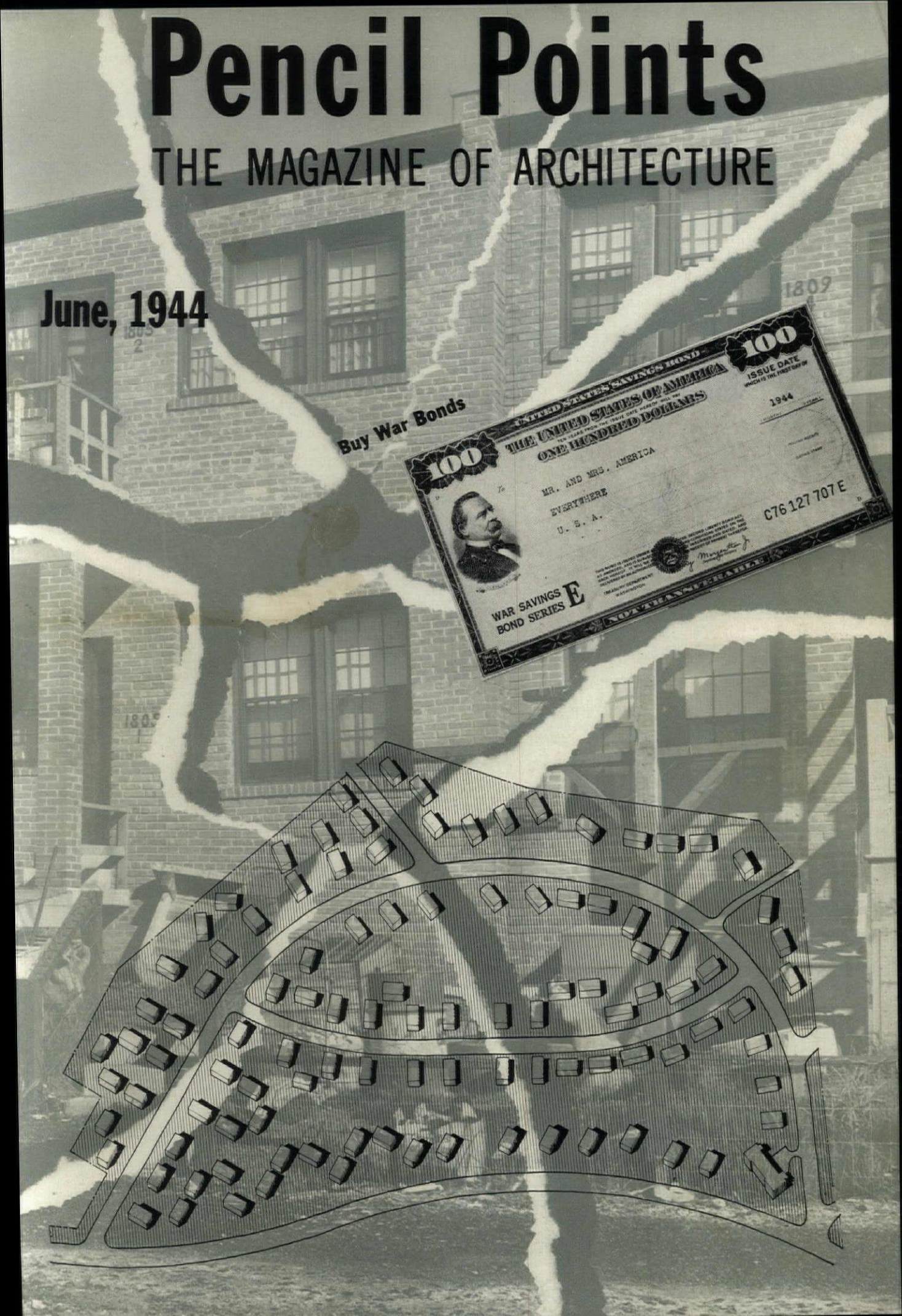
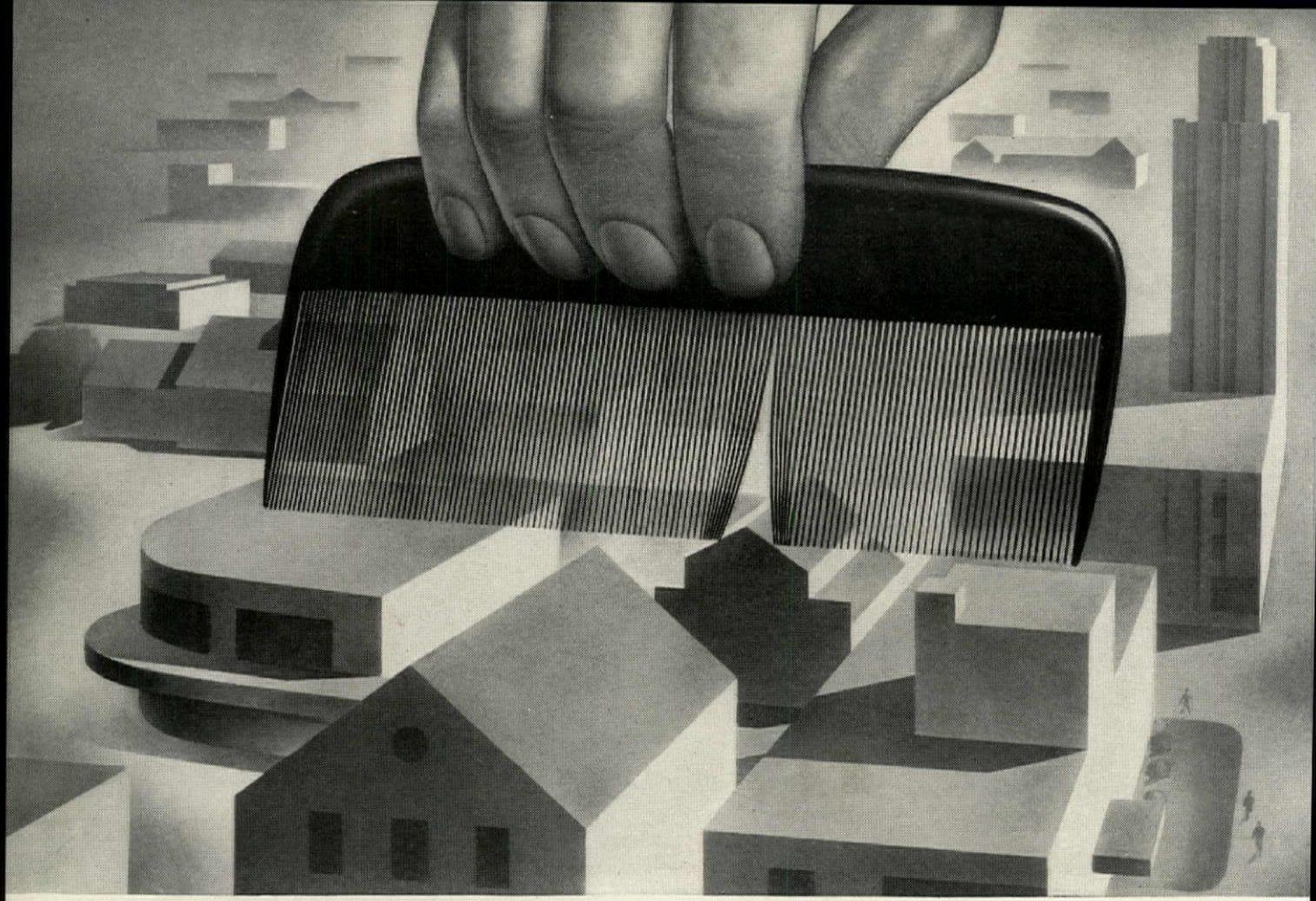
Pencil Points

THE MAGAZINE OF ARCHITECTURE

June, 1944





From now on...Construction Quality gets the FINE TOOTH COMB

One of the lessons that is coming out of World War II is a new appreciation of quality . . . a new concept of value.

When normalcy returns to a war-rationed, value-conscious nation, people are going to want more than the latest wrinkle in heating, lighting and other major equipment . . . they'll take such improvements for granted. They are going to look for the *hidden* values . . . for the details that mean the difference between fine and mediocre construction.

This new demand for better quality in basic equipment is going to be right in line with the principles of lasting value that architects and contractors have always stressed. And it means that these principles are going to carry greater weight with the building public than ever before.

How well Jenkins Valves, with their reputation for outstanding excellence, fit into this new quality trend!

For 80 years, Jenkins Valves have been the choice of industry for the toughest assignments. They have also furnished the standards by which architects, engineers and contractors measure valve performance in public and business buildings, and in better-built homes. Time – and war service – have proved that Jenkins Valves have the *extra* margin of stamina to stand up longer, stay tighter and perform better.

In spite of this, your clients pay no premium for Jenkins quality. *Jenkins Valves cost no more than other good valves.* They cost so little more than cheap valves that the difference is only a tiny fraction of overall construction cost. Your clients get long-range savings and you build good-will when you specify Jenkins Valves! Good supply houses everywhere stock them.

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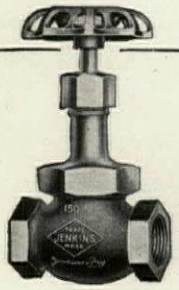

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Pencil Points
PROGRESSIVE ARCHITECTURE

Architecture Has Four Dimensions

What is this thing called Good Architecture?

Projection of this topic into any group of more than three architects anywhere in the United States is, and has been for quite a few years, likely to provoke a brisk if not heated argument—often prolonged, seldom settled.

May this be a symptom of what ails the profession? Perhaps there is too much disagreement among us as to our objectives. Perhaps the public has sensed this disagreement and in its very natural confusion has decided that architects don't know their own minds. Perhaps it is time to fight it out once and for all and to agree upon what we are all trying to do. Perhaps it is time to nail down some definite philosophy, tuned to today, to which most architectural men can subscribe.

There are some things about which there is little argument. All hands agree, for example—though with varied placing of accent—that the three prime ingredients of all good architecture, anywhere, any time, are still Fitness, Strength and Beauty.

In view of changing times, however, we suggest that to these three there should now be added a fourth dimension, permeating the others and binding them together. This factor, which we might call Social Purpose, seems destined to characterize the balance of this century and distinguish it from the age of individual glorification just past. Architecture, by the force of such an added intention, might henceforth express the love of mankind rather than the love of the individual—self or client.

Now, taking these four basic elements, how shall we apply them in a working creed? Just to get something down in black and white, how about this?

As to Fitness: Let us first of all design each building, each architectural arrangement of space, so that its three physical dimensions will be proportioned to the satisfaction of all the human needs involved, taken in the order of their importance—none magnified, none slighted. And, where possible, let us provide for more than mere convenience of use. The spirit needs room to expand.

As to Strength: Let us make each structure fully adequate for its purpose but not wasteful. Let us, in determining our design, draw upon the full resources of modern scientific knowledge of methods and materials as well as upon our inherited experience of building techniques. We need make today no concessions to the older ways of building where they would interfere with the best possible space solution for the functional requirements.

As to Beauty: Let us seek true beauty in all of our plans and our buildings, starting with understanding of the basic means by which it may be produced—form and color, rhythm and proportion, balance and contrast and texture and the rest. Let the forms grow naturally from the use and the structure; the color and texture from the honest expression of materials; all controlled as the design grows by the sensitive spirit of intelligent creation. Let us shun lazy-minded imitation.

The past is past: we are making the future.

As to Social Purpose: Let us, in every plan or building we do, be first true to the real needs of our client. Beyond that, however, let us *always* consider and provide thoughtfully for the other people who will use, or see, or be affected by our executed design. Let us scrupulously avoid producing any work of architecture which will make life less pleasant than it should be for any of these. Let us, on the contrary, always plan positively to increase, if possible, the comfort of all.

Many architects—the best, we think—already hold these views. The profession as a whole will not regain its former prestige until the majority of its members unite on some such philosophy.

Kenneth Reid

On Minding Our Own Business . . . . .

With this issue of PENCIL POINTS, we re-dedicate ourselves to the vigorous promotion of what we believe to be good architecture and to the active encouragement of all — whether they be architects or no — who work honestly at improving the human environment.

This, as we see it, is our business.

We like to take sides for things progressive — for schemes that place service to human society above selfish gain. We hope that those who agree with us will do so actively and that those who disagree will do so specifically. It is essential, therefore, that we state our beliefs and goals so clearly that both sides will understand exactly what we advocate.

Let Us Say What We Mean

To repeat, we believe in good architecture and an improved environment. We further believe that the two are inseparable parts of a single concept — a concept made up of ever-widening spheres definable only on the basis of scale. Thus:

Good planning of the individual unit.
Good planning of the individual house.
Good planning of the block.
Good planning of the community and service facilities needed in a residential neighborhood.
Good planning of the neighborhood as a whole.
Good planning of other types of individual buildings — for work, recreation, etc.
Good planning of the facilities needed to service these other buildings.
Good relation between all of the above, including well planned transportation systems.
Good planning of the community as a whole.
Good planning for the region.
Good planning for the nation.
Good planning for the world.

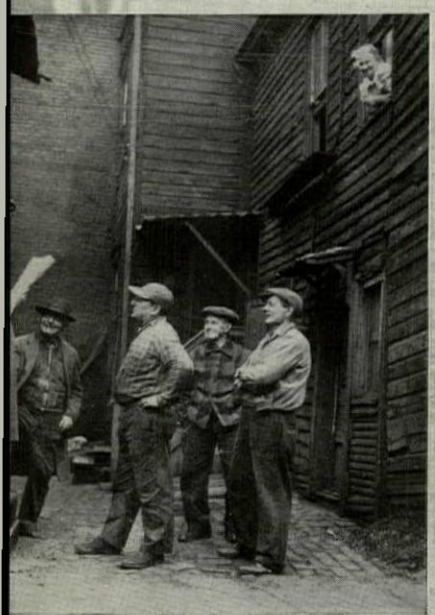
(*The universe, thank the Lord, is still quite orderly; is it a non-sequitur that man has yet to invade it?*)

Although this constitutes a tall order, we believe that those who place faith in anything less than such an over-all concept are somewhere snagged on a compromise.

The progressive spheres, it seems to us, are indissolubly intermingled; and activity within any one, however admirable when isolated for analysis, cannot properly be judged wholly *good* unless it contributes to the improvement of all of the other spheres.

For example, if a house is being appraised, we feel that it cannot be called truly excellent unless, in addition to fitting exactly the needs of the family for whom it was designed (surely the prime requisite), it also improves the general aspect and livability of the block of which it is a unit, is nicely related to neighborhood facilities (places of trade or employment), assists — or at least does no violence to — the development of a sound community, and so on.

Or, suppose a town plan is to be weighed: as we see it, it is impossible to assay it on a shelf, by itself. Again, it must be studied on the basis of what it does or fails to do toward enhancing all related parts — with emphasis again on the bull's-eye of assisting human efficiency and welfare. To be named thoroughly good, it must do the utmost toward



MRS. KELLY'S DOORSTEP

Mrs. Irene Kelly of Pittsburgh got news the other day that her son, Sgt. Charles Edward Kelly, first winner of the Congressional Medal of Honor in the Italian theatre of war, is coming home soon. A photograph published in this newspaper showed Mrs. Kelly on her doorstep passing the news along to some of her neighbors. They were neighbors with good American faces, and one could guess that their homes, and Mrs. Kelly's home, were spick and span inside. But Mrs. Kelly's doorstep abutted on an alley that was certainly not more than ten feet wide, and into which the sun could certainly not penetrate very long in any day. The surrounding walls were of unpainted clapboards or dingy brick.

This housing produced Sergeant Kelly, who must be healthy as well as brave. It produced six other Kelly boys, all now in service. But will anyone dare say that it is good enough for the Kellys? Certainly there is a field right there, in that angle of Pittsburgh, for some housing — subsidized by the Federal, State or City government, if necessary — that will provide Mrs. Kelly with a better doorstep, more sunlight and something better to look at than a gray wall ten feet away.

Editorial, N. Y. Times, April 11, 1944

furthering the human activities for which it will set the pattern; neighborhoods, business areas, industrial zones, etc., must not only serve the needs of the individuals using them, but also bear a fitting and workable relationship to one another. Then, traveling outward in our spheres, the town plan must make good use of the land it occupies, be well-coordinated with well-schemed transportation facilities, have a healthy relation to other towns, all organized within a sound regional framework that constitutes the outline for optimum national development, etc.

While this is admittedly oversimplified, it is but an attempt to define the highest planning standards of which we as a nation are capable — granted ***willingness to fight*** for things as they might be rather than acquiescing to things as they have been.

We recognize that in any particular instance, individual planners — and we, in interpreting their plans — are likely to come considerably short of the optimum goal. But, unless we know where we are going, how shall we know when we have taken a wrong turning or lost our way?

According to our lights, we shall support those individuals or planners or groups that are aware that something better is possible and who try not to cloud their vision with compromise. Conversely, as opportunity and our ingenuity permit, we shall consider it a privilege to expose those planners or groups who, consciously or unconsciously, are willing to compromise at the expense of the better environment, the better world — the goal of human freedom — for which men now die.

What Do We Mean By *Good?*

In its simplest terms, we mean by "good" the same thing we mean by "beautiful" — that which serves its whole purpose well. This is hardly a new idea; ***Socrates, among others, expressed it*** admirably some time ago.

If, then, we accept the moral terminology of "good" for plans that answer their purpose well, obviously lesser plans may be fairly good, fair, poor, or bad — with many subtle gradations in between.

It would be a pleasure if we could publish only thoroughly "good" buildings and plans; the world being what it is, however, these are rare birds. In addition, our judgment being less than impeccable, we shall occasionally publish things that, on total analysis, fall measurably below the "good" level.

Aristippus had asked Socrates a pertinent question: "Is a dung basket beautiful, then?" Socrates replied: "Of course, if it answers its purpose; likewise, a golden shield is ugly, if it fails of its purpose." Socrates, it strikes us, hit a very important nail on the head, and we propose to keep on hitting it.

Criteria

So that you can check your judgment against ours, let us further detail some of the pertinent questions we shall ask when we consider a building or other plan for publication in PENCIL POINTS:

1. **For what purpose was this designed?**
2. **What persons will use it and how?**
3. **How well does it meet their needs — in plan, *design, and amenity?***
4. **How was it built? Does the system meet needs as far as the local winds and weather are concerned?**
5. **Does it make intelligent provision for the use and enjoyment of the free elements of air, sun, and a bit of green?**
6. **What is its relation to neighboring facilities?**
7. **How well does the part work with respect to the whole?**
8. **How well does the whole assist healthier community development, a better environment, the better world, for the construction of which — surely — we in America have adequate materials, equipment, brains, and resources?**

Then, since we are publishing in the twentieth century and have great respect for the remarkable materials, structural systems, equipment, and mechanical systems which are available and to which our modern world has added and will add brilliant newcomers, we shall qualify all of the above by a reasonable check on how well the scheme takes advantage of the contemporary kit of tools.

We are not interested in "Styles" of architecture (except as they have helped catalog a record of architecture's vitality in the past and insofar as the structural forms reveal the nature and capacities of the society that produced them). If a building serves the needs of the people for whom it was designed, is well-built, helps the development of an improved environment, etc., then it is, in our opinion, "good." Predetermination of a "style" for a building should be as impossible as predetermination of sex; it should certainly never be the point of departure for the development of a design. Our interest is solely in good architecture, not in modes or mannerisms.

Getting Down to Cases

The major part of this issue is devoted to exposition of diametrically opposed types of planning, namely:

Good: The approach that starts out with careful analysis of the human activities and requirements involved and makes a sincere effort to meet these needs, resulting in a plan which is a rounded organization of the various essential parts and which promotes a good community pattern that improves as time goes on.

Bad: The empirical approach that overlooks the obvious requirements of the people to be served, or makes false generalizations about them, or allows ulterior considerations to outrank the goal of serving human needs, which results in inadequate organization of the various essential parts, few provisions above absolute minima, and a stultifying community pattern of the sort that generally fosters urban and social distress.

The issue here is not between public and private enterprise; it is between good and bad design and it is upon this basis that we approach it.

As a specific instance, we rehearse in considerable detail the recent ***controversy over housing*** for the lowest income group in Washington, D. C. The speculative builder, in effect, challenges the National Capital Housing Authority's work, says he could have and should have done it, and would have done it cheaper. The Housing Authority, in effect, answers that the builder had no intention of providing anything like the housing that the Authority built; that, therefore, the challenge is not even in point. After searching the plans and testimony, it seems to us that the Authority has produced infinitely better housing, representing a real break with the tradition that was willing to let poor enough alone. We also think that the Authority proved fairly convincingly that the builder had no intention of developing anything like as good or thorough a community plan.

The builder himself offered his work in contrast to the Authority's, and we attempt to show the two schemes in a balanced presentation. Let us say at once that not all speculative builders' projects are as bad as the one here presented; nor is the Authority's particular project offered in comparison as good as it might be. (The builder himself chose both types of projects, and we make our analysis on the basis of his selection.) The Authority's approach tends toward providing good architecture in its broadest sense—***good human environment*** and a healthy community pattern; while the builder's approach, in our opinion, tends toward poor architecture, uninspired human environment, and a stagnant, slum-of-the-future type of planning.

In the field of proper housing for those of limited means, we do care very much **how the planning** *is done. We believe that all persons of whatever financial status should be well housed —for many reasons. We assume that most will agree with us that as a nation we plan to provide good shelter for all and not slums for some. Surely our nation is resourceful enough and rich enough to do it. We should be pleased to hear from any who disagree on this point.*

Because we give extended space to this particular controversy, some may consider that the philosophy we support concerns only low-rent housing. Nothing could be more erroneous; it would be a poor philosophy indeed were it so narrow in its application.

Exactly the same types of problems apply to every building that is designed — a bank, or a church, or a school, or a laboratory, or a factory, etc., etc. And in pages following our discussion of the Washington housing argument we show a few examples of good architecture of various types recently selected by the Museum of Modern Art for exhibit. We agree, in the main, with the Museum's selection, and we invite those who wish to throw stones at some of these (admittedly) glass houses to consider buildings in the same categories in their own communities and check them against some of the pertinent questions we have suggested above. It should be easy to spot similar local buildings that squeeze functions into outworn shells, do little to improve or simplify these functions, that have no intelligent relation to any broad master plan and that might be better if they had made use of contemporary struc

tural techniques, new materials, or modern equipment. Why is this? Who or what, in addition to the architect, is at fault?

We should be happy if this issue were to provoke widespread discussion and bring out into the open those who are willing to offer compromises in place of good design — of the social worth of the architect, the future of communities, a decent use of air, sun, and nature, and accomplishment of the best we know.

We should be even happier if the discussion were to draw widespread approval and bring to architects, planners, developers, and builders of all degrees a new sense of the awful responsibilities they assume when they approve something that is less good than it might be. It would be well, we think, if civic-minded and progressive groups — men's and women's clubs, fraternal organizations, labor unions, chambers of commerce, church groups — yes, even architectural societies, etc.—were encouraged to look around their own communities, ask embarrassing questions, focus on the town's physical ills, inquire into the causes, and institute cures and preventive measures against future recurrence. Has your community a plan? Does it know where it is going? Why not? Who is trying to promote it? Who stands in the way? What might *you* do to support and advance it?

While architects are but one of many groups concerned with the planning and structure of communities, yet surely to no other group should the importance of the problem come with such immediate impact. Their effectiveness — indeed their existence — is at stake. Trained as they are to analyze such problems and provide constructive answers, they should be among the leaders in stirring up local discussion and challenging those who wilfully or through lethargy block plans for improving the community's health. As a group, they might well form a battalion to plead for better planning, to help explain to the public the pros and cons, to join with committees, groups, or organizations that work toward building a better world.

Above all, it would seem to be a concern of primary importance to organizations of practicing architects or architectural employees. In this quarter, certainly, one should look for stirring leadership in promoting good architecture in the broad sense we have been discussing. If some particular group is doing little in this line, the individual member might well undertake the task of spurring some appropriate action.

