deliberate attitude towards desirable changes. However, it lays stress on the orderly process which has to accept the responsibility of determining, in the light of research and of experience, just how far it is possible to modify existing requirements without danger to life and limb.

The Regulatory Function of the State

We may start out with the assumption that a building is a complex structure, the product of many minds and hands, and rising in the midst of an imperfect world. Skilled design, complete knowledge, adequate supervision, perfect materials, and competent workmanship, supplemented by absence of selfishness and by nobility of motive may all combine to produce a structure that is irreproachable. But knowing human nature as we do, we are forced to conclude regretfully that some one or even all of these factors may be missing and thereby afford a chance for flaws to creep in. To the extent that these flaws are a menace to human life and limb they are a matter for attention by the State, which possesses the police power to control them.

What actually happens in the great majority of cases in this country is that the several States transmit their power to the municipalities either by enabling acts or by provisions in city charters. The municipalities proceed to adopt regulations designed to protect their citizens. These regulations are of several kinds and constitute a network of restrictive requirements concerning buildings which covers the country, although not with a perfect pattern. There are gaps where municipalities have failed to exercise their power or have done so in a very sketchy manner. There are areas where incorporated municipalities do not exist

[1] George N. Thompson is Chief of the Building Codes Section, National Bureau of Standards, Department of Commerce.

or are far apart, leaving the intervening space to be governed by State or county regulations or by no regulations at all. So, when we speak of building regulations, we do not refer to a system of requirements that reaches into every hamlet.

The different kinds of regulations that affect housing vary in title and scope, but the chief elements are as follows: (1) The building code, (2) the zoning ordinance (3) the housing code, (4) the electrical code, (5) the elevator code, (6) the plumbing code, and (7) the boiler code.

This does not exhaust the list of legal requirements. There are fire protection ordinances, health ordinances, and other measures designed to cover special aspects of protection for the public. He who builds a house is indeed hedged about with restrictions that range all the way from how high he can go to what size windows he shall use and what kind of electrical switches he may put in his bathroom. For each requirement there is a reason. It may not always be apparent, but it is there, and he profits or suffers depending upon whether the reasoning has been good or bad.

The building code customarily deals with the erection, alteration, repair, demolition, and maintenance of buildings and other structures. Its purpose has already been indicated. The zoning ordinance seeks to bring under control the casual and unrelated growth of construction in a municipality so that nearby structures will have a harmonious relationship. It deals chiefly with height, use, and area. The housing code, less frequent, but equally important where effective, seeks to regulate conditions of light, air, and sanitation in residential buildings so that healthful conditions will be obtained. Maintenance bulks largely in its program. The electrical code regulates wiring and fixtures with the object of minimizing fire hazards and risk of shock. The plumbing code aims to bring potable water to the house, conduct it without contamination through its appointed course, and lead it away bearing its load of body wastes so efficiently that no menace to health results. The elevator code is put in force to guard against accidents peculiar to this item of building equipment. The boiler code governs the conditions of construction and installation of boilers to prevent explosions.

Is Regulation Necessary?

It has been said that the State has the right to protect its citizens through these documents but the question may be raised whether their existence is really necessary. The answer to this comes from experience. The great fires of Chicago, Boston, Baltimore, Atlanta, and so on are convincing evidence that precautions must be taken to prevent enormous losses not only in property values and in dislocated business life but also in heart-rending privations, personal injuries, and loss of human life. According to the Bureau of the Census, 7,874 lives were lost in the year 1935 as a result of conflagrations and burns, the majority in homes.[2] Catastrophes like the collapse of the Knickerbocker Theater Building in Washington in 1922 where about 100 lives were crushed out, and the recent occurrence in New York City where 18 lives were lost as the result of the collapse of imperfectly supported masonry are but examples of a long list of occurrences that justify constant vigilance with respect to building construction. Of late years we have become increasingly conscious of the insidious effects of inadequate provision for light and air in designing buildings. We have come to accept it as a fact that a healthy race needs to be surrounded with safeguards in this respect when construction is proposed. The roster of broken lives and fortunes and of lives snuffed out as a result of wrong building practices is a powerful argument in favor of regulation.

