

MULTI-FAMILY URBAN HOUSING

by

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TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
HISTORICAL BACKGROUND	3
HOUSING STANDARDS	18
THE ROW HOUSE	30
CONCLUSION	76
ACKNOWLEDGMENT	78
BIBLIOGRAPHY	79

PLATES

	<u>Page</u>
I Evolution of New York Tenement Plans	10
II The Typical Spread of Modern American Cities ...	15
III Proper Orientation	35
IV Row House by George Herbert Gray	39
V New York City Housing Authority Unit Plan	42
VI Row-Type Apartment by Joseph Amisano	44
VII Two-Family House by Rudolf Mock	47
VIII First Floor Plan of Row House by Neil Smull	51
IX Second Floor Plan of Row House	54
X Basement Plan of Row House	57
XI Section Study of Row House	61
XII Preliminary Study-Front Elevation of Row House .	63
XIII Preliminary Study-Front Elevation of Row House .	65
XIV Preliminary Study-Rear Elevation of Row House ..	67
XV Proposed Front Elevation for Row House	69
XVI Proposed Rear Elevation for Row House	72
XVII Perspective View of Row House	74

INTRODUCTION

America today is in the midst of a national housing movement. The urban housing problem is no longer a purely academic subject, but has taken its place among the foremost issues of the day. It cannot be put aside. Housing is a very broad subject and no single article can hope to cover its many aspects. Without question, however, it may be assumed that our nation has finally accepted the belief, which certain groups of individuals have held, that the United States should take steps to improve its housing conditions.

The American public, or at least a part of it, has for some time been aware of the housing situation which makes it necessary for numbers of families to live in unsanitary and unwholesome houses--a situation which exists in rural areas, in villages, small cities and great metropolitan areas; it has become aware of the manner in which unsanitary and inadequate housing bears upon the entire social and economic structure. It is also becoming conscious of the fact that to improve housing in any adequate and permanent manner means consideration of problems which are fundamental both to the local government and to the federal government.

The house, the home, is the immediate environment into which citizens are born, in which their early life is molded, in which they spend the mature years of their responsible citizenship, in which they should find happiness, rest and inspiration. The

proportion of the people which rises above its environment is small.

The home environment, however, neither begins nor ends at the doorstep. It extends into the neighborhood. The goal of good housing means a wholesome way of living, and that involves the whole neighborhood.

Where this building should take place and what type the new dwellings should be, are difficult and important matters which are bound up with many other considerations. The success and value of any housing scheme must be looked upon with respect to what should be done about many other aspects of the improvement of our cities; such as the forms and location of future industrial activity, the spread of employment, and suitable disposition of increased leisure time. Whether or not the latter is to take the form of shorter working days, or shorter working weeks, or finally a shorter working period in the life of each worker, will affect the kinds of cities and communities of the future and will determine not only their relationship, but also the kinds of dwellings which will most properly serve the new needs.

The desirability of home ownership, either by the individual or through co-operative groups, and the effect of such ownership on responsible citizenship are generally recognized. The purpose of this thesis is to offer the reader a study of the urban housing problem and to present a solution which most nearly satisfies the problems of various types of urban housing which, at the same time, gives to the occupants of the dwelling, as nearly as possible, an individual home unit. This purpose has been attempted

while trying to keep the cost of the construction low enough to permit the structures to be classified with low-cost urban housing. This thesis is not intended to solve the low-rent housing problem. Rather it consists of a study to be used as a yardstick with which to measure that which has been done in relation to the activity lying ahead.

The first material comes from George H. Gray's book (2) "Housing and Citizenship" which has been used extensively in research of the historical background for the field of urban housing. It, too, is one of the most recently published authoritative manuscripts on the subject aside from the material appearing in recent architectural publications.

Illustrative plates with descriptive text have been used in presenting the material for this thesis.

In every case care has been taken to credit architects and authors for plans and statements used.

HISTORICAL BACKGROUND

Before 1933 the word "housing" meant little to the people of the United States. The term "housing" in its accepted connotation contains the qualification of "low-cost" housing. A few sincere philanthropists, builders, social workers, and technicians had worked for years to improve housing conditions in this country, but outside of a few urban centers, their work was either unknown or dismissed as visionary and socialistic. They can point to regulatory ordinances and to a handful of pioneering housing projects as evidence of accomplishment in the face of

public opposition (1).

In the first years the colonists of necessity lived for the most part in the simplest of make-shift shelters and paid a heavy toll to rigorous winters in the north and to malaria in the south. When their permanent homes were built, they generally had an abundance of open space and abundance of material to build the kind of houses best suited to their ways of living. When the older New England coastal towns became too congested, the pioneers started new towns in the inland areas, thus preserving the open outdoor way of living centering around the green of these older colonies. In these northern colonies, until the early decades of the eighteen hundreds, the unlimited land lasted and with it new opportunities for the rising generation. During this same period, at the falls of streams in hill country, water power was harnessed to turn machines in small mills and factories.

It was nearly a century and a half ago in the northern colonies that these small factories began to give way to the steam-powered factories along the larger and navigable streams. Weaving, furniture making and other indoor occupations were transferred from farm to factory, from hilltop to valley. The farm ceased to be a self-supporting unit. The rural life centering around the village was thrown off its balance. Many of the young folks on these farms were attracted to the cities by the higher factory wages. The prosperity of the rural areas diminished for lack of hands to work them and sooner or later many farms were impoverished--the first seeds of rural slum conditions. These two factors, industrialization and the first railroads, started

the first urban slum areas in most of our cities of those times (2).

Next came the extension of the railroads to the west and the opening of the great new agricultural regions, and with it a further depletion of the population of the less productive rural areas of the northern states--for them more impoverishment and run-down rural housing. Another effect of the western roads was to further stimulate the commerce of the cities and so to further congest their population.

Before the Civil War, the slaves on the southern plantations were the planters' most valuable asset and were supplied with cabins, with a low score for room overcrowding and a high score for spacious site planning. But the war left the majority of planters with overgrown fields, their depleted equipment rusty, and with no financial resources to buy new equipment or to hire labor to reclaim the fields. The best the planter could do was to let the former slaves continue to live with their families on the plantations, to allow each a plot of land for his own subsistence crops, to supply equipment and fertilizer as far as he could, and in return for the negro's labor on the plantation, to share with him the crops--share and share alike. There was no capital and no time to build new shelter and little of either with which to repair the old. So over a vast and fertile area of the country the old slave quarters went from bad to worse and spread the let down ways of living that always attend bad housing.

The Civil War stimulated the expansion of northern indus-

tries so that they were well equipped to take advantage of the trade arising from the rapidly developing territory of the great West, even to the Pacific coast. The new territory supplied more raw materials.

With the native labor all employed and no new supply available at home, it was toward Europe that the industrialists began to look for workers. Living was cheap in Europe, wages were low; and American industry sought to import its labor from those countries where wages were lowest and incidentally living conditions most meagre--first, after the Revolution, from Ireland and various other parts of Great Britain; later, particularly after the Civil War, from various parts of continental Europe. If America was to compete with Europe for world markets, she would have to keep her labor costs down, in line with European costs, otherwise they might offset the advantage of abundant raw materials. It was in 1840 that regular steamship service began, cutting the time from England from several weeks to 10 days. In the following decade immigration jumped from 68,000 to 228,000.

When the immigrants got to our shores they were commonly expected to be content with housing which was doubtless assumed to be no worse than that to which they were accustomed in the old countries. The greatest volume of immigrants were landed in New York, where comparative figures prepared in 1894 showed that the congestion was greater than in any large European city.

Other cities along the Atlantic seaboard bred their slums, not so large now and so densely populated as in New York, but equally run-down and unsanitary. Even the small cities had their

shack slums in the outskirts--on the dumps and about the railroad yards. The new cities of the middle west were growing fast. New houses were built for those who could afford them, and those they abandoned were remodelled with more and smaller rooms for those who could afford nothing better.

Cities vied with one another for big populations, but the housing was left to take care of itself. The accepted theory was that the supply would meet the demand, and after a fashion it did--but in a manner reflecting no credit on the run of the slum dwellers' employers, no credit on the municipalities, or on a great and prosperous democracy (2). This condition existed not only in America but in Europe as well (1).

Such was the general picture up to 1900. After 1900 cities generally began to be conscious of their slums, as a movement for better housing spread from New York over the nation. For the close-ups of the general picture, New York City shall be taken as an example, starting as a trading post of the Hudson's Bay Company and becoming the great trading center of the nation, from the start fast growing and congested.

Bad housing appeared early in the life of New York, developed in its worse forms and early became the most extensive in this country. In most essential respects, despite the disparity in size, its history is typical of other cities and for that reason it may profitably be reviewed. But also it may be reviewed for the reason that, since slums there became acute earlier than in other cities, it was there that remedial legislation was first sought, and from there that such legislation spread throughout

the states. New York City and State are still well in the lead in research, in legislation and in achievement.

As was stated before, the establishment of regular transatlantic steamboat service from England to New York in 1840, cut the time of transit to 10 days; it boosted immigration from 68,000 to 228,000 between 1839 and 1848. Tenement houses were still being converted from old private houses, occupying the entire width of the lot so that the only windows were in the front and rear walls--converted into tenement houses with two to four apartments to the floor. To accomplish this, the extra bedrooms were located back in the interior and had their only light and ventilation through the front and rear rooms. From the original houses two rooms deep they were sub-divided or extended first to four, then to 6 and 8 rooms deep--respectively 8, 12, and 16 rooms on each floor, only 4 of which had any outside light or ventilation. These became known as the "railroad tenements" (2), Plate I.

What is shown the visitor in our cities is the tall apartment hotel mirrored in the lake in the park; what the social worker struggles with is the dark, foul hallway in the slums; but the main problem of those who are interested in the nation's housing lies in neither of these. Slum clearance is most urgently needed. Our slums are among the world's worst, and the indictment against them cannot be softened by mere familiarity or by the passing of time. Cool observation, coming to the aid of sentiment, discovers the hub of the problem elsewhere.

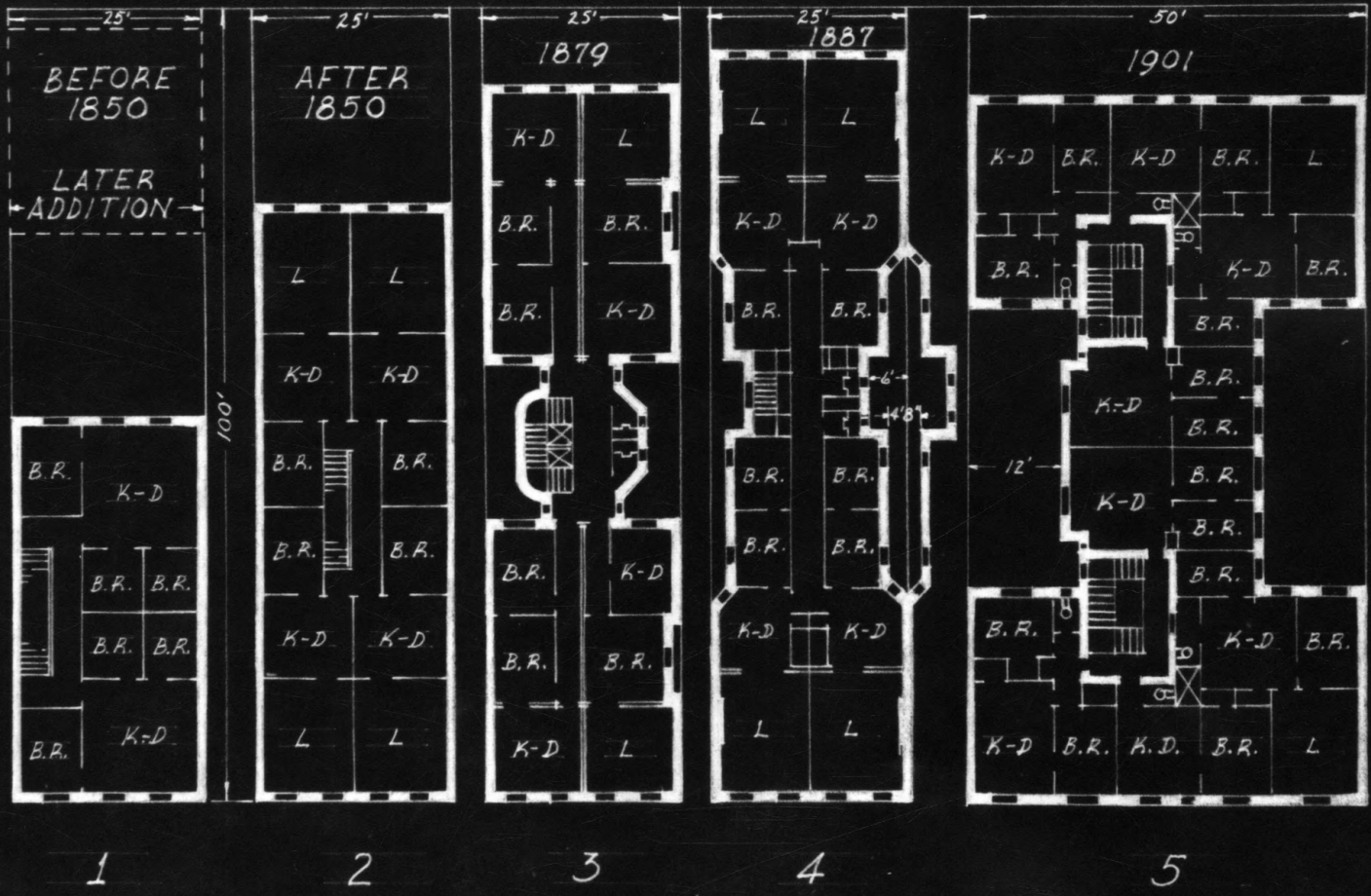
Our present efforts at slum clearance resemble the attempt

EXPLANATION OF PLATE I

Evolution of New York Tenement Plans (2)

- Fig. 1. Before 1850, a common way of transforming an old residence, leaving 4 of 8 rooms dark.
- Fig. 2. After 1850, the "Railroad" tenement, 8 of 12 rooms dark.
- Fig. 3. After 1879, the "Dumbbell" tenement, 4 of 14 rooms dark.
- Fig. 4. After 1887, all rooms with nominal outside light, but 6 with windows only 4'-8" from windows across the court.
- Fig. 5. One of better type built under the "New Law" of 1901, which encouraged wider lots.