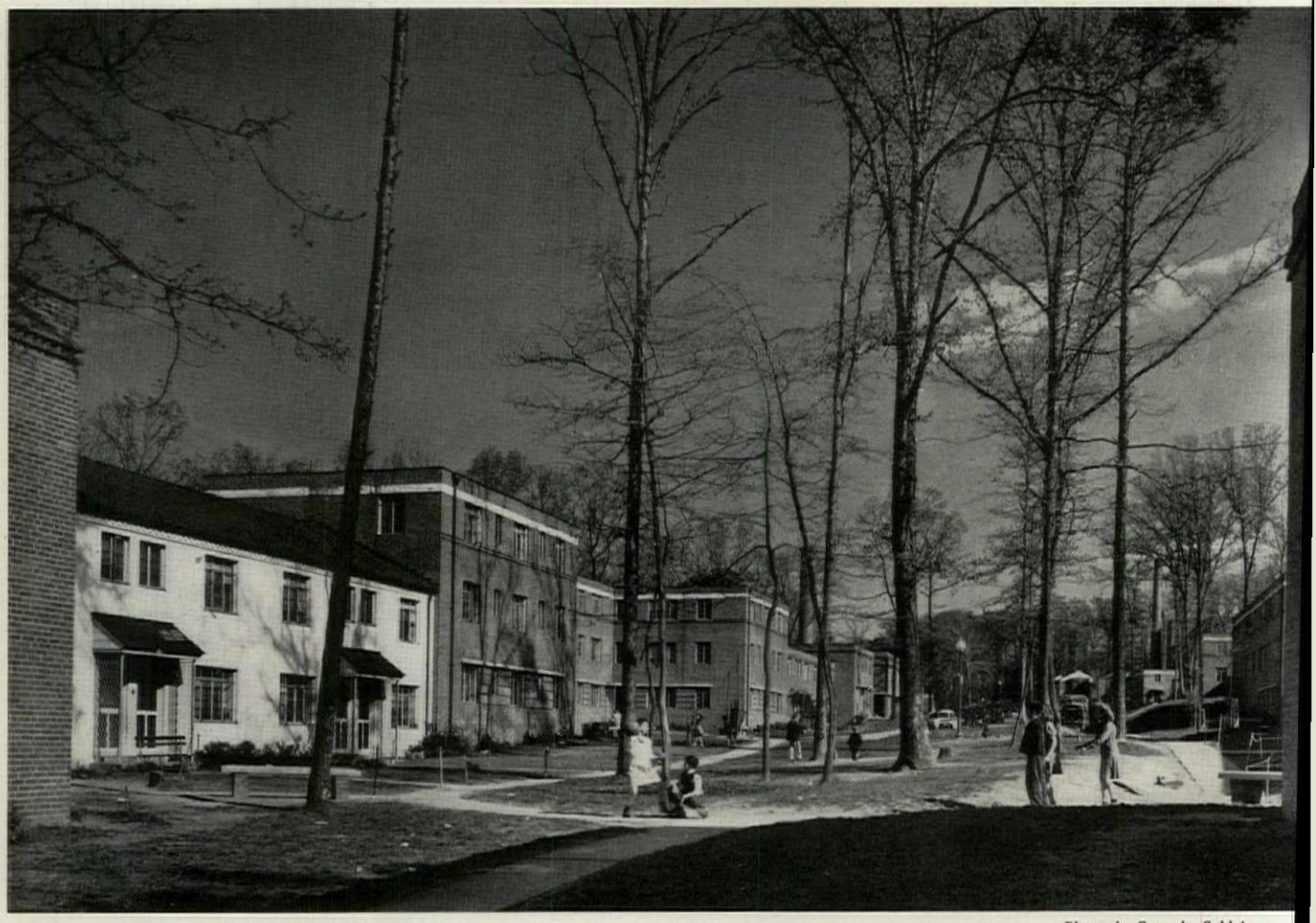
At this point, it occurs to us that we set out to talk about "our business." On the face of it, we seem to be discussing a great many other people's business. This is inevitable, for only through the joint efforts of all interested parties can we inch toward a goal commensurate with the problem. In May, 1942, PENCIL POINTS laid the foundations of a new and progressive editorial program; with this issue, we further detail its structure. Our sincerest hope is that there will be many vocal spokesmen who will make resounding use of it.

The world at war is a hideous revelation of what selfish, anti-social powers for evil can bring to mankind. Insofar as we plan ahead, we are ready in the postwar world; eventually we shall be able to give actual expression, instead of the lip service we now give so generously, to building a better world founded on honest concern for human freedom from tyrannies, large or small. The planners, designers, and builders of the physical portion of this better world must not fail the faith of those who now offer their lives for it. Normalcy will certainly not do. The challenge is clear; the job to be done, enormous; the responsibility, awfully humbling. It shall be our privilege to fight the meanness and selfishness and tyrannies of little groups and little men offering explanations, seeking delays, seeking appeasement.

May we not be guilty of doing too little, too late. Right now, leadership in other fields — industry, labor, business, etc. — is applying its training and experience to provide the plans for postwar development and taking an active part in community programs designed to produce elements of a better world. Architect-planners, above all, have a wealth of skill to contribute to the general planning program or to specific portions of it. Nor is the profession ever again likely to have so great an opportunity to prove itself. Even from the purely selfish standpoint, action now — or lack of it — may well determine whether in the years to come, the architect is to rise to his potential stature as a vital, democratic force or become a social question mark.

Opportunities exist on every hand. Why not start a one-man campaign? Or, better still, build a group to work with you. Write letters to the newspaper; stir up public support; urge the editor to run a series of features on your community's postwar plans and problems. Can you do much less? Probably you can do much more. Remember, there's everything to gain — and, mark it well, everything to lose, too. Complaints in the future that others did the work we were better equipped to do will surely be checked against what we actually did when the opportunity was ripe.

By Their Works Ye Shall Know Them. . . .



Photos by Gottscho-Schleisner

Mr. Deckman: *Fort Dupont [above; an NCHA project] is not an example of the type of development you would build for low-rent families.*

The National Capital Housing Authority has recently been the object of attack at Congressional sub-committee hearings. These attacks were, for the most part, ignorant and misinformed. PENCIL POINTS is not concerned with this except insofar as it affects the core of housing: the effort to **improve planning.**

The theme song of the Home Builders Association of the Metropolitan Area of Washington was "We can do it cheaper and better." The editors of PENCIL POINTS have carefully considered the record as to housing costs generally, and doubt if the builder can produce the same quality product any cheaper for himself privately than he does as builder for the government. For, after all, public housing is built by contractors, workmen, and material-producers just as private housing is . . . There is one essential item of cost difference to be carefully noted. The federal acts governing housing require the builder to comply with wage scales established by the Department of Labor. These scales are written into the contract in detail. For public housing the Department specifies what is known as the "A scale"; for private housing, including FHA-insured housing, the "B scale" is used. Builders have stated, without hesitation, that this means an increase for public housing on the construction cost of not less than 10%; a very careful study by the NCHA based upon wage rates certified by the Department of Labor, showed an increase of 17.08% . . . This appears to be a matter of inexplicable Labor Department policy, but the public housing agencies are not responsible for it. Eliminate the mandatory differential and costs become similar. . . .

There remains the question of "better." Ordinarily it is difficult to consider questions of quality in matters of this kind, but a certain Mr. X, a speculative operator of Washington, D. C., was kind enough to make the comparisons himself with examples of his own selection as part of his testimony before the Congressional Committee. On the following pages we present the case of the X project vs. the Parkside project of NCHA, with excerpts from the testimony of various witnesses. In later pages we widen the evidence with pictures of other projects.

All quotations are from the records of the hearings, which were held under the chairmanship of Senator Burton, who was patient, probing, and intelligent. There were many witnesses, and we quote from a few only: Mr. Robert P. Gerholz, president of the Home Builders Association of the United States; Mr. Deckman, representing the District of Columbia Federation of Citizens Associations; the ineffable Mr. Wilkes, at-

Mr. Gerholz: *We think we can recommend to you and to your committee a better plan that conforms to what we think is the American way of doing things.* [*Ed. note: Like the above?*].

torney for the prosecution; Mr. Mathew G. Lepley, who identified himself as an architect, builder, and "a native Washingtonian and one of the few parasites left"; Mr. Bernard E. Loshbough, Assistant to the Executive Officer of the NCHA; and Mr. X, homebuilder. We call him X because we wish to have him thought of, not as a person, but as a type of the nonplanner.

Let us restate the present position: we are interested in good planning, the creation of decent environment, the prevention today of the mistakes of the past, so that our grandchildren will not have a legacy of slums to undo such as we have inherited from our grandparents. If private enterprise can and will plan wisely and well, we want private enterprise to do it. We are not, in this place, concerned with the question of subsidies, of who gets what for nothing, **except** that if private enterprise is to be subsidized—and the testimony contains plenty of requests for subsidy by the private builders, even going so far as to demand an assured profit—we insist that the public interest demands that they plan socially and humanly as well as economically. We cannot afford to build the slums of the future as part of the "American Way" of free subsidized enterprise.

Private Enterprise Bids Anew

Mr. Robert P. Gerholz:

"As a national association we are opposed to public housing in the postwar period. We hold that home ownership is the bedrock upon which the social and economic structure of this country is built. We respect the theory that it is a legitimate function of our Government to own and operate housing. . . . It is undeniable that private enterprise has the skill and experience to do the job better and cheaper, thus keeping Government out of the real estate, building, and management business. . . .

"It appears that broad powers of condemnation must be available to the end that Government shall acquire blighted plottage as sites upon which private enterprise shall be called to erect housing which it will own and manage. Absorption of the heavy financial loss might better be assumed by community and state than by the Federal Government."

Mr. Mathew G. Lepley:

"We are at war, gentlemen. Our soldiers are living under far more unsanitary conditions than most of our alley dwellings. Mr. Ihlder [Executive Officer, NCHA] says it has existed for 148 years. A few more still certainly would make no difference."

Planning: Look upon this portrait and on this...

Dwelling Unit Schedule

	Parkside	X	
LBR	29	0	
1 BR	0	340	Add to all of these (except the LBR)
2 BR	152	10	Living Room, Kitchen, and Bath. For
3 BR	134	0	the LBR, add Kitchen and Bath only.
4 BR	58	0	
Total	373	350	

Let us consider this from the point of view of occupancy and family composition. Parkside has 967 bedrooms, X has 360 bedrooms. Decent occupancy standards, it is universally admitted, should not exceed 2 persons per bedroom. Parkside has an actual occupancy of 1909, or 1.97 persons per bedroom. X has an **allowable** occupancy of only 720, but it has an actual occupancy (estimated from a 50% sample census) of about 1135, or 3.15 persons per bedroom—a condition of **gross overcrowding** and evidence enough that it fails entirely to meet the normal requirements of a cross-section of family composition.

"When voices of children are heard on the green, And laughter is heard on the hill . . . "

Senator Burton:

"What is your policy with regard to children in these apartments?"

Mr. X:

"We will take two children any time."

Senator Burton:

"But you cannot put more than two in, is that it?"

Mr. X:

"That is all we want, yes, sir."

Just what is done when the two children are a boy and girl, and only one or no bedroom is available, was not enquired into. After all, there is the bathtub . . .

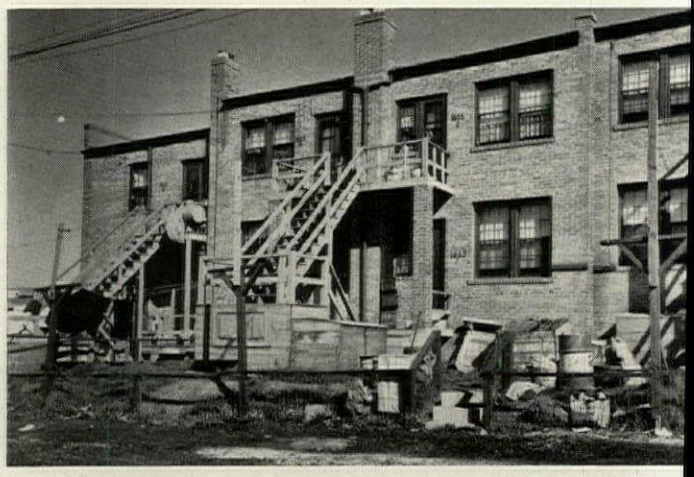
Low Rent

"My average rental per room on this project is $12.35," testified Mr. X.

"We do not take anybody with an income of less than $1,500 and so forth. We have a policy," said Mr. X.

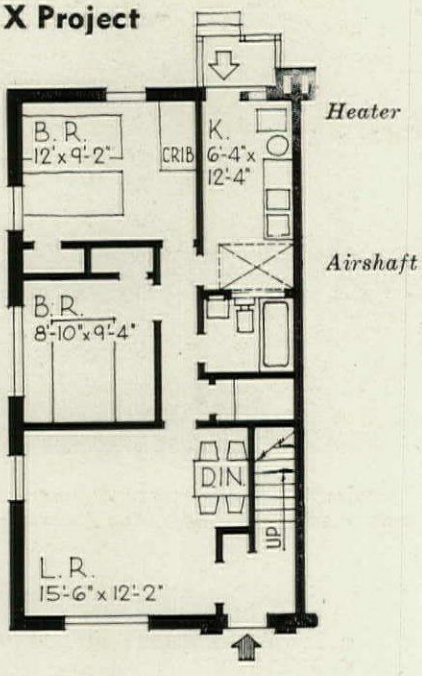
"Our summonses [for non-payment of rent] will average for 700 tenants about 50 a month. I think that is what you would like to know."

Yes, indeed.



Back Door

X Project



PLAN

0 5 10

SCALE

2-Bedroom Unit

Areas (sq. ft.)

Parkside		X
171	Living Room	178
119	Kitchen-Dining	70
110	BR 1	83
131	BR 2	110
23	Heater	8
40	Bath	32
29	Halls	33
72	Closets and Storage	28
695	Total	542

Unit Plans

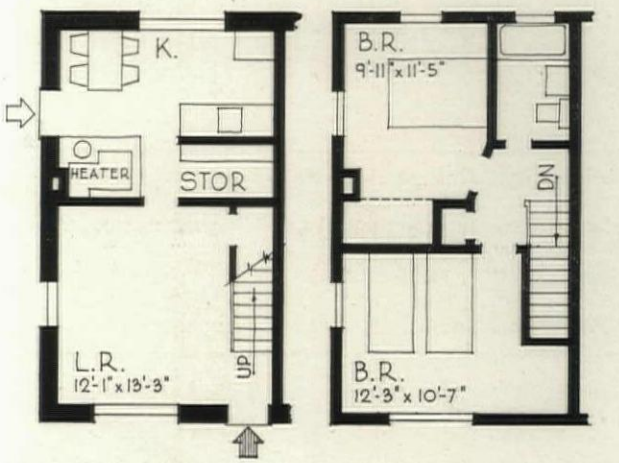
The X project consists of flats, Parkside of grou houses. Look at the photographs and see what th means in terms of appearance, light, and maintenanc

Appearance speaks for itself.

The light in the kitchens is badly impaired, to s nothing of the outlook. Maintenance of such stairs a porches is high. It is difficult to lug coal up or to avo slopping garbage down. With flats, neither front n rear yards are allocable to tenants; there is divid responsibility, and for the front entrance as well. Th are noisy, crude, and old-fashioned. As to livability, t kitchens in the X project are cramped, and the heat is difficult to fire. In the 2 BR plan either there is space for an icebox or else no place to eat except in t

Back Door

Parkside



2-Bedroom Unit

living room, which is quite a trip. The 1 BR unit, which could better spare it as it accommodates fewer people (theoretically), has a hall dinette on the first floor. On the second floor the stair encroaches and makes it useless.

The air-shaft for the bathrooms is wasteful of space and is a filth-catcher. Storage space is inadequate. If the living room is used for sleeping—as it obviously must be—there is no possible privacy.

The Parkside plans are not perfect, but they offer greater livability, more space, more privacy—inside and out. Even the LBR units (which are the nearest thing to the X 1 BR, offering accommodation to two people), which are questionable on many grounds, are more livable than the X units.

Cost: Sound and fury, signifying nothing...

Much was testified to on cost, a muddy controversy of claims, accusations, false comparisons, pointing fingers, the retort discourteous.

The real test of cost is not cost per unit—dwelling, cubic, or square foot—but the **cost per person housed.** The following table shows adjusted comparative costs of Parkside and X on that basis.

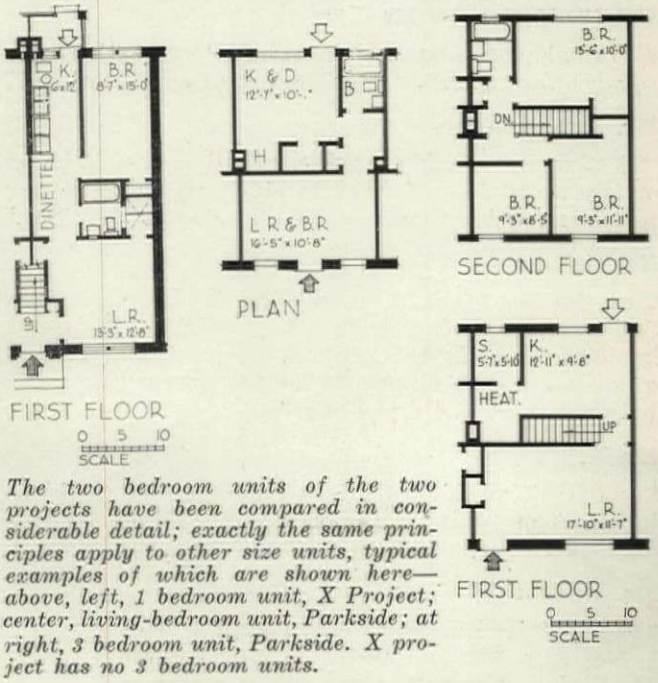
X	Cost Per Person	Parkside
$716,907	Total Cost of Project	$2,034,380
$700,359[a]	Construction Cost of Project	$1,831,507[b]
720[c]	Number of People the Project is designed for	1909[c]
$972	Construction cost per person	$979

a) Mr. X gave the total cost as $716,907, with land at $79,683. This leaves a construction cost of $637,224, but in order to make this comparable with Parkside, adjustment must be made for the 10% differential in "A" and "B" wage scales, as explained in the Introduction to this article. This amounts to $63,135 on the cost, omitting overhead, financial items, etc., to the extent of $5,876. This 10% (not the 17.08% demonstrated by NCHA) brings the cost up to $700,359. At 17% it would be $744,553, or $1,038 per person.

b) There is a discrepancy here, in which we again have given X the benefit. Mr. X used a figure for total cost which is $29,204 lower than that used here, taken from NCHA breakdown exhibit. Both figures omit the non-dwelling structures at Parkside. If we had used the figure accepted by Mr. X as the base cost ($2,005,181), the cost per person would be $944. The land cost at Parkside was $117,285, leaving $1,917,095 construction cost; we also deduct $65,598 for paving, which the X project did not pay for (it was put in by the District; it is not clear whether *all* paving was included; X may have paid for some portion, such as sidewalks), $7,812 for gas and $12,178 for electricity (exterior distribution only), since these were installed for Mr. X by the utilities company (here, again, the testimony is obscure; X may have paid a nominal installation fee; however, it would appear that this would not alter comparative totals appreciably). It should be noted that the Parkside project paid for this installation in order to obtain the benefits of master-meter rates, which result in lower rentals; proper comparability requires their exclusion.

c) Figured on the basis of two persons per bedroom, standard occupancy for X and actual occupancy for Parkside. If Parkside were figured on the X basis of 3.15 occupancy, the population would be 3046, a cost of $601 per person.

General note: costs include interest during construction, administration, superintendence, overhead, professional fees.



The two bedroom units of the two projects have been compared in considerable detail; exactly the same principles apply to other size units, typical examples of which are shown here—above, left, 1 bedroom unit, X Project; center, living-bedroom unit, Parkside; at right, 3 bedroom unit, Parkside. X project has no 3 bedroom units.

Site Planning: Upright men shall be astonied and the innocent shall stir up himself against the hypocrite

Mr. X made a great to-do about getting more lots because he had more street, and consequent economies. On a per person basis he has 41.1 sq. yds. of paving while Parkside has only 24.2 sq. yds.

Senator Burton:

"You put in extra streets, not larger ones, and divided them up into smaller lots?"

Mr. X:

"That is right. . . . All my streets and alleys were hard surfaced by the District of Columbia Surface Division without assessment."

Senator Burton:
"You get more buildings on the same area?"

Mr. X:

"Same plotting, yes."

Senator Burton:

"What happens to the argument about air space, children's playground? Do you think there is an excessive use of it?" [Referring to Parkside.]

Mr. X:

"I think there is an excessive use of it here."

Mr. X is very proud of his fences, too. Parkside has none—and needs none.

Construction

There was a good deal of recrimination about construction. It seems the insulation never got into Mr. X's attic, and he has no fire protection under his heaters and the brick-work is not too wonderful and Parkside has plaster cracks and no yard drains. Something more is involved, however. Mr. X's professional fees amounted to $899.50, including a 10-page specification for priorities. NCHA spent $64,550.70 on architects, engineers—civil and mechanical, landscapers, specifications, blueprints.

Senator Burton (to Mr. X):

"Do you have a bound volume or an accumulation after you get through with your project of specifications?"

Mr. X:

"The only ones I say are these special ones of 10 pages or less we made up for the specific purpose of getting priorities. Other than that, we have no specifications."

Mr. Wilkes:

"In addition to that, in entering into the contract, for example, having to do with footings, you would, by letter, specify the content, proportionate content of sand, water, and cement for the concrete to go in your footings, would you not?"

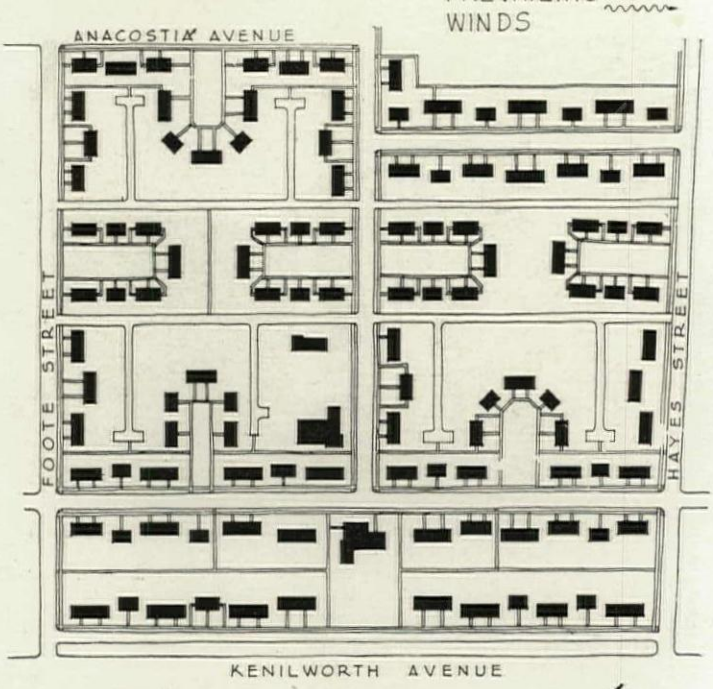
Mr. X:

"I wouldn't go that far. I would state that would go in accordance with the plans and the District Building Code."

Mr. Wilkes:

"The District Building Code, I see."