Yet a building is a static body which seems to present few possibilities for doing harm. Unlike the automobile, it possesses no ability to collide with its fellows; but in it, either for purposes of working, sleeping, recreation, or otherwise, the human being may spend as much as 20 hours a day on the average. The force of gravity, the phenomenon of combustion, the life cycle of miscroscopic plants producing disease need only the right conditions to act and bring about a dangerous situation.

Added to this is the problem of adjusting relationships between owners of nearby buildings fairly so that some owners will not profit at the expense of their less enterprising or more considerate brothers. Take the case of several city lots all located in the same neighborhood. Owner A might theorize that he should be free to build as he pleases and undertake the erection of a 20-story building. Owner B protests that this will deprive his building of light and air, while the city fire department advances the point that its apparatus will have great difficulty in controlling a fire in a building of such height and of the proposed type of construction. Who is to say how these clashes of interest are to be adjusted? Obviously, if justice is to prevail, the community acting as a governmental unit must decree what is a fair use of A's land.

The principle goes still further. Into A's building will come all manner of men, each bent on his separate errand, and few having the training to judge whether they are subjecting themselves to danger. Will the building collapse under the weight of the materials permitted in it? Will a blast of flame sweep through its corridors and trap the hapless tenants? Since it is not simply a question of A's personal safety but of the safety of the hundreds who come at his express or

[2] Not all this loss of life resulted in burning buildings.

implied invitation to his door, some agency must act in the interest of all. This agency is that of government, which is set up for the purpose of dealing with just such questions.

These illustrations may seem trite, but it is surprising how often a reminder must be given that conditions of urban life require the giving up of a certain part of liberty of action in the interest of the greatest good for the greatest number. Many requirements for building regulations that are now accepted as a matter of course were fought bitterly when they were proposed, largely because of lack of understanding of the fact that the time had come to exercise restraint.

Regulation and Technological Change

Perspective is needed if we are to judge fairly the relationship that exists between restrictive requirements and the construction industry. For centuries, construction was of a simple basic type that made use of generous amounts of material to compensate for ignorance of stress and strain values. With the coming of the industrial revolution in the nineteenth century, however, inventions began to appear that were destined to have a profound effect.

When the idea of carrying all loads on a structural steel frame was put into execution and the first skyscraper was born, there started a series of events that is still in action today. We are told that the manufacturers of wrought-iron shapes opposed the introduction of steel for this purpose. Indeed, the Bessemer steel of the early days was none too reliable a material. The boldness and simplicity of skeleton construction were too attractive to be denied, however, and so it gained in favor. Much had to be learned. Structural shapes had to be devised and methods for rolling them perfected. The physical properties of these shapes had to be determined and handbooks issued. Here was a case of an industry suddenly developing a vastly increased use for its product but with very little background upon which to formulate a reliable set of rules of use.

Again, take reinforced concrete, which came into prominence at the turn of the century and has grown in importance ever since. The realization that concrete and steel would bond together so that the one could take care of compression and the other of tension opened up a fascinating vista of usefulness. Here, another vast industry was born, obliged to probe continuously into the facts about its product and prove its advantages to a doubting world.

These are examples of cases where inventive genius supplemented by modern industrial organization has profoundly affected the problem of public protection. A whole new series of concepts has had to be accepted. Proof has had to be required to substantiate claims. The volume of specific legal requirements has been greatly increased and methods of inspection have had to be adapted to the peculiar characteristics of the new order. The cost to the municipalities has increased because of the necessity of covering a great variety of matters that once were unknown. Such increases in municipal expense are the price of progress in the industrial world, a fact not always appreciated by critics of growing municipal budgets.

At the same time, the industries that have grown up have found that their problems were not limited to those of production and distribution. A third element, regulation, has stepped in. They have been told that their product must be used only in such a way and in such amounts, that the community will demand that they maintain such a quality, and that failing these requirements the use of their products will be restricted or even denied completely.