PLATE I



to bail out a river that is constantly swelling through neglect and erosion along a hundred tributaries. It is the whole network of our housing product which must be examined. It shall be found that large quantities--almost the largest--of our regular "middle-class" output are flowing inevitably toward the muddy marshes. Our undertaking must be to survey them and try to redirect certain major streams in the flow of real estate and building enterprises. Otherwise the social agencies dealing with the ultimate slum will continue to find themselves swamped.

In the terms more usually employed, the slum represents an advanced case of "blight". The committee which dealt with the related subjects for President Hoover's Conference on Home Building and Home Ownership made the distinction that the slum is mainly a social problem, while blight is still mainly a problem in economics. In the field of public health the idea of preventive medicine has been developed, which is not content to deal with a disease in its early stages but is concerned that not even these first stages shall arise. A science is now required, the slum is recognized as a derelict. Its incipient stage is blight, and blight may on occasion be detected by the keen eye of the housing doctor in those very regions where, to the average citizen and even to the incautious real estate operator or investment company, everything still looks prosperous and rosy. The future slum may on occasion be located on the precise spot where today visitors are being shown tall apartment houses mirrored in lakes in the park. Any book which takes up the question of "how housing shall be done" must find out the reason why. Not even the

wealthiest of our people are absolutely protected against discovering themselves in a blighted neighborhood. It must be discovered how the blight, already here, can be cured before it goes into the slum stage; it must also be discovered how blight may be prevented at the outset.

The first cause of blight lies in population shifts and the changing needs of industry. Considering the unplanned manner in which American cities have grown, the greatest cause for surprise is that any district in them can manage to retain its identity for any length of time. The most chronic forms of blight, however, are the result of misconceptions, all the deeper in that they are unconscious. The most prevalent of these is concerned with the inherent deficiencies of residential areas in the interiors of our cities which have been "left behind" as these cities have expanded at the periphery and developed new suburbs. It has heretofore been argued that such interior areas, although temporarily sick, would soon be rescued by the expansion of industry, which would absorb them into a new industrial or commercial use. But of late industry has expanded vertically instead of horizontally; it has been sucked up from its many lofts into few skyscrapers, so that instead of covering more ground it has come actually to cover less; meanwhile it has been producing more goods, faster, with better and fewer machines, occupying less space per unit produced, even within the taller, narrower building. So it must be spoken today of "technological unemployment" not only of workers but of the land; more and more land has been "thrown out of work". Hence those large ailing

residential areas surrounding the central core, which have been "waiting for the city to catch up to them", not only have been left to their stagnancy but have commenced to expand inwards towards the center, like mud flats surrounding a receding lake. Temporary zoning cannot solve the problem, any more than a doctor could be content to zone his patients into especially segregated groups so they might be a little less conspicuous while their condition steadily grows worse.

The second prolific cause of blight lies in the wholesale erection of buildings of a grossly inefficient type.

Blighted areas have continued to spread in our cities because many of these districts were built in a wholesale and slipshod fashion that made them blighted from the beginning. The blighted areas have also spread because no new public interest, leading to new building investment, has been recently devoted to these older districts. They represent fully exploited opportunities; they have been milked dry and abandoned by the real estate procession. In addition to this, no one has been concerned with the idea of evolving new methods for completing or rebuilding these districts in terms of a more modern technology.

Therefore it is found that our blighted areas are now spreading not so much because new competing communities are really better or more attractive, as because the older areas are completely neglected.

The diagrams of Plate II show the process by which slum areas have become fixed by the outward spread of cities, finally augmented by the inward shrinkage of commercial districts. It

EXPLANATION OF PLATE II

The Typical Spread of Modern American Cities (3)

- a. Commerce and light industry.
- b. Active residential area.
- c. Extension of commerce and light industry.
- d. Inactive residential area and blight.
- e. Actual slum areas.
- f. Inactive commerce and light industry.
- g. Vertical expansion in high buildings.

Fig. 1. The primitive city.

Fig. 2. Concentric expansion.

Fig. 3. Arrested growth at the center because of vertical expansion.

Fig. 4. Shrinkage of central areas, augmented the lessened space needs of machinery.

PLATE II

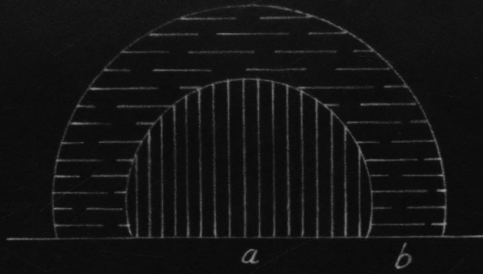


Fig. 1

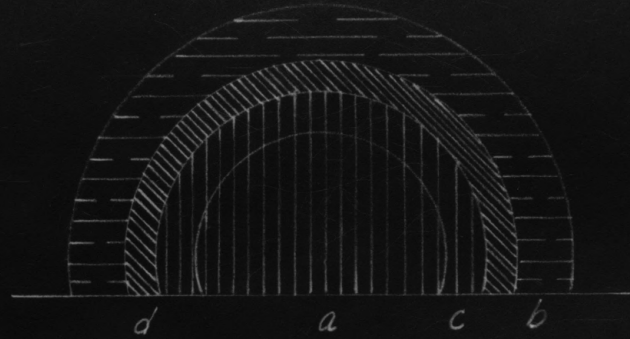


Fig. 2

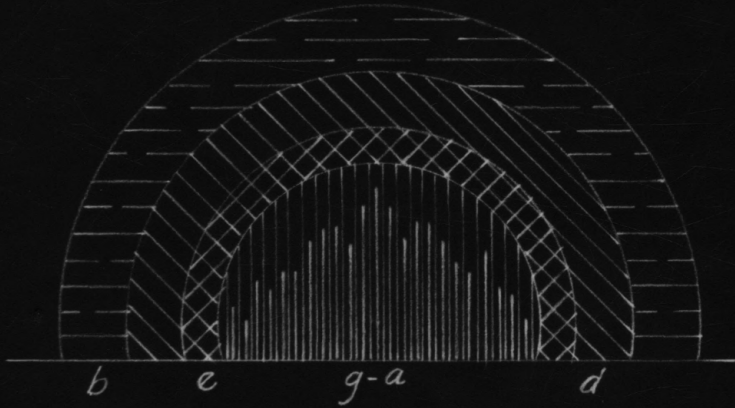


Fig. 3

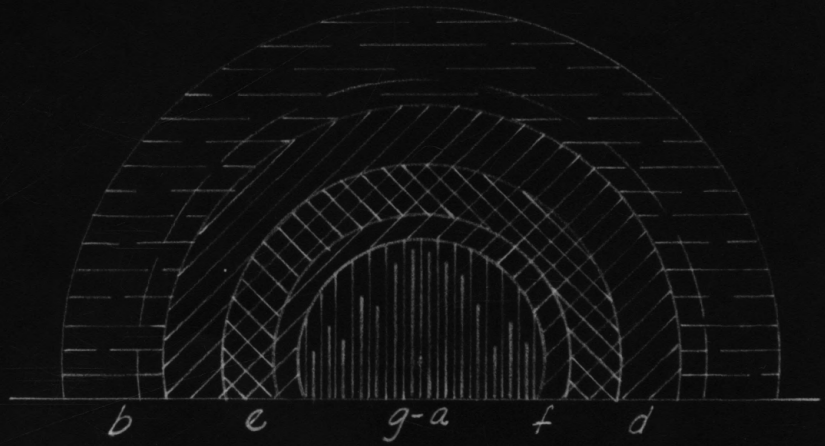


Fig. 4

seems to follow that these slums are either to remain or to be replaced only by housing. If they are to be replaced, their land values must eventually be deflated to a figure at which housing on a large scale can be built to take their place; and housing on a large scale can be successfully built only for rents that a large number of families can pay (3).

While these diagrams cannot convey the whole situation, they are indicative of the broad factors involved in city rehabilitation.

So far in this study the two main aspects of the housing problem have been briefly covered. On the one hand are inferior dwellings which should be replaced by new ones. On the other hand are the blighted areas which could be used for housing, if the property values were within reason for housing projects on a large scale.

The field of action in urban development (4) is broader now than it has ever been before, for the number and size of urban concentrations has greatly increased. Villages have become towns; towns have become large cities; and in countless cases neighboring townships have been swallowed by the expanding force of the nucleus city, in which process these expanded areas have become a solidly packed heterogeneous mass.

Indeed, it is most important to understand more than has been so far understood, that past methods of town-building are not valid any more, and that present and future methods must be based entirely on new premises. And these new premises can and must be found only in and through the existing difficulties.

Since the destruction (5) or rehabilitation of properties is so essential to any increase in the standards of urban housing, it is important that some method be devised to overcome the obstacles presented. Three possibilities present themselves. It may be well possible to sponsor cooperative movements to change whole neighborhoods so that blighted areas might be converted into modern residential areas at a profit to their owners. This suggestion is full of practical difficulties and involves complications equal to that of a complex corporate reorganization. It is worth trying, however, for what it is worth. A second possibility lies in changing laws to bring about the eventual abandonment of substandard dwellings in blighted areas thus forcing their demolition. Such a procedure appeals from the standpoint of practical convenience but any extensive destruction of property value by such a method would meet with political as well as legal difficulties. About all that can be said is that every city should endeavor to raise its housing standards as far as possible by this method. The third possibility lies in the control of mortgage funds. Without mortgage financing, slum areas could no longer continue.

If the situation were reviewed with respect to house or dwelling types available for large areas in our cities, it would be found that these areas are already occupied mainly by the family of structures known as "flats"--small or medium size multi-family dwellings providing for households ranging in number from two to six. Bad as they have been in plan, they have survived in competition with their popular rivals, the single-family

house and the apartment.

There must be something to account for the survival. It might be that the success of future housing projects lies in something on the order of the humble flat, or at least equal to it in meeting average needs under city conditions. This work is devoted to the finding of a solution for such a form, through the application of modernized technique in planning. The result is the evolution of a type of dwelling, which is in close relation to the flat and has the qualities of the row house and the duplex apartment.

HOUSING STANDARDS

Before consideration is given to any specific type of housing unit, certain standards must be reviewed regardless of the type of structure.

Andrews (6), the specialist in household economics, describes four levels of standards, including the minimum standard, the comfort standard, the moderate standard, the liberal or well-to-do standard.

According to Davies (7), the minimum standard, which would apply to a type of house usually occupied by a laborer's family with an income of \$1,200 to \$1,500, would require the following: five rooms, including three bedrooms if there were both boys and girls in the family; a living room; a bathroom and toilet; a kitchen equipped with stove and water heater, sink, two laundry tubs, and storage closets. The kitchen, living room, and large bedroom should be at least 10 feet by 12 feet, and small bedrooms

at least 9 feet by 10 feet; adequate stoves or other means to heat the entire house; and at least as many rooms as persons in the family, annual rent not to exceed one-sixth of family income, or value of the house not to exceed two and one-half times family income (1938); structure and equipment not to create safety hazards; adequate sunlight and ventilation; a wholesome environment, physically and socially; adequate space and facilities for recreation for children and adults.

These appear to be the minimum specifications for a house which will promote the realization of life values for any family.

The plan and arrangement of a house and its equipment should be based upon the fundamental biological and social needs of the family. The chief consideration should be the physical and mental health of the family. The plan and arrangement should exemplify beauty, convenience, simplicity, honesty, fitness, harmony, and restfulness; should harmonize with, and use, the advances in arts and sciences which make for the enrichment of life and for efficiency and economy in construction; should allow flexibility in use when alteration or extension is necessary to meet changes in family needs (particularly in small, one-family houses); and preferably should harmonize with the neighborhood plan and development.