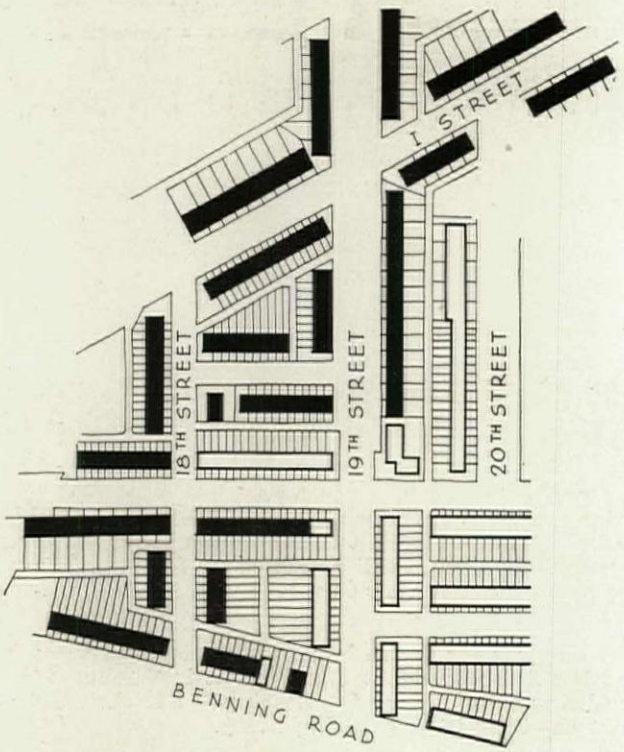
(Continued on page 50)



SITE PLAN **Parkside**
0 100 200 300
SCALE

Parkside:	Gr. Coverage	11%	; Net	16.5%	; streets	25%	of gr.	
X:	"	"	21%	; "	38%	; "	45%	" "
Parkside:	Density	9.8	families,	50.3	persons	per	gr.	acre.
X:	"	32	"	63.7*	"	"	"	"
Parkside:	"	12.25	"	62.8	"	"	net	"
X:	"	46.4	"	92.4*	"	"	"	"

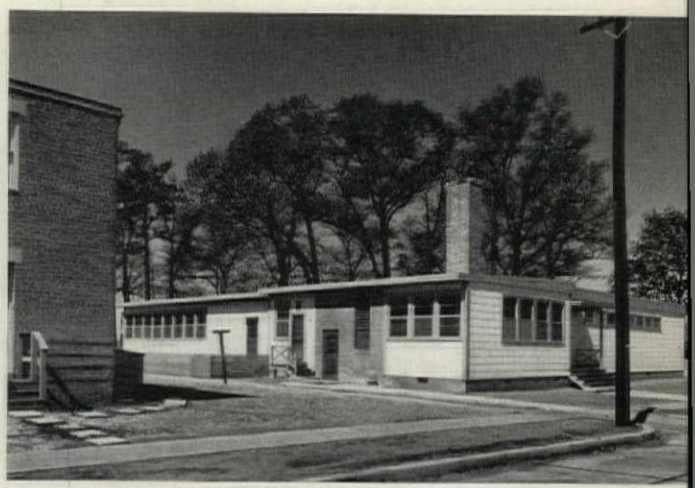
* Based on standard, not actual, occupancy



SITE PLAN **X Project**
0 100 200 300
SCALE

Comparisons are Odious . . . . .

Frederick Douglass [NCHA] Playground



Parkside [NCHA] Child Care Center

PLAYGROUNDS AND COMMUNITY FACILITIES — THE X PROJECT HAS NONE

PUBLIC PROJECTS HAVE OFF-STREET PARKING; GARBAGE COLLECTION STATIONS;

CHILDREN ARE SAFE FROM TRAFFIC; THERE ARE GARDENS, TREES, QUIET SPACES

Highland Dwellings [NCHA]

X Project

PAVED ALLEYS, OPENNESS, VARIETY, ATTRACTIVE APPEARANCE — COMPARE!

Carry Farms [NCHA]

X Project

Mr. X:

"And the mixture is checked by the building inspector and so forth on the job."

. . . and so forth. As Mr. Lepley, another witness, says: "There are a whole lot of things amplified in the Government work that is not necessary to do."

"I would be glad to hear about that," said Senator Burton. "That is exactly what I want."

Mr. Lepley:

"Because you will have a superintendent. You will have a timekeeper. You will have a foreman. You will have a clerk in the office, and an auditor, telephone operator, and a stenographer. There are seven in the office, whereas, on a job of mine, I have one man, the superintendent, on job. He does the whole business." Which, of course, as he says later, ". . . . is one of the reasons why Government jobs cost so much money, is because a practical business man is not put at the head of the organization. Not theory. I mean facts. . . ."

Mr. Deckman clinches the thought:

"I would say they [the NCHA] don't know their business. They have architects hired there, and if they can't draw the plans of these things and have to go outside, then they don't know the rudiments of building housing. . . ."

The Intangibles

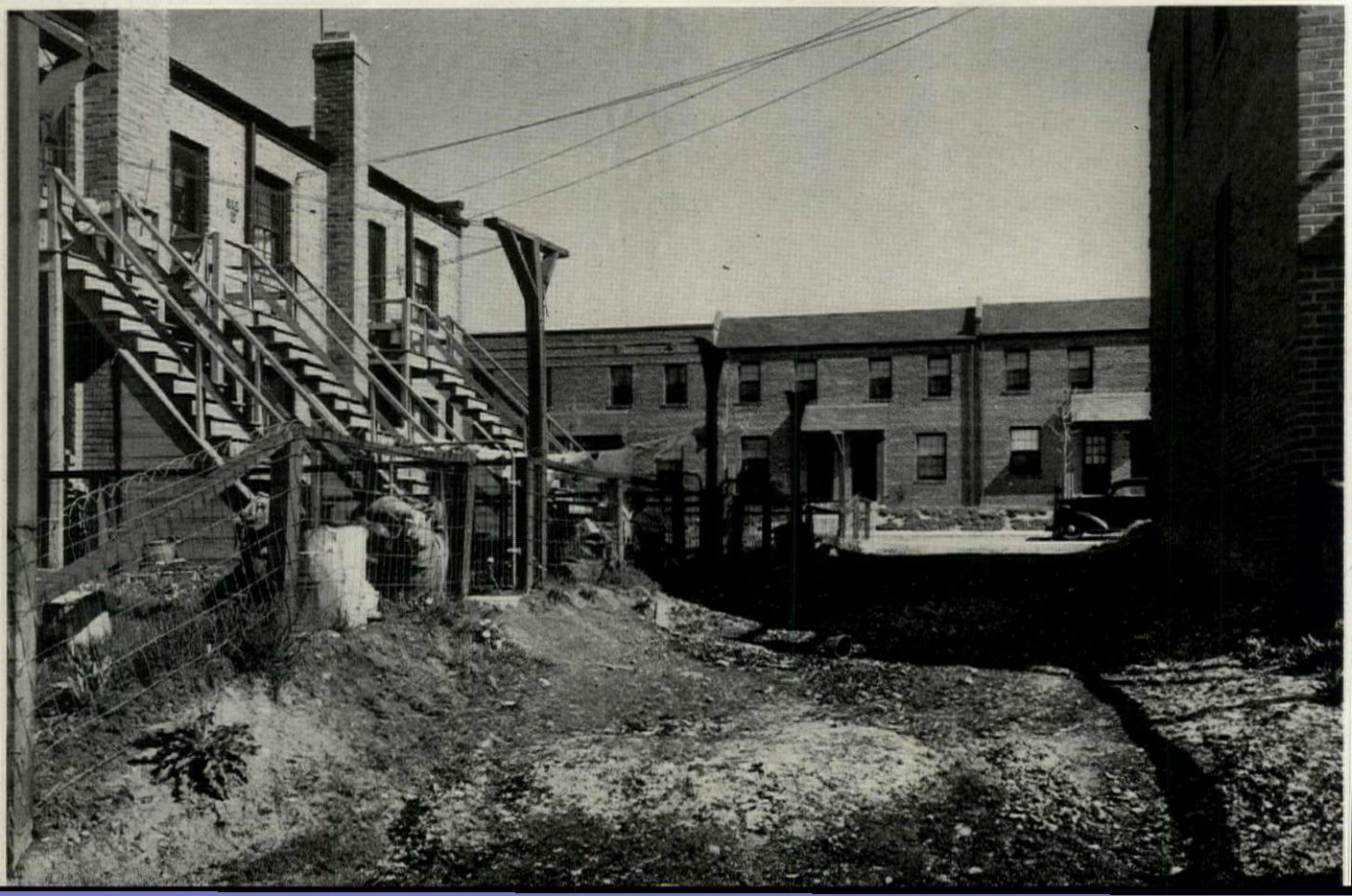
Mr. Bernard E. Loshbough's statement, in part: "It is encouraging to note that operative builders apparently are at last keenly interested in ridding Washington of its slums. Such an interest as has been evident here at the hearings is a source of real satisfaction to NCHA.

X Project: General Street View

"However, clearing and rebuilding those blighted areas which are adaptable to low rent housing is far more than just a 'brick and mortar job.' Before effective building and proper housing can be provided, an intensive and careful period of planning must take place. After the buildings are completed the dwelling units provided must be more than mere flats or tenements. They must be a living part of the community, where families can find a satisfactory home environment, where children can have adequate space for recreation which is free from insanitation and traffic hazards. If private enterprise will actually do the job which they have stated before this Committee they will do, there must be definite assurance that its plans will be developed in the interest of the people whose need they propose to meet. One factor that must be included in meeting this need is an adequate supply of well-planned two, three, and four-bedroom dwelling units in lieu of the operative builders' one- and two-bedroom units.

"These dwellings must also be site planned for proper space arrangement that will fit into and advantageously affect the development of the city plan. Building horizontal units, 'which cover the city like a rash,' crowding out necessary open space and producing

X Project: Public Space



Parkside [NCHA]: General Street View

what can truly be called a regimentation of homes, must be prevented. Such developments, not only in the opinion of NCHA, but in that of others who have studied causes of blight, are the future slums of Washington. This is the inevitable result of a type of development that merely builds new buildings in imitation of what has been previously built. To develop plans properly for good housing requires the services of competent architects and engineers who are thoroughly familiar with not only the economic but also the social aspects involved in providing adequate housing for low income families. Such plans do not come wrapped up in a $25 set of blue prints.

"One of NCHA's policies in planning is carefully to select an architect who has experience in dealing with, and particularly, who is sensitive to, the human factor of the problem, that is, adequate living space for human beings. It asks him to design a good dwelling with sufficient space, light, and air and the necessary equipment for convenient housekeeping and comfortable living, and of attractive appearance. Since the amount of space taken up by household furniture seriously affects the ultimate workability of any plan, the architect in submitting his unit plans for approval to NCHA is requested to draw on the plans the amount of furniture needed for convenient living.

"NCHA also stresses to the architect the very important problem of proper site planning. In developing the site plan the architect is requested to keep his density as low as economically possible so that the tenant is provided with maximum light, ventilation, and view. The solution must also provide for play areas for pre-school age children, sitting-out areas for adults, drying yards and arrangement for convenient refuse collection. Again I state that the fulfillment of such an assignment does not come wrapped up in a $25 set of blue prints.

"At one point in the testimony one of the witnesses stated, concerning two of NCHA's war housing projects, that they never would have been built if the advice of real estate operators and bankers had been sought and followed. Possibly not. This may be the reason why little or no advance has been made by operative builders in low cost housing.

"NCHA doesn't claim that any of its projects offer a perfect solution to the problems involved in large scale housing, which are very different than those concerned with just 'a house.' Since NCHA's planning policy is a progressive one, the results obtained are not always beyond criticism. However, NCHA at all times seeks constructive criticism. Each of the operative builders who have given testimony in connection with NCHA planning and construction have found things in a specific project that they would do differently. NCHA's answer to that is, it also finds things in completed projects that it would do differently if it were planning the project again; it does them differently the next time.

"Those who have responsibility in connection with planning at NCHA are continually studying how the completed dwellings 'work' as places in which to live with a view toward constant improvement in design and arrangement. Again, **the purpose of housing is not simply to build buildings but to provide facilities for family living.**"

Parkside [NCHA]: Public Space

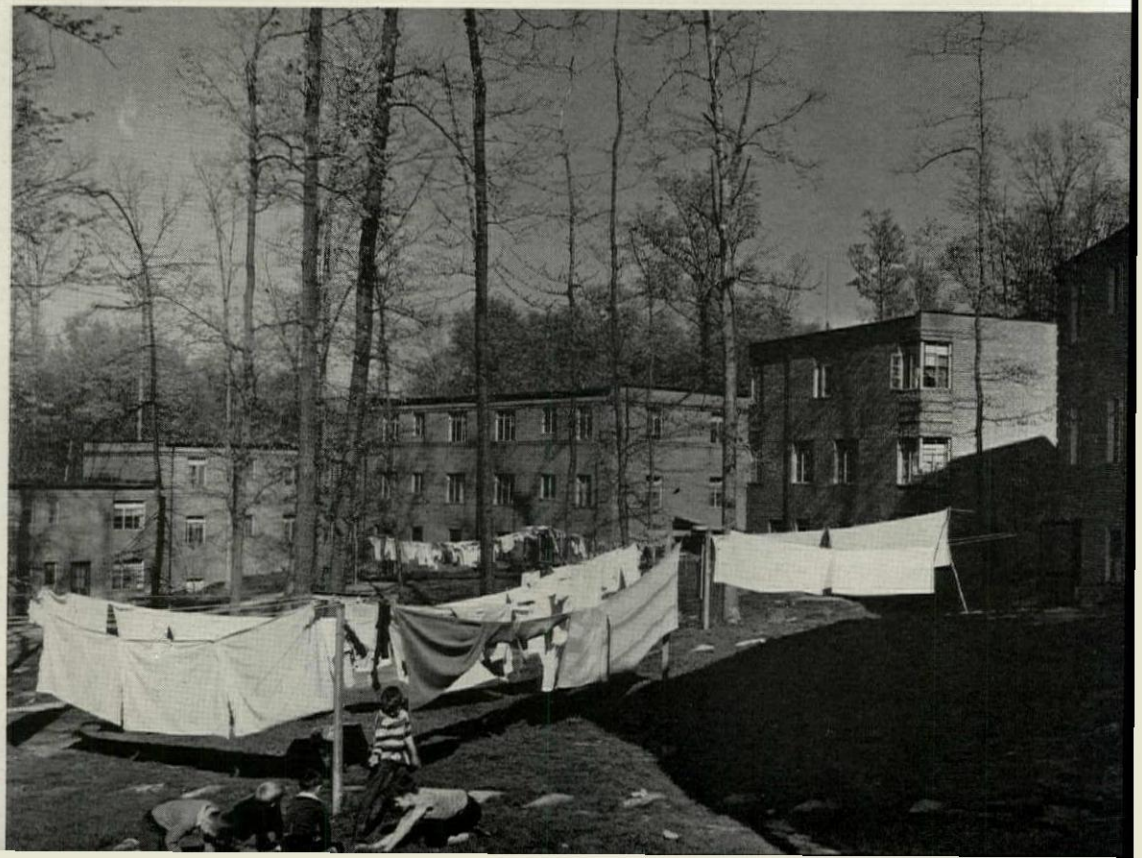
Conclusions:

We have presented the case. We do not know of any projects approaching Mr. X's in rents that are any better than Mr. X's. . . . We are not comparing projects that rent for $15 or more per room, or sell for $8,000 . . . We are deeply concerned with good planning for living for the great majority of people, who can't afford $15, or $10 . . . We ask, in the not-so-very-long run, dollar for dollar, or even dollar-twenty for dollar, which type of planning is an asset, which is a liability?

Fort Dupont [*NCHA*]

The larger photographs on these pages show wh results when home projects are undertaken wi really respectable living needs of families as the d parture point. The random snapshots at the top sho developments wherein high standards have bee rudely compromised—for "practical" reasons. Eithe obviously, is possible. Which, we ask, *is* the more prac cal in the long run?

Fort Dupont [*NCHA*]



Both Views: Highland Dwellings **[NCHA]**

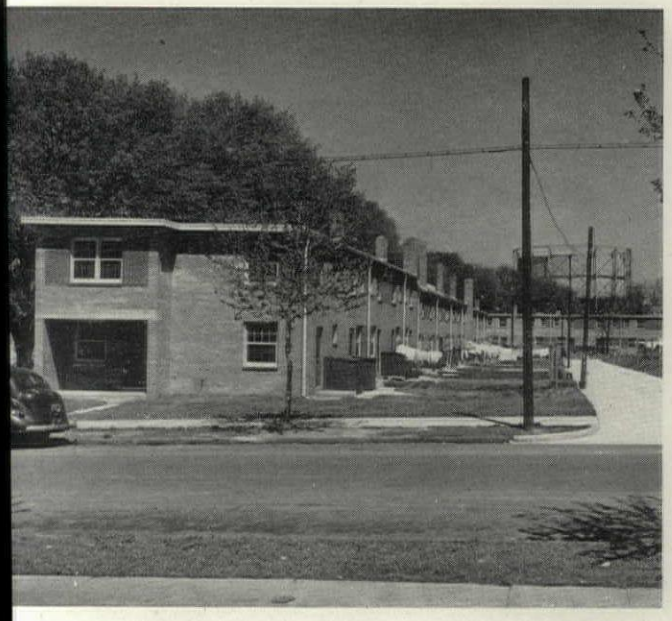
Parkside **[NCHA]**

What Do You Mean By "Practical?"

Here, again, the photographs at top offer striking contrast to those below. Details aside, is it not obvious which is the better type of planning? Some say it is "uneconomic," that it is "impractical" to provide the better architecture. For whom? For how long? For the housed? For the community's health? For the community's future? For the architect? For the manufacturer of building materials? What about fire hazard? Or incidence of disease?

Barry Farms [NCHA]

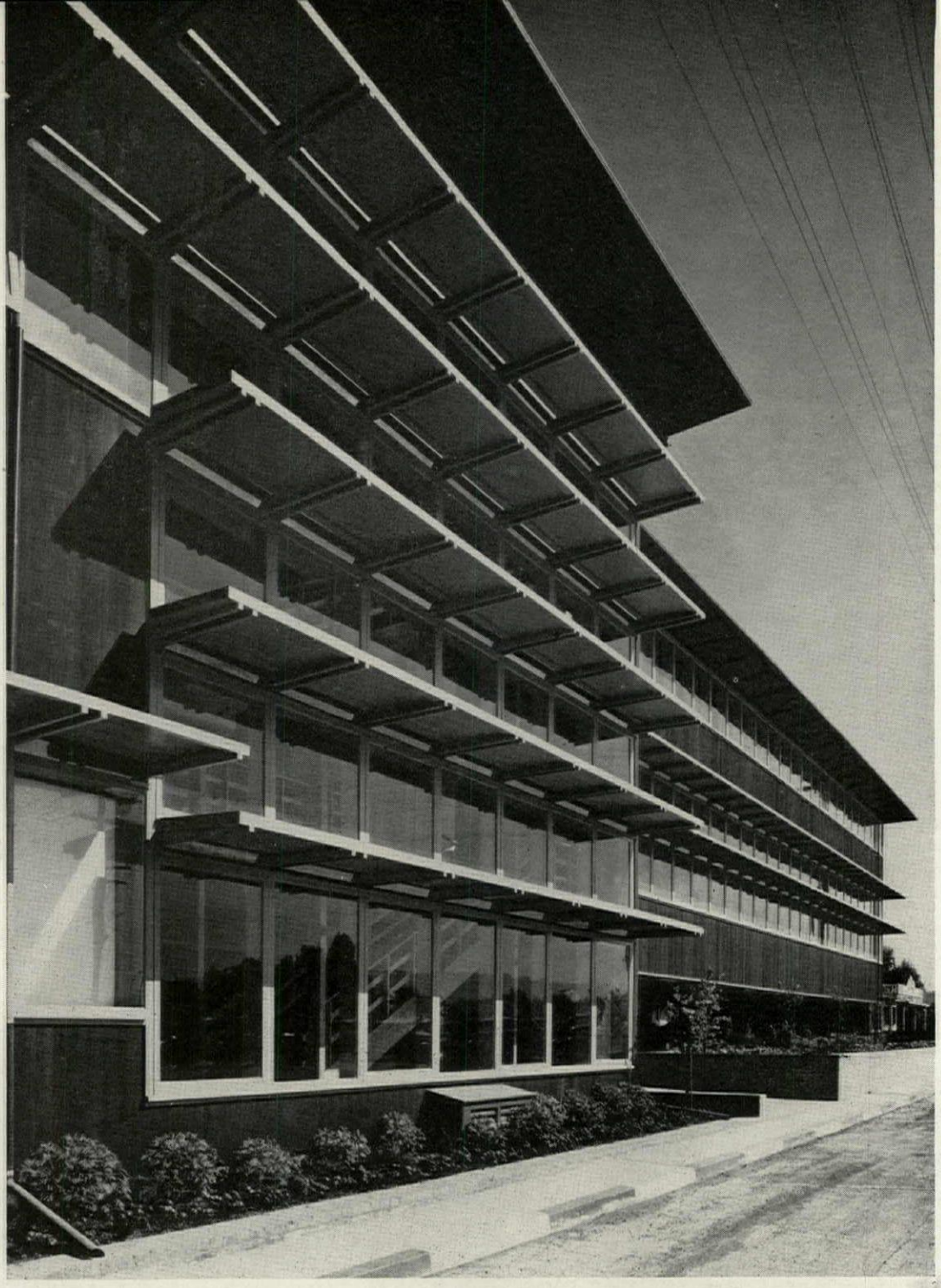
Frederick Douglass [NCHA]



ames Creek Dwellings [NCHA]

Barry Farms [NCHA]

Highland Dwellings [NCHA]



PROGRESSIVE ARCHITECTURE IMPLIES CREATION OF ELEMENTS OF AN IMPROVED ENVIRONMENT

The photographs shown on these ten pages were selected from "Built in U.S.A., 1932-44," the architectural section of The Museum of Modern Art's 15th Anniversary Exhibition, "Art in Progress," on view in New York until October 8, 1944. The exhibit, schemed to give visual definition to what constitutes good architecture, proved a happy coincidence, since it appeared at just the time we were planning this issue devoted to precisely the same subject. It is gratifying that the Museum's selection seems to us, also, to be good architecture. We feel it is only proper to say, however, that the accompanying comments—to which the Museum may or may not subscribe—are our own.

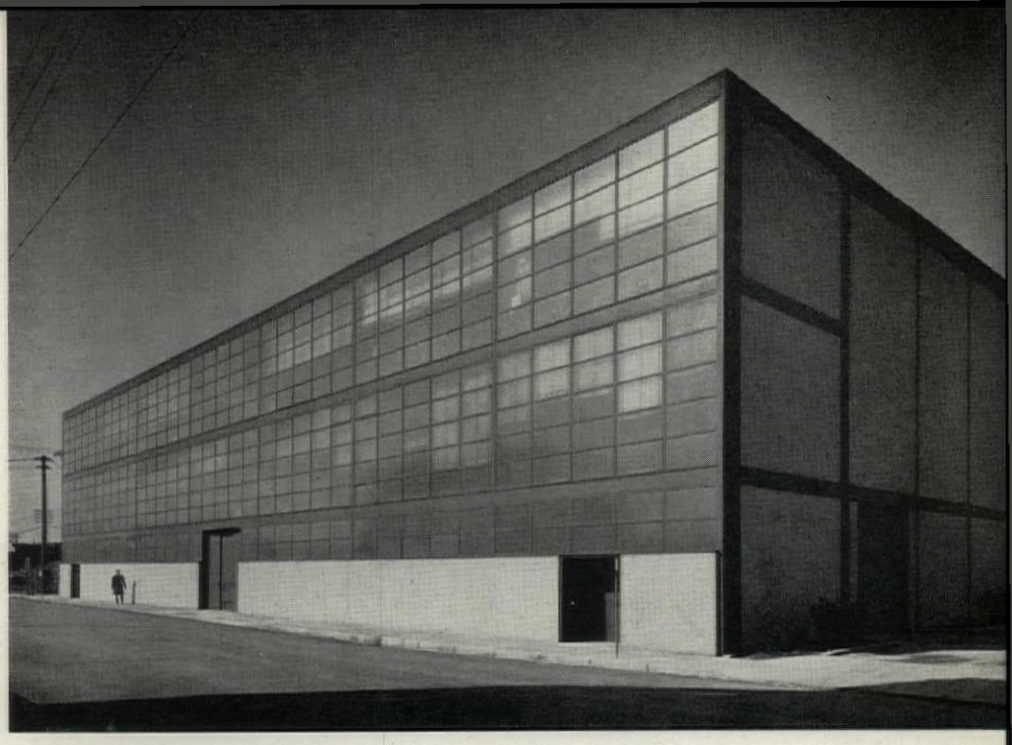
Office Building for the Schuckl Canning Company, Sunnyvale, California. 1942. Architect: William Wilson Wurster.