Elsewhere in this series of reports will be found statistical material showing the great volume of business growing out of the needs of the construction industry. Anything that tends to restrict the use of the products thus made available may be reflected in reduced opportunities for workmen to make a livelihood and for business concerns to benefit from their enterprise. There is no room in the code-making process for thoughtless and prejudiced action. It is thus a heavy responsibility which falls upon those who develop building regulations. On the one hand is a consciousness of the possible effect on industry and employment. On the other is the knowledge that such considerations must yield to the paramount need of safety when necessary and that safety is a matter to be determined not by claims but by proof.

This is the lesson that must be learned sooner or later by every proponent of new building materials—that the public can not tolerate the indiscriminate use of such products but will expect proof of their safety. Modern industrialists understand this and do not object to submitting to tests in disinterested laboratories where the characteristics of their products can be fully ascertained.

Building Codes and Building Costs

What industrialists do object to, and rightly, are the inconsistencies and abuses that are to some extent present under the existing system. They find that local codes vary in their requirements, sometimes resulting in the necessity of altering manufacturing processes to meet local requirements and thereby causing the loss of much of the advantages of mass production. More serious in their moral implications are charges that worthy new materials are excluded because interested organizations are sufficiently influential to control the regulations. In either case, not only the industry

affected but the general public suffers, for a limitation on the freedom of choice of materials inevitably reacts on building costs.

The two most serious charges heard with reference to the effect of building regulations on industry are (*a*) that they increase unduly the cost of construction and (*b*) that they hamper unnecessarily the introduction of desirable new materials and methods of construction. There is some truth in these charges and also considerable exaggeration. Let us first examine the matter of construction cost.

The cost of a house is made up of a number of factors. There must first be land upon which to build it, but we will exclude consideration of this except for calling attention to the fact that it may constitute a fifth part of the cost of the project and is little affected by building regulations. The cost of the house itself is dependent upon many factors, among which are the following:

1. The efficiency of the design.
2. The prices paid for structural materials.
3. The amount and quality of structural materials.
4. The wages of labor.
5. The efficiency of labor.
6. The elaborateness of the equipment, such as heating, plumbing, electrical work, etc., again affected by material and labor costs.
7. The elaborateness of trim and decoration.
8. The architect's fee and contractor's profit.
9. The efficiency of supervision.
10. The general overhead expenses.
11. The cost of financing.
12. The cost of local transportation.
13. Topography and soil conditions.
14. The cost of providing utilities.
15. The effect of weather conditions during construction.
16. Intangible factors such as competitive conditions in the local building industry.
17. Building regulations.

Such factors interact in different ways, so that the cost of a house may vary as much as 50 percent in different localities. It is difficult to segregate the effect of any one factor. Indeed, there have been many loose statements about the effect of certain factors on costs. The best that can be done in the case of building regulations is to compare what is required in a given case with what we believe would fulfill all the necessities of safety and health, to see if there is a difference and of what mathematical sign. For not all desirable changes in building regulations will operate in the direction of saving.

At this point it will be necessary to narrow down the discussion to building codes as distinguished from building regulations. Different kinds of building regulations have been enumerated because they are closely related and sometimes confused. It not infrequently happens that criticism of "building codes" is found to relate to some type of regulation not customarily found in such codes. Broadly speaking, building codes are primarily concerned with requirements for strength, fire resistance, exits, and certain features of sanitation.

Building materials, such as wood, concrete, brick, and steel, have different abilities to sustain loads. Some are tough. Others are brittle. We learn from tests and experience about what they are capable of doing and specify in building regulations what qualities and sizes are necessary to hold up the known loads. So we require in codes that enough materials shall be used in order to insure safety. Sometimes, this is done directly by specifying how thick walls shall be, and so on. Sometimes, it is done by giving certain assumed strengths per square inch for materials and leaving the determination of size to calculation. In whatever way it is done, it is clear that in setting arbitrary minimum amounts of materials to be used, the cost of the structure is affected.