Materials and structure of a house should be of such a nature, and assembled in such a way that they resist wear and depreciation, and provide sanitary, healthful, and safe conditions. This requires a simple rather than a complex type of structure, with no ugliness, excessive ornamentation, or unpleasant color

combinations; foundations which will not allow unequal settlement of walls; strong, smooth, tight, level and durable floors, and harmony with the rest of the room in color, design, and finish; relatively sound-proof walls, with plastering well done, and with paint and wall coverings of good quality, as well as cheerful, restful, attractive, and not overstimulating color and texture; weather-tight roof, gutters, and wall openings; screened windows and doors, and vermin-proof doors, windows, drawers, closets, cupboards, and storage places; properly installed electric wiring, plumbing, lighting and heating fixtures; easy access from room to room, particularly from kitchen to dining room; rooms on the same story located on an even floor level to avoid stairways. According to Vieller (8), stairs should have a rise of not more than 8 inches, and a tread of not less than 10 inches; PWA (9) standards are seven and three-quarters inches and nine and one-half inches, respectively.

A house (7) should be large enough, and have a sufficient number of rooms to provide at least three rooms and a bath for each family, with a ratio of persons to rooms of not more than one and one-half to one; at least one room, not used for sleeping, for the common life of the family; adequate, convenient, and well-equipped closet space for each member of the family, and special closet space for general household goods, such as linens and utensils; and adequate and suitable space for principal pieces of furniture so that these will not be in the way of doors, windows, fireplaces, radiators, or other furnishings or equipment.

Living and sleeping rooms should have a minimum floor area of 90 square feet, with no width less than 7 feet, according to Vieller (8); Andrews (6) gives 10 feet by 12 feet for living rooms and 9 feet by 10 feet as the minimum for bedrooms; PWA (9) planning standards for low-cost housing specify 100 square feet and a minimum width of 9 feet 3 inches for bedrooms, and 150 square feet with a minimum width of 10 feet 6 inches for living rooms.

No ceiling should be lower than 8 feet, according to Andrews (6) and Vieller (8). Vieller states that an attic room may be 8 feet high in only half its area, but may not be less than 6 feet at any point. To qualify for an insured mortgage loan under the Federal Housing Administration, rooms must be at least 7 feet in height over their full required areas (10).

The kitchen should be large enough to work in comfortably, and roomy enough that children will not be bumped, burned or trampled. There should be sufficient room for girls to be taught to do housework (7). PWA standard is 65 square feet (9). This small area is adequate because of the fact that modern kitchen equipment provides a good work center in a much smaller space than formerly; present-day housewives prize the step-saving values of a small kitchen.

A house (7) should provide privacy for the family as a group, and for individual members of the family. This requires isolation from other dwelling units with no windows directly facing windows of other dwellings; privacy from the standpoint of quietness as well as of space; separate places for children's

play, study, and rest; pleasant quarters for old people in the family; sleeping quarters separated from living quarters and arranged so that any bedroom can be reached without passing through another bedroom; an adequate number of sleeping rooms with separate beds for each child, and separate rooms for adolescent children of different sexes; a place for private possessions of each member of the family; separate room and toilet accommodation for lodgers are preferable; and easy access from room to room, but a possibility of closing each room off from the others when desired.

In multi-family houses, there should be a separate housing unit for each natural family, with its own toilet accommodations, and a separate entrance to each apartment without passing through quarters of other families.

A house should have adequate natural ventilation and cross ventilation in each room, hall, and stairway, with free movement of air throughout the house, and abundant natural light through windows and doors with window glass of a kind that will transmit not less than an average of 25 per cent of the ultra-violet rays of sunlight.

Vieller (8) specifies a minimum ratio of glass area to floor area of 1 to 7. Other requirements (7) for room window space are a minimum window space of 15 square feet for each room, and more in smoky regions or where walls are unusually thick; at least one window in each room opening directly on a permanent open space, preferably a street or yard or garden, and large enough to admit adequate light and direct sunshine at some time of day throughout

the year; not less than six square feet of window space for each bathroom or toilet; and windows arranged so that light penetrates at least half the depth of the room. At least 45 per cent of the glass area of a room should be capable of being opened for ventilation, according to the Federal Housing Administration standards (10).

Other requirements (7) related to natural lighting include: no living or sleeping rooms in cellar or basement; covered porches placed so as not to reduce natural lighting of rooms, and no room receiving its sole natural light from windows opening upon covered or glassed-in porches; and walls of courts painted a light color, and not closer together than a distance equal to the height of the higher wall.

Each house should possess good artificial lighting to provide adequate light for all parts of the house; well shaded reading lights to prevent eyestrain, located to permit all members of the family to read in a quiet place and to permit any kind of household activity to be carried on in comfort and with convenience; and adequate light in stairways and halls.

A house should have sufficient and sanitary plumbing which is noiseless, easily flushed and cleaned, properly vented, adequately protected, and connected with a sewer or drainage system. Each family should have a separate bathroom, toilet, and sink.

Bathroom and toilet facilities should be located indoors in well-lighted compartments, ventilated to the outer air, and never in a cellar unless facilities are also provided on other floors. These should be easily accessible from the nursery, and from each

bedroom without passing through other bedrooms, and should have no direct communication with kitchen or dining room. It is desirable that each floor of a two-story house have a lavatory and toilet.

A house should have heating appliances of such types and sizes that will heat all parts of the house adequately and keep it at an even temperature between 60 and 70 degrees Fahrenheit; proper insulation against heat, cold, and moisture; and provision for humidification.

In cold climates there should be no direct entrance to the living room or kitchen from the outside.

Safety provisions should include a second stairway or fire escape accessible to the living quarters of each family in a two-story dwelling; periodical check-ups on structural defects and delapidation; fire-resistant or fireproof building materials, particularly for dwellings of more than one story, and for elevator and dumbwaiter doors and shafts; approval of gas appliances by standard accrediting agencies, and installation only by experts; use of stoves, including oil and gas stoves, only with flues or chimneys with continuous outlets to the outside air; garage, when built-in, adequately separated and ventilated and sealed so that injurious gases may not enter other parts of the house; protection against all fire hazards; no open-flame gas jets near inflammable materials; no defective chimneys, stove pipes, or gas fixtures or pipes; no unprotected walls or ceilings near stove pipes; no inflammable litter; radiators screened to protect children; protection provided against electric shock;

all moving mechanical devices shielded; and knobs on inside of all closet doors so that they can be opened by children.

Each house should have an adequate running water supply piped into the house, with adequate volume and pressure, clean and free from pollution; there should be adequate provision for hot water with convenient and adequate water outlets for kitchen, cellar, bathroom, and for watering garden and lawn.

A house should have adequate provision for temporary disposal of household wastes to insure cleanliness, sanitation, safety, and avoidance of attracting animals, insects, and vermin.

A house should not exceed in annual cost of maintenance 20 per cent of the family income; the purchase price, including the land, should not exceed two and one-half times the assured annual income.

From the Architectural Forum survey (11) of 1946, it was found that most new houses being built during that year would sell for below \$7,500. The average under-\$10,000 house will contain five and two-tenths rooms and bath, provide 930 square feet of floor area. Houses produced today will sell for 43 per cent more than comparable 1941 houses. No one anticipates that building costs will ever return to prewar levels. Averaging the opinions of all the builders participating in the survey, today's house costs 43 per cent more than a 1941 house of comparable size and construction. If the house building industry can be taken at its word, the survey indicates that the veteran will not have to wait long for his house once the cork is pulled from the material bottleneck. Builders are ready to produce houses at top speed

and in quantities never before attempted. They have the land, the financing and the know-how; they are gradually corralling the labor. They lack only materials. When and however the materials are made available--a decision which rests mostly with government and the producers--private enterprise will put them to good use.

Although it is not nearly enough to go around (12), the nation's supply of housing is in better shape than had been generally supposed. More houses in the United States now have bathtubs, electric lights, and radios than ever before. As compared with 18 per cent considered in need of major repairs in 1940, only 11 per cent of all housing units are now classed as needing major repairs.

Recommended standards for the surroundings of a house are:

Distance from adjacent building at least as great as the height of the highest wall of either building (13). Vieller (8) specifies a lower standard: space between adjacent buildings of one story, 6 feet; two stories, 8 feet; three stories, 10 feet; four stories, 12 feet; or 2 feet additional for each additional story.

Least dimension of a court no less than the height of highest wall (13). Vieller's standard specifies a court width of at least one-third the height of the highest wall, with a length of at least twice its width (8). These dimensions are of great importance when dealing with population density.

Population density (14) is a social problem; housing, a building problem. Yet the two problems are closely related, for population density determines the kind of housing which may ad-

vantageously be constructed. The higher the density, the smaller the freedom a builder enjoys; and conversely, the lower the density, the greater the scope of the construction possibilities he may consider.

The main consideration in building, up to our time, has been the exploitation of the land, with little regard for the social and hygienic needs of the people who must live in the buildings constructed. Consequently, the one-family house, generally recognized as the ideal form of dwelling for families, has been rejected in favor of constructions which seem to promise greater return on land investment. Feeble attempts to cope with the evils of too great population density have been made through zoning laws, but these laws have been altogether insufficient. They have not prevented, and could not prevent, the increase of population densities in all our large cities to such an extent that social and hygienic requirements are completely forgotten.

All cities have wide variations in population densities. In their overpopulated sections, the density is often so high that it causes social, moral, and physical diseases. The alleviation of such conditions is one of the greatest problems of our time. In the sparsely settled sections of these same cities, population density decreases sharply. Houses are built much farther apart in such areas. The city loses its urban character and gradually assumes the aspect of the open country.

Population density may be defined as the number of inhabitants per acre of land. Since it is reckoned on the number of people living in a given area which includes open land as well as

the buildings on that land, it is obvious that the length and depth of the house built, the distances between houses, will determine the size of the lot. If buildings are to be arranged according to good insolation principles, the distance between the houses must be determined by the shadows cast by these houses. The length of such shadows will be governed not only by the height of the shadow-casting structure, but also by the latitude in which building is done, the time of the year and the day, and the altitude and azimuth angles of the sun.

Latitude cannot be changed; the natural contours of the terrain cannot be changed; but buildings can be faced south or east or some other direction. Decision at this point will help determine the population density allowable in the settlements planned. Consideration must also be given to the insolation period attainable, remembering that the increase of density can be achieved only by decreasing the insolation period or increasing the number of stories in the structures. Obviously the number of stories which may be added is limited by construction considerations.

A front yard may be of any depth (7); while a rear yard should be across the entire width of the lot, at every point unobstructed from ground to sky, to increase proportionately in depth with increased height of dwelling as follows: for three-story dwellings, rear yard 20 per cent or more of the total lot depth; four stories, 25 per cent; five stories, 30 per cent; five per cent increase for each additional story; if less than three stories, depth may be decreased five per cent for each story.

The height of a dwelling must be no greater than the width of the widest street upon which it abuts, as measured from front lot line to front lot line. Vieller (8) states that a dwelling should never be more than 80 feet high.

Not more than 90 per cent coverage on corner lots with streets on three sides, nor 85 per cent on other corner lots; 65 per cent on interior lots from 60 to 105 feet deep; 55 per cent on interior lots 105 to 155 feet deep; 50 per cent on interior lots 105 to 205 feet deep; 40 per cent on interior lots longer than 205 feet (8). Andrews (6) describes the optimum dwelling as a detached house with sufficient open space for a lawn and garden, surrounded by a lot of at least 5,000 square feet.

A house and its surroundings (7) should be located on high, dry land, well drained, well adapted to sewage disposal, and isolated from unpleasant or unhealthful conditions.

A house and lot should have; a landscape arranged according to plan, regardless of size of lot; land graded and drained away from the house to carry off surface water; such trees and shrubs as are necessary to provide shade, privacy, beauty, and freedom from dust; retaining walls around the lawn where needed; and preferably a plan which harmonizes with the character of the neighborhood.

A residence lot should be free from uncovered wells, cisterns, cesspools, privy vaults, manure piles, garbage, rubbish, or other unsanitary conditions; have a service area of minimum size necessary to provide for service of supplies; have outdoor recreational space provide for beauty and for the social and

recreational needs of the family, a yard slope not great enough to prevent children's games; and preferably have no immediately adjacent heavy traffic streets.

THE ROW HOUSE

As has been said before, some type of housing unit must be found which resembles the flat. This type has been developed to a certain extent with the recognition of certain well-defined types of houses; row houses, attached houses, detached houses, and apartment houses. Any one of these (14) can be satisfactory if it is built with regard for its purpose. Any of them can be unsatisfactory if purpose is neglected.

The one-family house is generally regarded as the type which best fulfills the social, psychological, and hygienic requirements of life. It will always be the ideal type of dwelling for families because it connects the house with a garden, a playground for children, and provides the privacy necessary for relaxation and recreation. The row-house may achieve a considerable amount of privacy also if it is planned carefully and adequately. However, it can never be quite as satisfactory as the free standing house.

The apartment house is in disfavor today and the opposition to it is not unjustified. Most such houses today represent only the negative aspects of this type of dwelling. The apartment house could, however, offer many advantages. It could be the ideal home for single persons and childless couples because it offers certain communal facilities impossible in other kinds of

dwellings. The apartment house can be built with proper regard to its purpose. It can be free-standing so that those who live in it may enjoy the benefits of sunlight and fresh air. Though the apartment dweller has no garden, he can have a view over gardens. In a mixed type of settlement, where one-family houses are placed in the vicinity of apartment buildings, leaving open spaces between, such garden outlooks are easy to arrange.