Particular conditions of operation made it advisable to move the company's executive offices from city quarters to join management and operating units of the plant itself in the country. What city office employee can fail to envy those who work daily in this well-lighted office structure, from which broad country views are everywhere a matter of course?

The fixed wood awnings keep the sun under control. At the first-floor level at right of photograph, the building is open between frame members, forming sheltered parking space for cars.

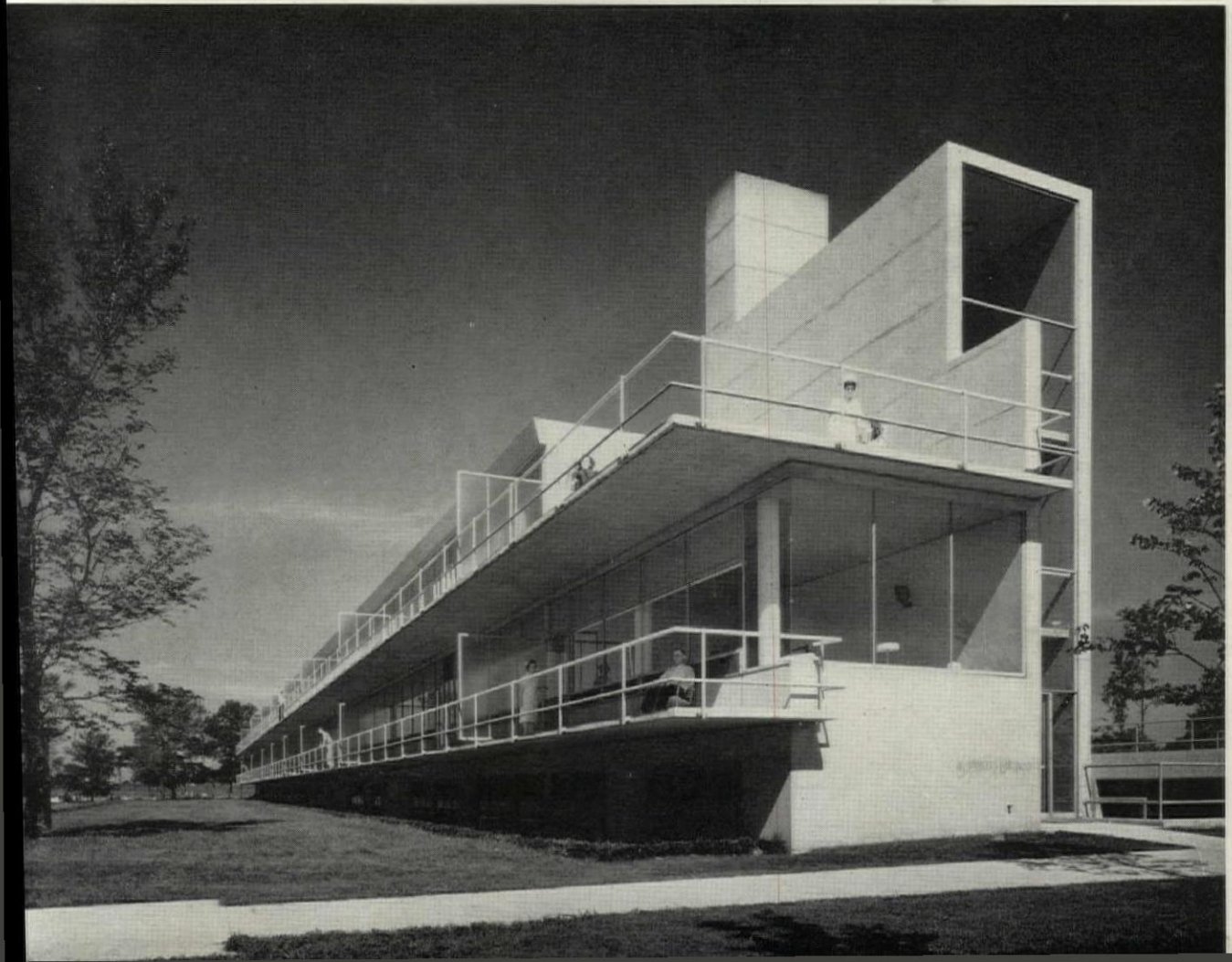
Metallurgical Research Building of Armour Research Foundation, Illinois Institute of Technology, Chicago, Illinois. 1943. Architect: Mies van der Rohe; Associate Architects: Holabird & Root.

Consider what might have happened if the architects had approached this design problem on the basis of "style." Could the Gothic or Saracenic approach have produced as good a research laboratory? The needs were specific: a strongly built structure of a size to accommodate a constantly changing array of machinery, devices, and inventions in the making. Because pure research requiring exact observation was to be conducted, excellent light was a primary factor. The structure seems to us to have the hard, clean beauty inherent in any tool correctly designed to perform a highly specialized job.



The Lake County Tuberculosis Sanatorium, Waukegan, Illinois. 1939. Architects: William A. Ganster and William L. Pereira.

This distinguished piece of architecture offers clear answers to the pertinent questions we ask in judging a building's merit. It was designed to assist in the cure of tuberculosis patients, who need controlled exposure to sunlight—in some cases, as much as possible. As a well-integrated group of units which serve their individual and joint purposes admirably, are pleasingly organized on an ample site, and nicely related to highway access, it offers a bold, basic pattern, the intelligent development of which would surely lead to a healthy community scheme and a good man-made environment.



Crow Island School, Winnetka, Ill. 1940. Architects: Eliel and Eero Saarinen; Perkins, Wheeler & Will.

Just one view of a primary classroom of this school presents a challenge to those who maintain that "what was good enough for Father is good enough for me." Even approached from the sticks-and-stones level, see what a whale of a difference large expanse of glass can make—or air conditioning, or proper artificial illumination, or resilient floor surface, or acoustic ceiling. Furthermore, how much better are the movable furniture units, allowing varied placement for varied uses, than the regimented, all-alike desks that used to be screwed to schoolroom floors in rows.

IF HUMAN SOCIETY IS TO BE WELL SERVED . . .

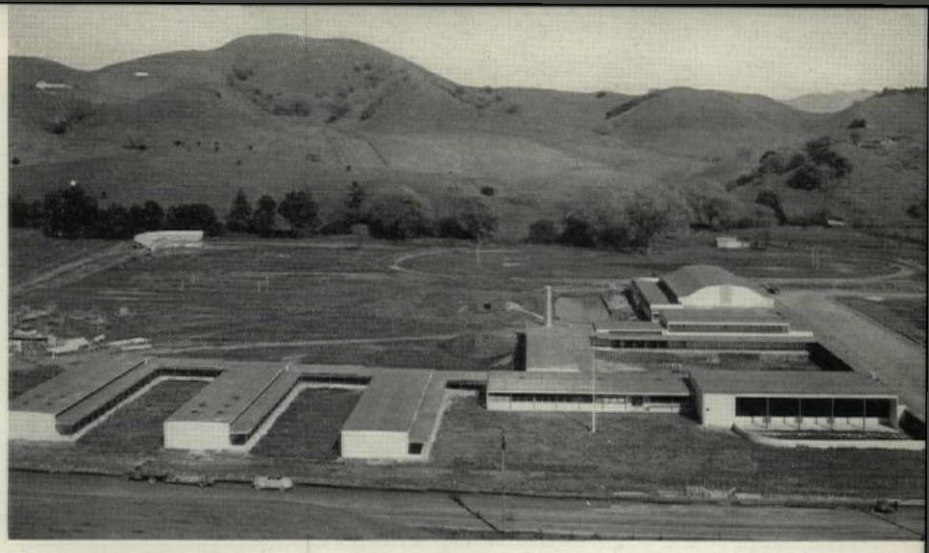
Valencia Gardens, San Francisco, California. 1943. (Originally started as USHA low-rent project; 246 units.) Architects: Harry A. Thomsen, Jr., and William Wilson Wurster. Landscape Architect: Thomas D. Church.

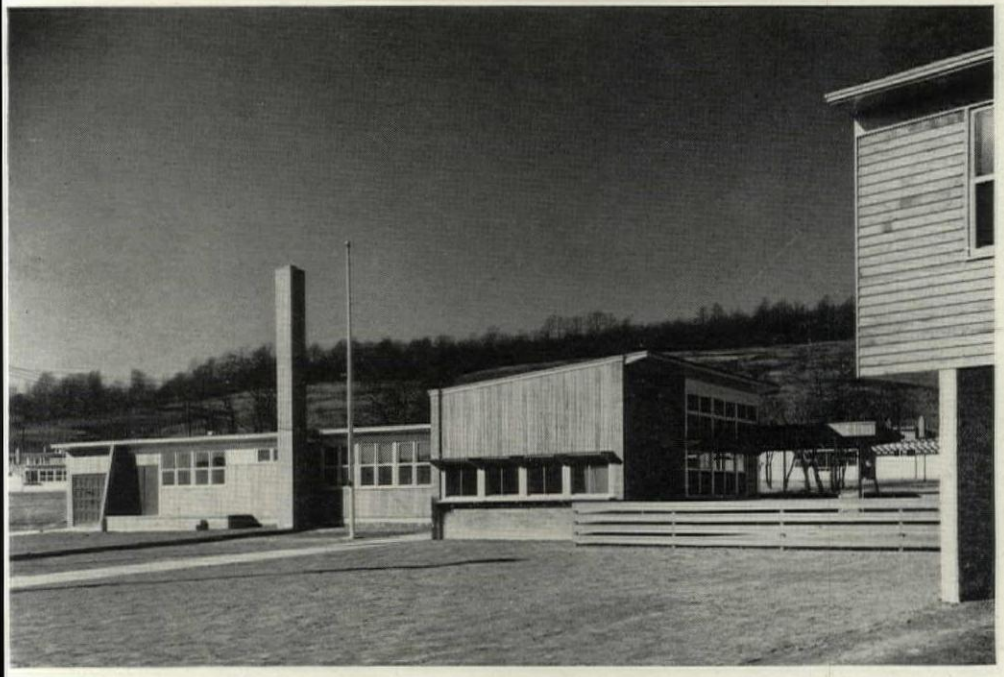
We can do no better in indicating why we (and presumably, the Museum of Modern Art) consider this fine architecture than by re-quoting the architects: "Early in the design we agreed to do all we could to stress the dignity of the individual. There would be no *emphasis on the great axis which would only serve to show how small each family was in the sum total.*

"Each apartment to be entered from a balcony has small wing walls which designate a portion of the balcony as belonging to that apartment. Each living room has a window with a low sill, and a railing for security, so that a mother may look down into the garden, or to see her children, rather than just look across at other apartments."

Acalanes Union High School, Lafayette, California. 1940-41. Architects: Franklin & Kump and Associates.

This is an example of good architecture created in spite of a complex educational program faced with a limited budget. The community wished an advanced type of school—one that could grow, with movable partitions between classrooms to care for changed needs in the future, planned so that adults could use the auditorium and other facilities when school was not in session. Expansion is possible in any quarter without disrupting present installations. The group as a whole is one of the most advanced examples of the pavilion plan applied to the school problem.



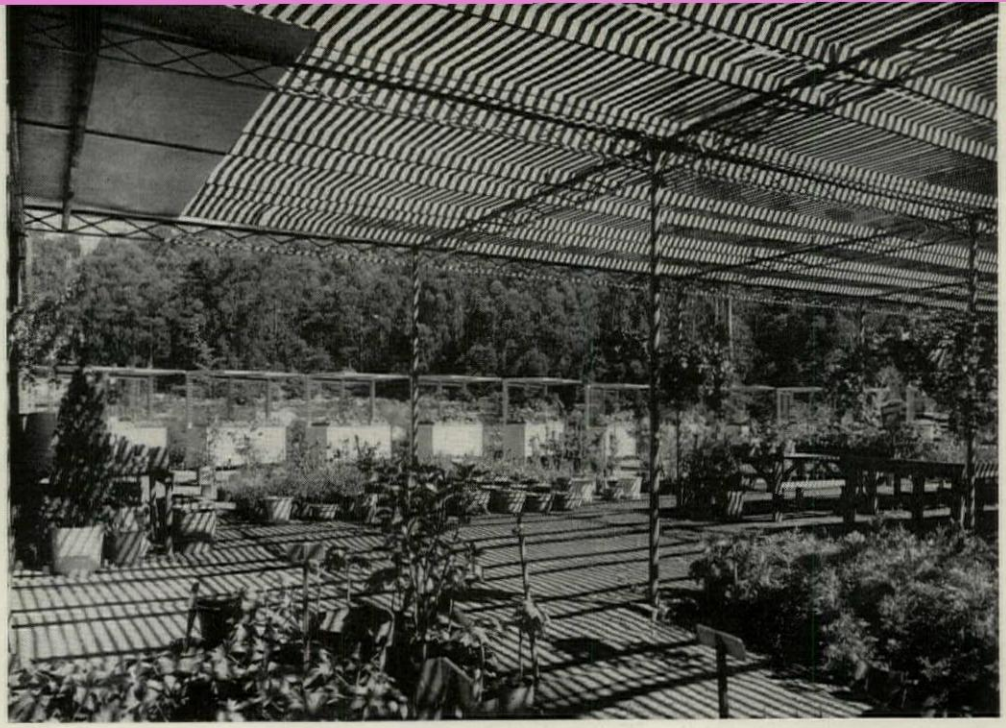


Carver Court, Coatesville, Pennsylvania. 1944, (Permanent FPHA war housing). Architects: Howe, Stonorov and Kahn.

This community, maintenance, and office building for a low-rent housing project is one of the happy architectural results of a design problem worked out on the basis of social need rather than on traditions and styles. Symmetry may have gone out the window; but instead, windows are of various sizes and where they belong—big ones for a social hall, smaller and higher ones along work spaces, minimum ones in service rooms. In addition, sturdy materials are used honestly and organized into a clean and harmonious design.

House for A. Conger Goodyear, Wheatley Hills Road, Old Westbury, Long Island. 1940. Architect: Edward D. Stone.

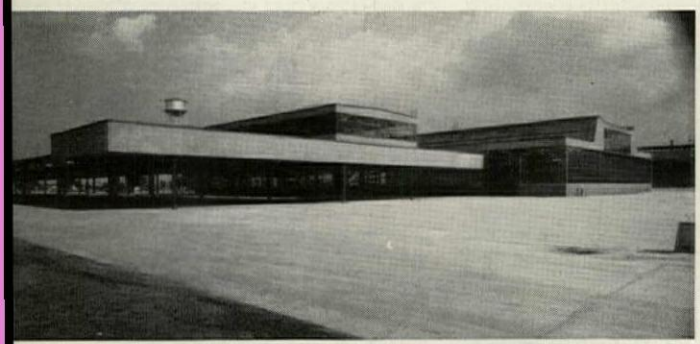
In contrast to the structure for a low-rent housing group shown above, this photograph is of a sizable country home for a private citizen who owns a notable collection of contemporary art. The family's preference joined with the architect's ability to produce an outstanding example of good contemporary architecture in the larger-residence category.



LET A PLAN HAVE A BROAD PURPOSE AND SATISFY IT FULLY . . .

Garden Center for Hallawell Seed Company, San Francisco, California. Designer: Raphael S. Soriano.

One photograph of a portion of this remarkable establishment suggests the whole, comprised of a windowed display room and store, bordered by a large lath house built on a light steel frame (point of view of the photograph) looking across to display and sale plant "bars" and extensive gardens and parking area. The architect made a thorough analysis of what was actually needed rather than what was established practice. "It was not enough," he comments, "to introduce architectural neatness and orderliness—it was essential to introduce these qualities into merchandising."



Dodge Half-Ton Truck Plant, Chrysler Corporation, Detroit, Michigan. 1938. Architects: Albert Kahn, Associated Architects and Engineers, Inc.

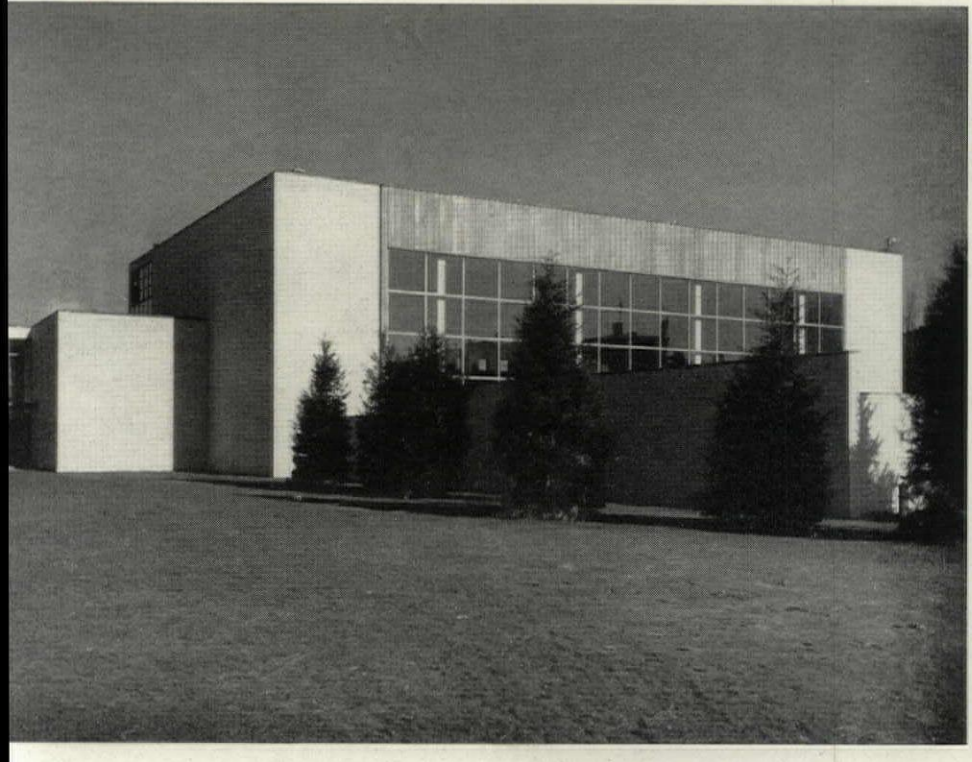
With the growing realization of broader aims of providing good patterns within which all human activities thrive, and greatly spurred by the demands of war production, the factory has fast advanced to become one of our most distinguished architectural categories. The plant shown here, like so many of its contemporaries, reflects design to serve the purpose well: windowed walls and roof monitors, where much natural light is needed; organization of the units so that production steps are taken in orderly progress, forming proud and useful architecture.

The Watts Bar Steam Plant, Tennessee Valley Authority. 1942.

The work of the planners and architects of the great renaissance of the Tennessee Valley is so well known that in this brief space we can hardly hope to add to its renown. It is the outstanding example in the United States of architecture applied in its broadest sense. Starting out with exhaustive analysis of such fundamentals as regional resources, waterways, advantages and limitations of the climate, rainfall, and topography, an improved environment has been created in every quarter—flood control and land reclamation projects, complete new communities, replanning of older towns, research laboratories, cooperatives, recreational facilities, individual houses, etc. Those who say that the broadest approach imaginable is "visionary" and "unrealistic," are, it seems to us, stopped in their tracks by the accomplished fact produced by intelligent joint efforts in the Tennessee Valley.

U. S. Merchant Marine Cadet Basic School, Coyote Point, San Mateo, California. 1942. Architect: Gardner A. Dailey.

There is very little to add to the photograph of this exceptional provision for training personnel for service except to suggest comparison of its general aspect with the appearance of parallel installations elsewhere. Notice that something better does not necessarily mean something more expensive! With good proportions, a nice sense of relationship between elements and functions, a little care given to application of color, and wise organization, the simplest of materials and structural systems come to life as fine architecture.



Alumni Swimming Pool, Massachusetts Institute of Technology, Cambridge, Mass. 1939-1940. Architects: Lawrence B. Anderson and Herbert L. Beckwith.

The architectural problem was to house two swimming pools, shower and locker rooms, spectator provisions, necessary offices and service rooms. The huge window-wall floodlights the pool, and the building is so oriented that in winter, sunlight enters the entire area, while in summer it is effectively shielded. Like the other buildings shown in this section, this meets the needs for which it was built very well indeed; it also constitutes a splendid modern addition to a large, established educational institution, heretofore largely schemed on a rigid, axial pattern. It is a pity that the building to house the Institute's architectural school could not have approached this standard.

Municipal Asphalt Plant, East River Drive and 91st St., New York City. 1944. Designed by the Department of Borough Works of the Office of the Borough President of Manhattan. Consulting Architects: Ely Jacques Kahn and Robert Allan Jacobs.

New York City's Park Commissioner Robert Moses calls this project "horrible modernistic stuff." The Museum of Modern Art lists it among those buildings that "best represent progress in design and construction." In what respect does Mr. Moses find it "horrible"? How does he define "modernistic"? The Museum's criticism is specific and, as we see it, essentially correct. "Here there are three distinct and well related elements: conveyor belt, storage building, and mixing shed . . . The bold semi-ellipse of the mixing plant is no affectation. These clean curves represent the most efficient structural form which could house the machinery."

Taliesin West, Maricopa Mesa, Paradise Valley, near Phoenix, Arizona. 1938. Architect: Frank Lloyd Wright.

What can be said in the face of a structure developed for his own use by the greatest of all our living iconoclasts and trail blazers? It is a highly individual and appropriate setting for a highly individual genius. To Frank Lloyd Wright, the whole world is indebted for his ability and willingness—and sometimes quite alone—to insist that what is created must be fresh creation, that the inherent qualities of wood and brick and stone and glass are things to reckon with vigorously, and to produce such extraordinary buildings that they have changed the approach to architecture in every advanced quarter of the globe.

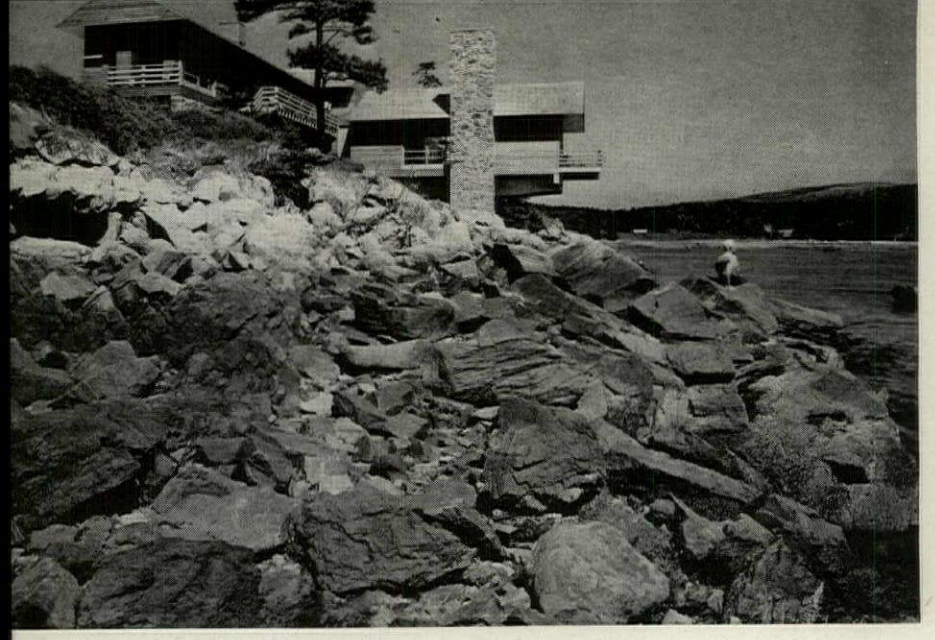
. . . BE HONESTLY BUILT OF FITTING MATERIALS . . .