As with requirements for strength, so with those for fire. Certain thicknesses of protective materials are required to keep structural members from collapsing when exposed to heat. Incombustible material has to be inserted at strategic points in frame walls to block off the spread of flame. Chimneys and fireplaces have to be made with walls of certain thicknesses and kept away from combustible construction. Heating appliances have to be properly isolated. Here, again, it is plain that "economies" can be effected by reducing amounts of materials used, cutting down clearances, and so on. But the fine line has to be established beyond which such practices will cause the protecting materials to lose their effectiveness.

There are three courses open to industry when representations are made that code requirements call for use of more material than is necessary to meet the needs of safety. The first is to throw the influence of the industry behind retention of the existing requirements on the theory that a reduction in the requirements would be followed by a corresponding loss of market for the material concerned. The second is to adopt the attitude that the matter is one lying more in the realm of engineering than of commerce and should be decided on an engineering basis; the view being taken that, in the long run, a reduction in quantity of material used on individual jobs will bring about reduced costs, thereby stimulating more building and actually resulting in a broader market than formerly. The third is to advocate even more liberal reductions than have been proposed on the theory that the material suffers a stigma if it is granted anything less than it is capable of showing under the most favorable circumstances.

It requires a broad and statesmanlike attitude to distinguish what should be done in the public interest as contrasted with the immediate advantage of one group. The situation is complicated by the fact that different types of construction meet on a highly com-

petitive plane where a slight reduction in the required amount of one material may be sufficient to induce a prospective builder to change to that material from one which he had hitherto favored. This situation partly accounts for the fact that today there is relatively less insistence on retaining excessive amounts of material and more of a disposition to favor the least amount of material that will do the job.

The result is that allowable working stresses are being generally increased. Obviously, there is a limit to this process. Although it is fashionable in some circles to decry the term "factor of safety," there will always be need for allowing some margin between what is required and the point where the material as assembled fails to perform its function. Some constructions are more uniform in quality and put together with better workmanship than others, but none can be said to be absolutely unvarying in their ability to do what is expected of them. A building is still the product of many minds and hands, and perfection from each is beyond the lessons of human experience. So as the margin between safe and unsafe practice is pared down, the possibilities for further competitive advantage in this direction become negligible. Knowing where to stop, at the point where there is still a proper allowance that will prevent failures and consequent set-backs for the industry concerned, is most important in the long run. As the margin becomes slimmer and slimmer, the advice of the completely disinterested engineer assumes greater significance.

It is sometimes thought that changes in building codes will always operate in the direction of economy. Such is not the case. A thorough overhauling of a code may result in savings in one respect and increased costs in another, with the possibility that the one may cancel the other.

To illustrate, take the matters of working stresses in structural materials as against light and ventilation of buildings. It is more than likely that an examination of the average code will disclose places where higher stresses could be permitted under conditions of skilled design and construction and that this would result in a reduction in building cost. On the other hand, the average building code is apt to reflect the ideas of a score of years ago when it sets forth minimum sizes of courts and yards, and similar matters. Those who have studied the subject of land coverage are well aware that there is a law of diminishing returns in crowding the land, but up to a certain point—certainly up to the limits permitted in the average building code—there is a saving accomplished by keeping court sizes small if by saving is meant getting the maximum amount of rentable space for a given expenditure for land and building. There is a clearly discernible trend in public policy toward discouraging this practice, however, not because the change will reduce the cost of construction, but because it will produce living conditions more nearly in accord with what we believe is right today. Here are instances where, on the one hand, a reduction in cost may be made and, on the other, an increase.

Instances could be multiplied. Take the case of fireproofing. As a result of more intelligent appreciation of how much fireproofing is necessary for a given set of conditions, required thicknesses can be reduced from those found in many codes. On the other hand, the building of structures estimated to last as long as 60 years and greater concern for the safety of tenants are held to require fireproof construction in instances where it was not required before. In the one case, a saving is accomplished, and in the other, a considerably greater expense than formerly is incurred, all for perfectly logical reasons.