For a family of six the house should contain at least three bedrooms, one master bedroom and two others for the children so that there are separate sleeping quarters for boys and girls. It should have a living room with a dining recess, a kitchen, and a bathroom. Each room should have a separate entrance from a hall, so that it will not be necessary to walk through one room to get to another. A definite place must be provided for the activities which go on within the house, and the size of the rooms must be governed by the purpose they are intended to serve. Even if the house is rather small, the living room should be larger than actual necessity dictates. A feeling of spaciousness is important. Size, fortunately, does not wholly depend upon area; it is also a matter of proportion. If spaciousness is desired in a comparatively small room, thought must be given to size, shape, and arrangement of the windows; of the size and particularly the height of the furniture, and its arrangement. Light colors make small rooms seem larger; dark colors make them look smaller. A competent architect can make relatively small rooms look large.

Design of the housing unit is a very important consideration in the planning of public housing. Concerning this design,

Gray (2) says that design is the art of adjusting various related parts into a harmonious whole. It is an art rather than a science because such an adjustment calls for judgment as to the relative importance of the several elements or parts which make up the design and judgment as to the factors which may limit or determine the character of the design. These judgments call for creative imagination rather than inevitable scientific conclusions. It is true that science plays an important part in establishing the facts or factors to be weighed. It also plays a part in the process of weighing these factors, and in finding the technical means for attaining the design. In the art of medicine, science aids the physician in his judgments and the surgeon in his technique; but individual judgment and individual skill determine the results.

Every design has some specific objective. If the objective of publicly aided housing is the creation of a wholesome family environment, such as may be expected to contribute in a large way to good citizenship, then to accomplish that expectation fully, housing must be something more than the minimum required for sanitation; it must be such as makes possible efficient house-keeping, wholesome family life, and wholesome neighborhood life.

The design of housing projects has been commonly considered under two headings, the site, and the buildings. But neither can be considered independently of the characteristics of the population to be housed, the climate and the cost. The type of buildings, their height, spacing and orientation, the arrangement of each unit and of combinations of units, all are influenced by

the site, and the proper use of the site is influenced by the factors inherent in the buildings. While all factors must be woven into one pattern, each factor must be analyzed and weighed to determine both its requirements and limitations and the extent of its flexibility.

Concerning orientation, it is said (15) that proper orientation will improve any house without adding to its cost. Plate III shows schematically the traditional plan for the minimum house and eight variations obtained by elongating the house and flipping it over to reverse the plan. Variations designated A have been elongated across the kitchen-living room axis; those lettered B have been elongated along this axis. These eight plan variations have been placed around the compass on a hypothetical street represented by the circumference of the circle. Each is in its best possible location with respect to winter sun and summer breeze. Arrows indicate the range of compass directions each plan may face without violating any primary orientation principle. Note that the best possible orientation is south-southwest and that plan A3 falls on this point. Worst possible orientation is west-northwest. The chart is applicable to most parts of the United States but should be adjusted for local wind conditions and, in the extreme south, for sun conditions.

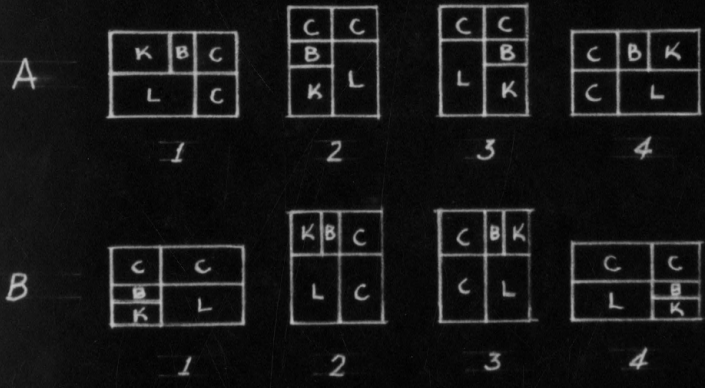
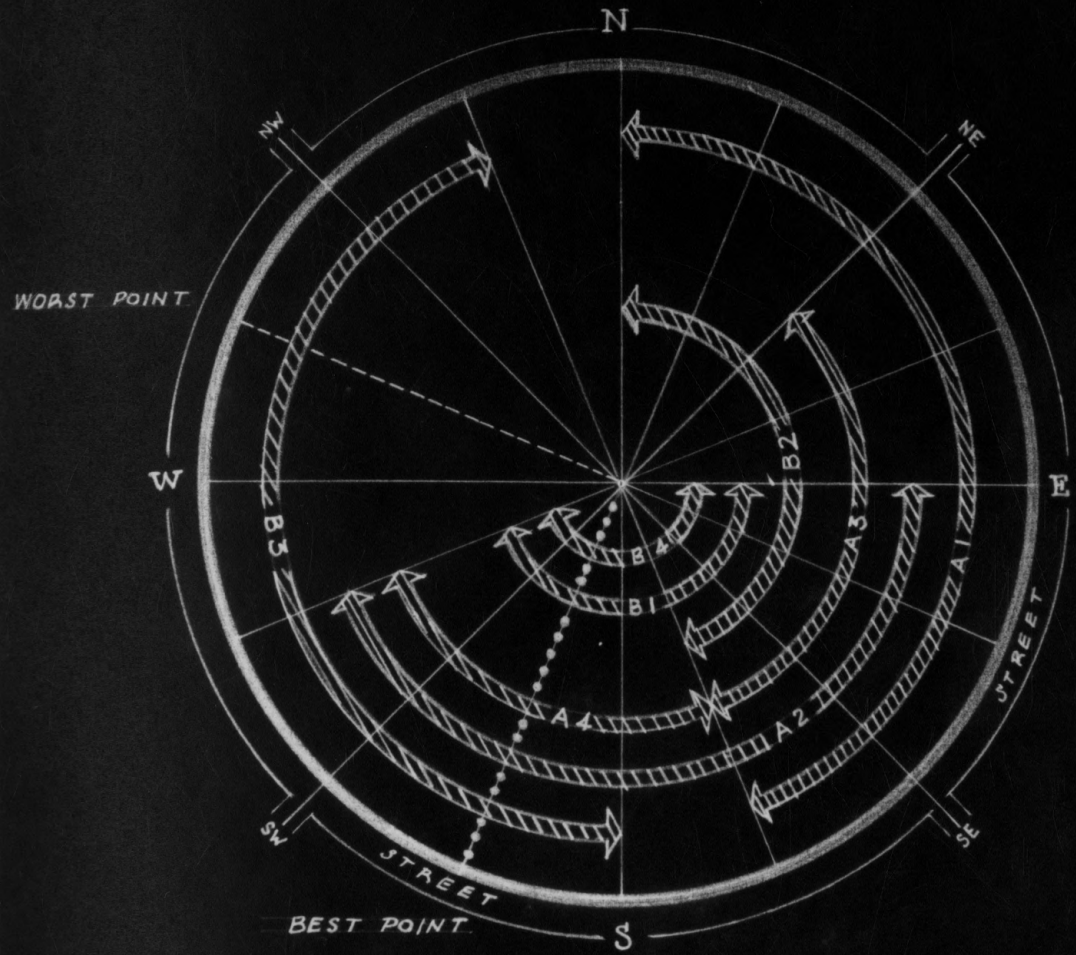
According to Hilbersheimer (14), planners of dwellings should never forget the importance of sunlight. In the past the importance of the proper orientation of a house was recognized. It is only in our own times that builders have flagrantly disregarded it in their construction for human dwelling, though, oddly

EXPLANATION OF PLATE III

Proper Orientation (15)

Schematic diagram of eight variations of the minimum house and their location with respect to winter sun and summer breeze showing best possible orientation and worst possible orientation.

PLATE III



enough, they seem to remember well the value of insulation when they build shelter for domestic animals.

In practically all designs (2), among the factors which must be weighed and adjusted there is the factor of cost. First comes the selection of the site, last comes the equipment of buildings and grounds, with an almost endless list of items between. The importance of being thrifty is well illustrated in the small rental unit. Anderson and Simonds (16) have listed four money saving simplifications which are introduced into the construction of the small rental unit project which are: 1. Experience has proven the thermal comfort and practicality, the economy and structural stability of concrete floors on grade; 2. A dead level roof realizes a substantial saving over a roof which is sloping. Material wise, built-up roofing is more plentiful than shingles; 3. A saving can be had by the elimination of conventional exterior sheathing in places where it is permitted by ordinance. The substitution of stucco over paper is economical and in climates where insulation is required, the saving on sheathing will offset its cost; 4. Costs can be cut by the elimination of eaves except over doors facing the direction of prevailing storms.

It is the architect to whom is finally assigned the task of assembling, analyzing, weighing and reconciling all the aims, requirements, and limitations (2). The more the limitation that binds him, the less chance there will be for a free play of ingenuity and invention, of creative imagination in the solution of the problem. It is of the utmost importance that the higher authorities, as far as possible, state only the positive ob-

jectives, the broad essential requirements and limitations, and avoid prescribing the methods which are to be pursued. Too often the programmers have their own preconceived solution for the problem and so present a program that has but one solution.

An interesting solution of the row-house problem is given by Gray (2). Plate IV shows the plan arrangement. This plan is based on lowering ceiling heights to 7 feet 6 inches, and expanding the floor area without increasing the cubic contents. Of interest is the fact that the bathroom has been planned large enough to accommodate a washing machine and an ironing board. The plan is for a two story unit with four families using the common entrance. Gray also states that additional space can be gained by the use of double-deck beds in the bedrooms. The dining area is within the kitchen. Although a small economical unit has been developed in this plan, it is felt that a number of important housing standards have been sacrificed in order that the cost be kept low. For instance, no dining area has been planned other than that provided for in the kitchen; and this, it is believed, would hinder the smooth working of the relatively small kitchen.

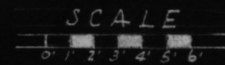
In a plan for unit housing set up by the New York City Housing Authority, a plan is found which measures 27 feet 6 inches deep and 60 feet long. In a system of unit plans, the advantage of adopting a uniform width of cross section is obvious (17). It simplifies the joining of units in structures, standardization of structural forms and items of equipment, simplification of all procedures involved, etc. Therefore consideration must now be

EXPLANATION OF PLATE IV

Row House By George Herbert Gray (2)

Plan based on lowering ceiling heights to seven feet six inches, and expanding floor area without increasing the cubic contents.

PLATE IV



given to the width.

The solution, however, does not depend altogether upon empirical judgment. When low gross area per room is required, a cross section results in room shapes which fails to serve the functions which the rooms were meant to serve. With this established, it follows that the width of cross section is a function of the established gross area per room. Plate V shows a typical unit plan by the New York City Housing Authority.

An unusual and quite compact plan for a row house is planned by Joseph Amisano (18). Plate VI shows the plan arrangement of the two floors. Construction of the party walls are of reinforced concrete, supporting the flat-slab construction of the balcony and the roof. The concrete stair is cantilevered from the party wall. Concerning the furnishings, Amisano says that all interior walls, mechanical and operating equipment, furniture, etc., are to be prefabricated. Kitchen waste is to be dispensed through a decomposition chamber located under the sink. Heating, ventilating and air conditioning are from an electrical unit located in a closet beside the kitchen. Air conditioning is primarily for extreme or discomforting temperatures. Ventilation in the rear of the house is through perforations above and below fixed glass areas. The front of the house has outswinging, top-hinged windows. The interior and exterior are to be painted with casein paint applied directly to the concrete walls and the underside of the structural slabs.

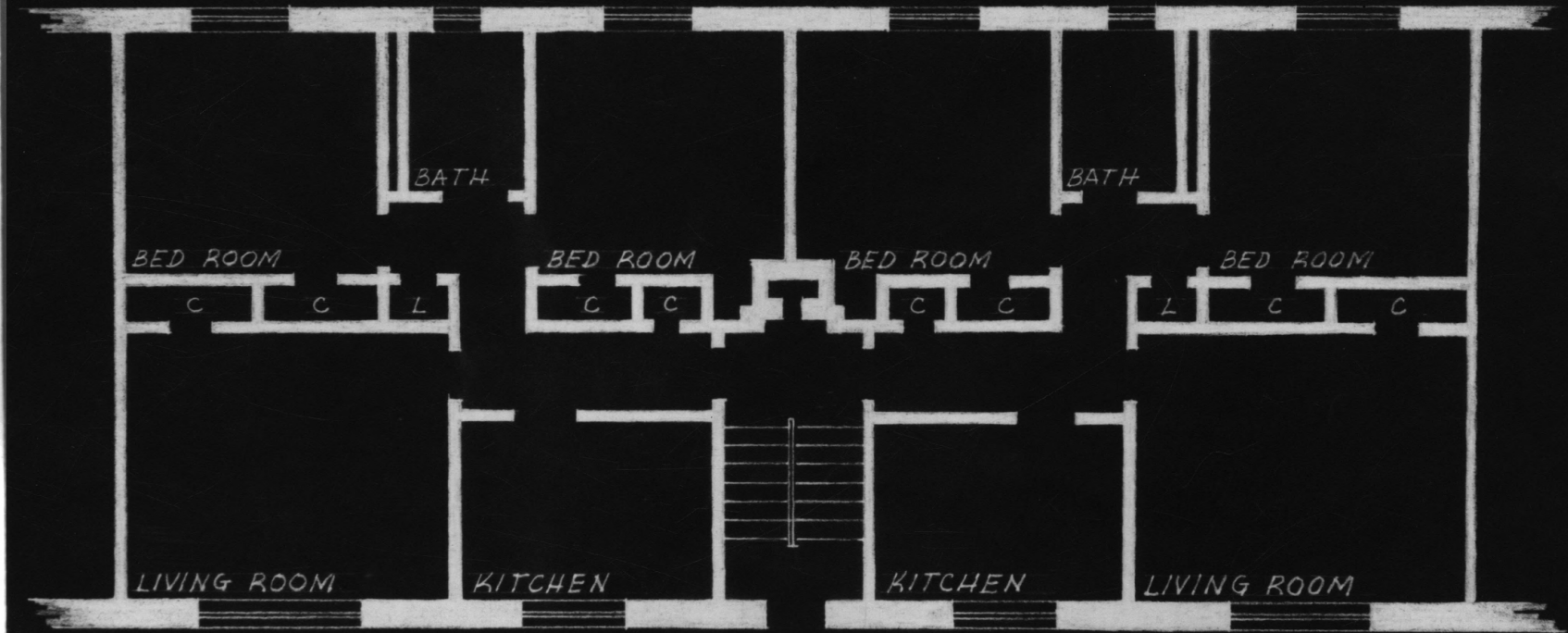
An interesting design of a duplex-type dwelling is shown in the one developed by Rudolf Mock (19). The design of this

EXPLANATION OF PLATE V

New York City Housing Authority
Unit Plan (17)

Typical unit plan based on a depth of twenty-seven feet six inches and a length of sixty feet.