Main Reception Building, Great Lakes Naval Training Station, Great Lakes, Illinois. 1942. Architects: Skidmore, Owings & Merrill.

A great, informal hall with a huge fireplace is all that this clean-cut building houses, except for minor offices organized along one end. Wood skillfully employed—for three of the walls and in the bold laminated roof beams (supported on interior steel columns)—forms a frankly functional frame within which is set the bright wall of glass. Simple materials, imaginatively used, combine with the outdoor view (a vital part of the design) to produce good architecture, with style of the sort that matters.

City Hall, Fresno, California. 1941. Architects: Franklin & Kump and Associates.

There are many who would have an instructive experience were they to check this fine new building against their own civic offices. These two protographs are sufficient, we think, to prove that this building is an improvement on nine out of ten city halls of equivalent size. Is your city hall bright with light? Is it thoughtfully set on a landscaped site? Is it easy to travel through, upstairs and down? Above all, is it a place that looks as if it were truly "open" to the public? Why is it not? Why might it not be? What, if anything, do you propose to do about it?



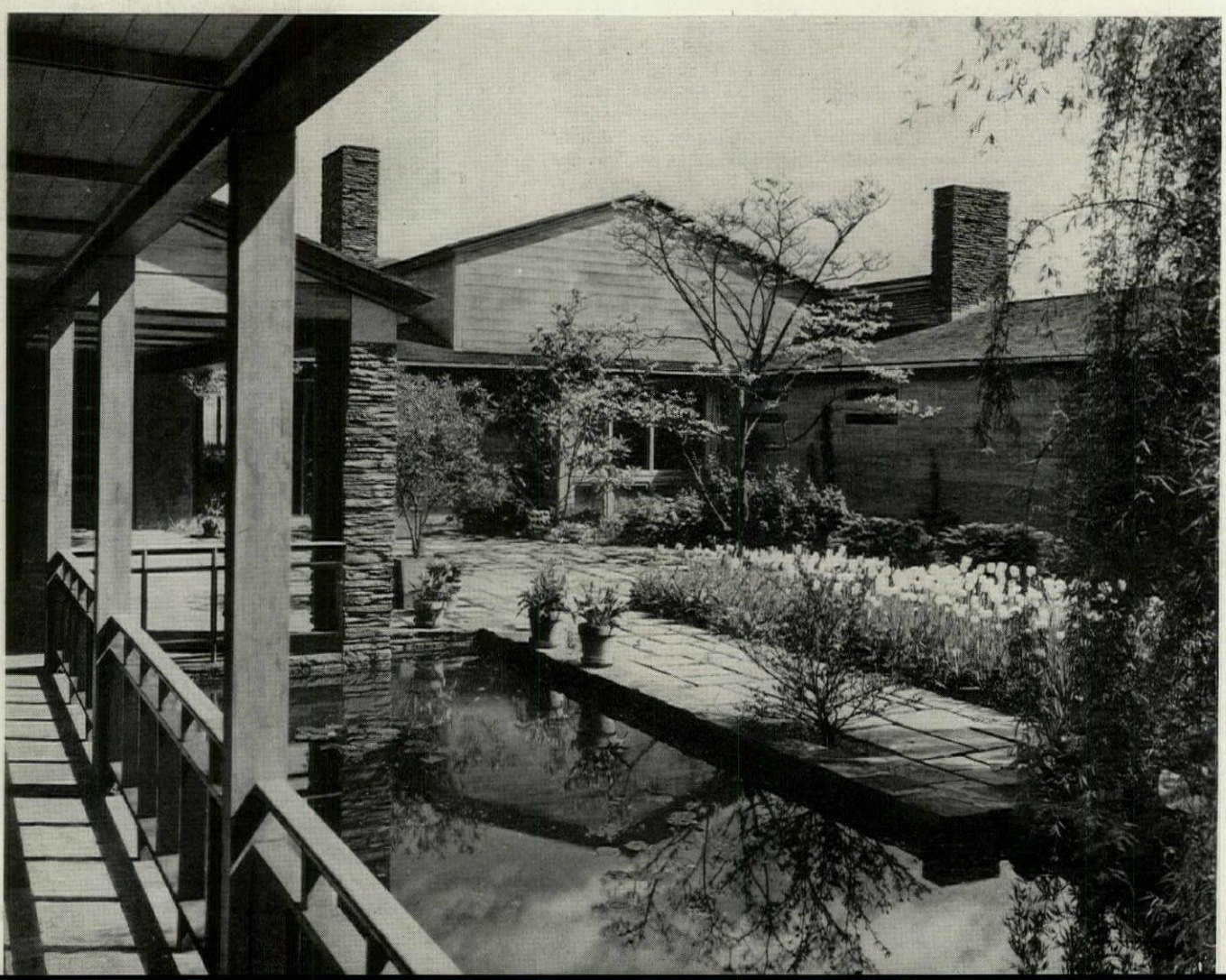
. . . PROMOTE THE EFFICIENCY AND WELL-BEING OF THOSE FOR WHOM IT WAS DESIGNED

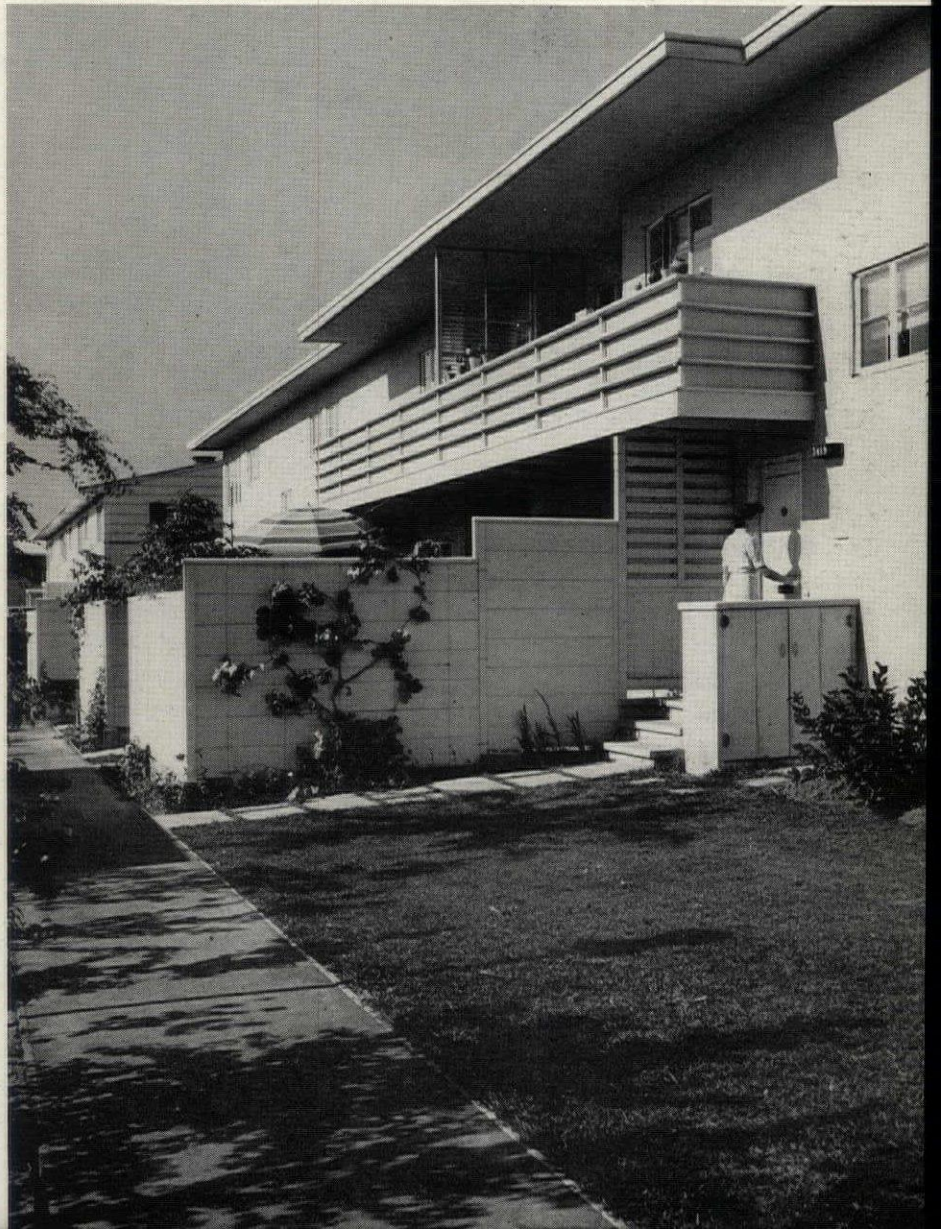
Above: House for Clara Fargo Thomas, Mount Desert Island, Maine. 1939. Architect: George Howe.

In the design of a private summer home, great freedom of choice is possible. Most important criteria are that the house suits the owner's pleasure and pocketbook, is built of harmonious materials in such a way that the structure is congenial with the climate and region, and is of appropriate residential scale. When, in addition to all of these factors, it also takes extraordinary advantage of an extraordinary site—as this house does—excellent is the word for it.

Below: House for Aubrey R. Watzek, Portland, Oregon. 1937. Designer: John Yeon; Architects: A. E. Doyle & Associates.

Located just outside Portland, this hilltop home is a year-round dwelling. Regional characteristics are clearly reflected in the rambling one-story scheme, organized around a courtyard, and in the forthright way in which the designers have organized local wood and stone into a house of dignity and distinction. The site commands a widespread view over intervening valleys to the Cascade Mountains; the enclosed courtyard offers an intimate outlook in striking contrast to the unconfined panorama of the exterior.

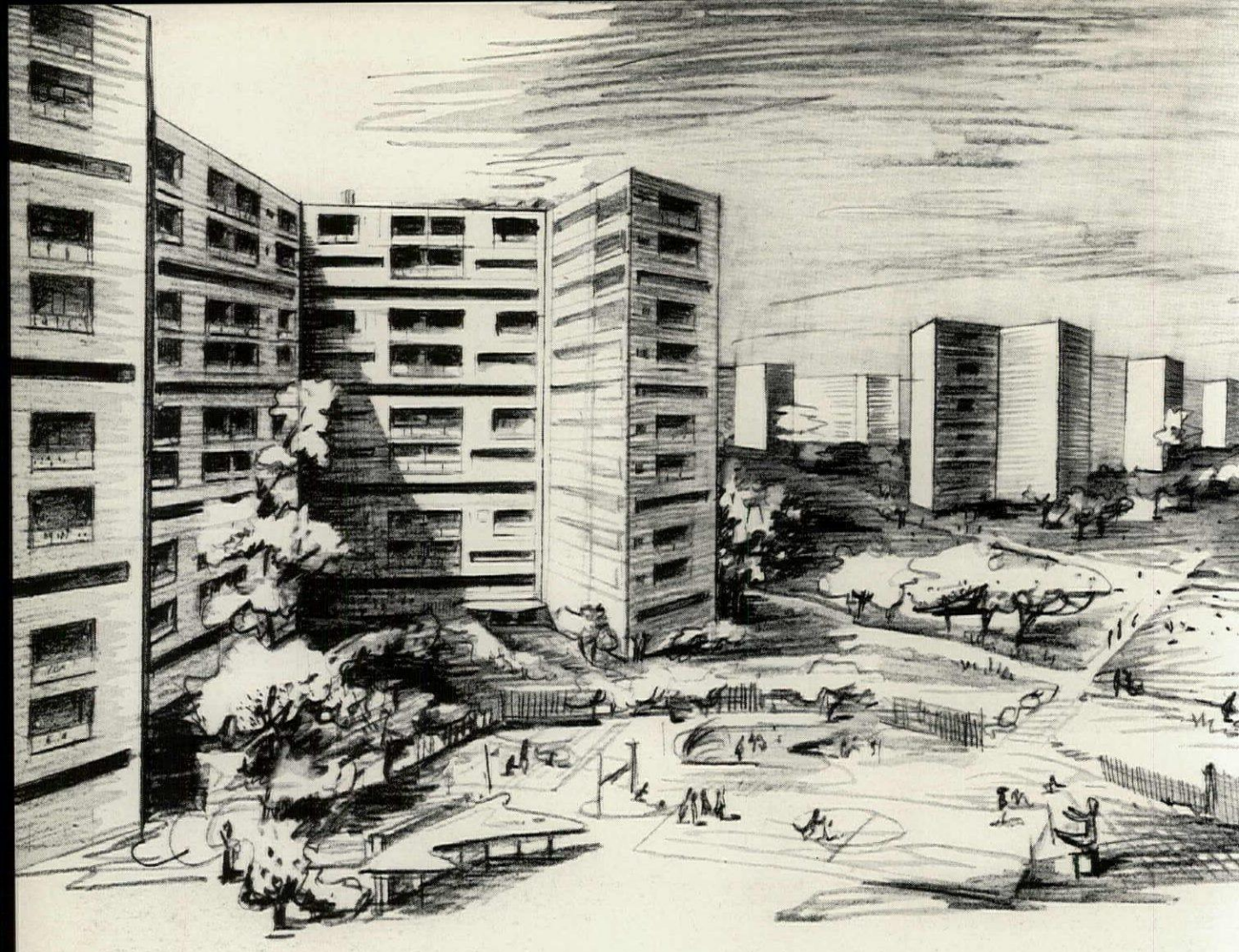




Baldwin Hills Village (Federal Housing Authority, Limited Dividend Rental Development of 627 family units), Los Angeles, California. 1942. Associated Architects: Reginald D. Johnson and Wilson, Merrill & Alexander. Consulting Architect: Clarence S. Stein.

The three photographs on this page show the general aspect of a community designed as the home for 627 families. The scheme provides for each of these families much of the privacy and amenity that they would enjoy in separate homes of their own, at the same time supplying the obvious advantages of centralized utilities and joint maintenance. Sun and light and air and planting are integral parts of the over-all plan. A bit of private lawn or garden has even been provided for each dwelling unit, screened from its neighbors with sightly wing fences Play space for children; shaded walks and straightforward architectural design combine to form a good environment for good homes in a good neighborhood—good architecture, in an inclusive sense.

Photos in this section by: Esther Born, Gottscho-Schleisner; P. E. Guerrero; Haskell; Hedrich-Blessing Studio; Margaret Lowe; Photo-Art; Ben Schnall; Julius Shulman; Ezra Stoller; Roger Sturtevant, and TVA.



STUYVESANT SIX:
A Redevelopment Study

BY MARCEL BREUER, A.I.A.

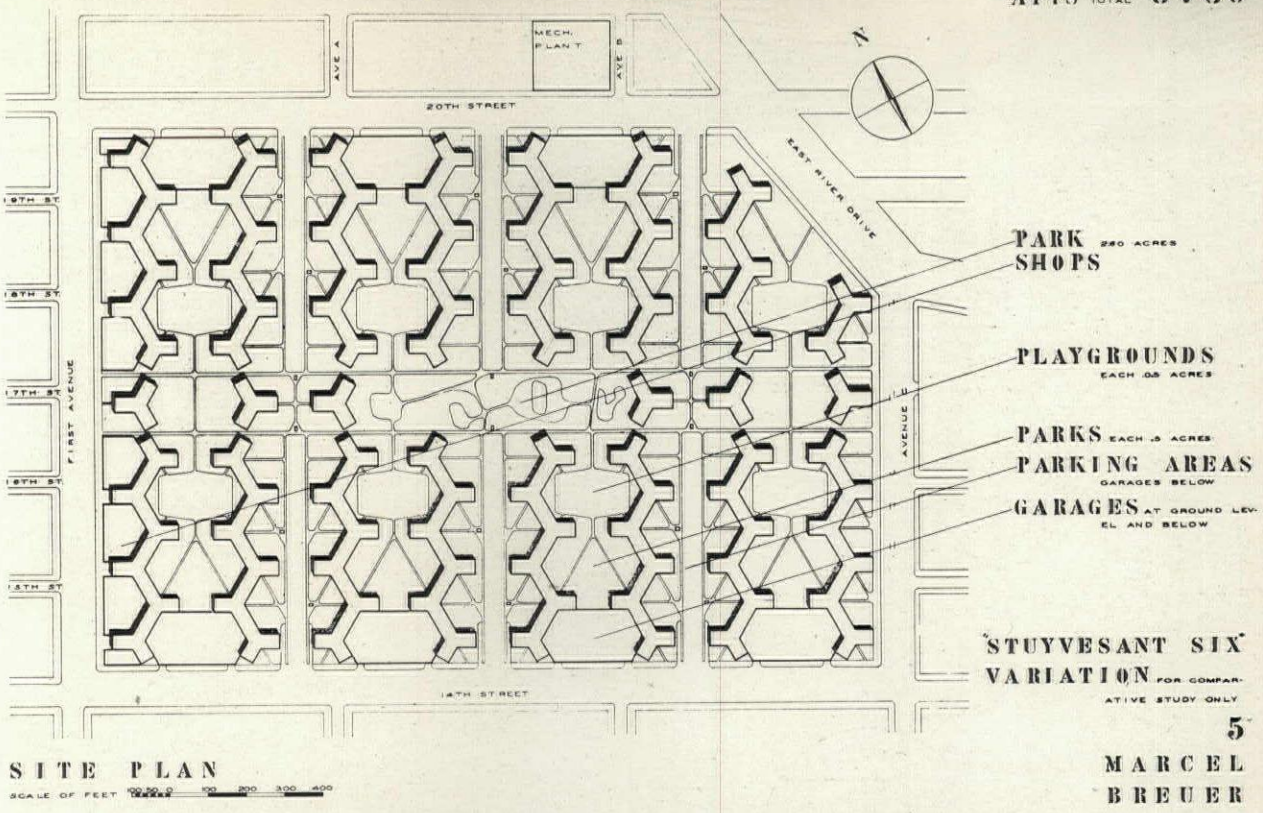
Editor's Note:

The undertaking, after the war, of large scale urban rehabilitation projects by strong aggregations of private capital such as insurance companies or specially organized redevelopment corporations is highly desirable and should be encouraged. Since, however, this type of project is in many respects new, since it involves many economic and social as well as architectural problems, and since the public interest is heavily involved, it seems important that it should be studied thoroughly by the architectural profession.

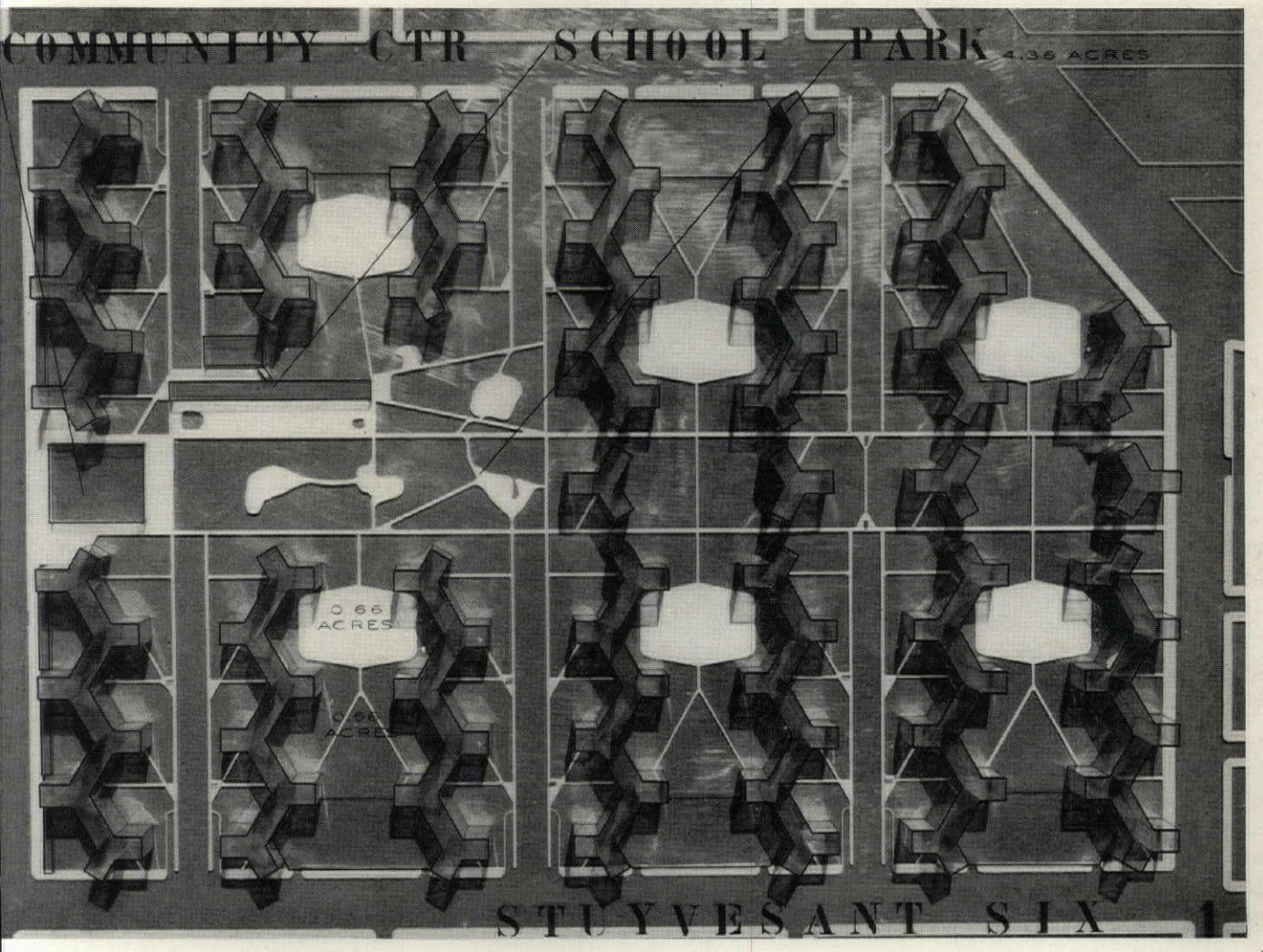
The original presentation some months ago by the Metropolitan Life Insurance Company of its scheme for "Stuyvesant Town," in New York, was met by a storm of protest. Most of the objections were based on social considerations such as racial discrimination, but some were made by architects and planners who found the Metropolitan's preliminary scheme vulnerable as a housing design and so testified at the public hearings. The storm rose to a high pitch and then quieted down. The courts found for the Metropolitan in several suits that were brought. Finally all objections were apparently overcome and it was announced in the newspapers that contracts had been signed with the city to do the job as soon as war restrictions were out of the way.

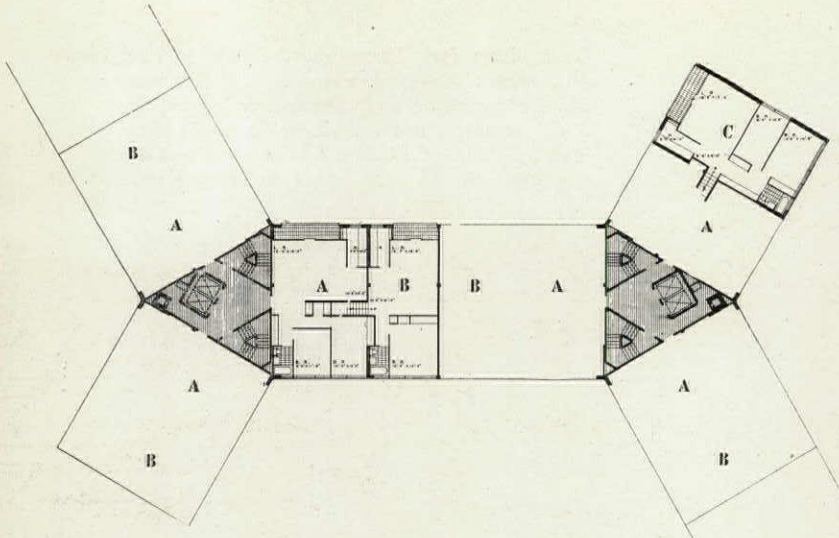
Several able and responsible architects, however, recognizing the importance to the profession of improving the standards of planning of such large scale projects, set to work with Stuyvesant Town as a point of departure to see if they could possibly develop improvements in the space arrangement of both the individual apartments and the site. Their aim was definitely not to interfere in any way with the execution of the Metropolitan's project but to contribute to the general professional stock of information about large scale urban rehabilitation planning. Their studies were wholly objective in nature and should be so regarded.