Again, the iron fire escape allowed by many public authorities is on its way to oblivion, convicted of being a false device upon which to rest hopes of escape from a burning building. In its place is coming the enclosed stairway protected by incombustible walls and doors—at, of course, greater expense. As partial compensation, is a growing belief on the part of some designers—although sanctioned as yet to a very limited extent in codes—in the sufficiency of a single enclosed stairway in fireproof buildings of limited height and occupancy. If permitted, this practice not only saves the cost of constructing the customary second stairway but provides additional rental space where this stairway would have been located. Again, two types of changes, both probably in the nature of improvement, would have directly opposite effects on building costs.

Even though no money savings whatever were possible, there would still be a need for rationalizing requirements. There are other savings of a more intangible nature which are important. One, of course, is the saving in human life and suffering through more effective safeguards that have been developed in the light of increased knowledge and experience. Another is the saving inherent in greater freedom for designers where this can be granted without sacrifice to safety. Until a plan is actually started, it is difficult to visualize what the effect of a given requirement will be. As the outlines are sketched in, however, it becomes plain that not only the choice of materials but the shape of the building, the arrangement of rooms, and the general efficiency of the plan are held within certain limits. Sometimes these limits are too rigid, preventing the most intelligent solution of the problem and discouraging the exercise of that ingenuity which is so essential in connection with low-cost housing.

Thus far we have examined effects of building code requirements on building costs. We have observed

that these requirements are one of a large number of factors affecting costs and that, through changes, some cost reductions should result, but that other desirable changes may offset these reductions to a greater or less extent.

Building Codes and New Materials

Another charge made against building codes is that they interpose a wall before desirable new forms of construction and prevent these forms from conferring their benefits on the public.

This is a serious charge. If there is anything that is patent today it is that flexibility in adjustment to changing conditions is worth while. It is to be taken for granted, however, that these new forms of construction should be ready to prove that they are safe and will remain so.

Exactly what is the situation? This can be determined roughly by taking a sample of codes now in existence. The method in vogue, where the matter is mentioned, falls into four classes. In the first, full authority is vested in a local board to approve or reject the material or construction. In the second, full authority is vested in the building official. In the third, the building official has the authority but adverse decisions are subject to review by a board. In the fourth, an amendment may be recommended to the code by an official or board after suitable investigation.

It appears from a study of building codes that in many cases no change in the code is necessary to pass upon a new material or construction. In these cases, the code cannot be blamed for blocking its introduction. What is probably giving rise to complaints is the lack of adequate machinery to carry the terms of the code into effect. A building official or board needs several things to be able to come to a just conclusion. One is a series of standard test methods by which the proffered construction may be subjected to rigorous proof of its claims. Another is the availability of suitable test machines operated by completely disinterested agencies. A third is protection from political or other pressure which would tend to influence the completely impartial nature of the proceedings. In some cases, the officials concerned must also satisfy themselves that there is a supply of qualified workmen who can be trusted to install the material in the proper manner. This involves some system of examination and licensing.

For the codes that make no provision for dealing with new developments in construction, there can be little excuse. As promptly as possible they should be altered to provide for the systematic investigation of claims and impartial treatment.

Low Standards for Low Incomes?

It has been said that the imperfections of building regulations are periodically rediscovered. This is true in the housing field as well as elsewhere. It has resulted in some constructive suggestions and also in some evidence of misunderstanding of the nature of such regulations. The suggestion has even been made that special exemptions from code requirements be allowed for the benefit of low-cost housing, either by passing a special code of building requirements for the benefit of this particular type or by specifically excluding such housing from the operation of the code. It is worth while to ponder over these proposals.