PLATE V



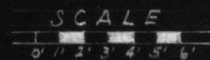
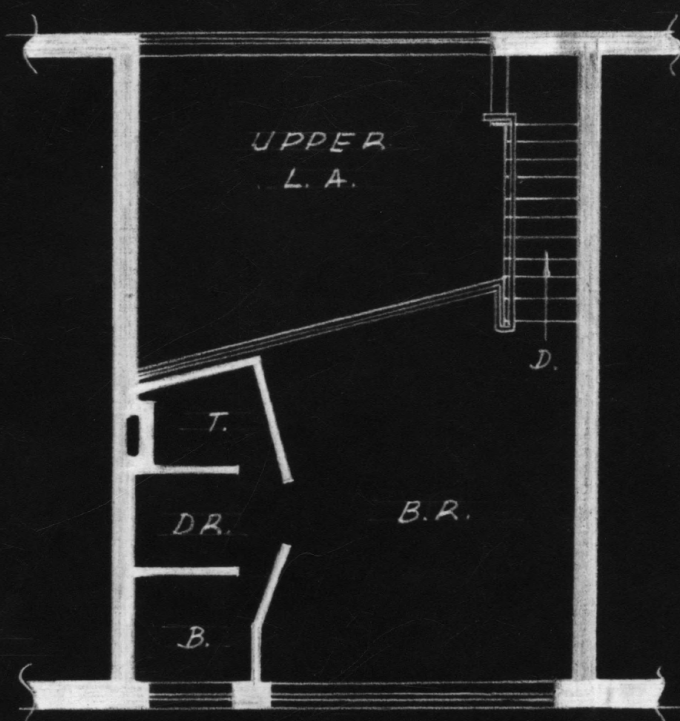
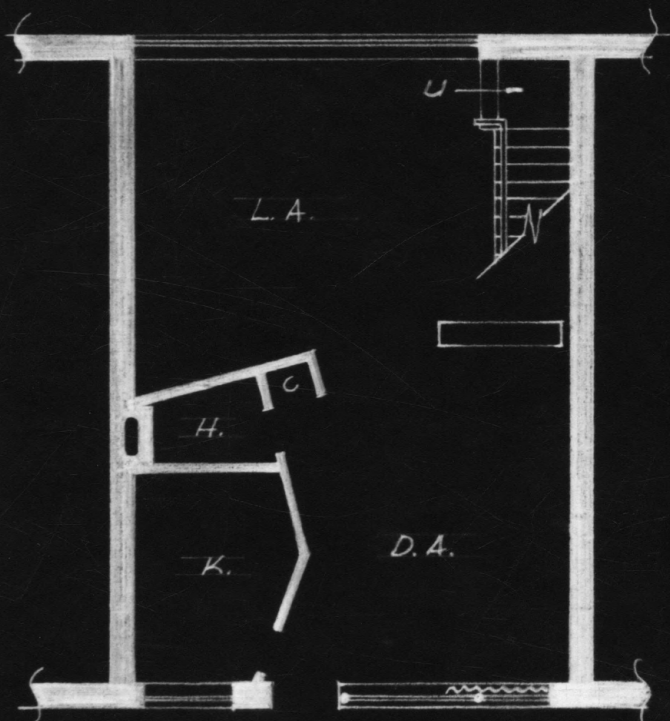
SCALE
0' 1' 2' 3' 4' 5' 6'

EXPLANATION OF PLATE VI

Row-Type Apartment by Joseph Amisano (18)

Construction of row house based on reinforced concrete and flat slab. Stairs are to be of concrete cantilevered from the party wall.

PLATE VI



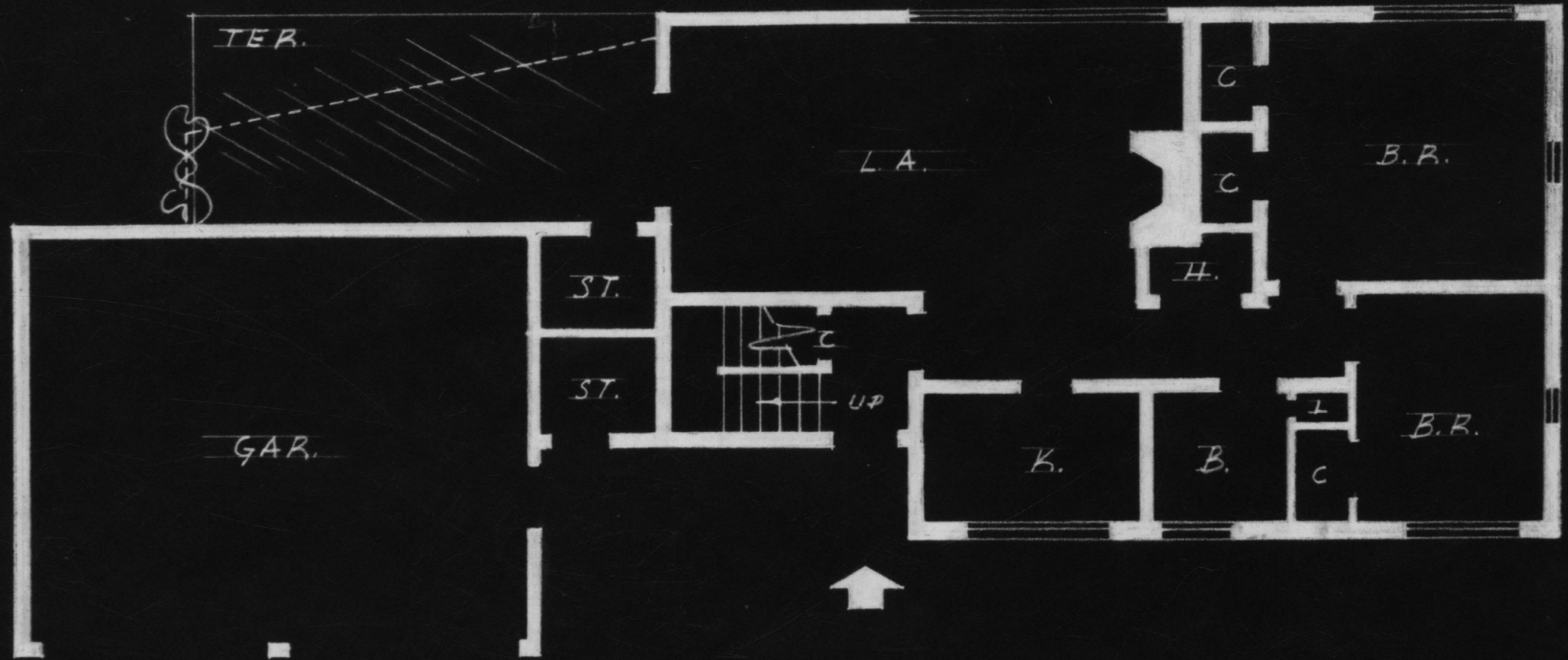
problem, shown in Plate VII, was to provide a suitable home environment for a widow who wished to live by herself, but not in isolation. The solution was a dwelling in which she should have her own home and a rental unit combined. As it happened, her needs were for a two-bedroom apartment of a size that is readily rented; so, the two units are essentially identical. In each unit, the generous living-dining room is equipped with built-in bookshelves, a fireplace, and a bank of windows looking out on the lawn and garden. On the second floor, where the owner lives, these windows are contrived as a projecting bay, which, in combination with the high, asymmetrically sloping ceiling of the room, appreciably increases the apparent spaciousness of the room. Outdoor living space is provided for each apartment--a flagstone terrace for the ground floor and an open deck for the owner's home. A notable provision for the latter is a storage closet for outdoor furniture that occurs in the upper portion of the garage structure and is accessible from the deck. The house has no basement, but is built on concrete-block foundations and piers with appropriate venting to the outside between the floor joists. Ground excavation extends to two feet six inches below the joists. Between the joists, batt-type insulation is installed. Heating units occur in fireproofed closets in each apartment. Structurally, the house is of frame construction, with bevel siding applied over board-type insulation-sheathing. The sash are of steel and of both fixed and casement type. The roofing is tin, painted red. It is instructive to view a few of the smaller details which provide considerably greater living

EXPLANATION OF PLATE VII

Two-Family House by Rudolf Mock (19)

Plan of unit designed for widow who wished to live by herself but not in complete isolation. Plan could be well adapted for use as a public duplex type of structure.

PLATE VII



SCALE 0' 1' 2' 3' 4' 5' 6'

amenity at very little added cost. Beside the entrance door, for instance, is a pair of built-in package receivers, one for each home, where things can be left when families are not at home. Then there is a neat closet conveniently located under the canted garage roof, which contains rubbish boxes and garbage cans and keeps them out of sight. In each of the bathrooms there is a large linen closet with seven shelves; each apartment has a broom closet with a shelf overhead, and in each of the kitchens a built-in drop-leaf table is provided.

Throughout, the house is a highly practical example of forethought in contemporary residential architecture. Its easy adaptation for a public housing type of duplex or row house is quite noticeable.

Row houses, because of their traditional alignment and monotonous facades, are generally thought of as identical in appearance and rigid in plan. In this project it has been attempted to reverse this conception. As was stated before, no attempt has been made to solve the housing problem; but a study and solution are being presented which may be used as an aid in better planning of the units which are to be built in the future. The design presented, under present financing conditions, is probably most suitable to individual ownership; whereas the greater part of the current demand is for rental housing. However, the solution is completely adaptable for rental housing.

The vast majority of houses are originally built for owner occupancy. They are either erected by the individual who intends to occupy them or they are erected by operative builders who in-

tend to dispose of them by sale to their first occupant. Only an insignificant portion of new houses are built for immediate rental either by individual landlords or by corporate landlords making a business of such a process. The rental group is taken care of in "second hand" houses (5).

Plate VIII shows the first floor plan of the row house which has been developed. Designed for a shallow block arrangement, all units have been tentatively orientated to the south. Other orientation is possible and perhaps desirable where the case might permit, after further study. The living portion of the first floor plan, measuring 30 feet by 22 feet, has been studied to give maximum comfort and efficiency to the occupants without sacrificing too much homelikeness for economy.

On the first floor each unit has been given a private entrance, kitchen, living and dining area, utility room, garage, and closet space. The kitchen, which measures 7 feet by 16 feet, is separated from the living room by storage cabinets and is over the minimum standard area of 65 square feet (9). It has been planned with an idea of economizing space and of step-saving value. A kitchen of this size could, if need be, include the functions of the utility room. By doing this, costs could be cut by dispensing with the utility room which has been planned at the rear of the garage near the drying yard. If the utility functions were taken care of within the kitchen, provision must be made for access to the drying yard from the kitchen. As the plan is presented, access to the utility room from the kitchen is through the garage. In inclement weather, the garage could be used for

EXPLANATION OF PLATE VIII

First Floor Plan of Row House
by Neil Smull

Row house planned for maximum comfort and efficiency with a study of the needs of the contemporary family.