One such study, made by Marcel Breuer of Cambridge, Massachusetts, is presented here, with an analysis by the architect. It is not held up as the eventual ideal but as indicating some of the possibilities that might be considered in the design of future large scale undertakings of this type. We consider it better in most respects than the Metropolitan's scheme: we hope that still better schemes will be developed as time goes on.



Above, site plan for the "Variation," made for comparative reasons with the same density as the Metropolitan project for "Stuyvesant Town." Below, the "Stuyvesant Six" scheme representing Mr. Breuer's real suggestion with some lowering of density and with community facilities included. For complete discussion see following pages.

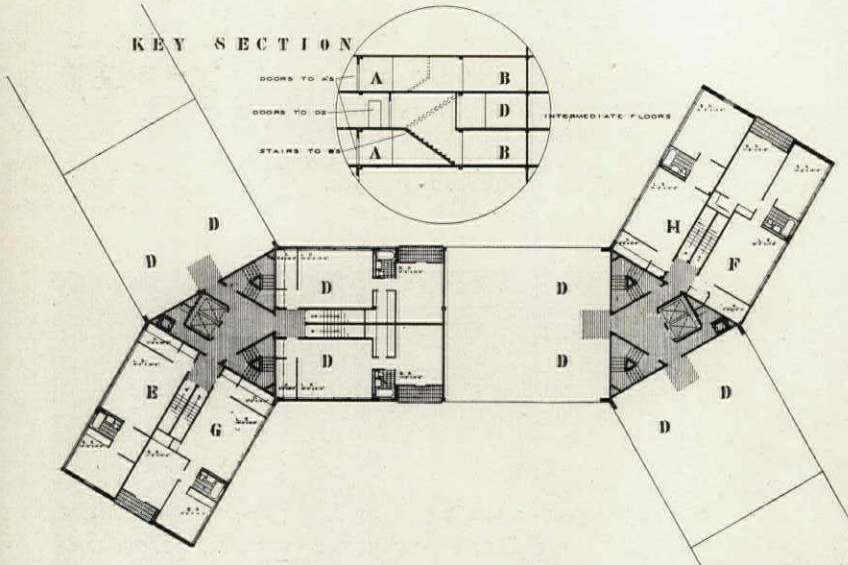




TYPICAL PLAN
FLOORS 1.3.4.6.7. ETC.
NOTE 4,7, ETC. REVERSED

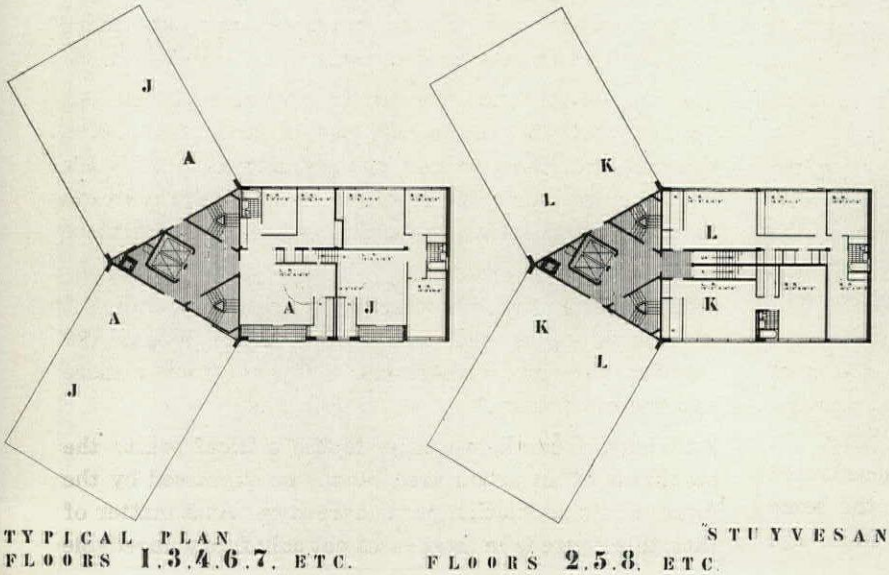
"STUYVESANT SIX"

To achieve cross ventilation without losing elevator efficiency, a new type of apartment building is suggested here. In each wing on three sides of a central communication tower every third floor serves as an approach on level to type "D" apartments and also to private stairways leading to type "B" apartments on the floors above and below. Type "A" apartments are approached directly on level from halls between intermediate floors. This system gives complete cross ventilation to two thirds of the apartments with about half of the remaining third having corner ventilation (in the end wings).



TYPICAL PLAN
FLOORS 2.5.8. ETC.

"STUYVESANT SIX"



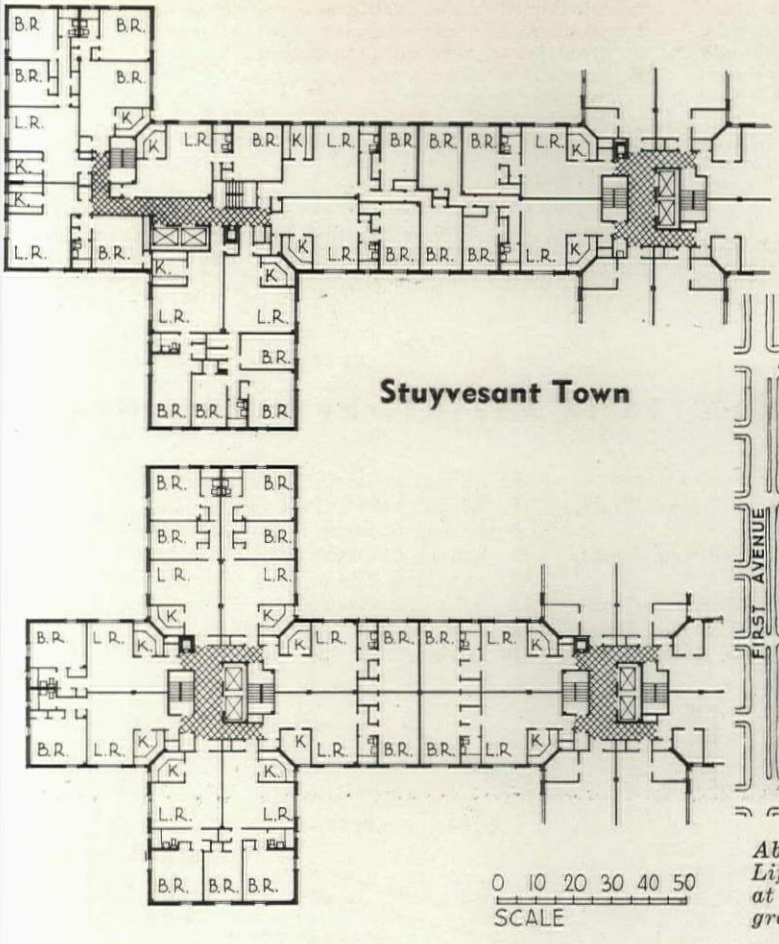
TYPICAL PLAN
FLOORS 1.3.4.6.7. ETC.
NOTE 4,7,ETC REVERSED

FLOORS 2.5.8. ETC.

"STUYVESANT SIX"

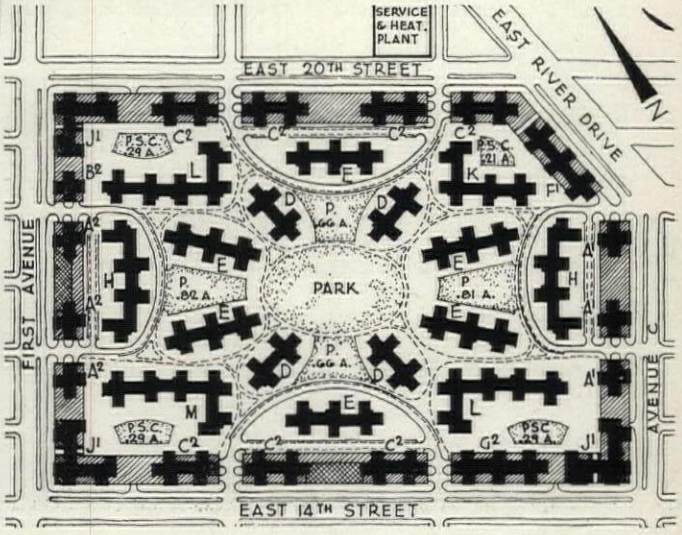
DATA

	Stuyvesant Town Corporation Project. Based on plans, etc., May 3, 7 & 12, 1943	Stuyvesant Six Project. Based on plans by Marcel Breuer, Feb., 1944.	Variation
Apartments without WINTER SUN, approx. % of total no.	35	8	
Apartments WITH CROSS-VENTILATION, % of total no.	3¾	66⅔	6
Apartments WITHOUT CORNER- OR CROSS-VENTILATION, % of total no.	23	18	1
DISTANCES between 2 facing windows, ft.	60-200	140-280	95
Recreational Areas, acres: Quiet PARKS and PLAYGROUNDS	7.09	12.36	1
Coverage by TALL APARTMENT bldgs. only, % of total site	25	18¼	2
BUILT-OVER AREA, incl. apartments, garages, stores, % of total site	35½	27½	3
Coverage by SCHOOL, COMMUNITY BUILDING, % of total site	——	1¾	—
Total no. of APARTMENTS	8,842	7,110	8,
DENSITY, apartments per acre	144.26	116.25	14
PARKING, no. of cars.	400	944	1,
Indoor GARAGES, no. of cars	3,000(?)	2,520	2,
SHOPS, ft. frontage	1,000	1,040	1,
Total no. of ROOMS (construction number)	31,050	25,018	30,
Gross residential FLOOR AREA per apartment, sq. ft.	942 no balconies	1,015 including balconies	1, incl balc
No. of communication CORES with duplex elevators and stairs	102	80	



Unit plans for "Stuyvesant Town" as originally filed with the New York Board of Estimate by the Metropolitan Life Insurance Company. It is possible (and we sincerely hope) that the Met.'s Board of Design has worked out some improvement in these plans but they have not yet been made public.

On the facing page are the unit plans by Marcel Breuer for the apartments he proposes in "Stuyvesant Six."



Above, original site plan, Stuyvesant Town, *by Metropolitan Life's Board of Design, essentially the same as the model at the current exhibit of New York's Postwar Building Program.*

Stuyvesant Six: Discussion by Marcel Breuer

Urban Density: A General Consideration

Most experts in housing, social scientists and planners, consider the high density of our cities the chief source of their evils: slums and traffic congestion with all the attendant bad hygienic, social, and economic consequences.

I am afraid their point of view is somewhat inclined to a country-suburban romanticism. Although they may say that our metropolises are both undesirable and unnecessary, it is a fact that large cities have stood in all cultures and all ages, that they are there today. They have a practical and psychological fascination which undeniably attracts numbers of people. One of the basic elements of this attraction is the concentration, the nearness of a great many things to each other; the choice, or the illusion of a choice between many possibilities.

Adversaries of density may argue that our means of communication and information (speedways, airways, telephone, television, wireless, photography, films, the press) supersede the potentialities of the concentrated urban areas, giving everybody, far or near, the same possibilities. All the same, it is peculiar that in no age has the personal contact been more important than in ours. It is significant that in this war our leaders contact each other not only by radio and telephone, but meet personally more often than leaders in any war of the past. Mail order houses have not replaced the agent, the salesman, who today visits your house or office more often than ever before. Radios do not eliminate the fact that symphony and jazz are produced and listened to directly with increasing frequency.

I do not believe that dissolving our metropolises and giving everybody, say, a half acre of land, would solve the problem. Concentrated, densely populated cities are just as much a part of our life as stretches of landscape and rural neighborhoods—or as anything between these two phenomena.

After assenting to the principle of the city, I still see, of course, slums and traffic congestion. Would 100 families per acre, rather than 200, guarantee a more satisfactory picture?

And here, I think, we come to the critical point: the standards of an urban area cannot be expressed by the figure of its population per square acre. As a matter of fact, this figure is in most cases not only fairly unreliable

as to its computation but also rather insignificant. A much lower density figure in a district of two-story buildings may tend to produce slums and traffic congestion sooner than a considerably higher density figure in 6-, 8-, or 12-story buildings. Los Angeles has one-sixth the gross density of New York City, but its traffic problems are still worse. Rather than dead figures of density, there should be other standards introduced to characterize a city's capacities. The element of *planning* in both physical and economic sense is of more import than the element of density.

Thus we may conclude: *presupposing* that the planning of a metropolitan area is based on *satisfying* human and functional standards, high density has distinct advantages as to:

1. solution of traffic problems
2. problems of maintenance
3. problems of civic administration
4. creation of large, vacant, mid-metropolitan areas for unforeseen developments, such as airports, helicopter stations, etc.

(Points nos. 2 and 3 will be the barrier to blighted areas.)

"Stuyvesant Six":

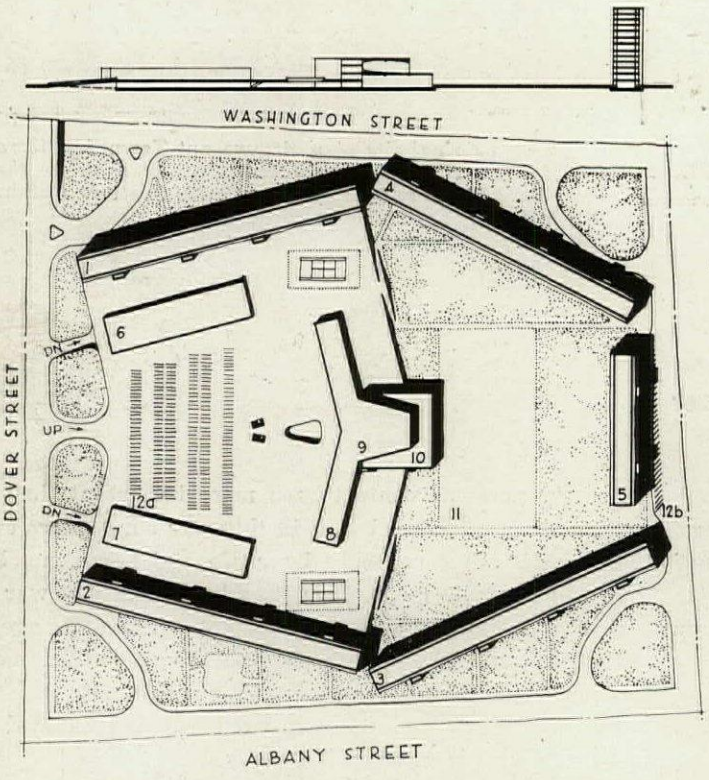
Metropolitan Life's "Stuyvesant Town" for postwar redevelopment of a slum area down in the twenties on the East River side is a project of unusual significance. It is the largest single project of its kind, offering housing for 25,000

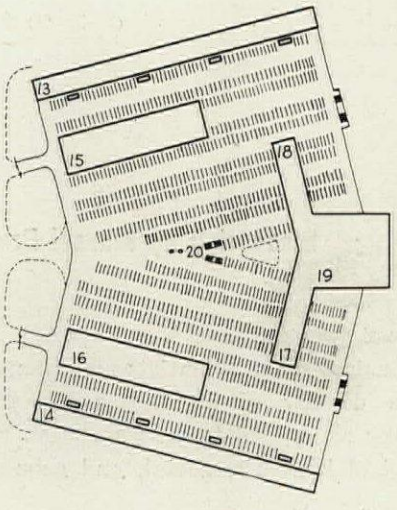
(Continued on page 102)

Redevelopment Scheme For An Area In Boston, by Marcel Breuer

SITE PLAN

1 Apartment, 12 Stories, 211—3 Room Units, 23—5 Room Units, Nursery 4800 sq. ft.
2 Apartment, 12 Stories, 152—4 Room Units, 23—5 Room Units, Nursery 5200 sq. ft.
3 Apartment, 12 Stories, 228—3 Room Units, 24—5 Room Units
4 Apartment, 12 Stories, 156—4 Room Units, 24—5 Room Units
5 Apartment, 12 Stories, 96—3 Room Units, 24—5 Room Units
6 Shops, 1 Story, 14,400 sq. ft.
7 Shops, 1 Story, 14,400 sq. ft.
8 School, 3 Stories, 24 Classrooms
9 School & Community Auditorium
10 School & Community Gymnasium
11 School & Community Playground
12a Parking for 156 Cars
12b Parking for 26 Cars





GARAGE LEVEL

(5'-0" below Grade)

13 Apartment Basement
14 Apartment Basement
15 Shops Basement
16 Shops Basement
17 Boiler Room
18 Locker Rooms
19 Gymnasium
20 Gas Station Parking for 786 Cars

SCALE 0 80 160
40 40 120

In contrast to the "Stuyvesant Six" study, conditioned by high density requirements of Manhattan real estate, Mr. Breuer presents here above a study of the redevelopment potentialities of a 24 gross acre slum area in Boston in which 1000 families would be housed and provided with community facilities. Much greater freedom in the use of land is evident. The type of 12-story apartment building proposed, with private balconies on the most advantageous side and continuous outdoor corridors along the access side, is not common in this country but has found success in Europe. Louver walls are introduced here, however, to protect the corridors against our changeable climate and to lower maintenance costs. The community plaza or platform with parking garage under, and with shop delivery yards, transient parking, school yards and general circulation areas above is a novel but seemingly practical idea. Some pot-planting and small green areas would be not too expensive to maintain on this platform to break up the sun's reflection. The bulk of the open area to the north of the community building becomes a quiet park and recreation space for both adults and children. Such a project would be operated by a corporation or cooperative. Widened through-traffic streets surround the area and future clover leaf crossings are made possible at the corners. Based on 1940 prices and land costs, $14.75 per room per month would be an adequate rent, including costs of landscaping, new streets, and utilities. The study assumes that the adjacent 434 acre South End district would be redeveloped at about the same time.

Perspectives

The Diffident Gascon: Antonin Raymond

Once, in the course of what was, for him, a ruminative conversation, Tony Raymond unexpectedly said: "I would like to do jazz architecture." One of his designers, thinking over the remark, decided that Raymond had not merely been indulging his proclivity for shocking people into thought; he had meant what he said, quite literally and out of a profound belief. Jazz is to him a saving grace in our awkward modern times, an emanation truly popular in spite of the commercialism which invests it. In the apparent incongruity of such a statement lies one of the reasons why there seems to be a mystery about Raymond.

Many people find him too complex for fathoming. Perhaps the mystery is heightened by his effect upon those with whom he comes in contact: superficial acquaintance may lead to doubt of, occasionally to disgust for, that mountebank, Raymond; close association usually breeds fanatical devotion to him. Such violent partisanship obscures the startling, yet biologically possible, fact that Raymond is above all a human being. Occasionally he seems willing to cloud that fact. His certainty is often Olympian.

Antonin Raymond is of Czech origin, but he is far from being a refugee. He landed in this country in 1910, and went to work for Cass Gilbert on the design of the Woolworth Building, New York's first real skyscraper. In speaking now of those days, Raymond declares vehemently that he was a modernist even then; that true modernism goes deeper than surface appearance, deeper than mere functionalism, that it must express the state of our culture—and before you know it you are off, bewilderedly, on a philosophical voyage through turbulent waters at the mercy of a helmsman whose Czech accent sometimes betrays him, whose eyes are fierce glints in a brown, ascetic face, who might, you fear, be a little drunk on his thoughts.

Just so suddenly is Raymond's philosophy of living and working likely to catch you up. His apparent contradictions in word and action snare the unprepared listener, and by the time one paradox is found to be not so baffling after all, he reveals another.

For instance, he has a tremendous capacity for friendship—real, deep, lasting. Ask any who have worked for him any length of time. But disappointment in friends hurts him terribly, and for fear of disappointments he finds it extraordinarily difficult to meet new people. Formerly, a draftsman striking Raymond personally for a job was quite apt to be taken on at the draftsman's own valuation, if there was an opening and the man was at all personable; but in recent years, Raymond has come to understand the difficulties into which such a failing can lead him, and he usually says, before the man is hired: "You go in and talk to the boys. They do the hiring here. You will have to work with them, you know."

Another component of such an action is the difficulty he experiences in making routine decisions. Not that he is unsure; far from it; but Raymond proceeds on the astounding theory that the man hired to do a certain job will do it. Yet unsatisfactory decisions, however small, do not escape him and must be verified. However, about a new letterhead, for example, he may say: "Yes, that one's fine. So is that—and that." Which leaves the chap with the letterhead problem exactly where he was before he asked the boss to do his work for him.

This carries over into unexpected phases of his work, as well. He designs the furniture as well as the house; and often a rough sketch, plus a few odds and ends of left-over lumber, plus the ingenuity of the carpenter on the job, results in chairs, benches, tables, staircases, etc., which uniquely fit that house and its occupants. The carpenter, Raymond believes, knows his wood better than a draftsman possibly could. But this attitude does not prevent Antonin Raymond from inventing new,

simpler, better ways of doing things. He has perfected a type of window sash which is beautifully simple and weathertight. Sliding doors on his cabinet work are apt to be extremely simple, yet marvelously ingenious.

In large as well as small things, Raymond's work, for no matter what purpose, almost invariably provides a direct solution of the problems posed by the needs of the people and processes which will occupy the completed buildings. He has been "called" occasionally for seeming flaws in his work; but, though he may not consider carping criticism worth answering directly, he knows he is right. When pinned down, he *can* answer directly. A critical PENCIL POINTS subscriber once questioned the design of a fireplace in one of his houses. The fireplace was several inches above floor level, set into a wall, with no front hearth. For its size it was quite deep. It was designed to warm the body of the individual before it, not his shins or calves. There were no flimsy draperies or upholstery materials near by; the floor was not carpeted; and Raymond knows that fires need not be built of wood which will explode sparks out of the fireplace. Above all, Raymond knew his client and what the client wanted that fireplace to do. He did not reply when the query was passed on to him, except to the effect that the fireplace had been designed to appear and function as it did. The conditions here outlined, he felt, should have been patent to anyone.

Impatience with the restricted mind is part of the reason for his penchant for the shocking statement. He must recognize that this habit calls attention to him, and not always favorable attention either. But he seems not to worry too much over its minus values; the plus of finding a few people who stand the acid test, and years of habit, have made it second nature particularly after the first highball. He once made an editor of an architectural magazine, whom he had just met, extremely uncomfortable by suddenly stating, at dinner, in a very loud voice, that *no* architectural magazine was any good. They were all too commercial! When the editor, half offended, half amused, and totally at a loss, took too long in deciding to be well-bred and ignore such an outburst, Raymond disgustedly devoted himself to the lady on his left for the remainder of the evening. At another time, he told an architectural publisher who was paying for his lunch that his magazine was lousy. Thumbing it through, "It's all tr-r-ripe!" he said.

While his initial blasts are so unconventional, even rude, pursuit of the blasted subject usually finds him reasonable enough if he and his conversational opponent can find an intellectual plane strong enough to support them both. He can be generous in victory, though hardly likely to yield points on which he holds strong convictions; and he has been known to retire prudently, even abruptly, from arguments in which he has been worsted.