Let it be remembered that the purpose of building regulations is to protect against injury, disease, and death. Proposals to make special dispensations for the benefit of low-cost housing are a way of reducing the degree of safety required for those of low income below what is enjoyed by those in better circumstances, although this does not seem to be fully realized. Such a discrimination against the less fortunate, made in the name of reduced costs, introduces a principle foreign to our democratic concepts. Although put forward with the best of intentions, its effect would be to create a stratification of degrees of safety imposed by the State.

What is probably intended is that all building code requirements for residential construction, of whatever character or cost group, should be subjected to critical analysis to see whether legitimate economies can be suggested that will not jeopardize the building occupants. Such a proposal has merit although the possibilities disclosed are likely to be moderate in character. This is partly so because the same proposal was made and somewhat the same ground covered about 15 years ago. At that time, the country was emerging from another depression, and a shortage of homes was becoming acute. Building regulations were criticized for requiring excessive amounts of materials, thereby raising costs and contributing to the existing difficulties. A committee of experts known as the Department of Commerce Building Code Committee made a special study of the matter and issued recommendations permitting considerable economies as compared with the then existing practices. These recommendations were widely used as local codes were revised and were responsible for significant savings. A revised edition of the recommendations was issued in 1932. Events have moved so rapidly in the construction field that further refinements may well be possible. It would seem wise to build upon this past work, however.

If there is anything wrong in a particular code, the proper procedure is to demonstrate the fact beyond argument and bring about a change that will extend

its protective influence equally to all citizens in the community.

Reflection will bring out that a requirement is held to be wrong because the critic thinks it is so. If the critic is competent technically, and others equally competent and disinterested agree with him, the odds are that his position is well taken. Even then, in a matter which involves personal safety, the thoughtful critic will wish to check his judgment by consultation with those who have made a special study of the subject.

Analysis of building code provisions will disclose that they consist partly of matters of fact and partly of matters of opinion. That a masonry wall of given characteristics will, on the average, break at a certain load is a matter of fact that can be demonstrated in the laboratory. That a factor of safety of four should be applied to take care of variations in such walls as actually constructed is a matter of opinion. That a blank wall erected several stories in height close to a lower building will cut off a proportion of the light of that building is a matter of fact. That setting the wall back a distance equal to the height of the affected building will provide a proper amount of light is a matter of opinion.

So it comes about that the ingredients of good building code requirements are facts, established by research, tests, and observation, and judgment as embodied in a consensus of men possessing adequate training, experience, and discrimination.

Sources of Technical Information

For facts, we turn to research institutions, such as the National Bureau of Standards, the United States Forest Products Laboratory, the Underwriters Laboratories, laboratories of state universities, and other agencies. For judgment, we can draw on the scientific and professional societies, such as the American Institute of Architects, the American Society of Civil Engineers, standardization bodies such as the American Society for Testing Materials, the American Standards Association, the National Fire Protection Association, and similar organizations. By following this procedure we can eliminate, so far as is humanly possible, those proposals which arise out of individual eccentricities or selfish motives and arrive at basic requirements worthy of universal respect.

The serious efforts that have been made and are being continued with the object of providing more scientific building regulations should be better known. Mention has already been made of the Department of Commerce Building Code Committee. This body, composed of nationally known architects and engineers, was in existence for 13 years. It functioned in connection with the National Bureau of Standards which furnished its staff and performed a great deal of necessary research. Whenever a situation was encountered where it appeared that opinion could be replaced or at least made more rational by fact, the committee endeavored to bring this about. For example, it found that loads due to furniture, equipment, and so on, were assumed to have certain values in particular occupancies and that these assumptions varied widely. The simple but homely expedient of weighing such material in typical occupancies was resorted to. In the case of plumbing, the National Bureau of Standards was asked to undertake an elaborate series of experiments which pointed the way for reduction in pipe sizes and elimination of certain customary features, thereby making it possible to suggest requirements that would make plumbing less costly. Reports containing recommendations were issued on small house construction, on masonry walls, on live-load assumptions, on working stresses in building materials, on code arrangement, on fire resistance, and on exit facilities for buildings. To a greater extent than had been the case hitherto, these recommendations represented that blending of scientific fact and expert judgment which is essential to good requirements. More than 350 municipalities and several States have made use of them in preparing or revising building regulations.