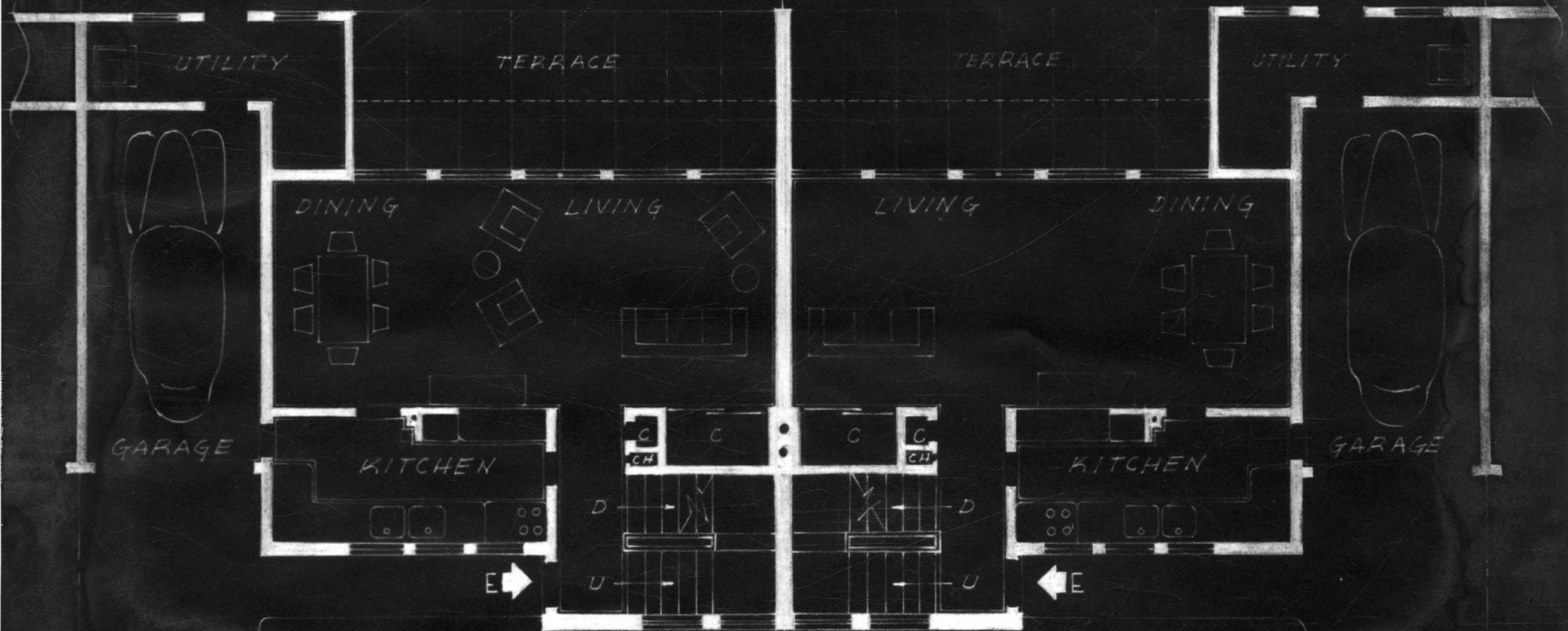
PLATE VIII

RECREATION

RECREATION

DRYING YARD

DRYING YARD



SCALE 0" 1" 2" 3" 4" 5" 6"

drying purposes. Kitchen waste is to be dispensed through a decomposition chamber under the sink.

Living and dining areas have been planned together to give a spaciousness which could not have been achieved with individual rooms. The entire area measures $12\frac{1}{2}$ feet by 29 feet. The dining area is located in one end of the area with access to the kitchen. Living has been planned for the opposite end of the room. Even more living space can be acquired by placing the dining table against the wall. Large rear windows opening upon the recreation area and the terrace give not only the advantage of an excellent view of the garden but also give the housewife working in the kitchen, a means of supervision of the children at play.

Ample closet space has been provided in the living room for storage of children's playthings, wraps of visitors, etc., while another closet in the hall could be used for housecleaning equipment. The clothes chute, as shown in the first floor plan, is continuous from the second floor hall to the basement.

The plot plan provides generous, secluded rear yards, each with a small paved terrace.

Stairways to both the second floor and the basement are within easy access of the front entrance.

Plate IX shows the second floor plan of the row house which includes two bedrooms of equal size, bathroom, closet space for bedrooms, and storage.

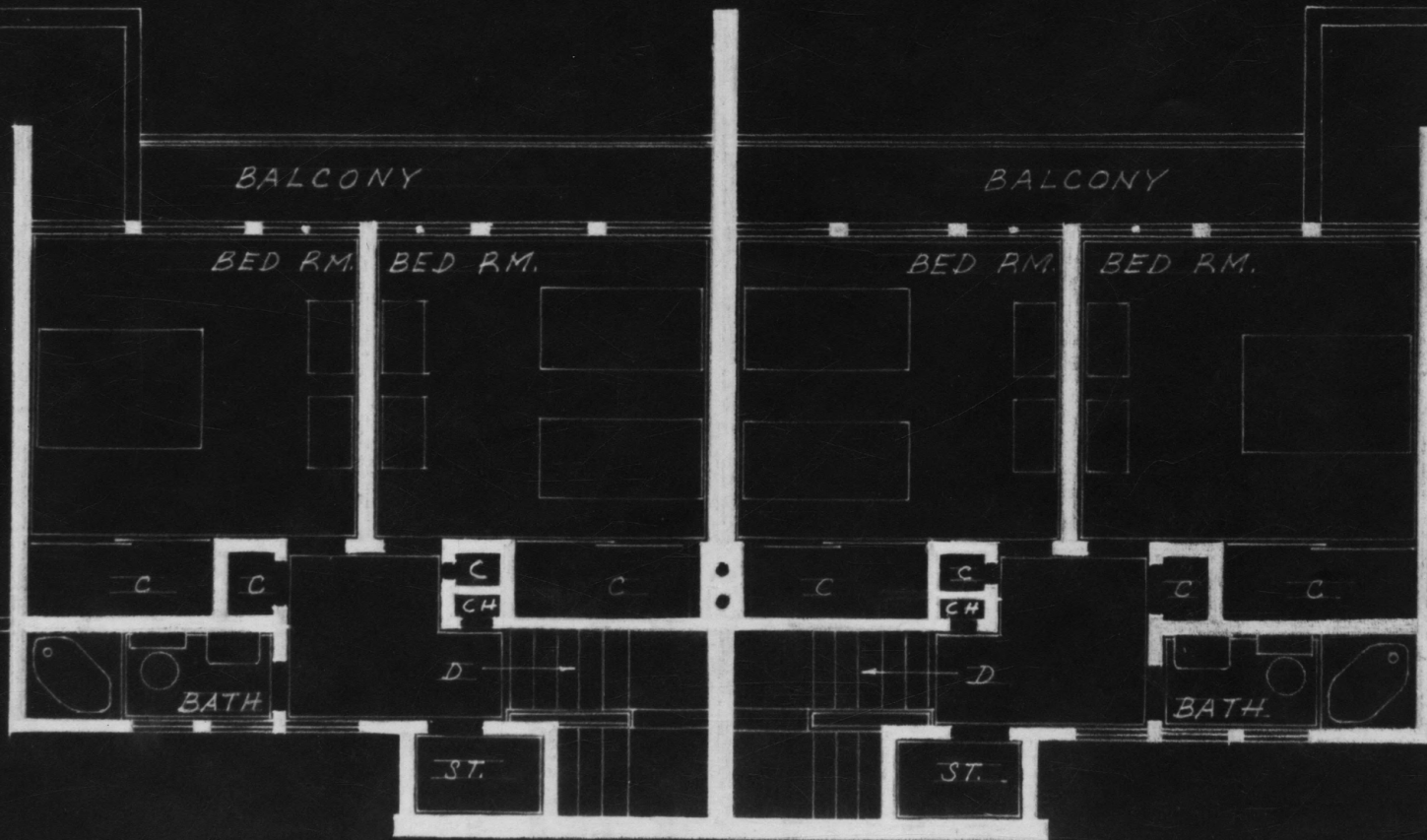
The bathroom, while quite small, is ample for the purposes for which it is intended. Lighted with two exterior windows, it

EXPLANATION OF PLATE IX

Second Floor Plan of Row House

Plan provides for two bedrooms, balcony,
bathroom, closets, and storage space.

PLATE IX



SCALE
0' 1' 2' 3' 4' 5' 6'

is located off the main hall and is accessible from both bedrooms. A linen closet for the storage of bath linens has been provided near the bathroom.

The bedrooms are of equal size and measure 12 feet by 14 feet which is above the minimum as given by Andrews (6) which is 9 feet by 10 feet. The bedrooms are lighted and ventilated from the large glass areas to the rear. Doors from the bedrooms to the balcony are through one of the glass areas in each room. Generous closet space is located in each of the rooms.

Additional storage space has been planned above the entrance on the second floor and the clothes chute is available from the central hall.

The basement plan is shown on Plate X. The basement includes provision for the heating unit, extra storage space, and, if desired, laundry facilities. With certain types of heating, and in order to cut costs to a minimum, the basement could be left out of the building plan and heating could be taken care of on the first floor in a fire-proofed closet provided for that purpose.

In reference to heating the home, the Architectural Forum (20) says that any heating system which uses a minimum of iron and steel is the system for today's house. Pressed sheet steel is less critical than cast iron, and steel convectors should therefore be more plentiful than cast iron radiators. The relatively low cost of warm air heating systems is reflected in the tremendous demand for their components.

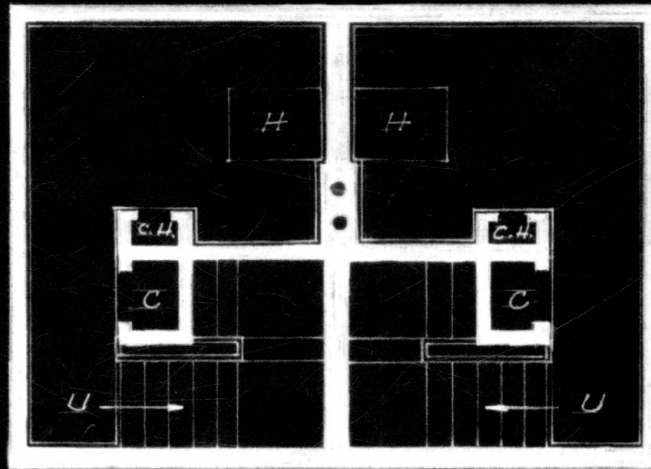
One-pipe hot water heating is made possible by the use of

EXPLANATION OF PLATE X

Basement Plan of Row House

Plan provides for the heating unit of
the house and additional storage space.

PLATE X



SCALE 0' 1' 2' 3' 4' 5' 6'

a Venturi fitting at each radiator. It operates on the injector principle; flow water entering the fitting is speeded up by a tapered nozzle creating a suction pull on water returning from the radiator. A single circuit of pipe is sufficient for a one-story house. Reduced pipe length and absence of valves cut labor and materials costs.

The fan floor furnace located beneath a central closet has a small plenum chamber above the floor level which distributes warm air directly to surrounding rooms. Eight inch diameter sheet metal ducts collect cold air from grills located near outside walls of each room.

Gravity floor furnaces provide warm air heating in its simplest, most economical form and require no extra space. The heater is usually located in the living room floor where it heats other rooms by natural circulation of the air.

The attic furnace suspended between rafters and the ceiling joists of an unfinished attic saves valuable first floor space in a basementless one-story house. Very little duct work is required to deliver the forced warm air to registers which are near the ceiling of each room. Cold air is picked up by two living room floor grills and one in the bedroom hall.

The heat director distributes warm air from the utility room furnace to adjacent areas--preferably living room, bedroom, hall and bath. A furnace fan draws air from the living room through the kitchen and utility room whose doors are equipped with full length louvers. The bedroom doors are solid and serve as valves in the heating system.

Plate XI shows the section study of the row house. This section shows how the ceiling height has been planned at seven feet six inches so that the generous rooms may be had without increasing the cost. The section is cut through the kitchen and dining area of the first floor and is cut through the bathroom, closet, and bedroom of the second floor. The basement is not shown in section. This low ceiling height is in accordance with the Federal Housing Administration (10).

Plates XII and XIII show studies of possible facades for the row house. One elevation shows the possibility of using a pitched roof while the other study shows the possibility of using the flat roof. Plate XII is a study of the elevation with ceiling heights of eight feet, while Plate XIII is a study of the elevation with ceiling heights of 7 feet 6 inches.

Plate XIV is a study of the rear elevation of the row house using the flat roof construction which shows the large areas of glass used on both floors.

The proposed facade for the row house is shown on Plate XV. As shown, the elevation represents a home as the majority of people would think of a home. The effect obtained is a result of psychology in the presentation of the elevation, by the use of the pitched roof and the combination of two materials for the siding of the house. In this case, the structure would be of frame construction. However, the party wall between the two units should be of fire-proof construction. The siding is of the vertical type in combination with a stucco or stone. Part of the resulting effect is because of the lowered ceiling heights within,

93

EXPLANATION OF PLATE XI

Section Study of Row House

Section shows use of lowered ceiling heights to keep the cubage down and still maintain generous room areas.