After some years in this country, Antonin Raymond went to the Orient—India, China, Japan—to practice. He designed and built there numerous important buildings, including the St. Luke's International Medical Center; The Woman's Christian College; an United States Embassy; an U.S.S.R. Embassy; a French Embassy; a Socony Office Building. The simplicity of Japanese domestic architecture, the exquisite and ingenious craftsmanship of the native artisans, and their ability to compose beauty out of essential, commonplace items, were much to his liking. Other things could not have been so pleasing, although he does not say much about them. For one thing, the Raymonds' first child died while the family was in the East. (Mrs. Raymond returned to this country for the birth of their second, a son, Claude, who is now in the service.) At any rate, Raymond returned to the United States to practice some years before the outbreak of the present war.

When war came, he spent no time moaning about the architect's place in the war effort when that was the current professional wail. He helped to organize the firm of Tuttle, Seelye, Place, and Raymond—and notice that his own name is the last in the firm's title. In its inception the young designers in his office feel that they had an active part. It is as much "their" office as Raymond's ever was—and Raymond's office was always theirs. The firm has done a tremendous amount of war work, including military work of various kinds which cannot be described in detail for obvious reasons. His actual contribution toward the prosecution of the war is greater than that of most of the other architectural offices in the country, and his success in getting contracts must be revealing to many who once considered him just another irrational esthete.

In explanation he will point to a drawing of a huge Army camp and state emphatically that he makes no attempt to introduce esthetics into it; it is a practical job—first of all, it must work. Apparently his vehemence in private argument among those who consider themselves his confrères is discarded in conversation with clients. Certainly he grasps the fundamentals of a design problem instantly. That he can get such a hard-boiled client as the U. S. Army to utilize his talent for beautiful organization of three-dimensional space is surely a tribute to this passionate man with an accent.

Tony Raymond's story would be incomplete without mention of Mrs. Raymond. Where he is dark, spare, with little or no gray in his hair, tanned but not excessively "out-doorish" in appearance, and truly a sophisticate, one's first impression of Mrs. Raymond is of capability. She is large, not tall, with shingled graying hair and a face that is weatherbeaten, apparently from running the Raymond farm at New Hope, Pennsylvania. She is an artist of considerable ability, has won awards for printed textiles, is a good draftsman, excellent at thinking through problems on the drafting board, and has worked on many of Raymond's projects.

The New Hope farm is decidedly not a dilettante enterprise. It is several hundred acres in extent and boasts a good-sized herd of blooded cattle which Raymond succeeded in having registered last year. Although it has cost a pretty penny—it is possibly over-mechanized, equipped with station wagons, trucks, tractors, besides the usual machinery—last year it broke even financially; this year it seems about to return a profit, and in succeeding years should bring in a steady return. While he was building it up in the years just after his return to America, Raymond conducted his famous New Hope experiment in conjunction with the farm.

The New Hope experiment came about for several reasons, primarily because Raymond believes that intimate contact with—thorough understanding of—the type of practical, rewarding creative activity afforded by farm life is essential to other creative arts. At one period soon after his return he spent much of his time there; now he leaves the city Friday evenings for the farm and returns the following week. In the farm's earlier years the Raymonds gathered about them a group of young architectural men, some of them married, who literally helped build up the place, received board and lodging, learned much from the Raymonds, and practiced collaborative architecture from which the revenue was divided among the members of the group. During at least part of this time Raymond was re-establishing his New York office; to set himself up in business again after several years' absence in the Orient was quite a task. The New Hope group idea has been assailed by many who were not of it: those who composed it, almost without exception, are satisfied with their experience there.

(To be concluded next month)

Office Building American Red Cross Los Angeles, Calif.

SUMNER SPAULDING, A.I.A., ARCHITECT

Photos by Art Center School and Julius Shulman

With the outbreak of war increased facilities for Red Cross headquarters became necessities in every community in the United States. Nowhere was this more true than in California, where for a while invasion from the Pacific seemed an imminent possibility. Yet for many months activities boomed in cramped space; staff workers were jostled by members of the various corps and departments, each trying to get his own important job done—and somehow succeeding despite inefficient quarters.

Like the military and civilian governmental agencies, the Red Cross mushroomed into a gigantic organization. As the Army and Navy enlarged, the Red Cross Home Service Corps, which is the sole authorized agency for direct contact between folks at home and men in service, became an ever more important unit; Canteen Corps in many chapters took on additional duties as the food rationing program made instruction in dietetics and preserving food imperative and danger of invasion-produced catastrophe was reduced. Shortages of nurses, of hospital help of various kinds; the necessity for teaching first aid and home nursing to a populace which suddenly had too few doctors and registered nurses at its disposal—all these needed at least adequate facilities.

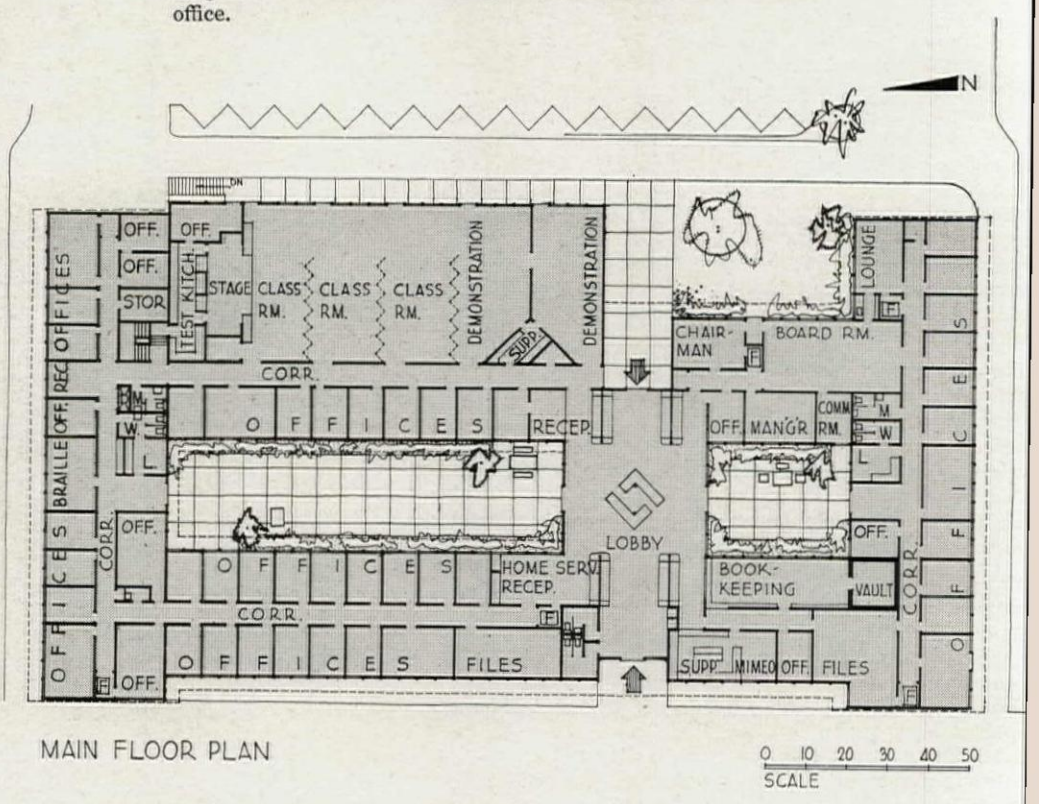
The Los Angeles headquarters was first discussed with the architect late in 1941, when the local need of proper space had become overwhelming and activities had begun to form a recognizable pattern. Within four months the building was completed—and this in the face of wartime shortages of building materials and equipment.

Los Angeles Red Cross Building
Sumner Spaulding, Architect

Construction is extremely simple, and modular. The building is wood-framed, with plywood surfacing inside and out. Wall framing has 4-by-4-inch structural members placed 9 feet on centers to take stock plywood panels in 9-ft. lengths. This determines the widths of small offices; 8-ft. panels were discarded; these made the offices too narrow. The continuous bands of windows are of wood, with alternate fixed and sliding sash, one of each per office.

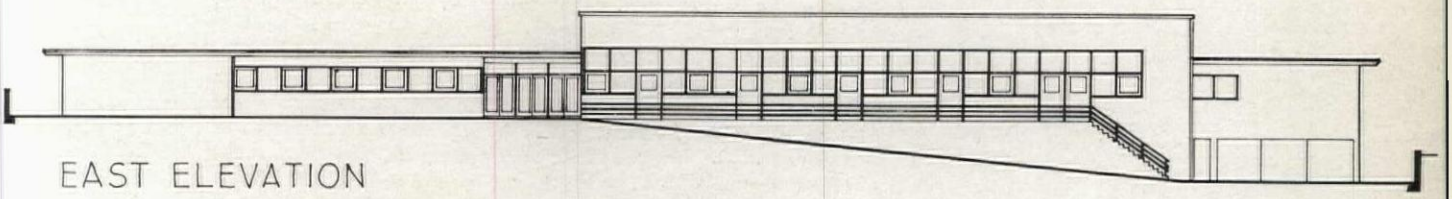
Under the east-west block at the north end of the building is the only excavated portion of the basement. At the east end of this is a garage, 25 by 25 feet, through which deliveries of supplies, etc., are made to storage space which occupies most of the rest of the basement. At the foot of the stairs are the electrical panel board, domestic hot water heater, and the largest of the six furnaces. The remainder are small units located in closets (marked "F" on plan). All supply warmed air to plenum chambers formed by furring down the corridor ceilings. Grilles furnish heat to each office.

The auditorium block is spanned by wood trusses from exterior wall to exterior wall; in other cases, rafters support the roof and ceiling. Air space between the rafters is vented and screened at the eaves. Ceilings are of insulation board.



MAIN FLOOR PLAN

Principal entrance from the parking space to the east; at left is the wing containing the small lounge.



EAST ELEVATION

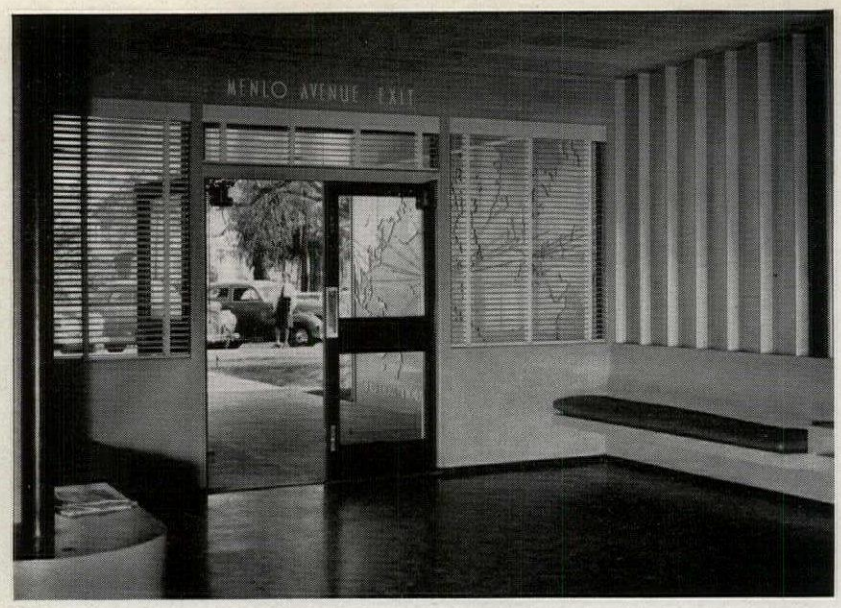
The plan divides itself cleanly into two areas: at the south end, a block of executive and administrative offices; at the north, public and semi-public offices for the corps and departments. Each unit surrounds its own court; these and internal corridors provide circulation. The lobby was designed to receive people from the parking space on the east and the thoroughfare on the west, and to separate the two office units. The information desk in its center also acts as a control point. The only structural steel in the building spans the lobby from north to south; only short lengths could be obtained, so lally columns were introduced and were incorporated into the information desk and the built-in seats which flank the entrances (see details, pp. 81-84).

The Home Service department needs many cubicles for private interviews; these line the corridor leading north from its reception room, and at times so many have been needed that the department has spilled over into the transverse office block to the north. East of the Braille office in this transverse block is the First Aid suite with (west to east) offices for volunteers, reception, secretary, and chairman of the corps.

The stage is for demonstrations; directly behind it is the kitchen, an interior, skylighted room. Auditorium can be subdivided into classrooms and demonstration rooms. Triangular closets in these rooms provide space for putting demonstration beds, etc., at an angle to students for greater clarity in teaching. They also help to brace the structure against earthquake stresses. For this same purpose, a few partitions between offices extend to the ceiling; but most are only eight feet high. This helps with the ventilation problem.

Section, above, demonstrates more clearly than the photographs the change in grade and the continuity of the window bands.

Photos at left and above show the east side and entrance. Balcony outside the auditorium serves the exit doors.



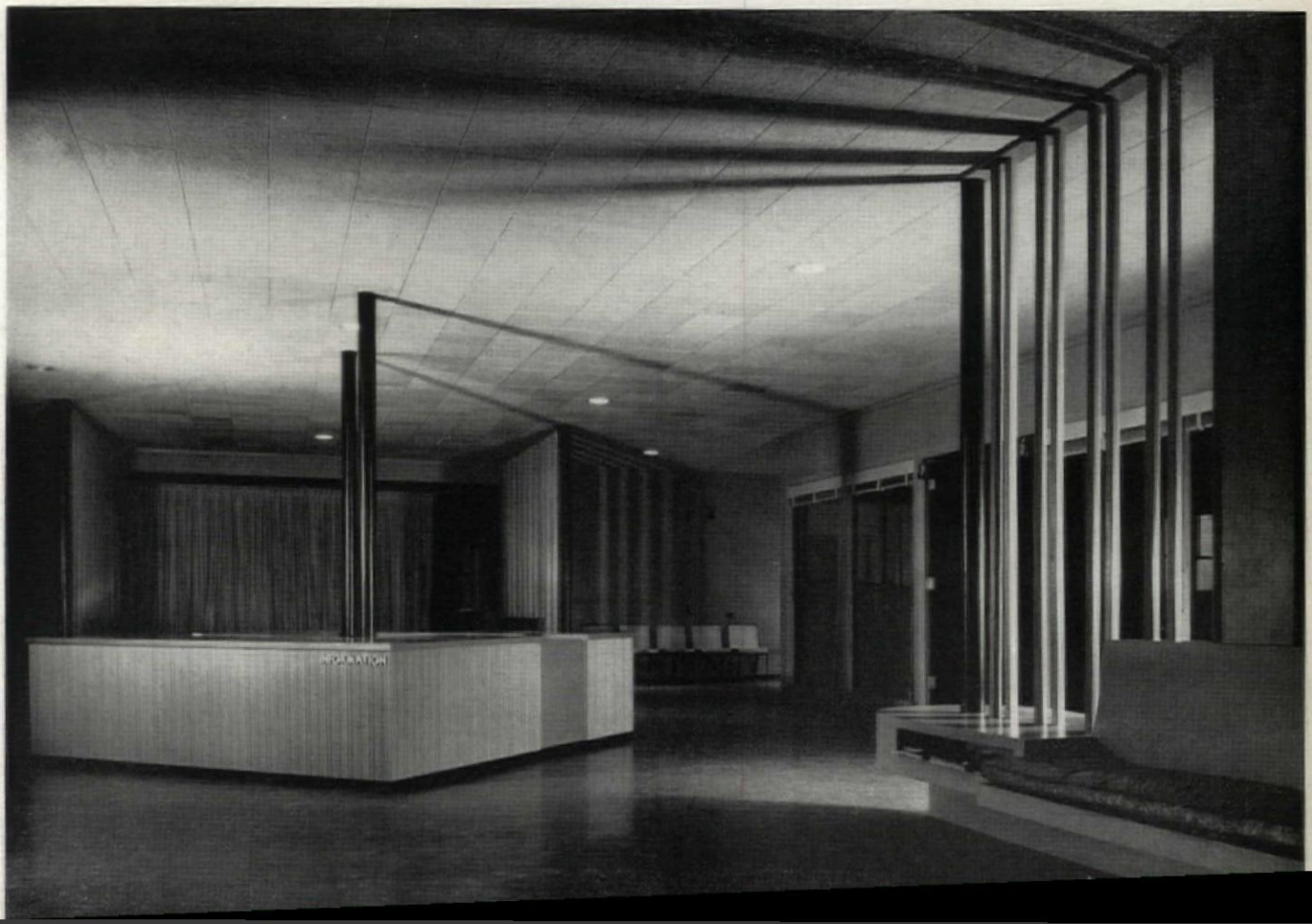
Los Angeles Red Cross Building

Sumner Spaulding, Architect

At left, entrance from Menlo Avenue; below, view toward information desk, looking toward an interior court. Screens between benches built back-to-back are panelled part way out from the walls to give privacy to the corridors and entrances to departments.

From whatever angle it is approached, the information desk controls traffic. It is faced with combed plywood, has a plastic-surfaced top (see details, pp. 81-84).

Lighting in the lobby is provided by flush ceiling fixtures. Throughout the building Red Cross red is used as an accent color; the principal color is gray with a slightly greenish cast.

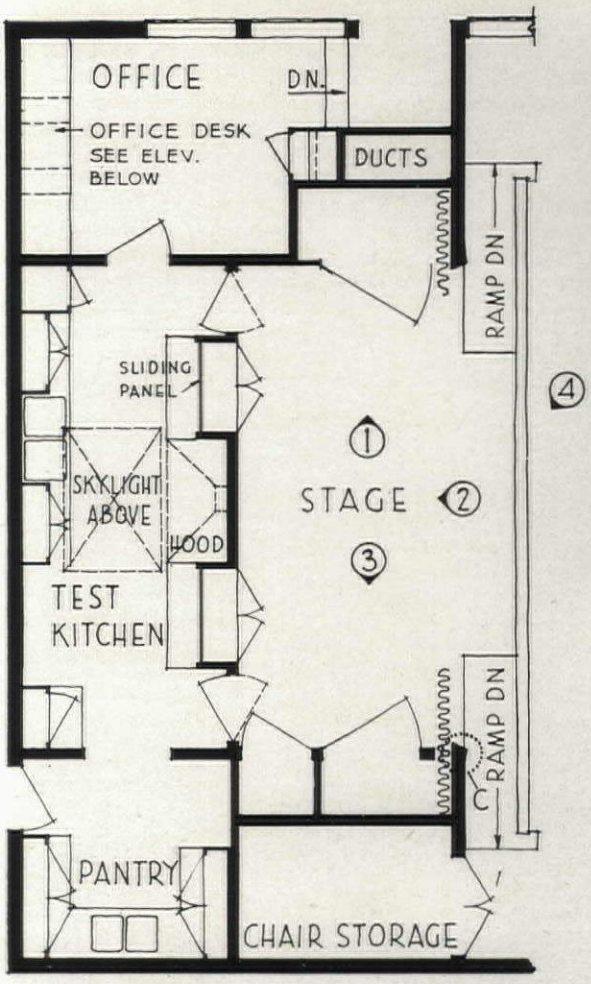


Los Angeles Red Cross Building

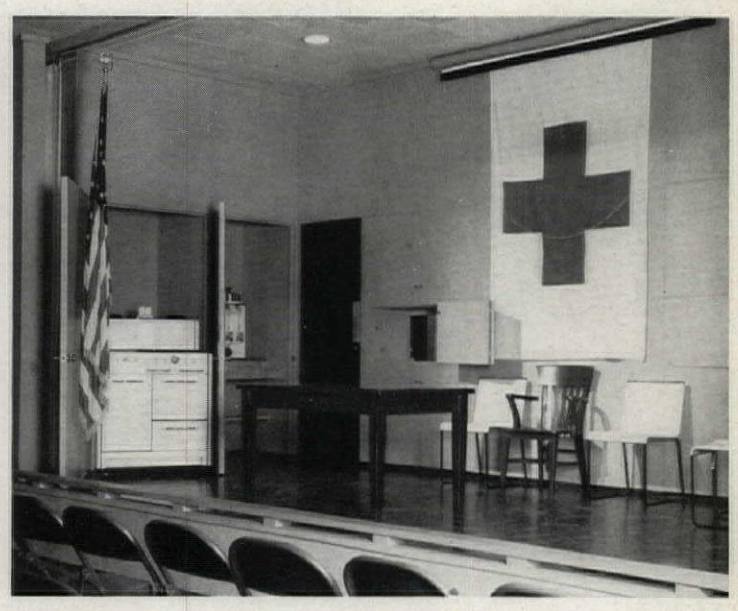
Sumner Spaulding, Architect

The demonstration stage, shown in detail on page 81, is a marvel of ingenious planning with simple equipment. Pass doors, unobtrusive when closed, connect it directly with the kitchen behind; it is lined with cupboards for storing supplies and equipment. Closets in the wings house a range and a table, both on casters so they can be rolled out for teaching purposes. Ramps rather than steps lead from the auditorium floor to the stage, so that heavy objects can be wheeled up or down easily, or a line of students might file past the object of a demonstration, for a close look, without the shuffling caused by using stairs. Footlights were not needed as this is not a place for theatrical presentations; but spotlights recessed in the auditorium ceiling supplement the general illumination provided by the lensed, flush, ceiling fixtures.

Above, left, publicity office, showing a typical two-window unit, 9 ft. wide. Below, court in the public and semi-public group. When the planting has had a little more time to grow, it will be an even more welcome relief from the busy offices where volunteers work under continual pressure. Fixtures under the eaves provide pleasant light at night.