The successor to this body is the Building Code Correlating Committee of the American Standards Association. Continuity in building-code work is provided through acceptance by this later committee of the recommendations produced by the earlier body and by definite arrangements for bringing recommended code requirements abreast of modern thought as the need arises.

Under the procedure of the American Standards Association, the National Electrical Code and Safety Code for Elevators, Dumb-waiters, and Escalators have achieved national acceptance as the basis for local requirements. There is no reason why basic building-code requirements should not be similarly evolved, given an open mind and a disposition to cooperate on the part of those concerned.

The thought behind the procedure of the association is simple and direct. It is recognized that many responsible agencies—in government, in architecture, in engineering, and so on—are affected by such a matter as building regulations, and that all can contribute toward the store of knowledge from which should come the best generally acceptable regulations. Hence, a guiding committee of those organizations most directly concerned is formed. Operating under this is a series of sectional committees each dealing with a specific subject. Recommended requirements are developed

by the sectional committees, are inspected to see that they are consistent and form a well integrated series by the correlating committee, and are issued for general use.

The National Bureau of Standards is cooperating in the present activity. With something like 20 years of intimate contact with building-code problems, it has accumulated a background of experience in this field which is being continually enriched by the results of testing and fundamental research.

From this description, it will be seen that the machinery for producing recommended basic requirements is well organized and functioning with due regard to the fundamentals of the situation.

With reference to the special needs of housing, adequate arrangements are also in effect. The last Congress provided the National Bureau of Standards with a special appropriation for use in investigating the properties of materials used in low-cost housing. An advisory committee consisting of representatives from each of the Federal housing agencies has been set up which has outlined a program including special attention to the effect of obsolete building code provisions on low-cost housing. Studies are already in process designed to tie in with laboratory work on strength, fire resistance, and other properties of materials. With the facts well in hand, it will be possible to make definite recommendations regarding code provisions which are felt to stand in the way of better and more economical construction.

Thus, not only the long-term aspects of improved building regulations but also the immediate and acute ones are being attacked with the prospect that steady progress will be made in this phase of housing activity.

The production of recommended requirements is not enough, however. Two steps remain. The first is to adapt general basic requirements to special local conditions where this is necessary. The second is to get the new requirements actually adopted.

How Can We Get Good State and Local Regulations?

Anyone who has traveled this vast country cannot fail to realize that certain modifying conditions take effect in different regions. The relative severity of climate, the prevalence of earthquakes, tornadoes, and other considerations call for adjustments in general requirements. Rarely is this necessary as between neighboring municipalities, although strictly local matters such as the delineation of fire limits must be locally determined. For the most part, similar requirements are feasible over a considerable area having the same general characteristics. Since States are the political units having jurisdiction, this points to consideration of State requirements as a practical way of removing unnecessary local variations.

These local variations, often inexplicable on any reasonable grounds, have been a source of complaint for many years. Due to the operation of various forces such as the standardization activities that have been mentioned, they are less today than formerly, but they still represent one of the undesirable features of building regulation. They bear with particular weight on those manufacturers who are working on the problem of prefabricated housing units, since the advantages of mass production in a central plant are reduced or destroyed if changes have to be made to meet numerous special requirements.

Students of the subject have proposed an arrangement for building-code requirements that follows this sequence:

(1) Basic requirements are developed nationally, in the manner already described.

(2) State laws are passed setting up State boards empowered to draw up detailed regulations good for use throughout the State and enabling municipalities to supplement these with local requirements.

(3) The State boards, utilizing the basic requirements and taking cognizance of any special conditions that apply within the State, draw up requirements to the extent that is possible, excluding purely local variations.

(4) To these State requirements are added any necessary special features not in conflict with the State requirements, and local officials enforce the combined requirements. Outside of incorporated areas the State requirements also apply.