PLATE XI



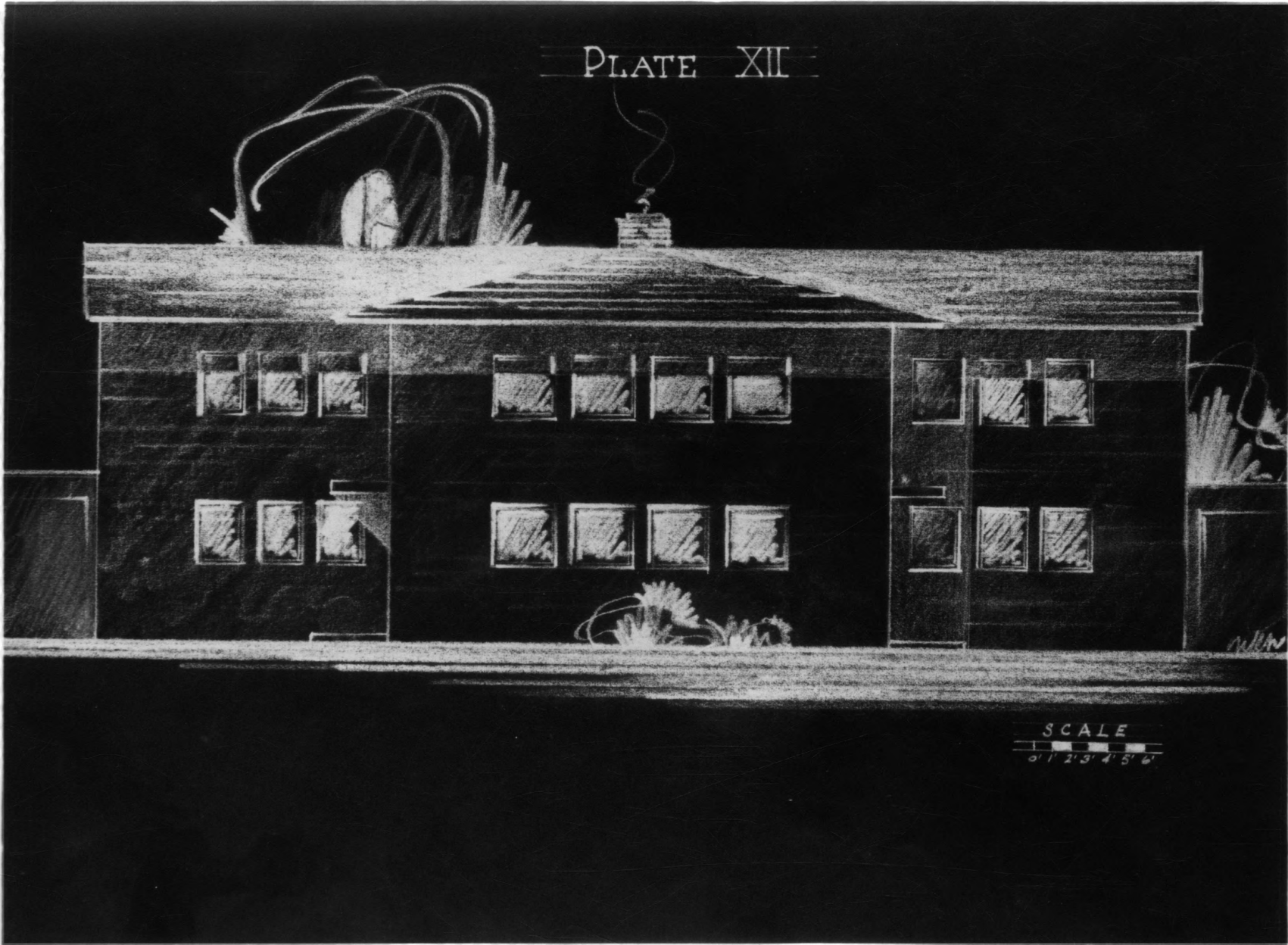
SCALE
0' 1' 2' 3' 4' 5' 6'

EXPLANATION OF PLATE XII

Preliminary Study

Front Elevation

PLATE XII

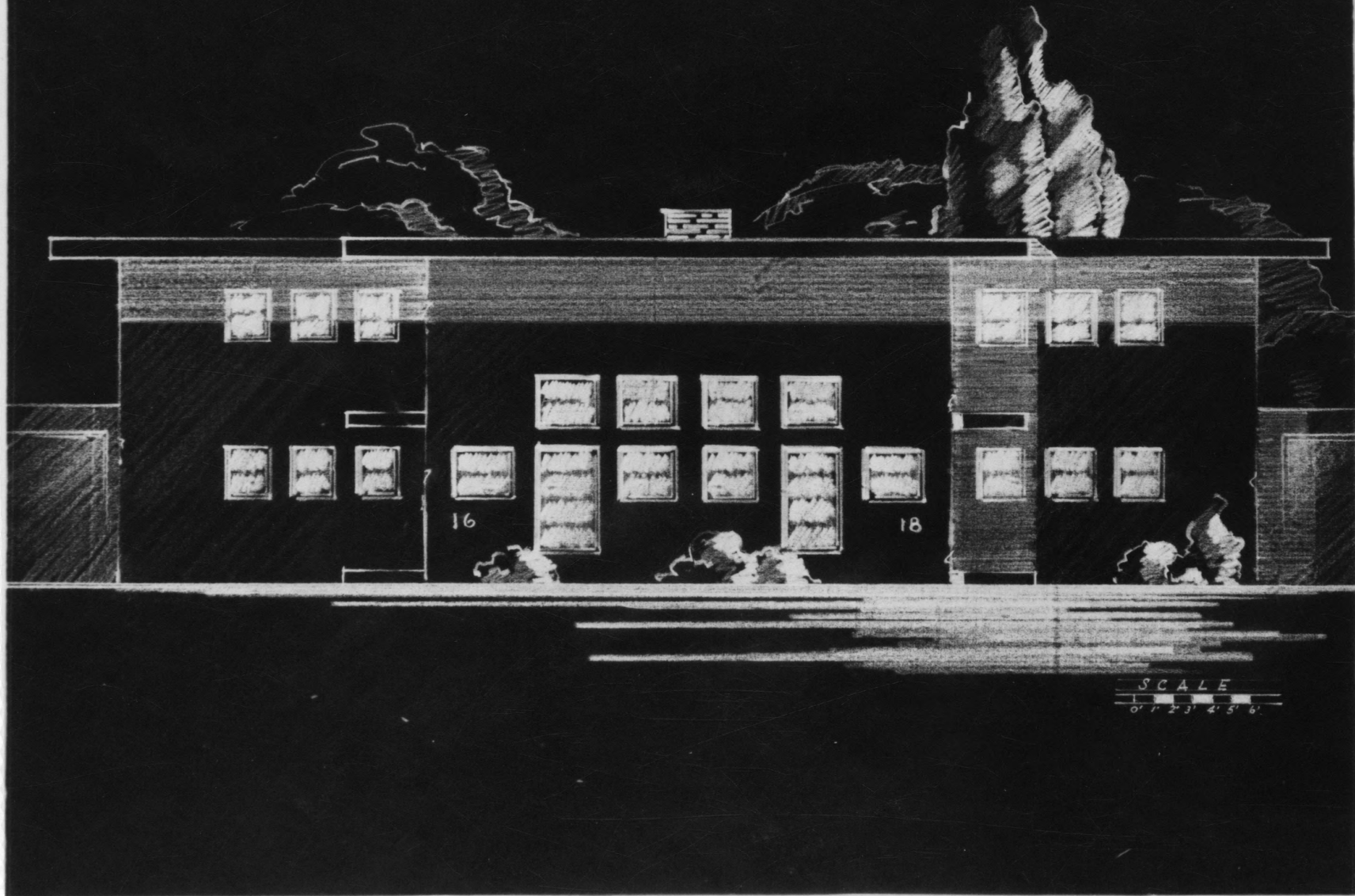


EXPLANATION OF PLATE XIII

Preliminary Study

Front Elevation

PLATE XIII

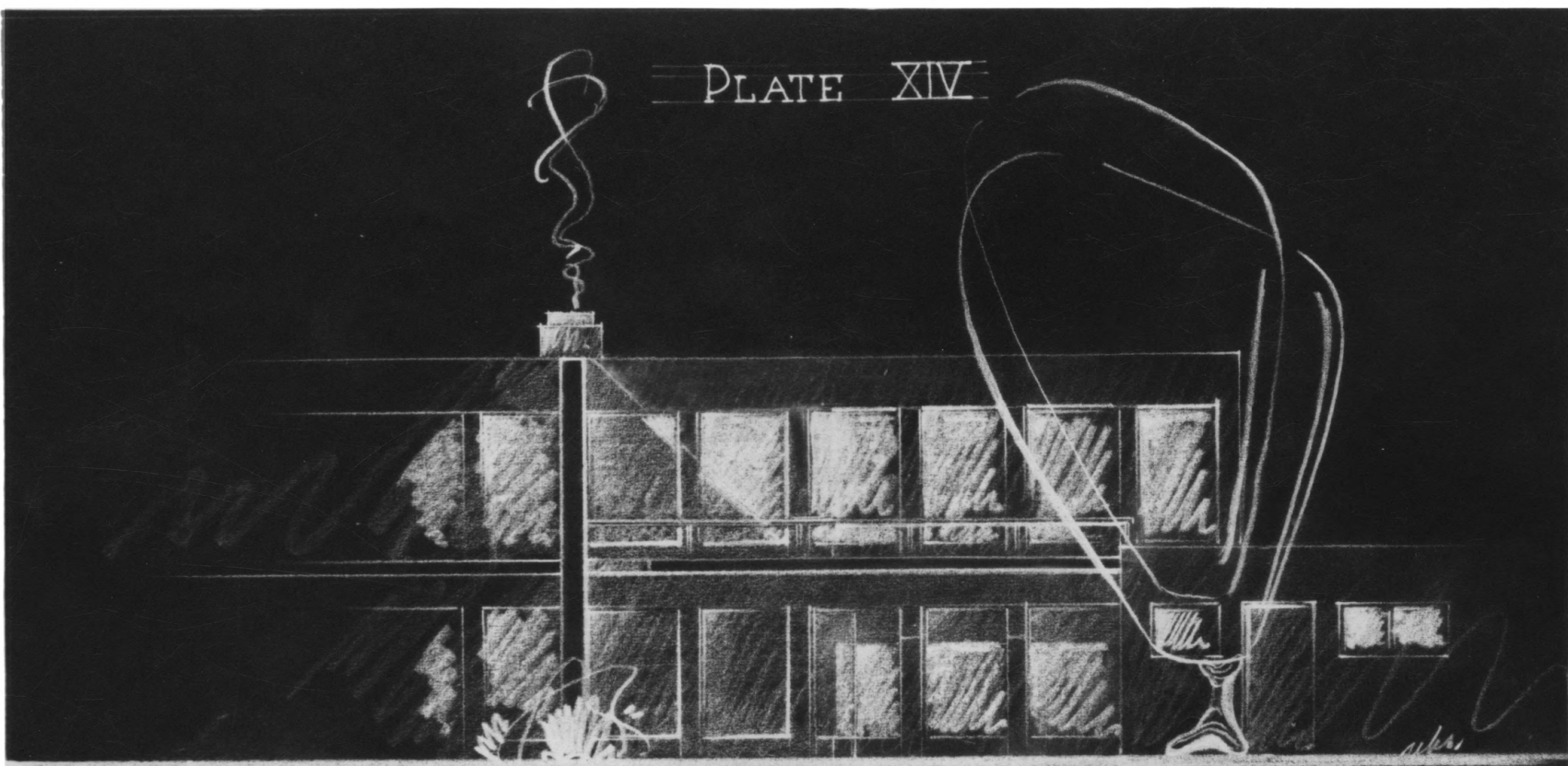


EXPLANATION OF PLATE XIV

Preliminary Study

Rear Elevation

PLATE XIV

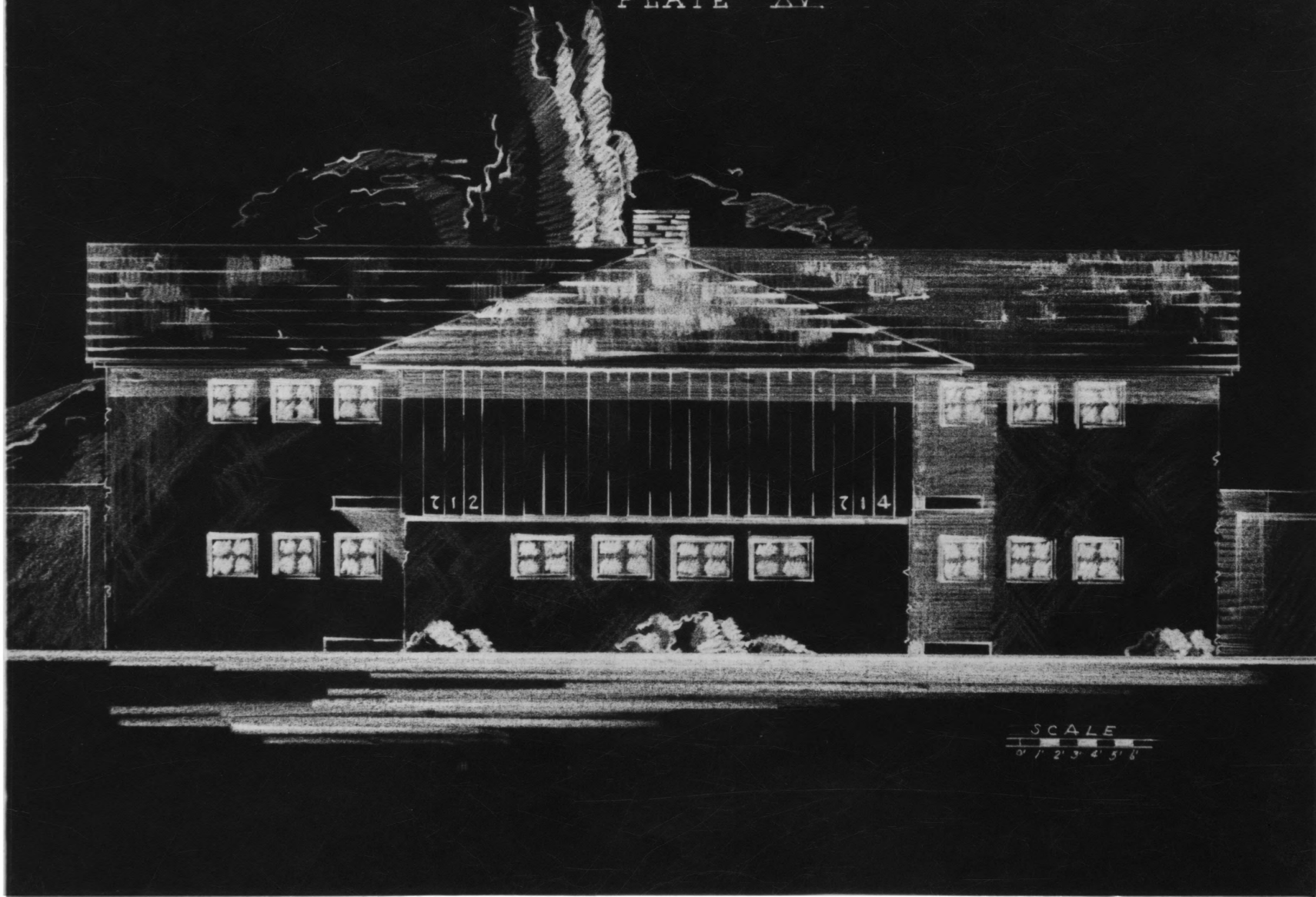


PRELIMINARY STUDY - REAR ELEVATION
SCALE - $\frac{1}{8}'' = 1'0''$

EXPLANATION OF PLATE XV

Proposed Front Elevation of Row House

PLATE XV



SCALE
1 2 3 4 5 6



which in turn lower the exterior roof level.