(5) When new materials or methods of construction are proposed for use, they are subjected to appropriate tests by the State board and, if approved, may be used throughout the State under the conditions laid down in the terms of approval.

(6) Basic changes to meet changed conditions, new discoveries, and other developments are made in the State regulations, which automatically produces a corresponding change in all local codes.

Such a procedure would stand a good chance of being hailed as logical if it applied to a situation where nothing had been done on the subject before. But it enters a situation where there are already some fifteen hundred local codes in existence which have grown up in response to accumulating needs. The presence of these codes naturally has resulted in traditions and attitudes about building regulations. With few exceptions, these traditions and attitudes are based on municipal rather than State action.

The power through which the municipality acts, however, is that of the State as conferred in enabling acts or city charters. (There are some modifications in the case of home rule cities.) There are cases where the State has chosen to exercise this power directly with

respect to certain kinds of occupancies. Wisconsin, for instance, has an extensive code concerning public buildings, the term public being construed to cover buildings housing thre or more families. Ohio also has a State code whose provisions also extend to buildings housing three or more families. These cases illustrate, however, the fact that the adoption of a State code is not the simple solution of the problem that might appear to be the case. In both States, there are numerous municipal codes having elaborate and not necessarily harmonious requirements. These supplement the State code. A general principle in such instances is that the local code may not weaken the terms of the State code but may be more restrictive and may go into greater detail.

Where, then, does this leave the proposal to simplify existing procedure? It merely emphasizes the fact that the State requirements should be fundamental in nature—such things as working stresses for materials, fire protection, exits, and so on—while the local requirements supplement these with provisions for departmental organization, location of fire districts, and other matters of local concern. It leaves unchanged the principle that new materials should not have to run the gauntlet of approval in each individual city and town but should be dealt with on a State-wide basis.

Two aspects of building regulations have emerged from this discussion. One is the production of adequate technical requirements. The other is creation of a rational legal system for putting these requirements into effect. Neither one can do without the other. A theoretically perfect legal system, lacking engineering features would be a meaningless empty shell, and a collection of sound engineering requirements would be completely ineffective without the proper legal machinery to put them into action. Combined, these two phases of the problem represent constructive achievement.

Even then, the chain of circumstances that leads to adequate safety is not completed. There must be proper enforcement.

Enforcement

Proper enforcement involves several considerations. There must be a sufficient force of trained personnel to check plans, make inspections, and detect violations of code requirements. This means that the community involved must be willing to pay the price of safety by appropriating a sufficient amount to assure adequate enforcement. The personnel involved should also be protected by civil service, to the end that impartial administration may be the rule, with no necessity of yielding to pressure for special concessions in order to keep one's job. Men who are conscientiously trying to protect the public and whose disagreeable duty it is sometimes to say "No" when safety is imperiled should not be harassed by insecurity of office and should be removable only for cause. The fate of the structure of building regulations rests on the character of the officials whose duty it is to administer them.

Something should be said of the limitations of building codes lest an impression be left that a good code properly enforced will assure satisfactory housing. Buildings may be sturdily built in strict conformity to code requirements and yet leave much to be desired. They may be poorly planned, unattractive in appearance, and provided with cheap finish and trim. Such characteristics may doom them to early obsolescence and encourage the deterioration of the neighborhood into a slum. The police power can do much to prevent undesirable construction but it is not a substitute for intelligence on the part of designers and integrity on the part of builders. There is a field beyond it in which good building practices must be fostered through public education and through the standards imposed by lending agencies as a condition for making loans. These supplementary measures are a highly important part of any well planned program.

In conclusion, it may be said that the direction to be taken with respect to building codes as they bear on housing is reasonably clear: Promote a better understanding of the nature of these regulations; support the work that is going on to produce improved technical requirements; work for a more unified legal structure which will prevent undesirable overlaps and inconsistencies; and lastly give encouragement to a finer administrative system which can enforce requirements without fear or favor in the public interest.

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