Plate XVI shows the proposed rear elevation for the row house. In this elevation, the great expanse of glass is retained because of its desirability for lighting the interior as well as the excellent view which it affords from within. The pitched roof with its overhanging eaves serves as a sun shade for part of the glass of the second floor. The balcony of the second floor serves the same purpose for the first floor.

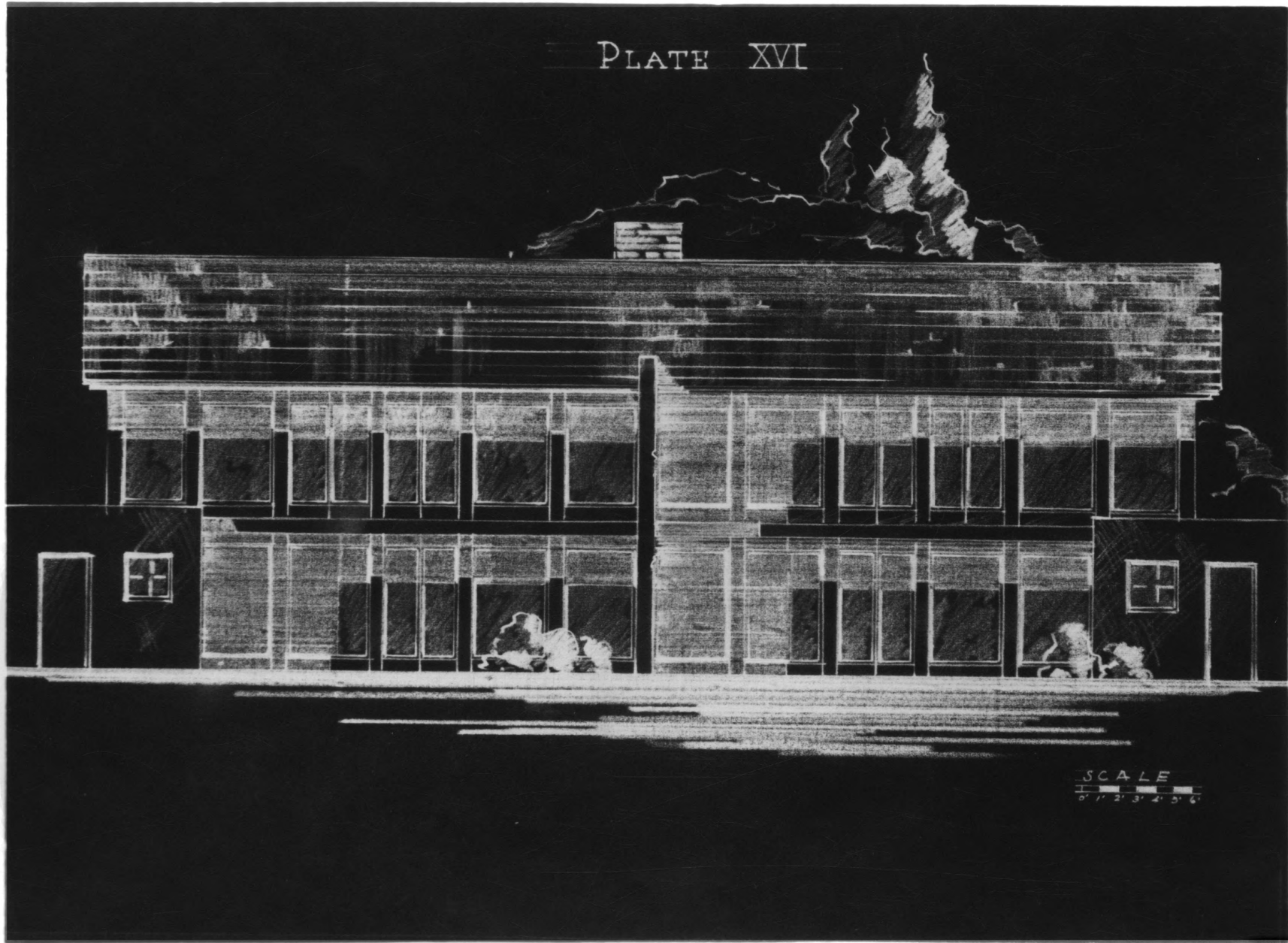
An aerial perspective view of the row house as proposed is shown in Plate XVII.

Variations of this plan are too numerous to mention within this thesis. However, an indication of some of the possibilities has been given before. Most of the changes would result from the attempt to cut the cost of construction. One variation which has not been mentioned and which has merit, is the small apartment using a fold-away bed in the living room and thereby necessitating the use of only one floor. If this were done, the space originally used for stairs could be converted to storage and closet space.

EXPLANATION OF PLATE XVI

Proposed Rear Elevation of Row House

PLATE XVI



EXPLANATION OF PLATE XVII

Perspective View of Row House

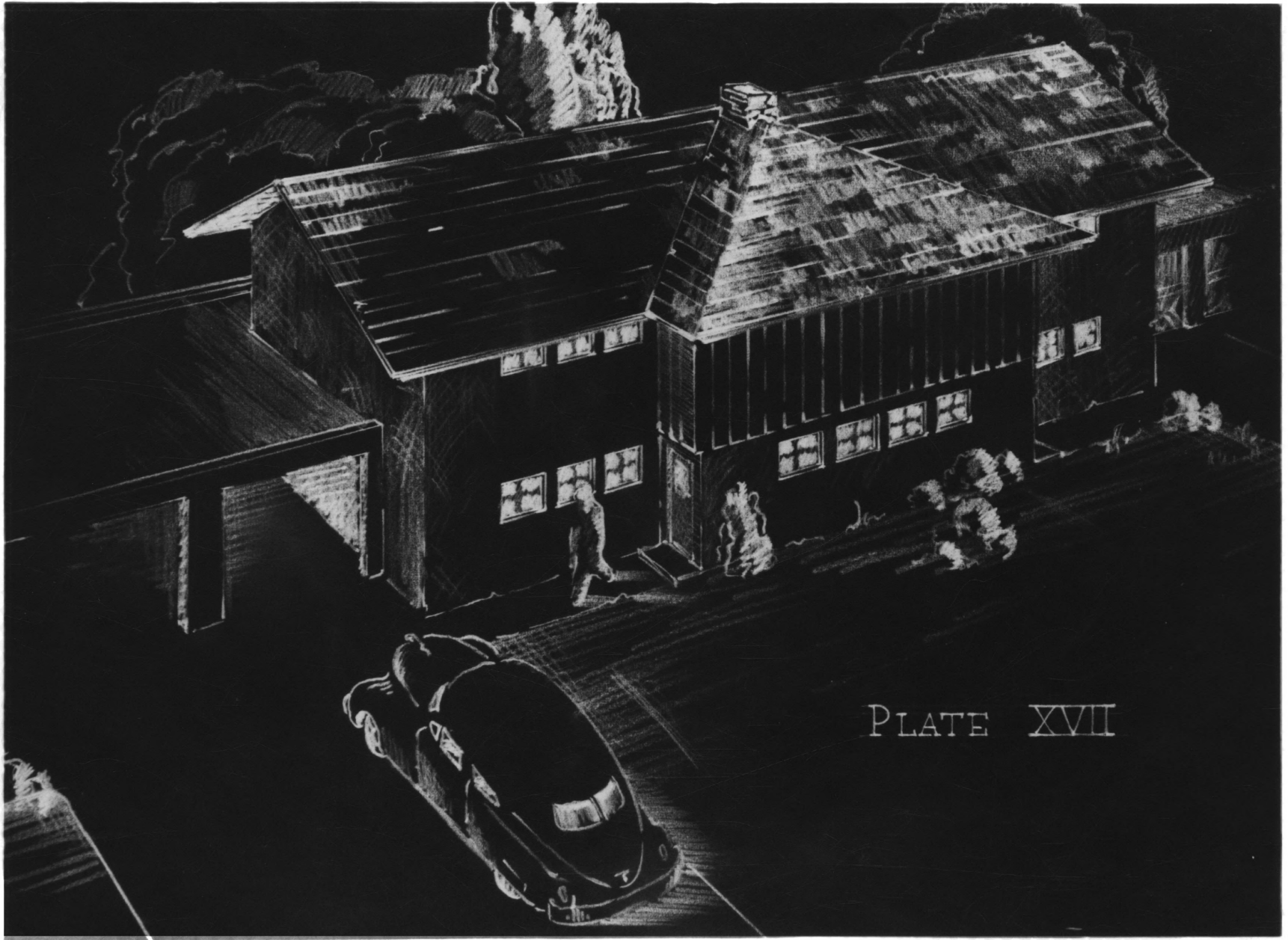


PLATE XVII

CONCLUSION

Urban living is a way of life, not a way of being governed or the measure of the proximity of our neighbor. There are cities in the United States which, when considered in the light of the way in which people live, belong in the primitive category of poor rural communities and backwoods areas, which have none of the advantages of living together, except in the fact that they share the same disadvantages. "Urbanism", in the true sense of the word, characterizes a cooperative aggregate of the people, regardless of the distance between their homes, which enjoy as much as possible the many amenities which modern technique and modern civilized ways of living demand.

Le Corbusier, in one of his outbursts, says: "The modern home is nothing but walls with storage space on the one hand, chairs and table on the other. The rest is encumbrance." Thus have many of the modern architects tried to reduce the home to its simplest terms. The European countries have traveled a long way from this oversimplification of the task of designing and building homes. Indeed the walls and chairs and tables are the last and the least important aspect of architecture. It is their relation to the whole complex process of living that determines whether they are architecture or merely building.

What is expected of the architect, therefore, is a new outlook, a new realism, a new form of creative design which would become the syntax of home building. When the architect has

reached the point where he can use the elements of people, space, time, and economic reality as the material out of which to develop housing design, he will have interpreted life, and, by interpreting, will have served it. There is no greater art than this (21).

Whether or not there is going to be an adequate civic legislation, depends on the attitude of mind of the legislative authorities. So it has just been learned. This attitude of mind, however, is likely to be, to a great extent at least, a reflection of a corresponding attitude of mind of the urban population.

To consider the attitude of the urban population in connection with town-building problems, is just as natural a thing as to consider the characteristics of a family when designing a home for that family. For, after all, the characteristics of the family must be reflected in the design of the home, if the design pretends to be honest and expressive (4).

Each city, physically, is expressive of its people and of the activities in which they engage. Its beauty and order will depend upon the level of the local and national culture and the orderly process by which all the separate efforts of its continual building are integrated into a common ideal. No planner will ever re-design an existing city and see it built from his design.

City building is continuous, each generation adding according to its needs, its values and its ability. In this long chain, the planning process is one of adaptation and integration, of continuous accommodation of new to old, and among the contri-

butions of many builders. Planning is leadership with understanding and consent, not decree.

The planning process should be woven into the habits and consciousness of the community; and if it has been, it plays a large role in building democratic citizenship, where it most counts, in the home town (22).

In spite of the fact that many important advances have been made in methods of construction and operation, it has been frequently necessary to admit that these have not as yet led to a real solution of the important problem of low-cost housing. That progress has been made is encouraging in view of the fact that such progress has been continually impeded by the habits of mind and method formed by experience in other types of building, which even when related to housing have been confined to housing of a very different kind for very different purposes. If progress has been made under these conditions, even more far-reaching progress is possible in the future (3).

However, unless the architect who is present in the planning stage of housing, has the interest and takes the initial steps to correct housing faults of the past and plans homes for the families of the future with a thought for their individual comfort, the housing situation cannot hope to be improved.

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