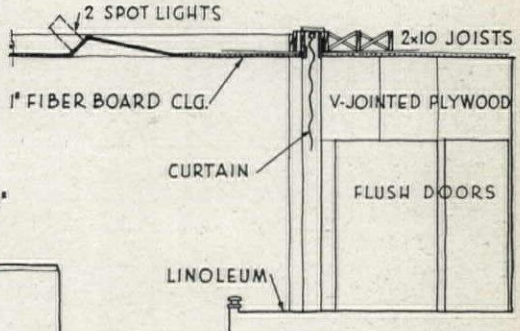


PLAN 1/8" = 1'-0"

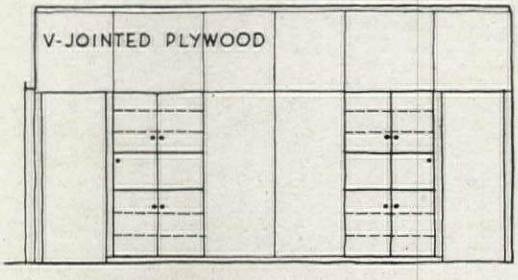


VIEW NO. 4

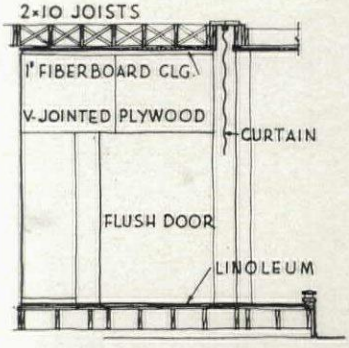
DET. 'C' 1½" = 1'-0"



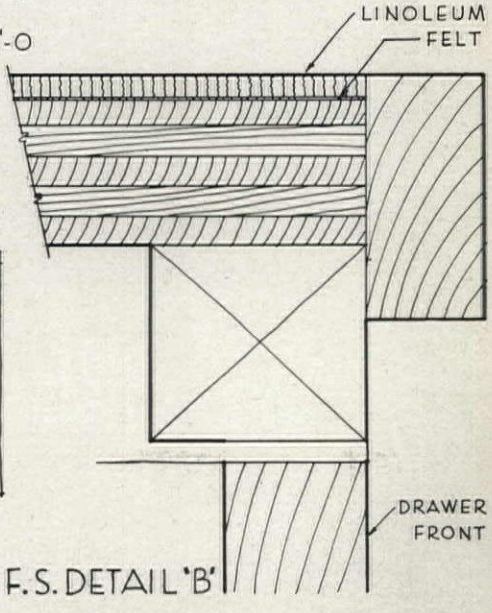
1/8" = 1'-0" VIEW NO. 3



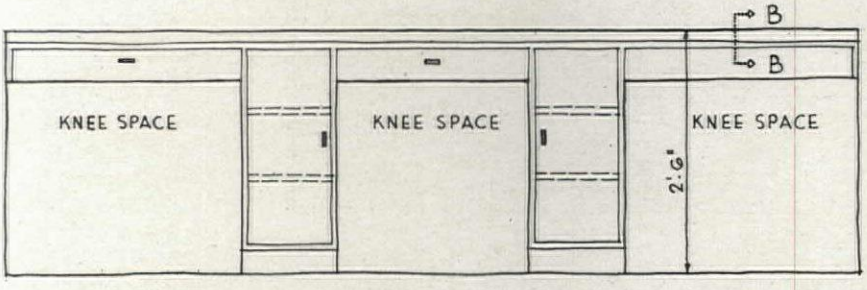
VIEW NO. 2 1/8" = 1'-0



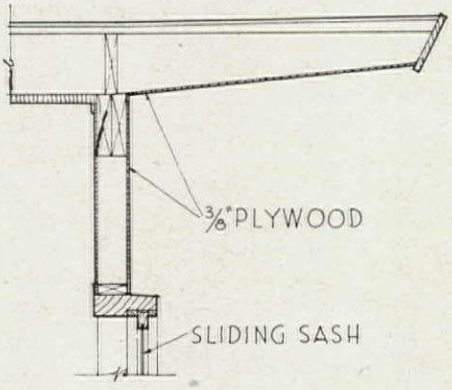
VIEW NO. 1 1/8" = 1'-0"



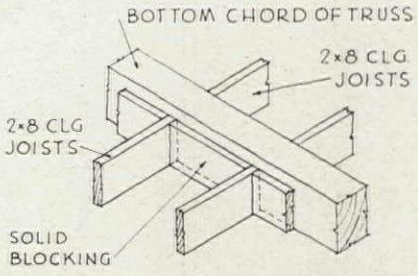
F.S. DETAIL 'B'



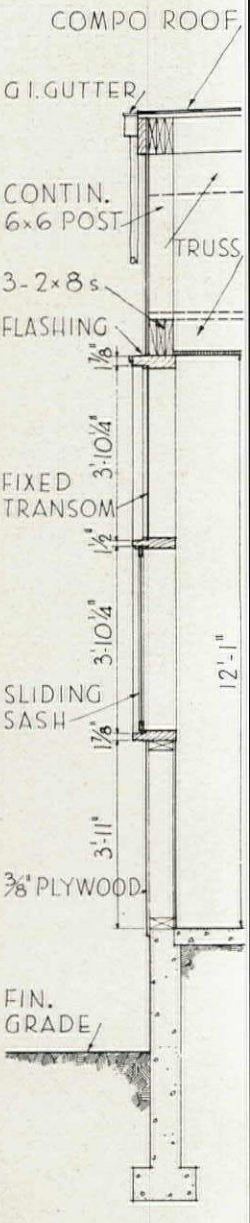
OFFICE DESK ½" = 1'-0"



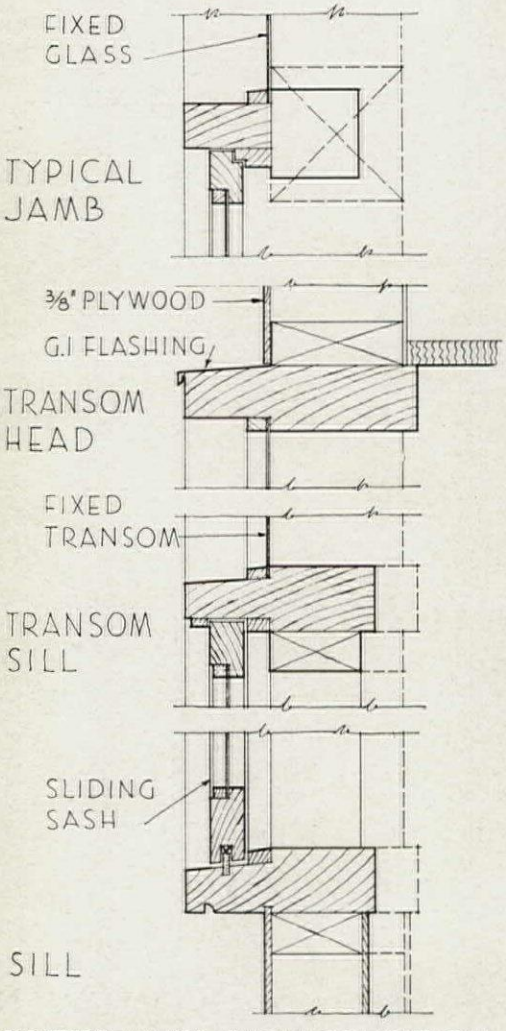
½"=1'-0" PART SECTION OF OFFICE WALL



END-NAIL AND TOE-NAIL JOISTS TO SOLID BLOCKING WITH 3-16d NAILS IN EACH. NAIL BLKG. TO TRUSS WITH 6-16d NAILS

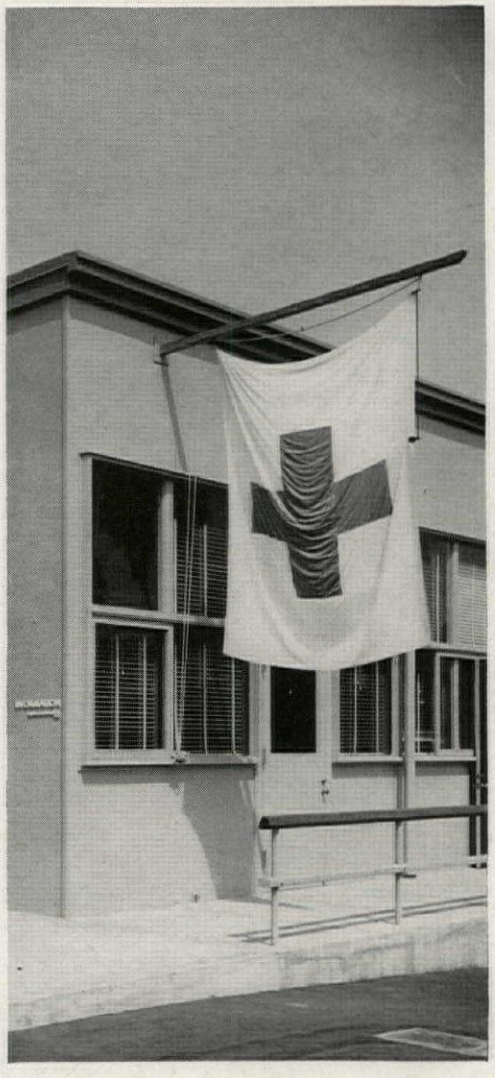


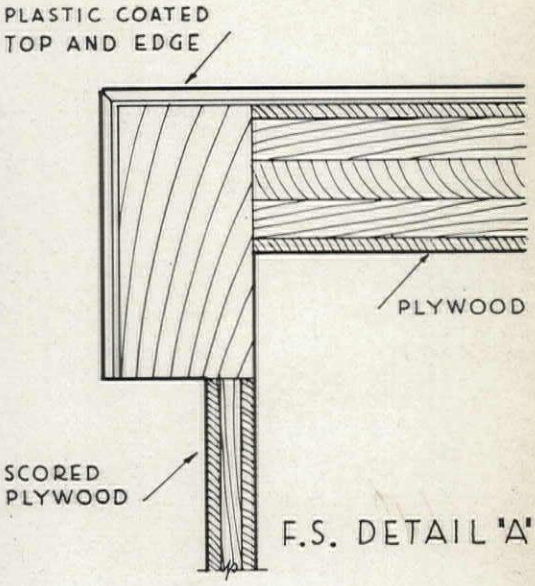
WALL SECTION AT CLASSROOMS
SCALE ¼"=1'-0"



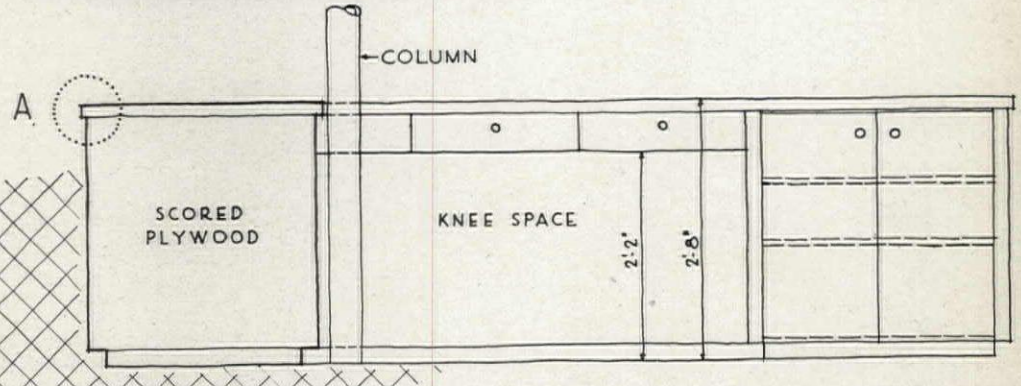
DOTTED LINES SHOW CONDITION AT CONTINUOUS 6×6 POST

WINDOW DETAILS 1½"=1'-0"

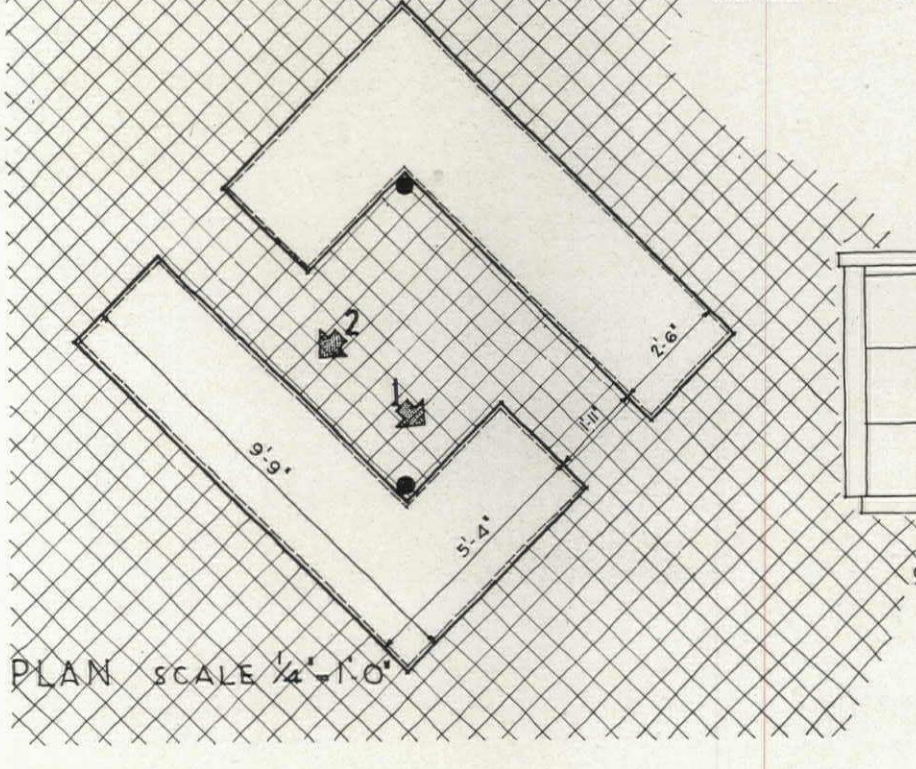




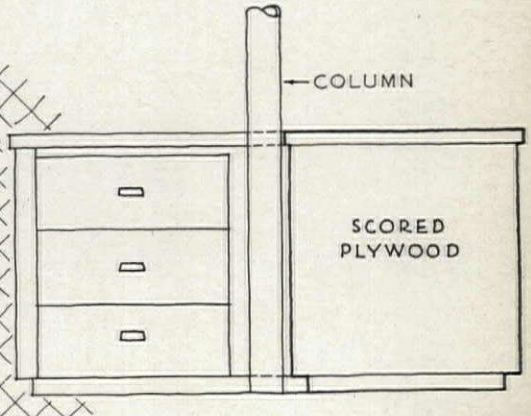
F.S. DETAIL "A"



SCALE ½"-1'-0" VIEW NO. 2

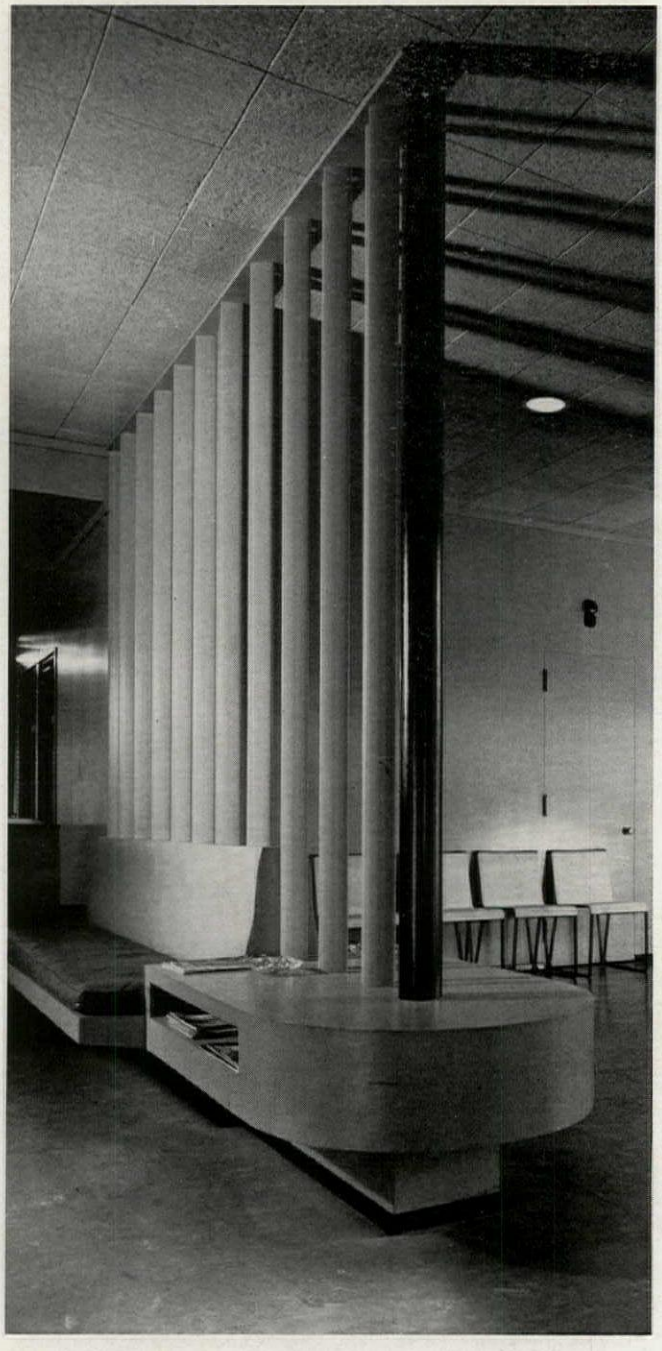


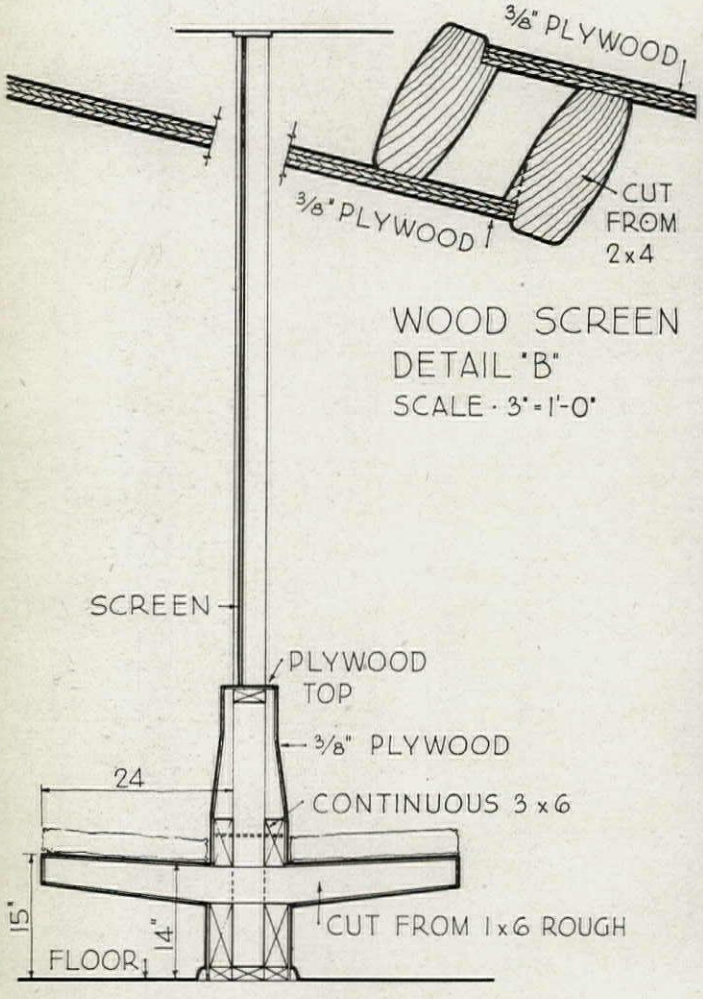
PLAN SCALE ¼"-1'-0"



SCALE ½"-1'-0 VIEW NO. 1

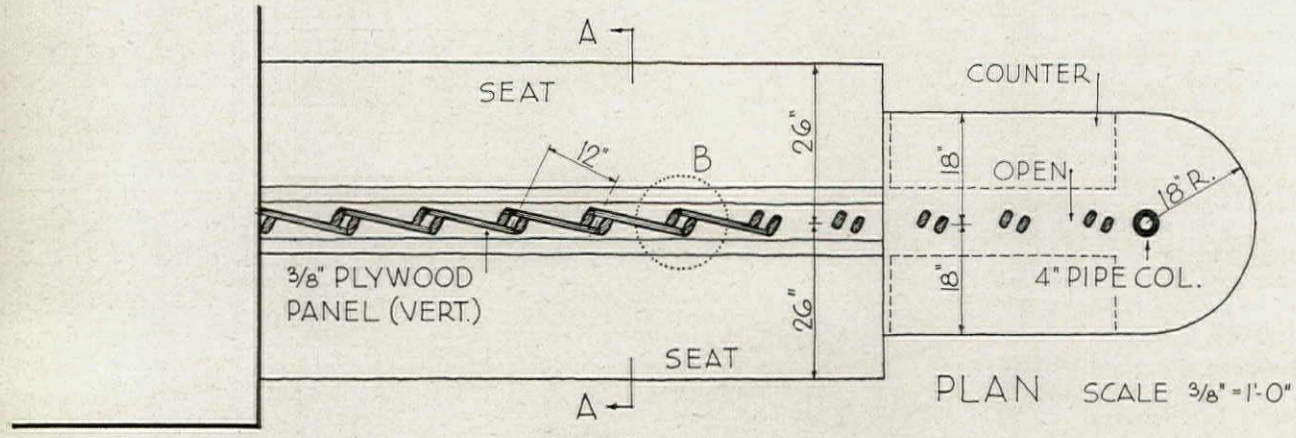
Waiting Benches in Lobby, American Red Cross Building, Sumner Spaulding, A. I. A., Architect





WOOD SCREEN
DETAIL "B"
SCALE · 3" = 1'-0"

SECTION "A-A"
SCALE · ½" = 1'-0"



PLAN SCALE 3/8" = 1'-0"

Pittsburgh Housing Authority Designs and Installs 296 Ceramic Heaters in Broadhead Manor

BY MICHAEL ROSENAUER, F.R.I.B.A., A.I.A.

Our choice of methods of construction in this country before the war was practically free from considerations of scarcity of materials of any sort. This is in contrast to prewar conditions in many European countries where methods of construction have always been greatly affected by shortages in certain essential materials. The abundance we enjoyed has now been interfered with by urgent needs of war. Therefore an investigation into structural methods employed in countries where the dearth of certain materials was a permanent condition throughout history is of interest.

The importance of research in methods of construction appropriate to the present scarcity of materials was impressed upon the architects of the new Broadhead Manor project of the Pittsburgh Housing Authority by the Administrator, Dr. B. J. Hovde. He wished that such studies should not stop at merely satisfying the requirements for conserving critical materials laid down by the WPB, but that they should surpass them if possible without sacrifice of structure or design. Broadhead Manor is a permanent housing project, serving as war housing during the emergency, and the restriction of materials therefore presented an especially difficult problem.

The shortage of steel and iron in some European countries led to the development and use through the centuries of a great variety of heating devices made principally of other materials. Glazed tiles in various shapes and sizes came to be favored for building ovens. Their architectural arrangement passed through the various styles of European architecture, and ceramic tile stoves became distinct features of interior decoration. Many of them are masterpieces of sculptural decoration and are treasured possessions of old castles and museums in Europe.

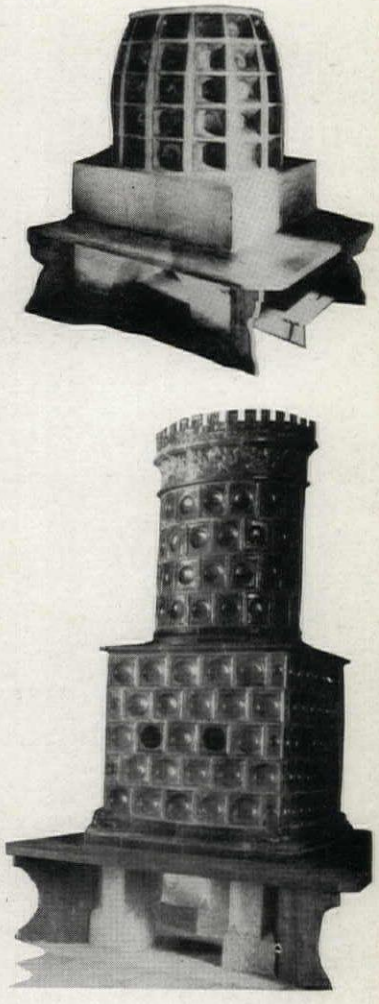
Placed along the wall or in the corner of the room, the firebox of the European ceramic tile stove was accessible either from inside the room or from a corridor next to the room. The fuel gases had to pass various baffles and were carried through a number of channels, laid out intricately behind the surface of the stove, thus transmitting a maximum of their heating capacity into the radiating surface before passing into the flue. In searching for a solution to our immediate problem of designing a heating apparatus with a minimum of metal, it occurred to us that here was a promising prototype.

The European glazed tile stoves were used for one room or for two adjoining rooms only. I do not recall any example where one unit had to heat rooms on different floor levels. But for their application in a housing project, it did not seem that a strict adherence to the European example would be either necessary or advantageous. The actual design we arrived at is shown by the drawing (page 86).

As heat remains in the gases produced by combustion when they enter the flue, extra use of this heating capacity can be made for the rooms of the second story, by the simple device of surfacing the flue walls with glazed tiles towards the rooms of the second floor. The location of the heater is such that on the first floor its glazed surfaces heat living room and kitchen, whereas on the second floor the two adjoining bedrooms are heated by the glazed surfaces of the flue. It was not complicated to arrange baffles in such a manner that both floors could receive a calculated amount of heat. As we did not want to introduce unnecessary risks into this first venture, we restricted the application of our ceramic tile heater to units with not more than two bedrooms on the second floor. We rather regret now that we did not use the heater in the three- and four-bedroom units since experience demonstrated its efficiency, and air ducts on the second floor could have been added for heating bedrooms not directly adjoining the flue.

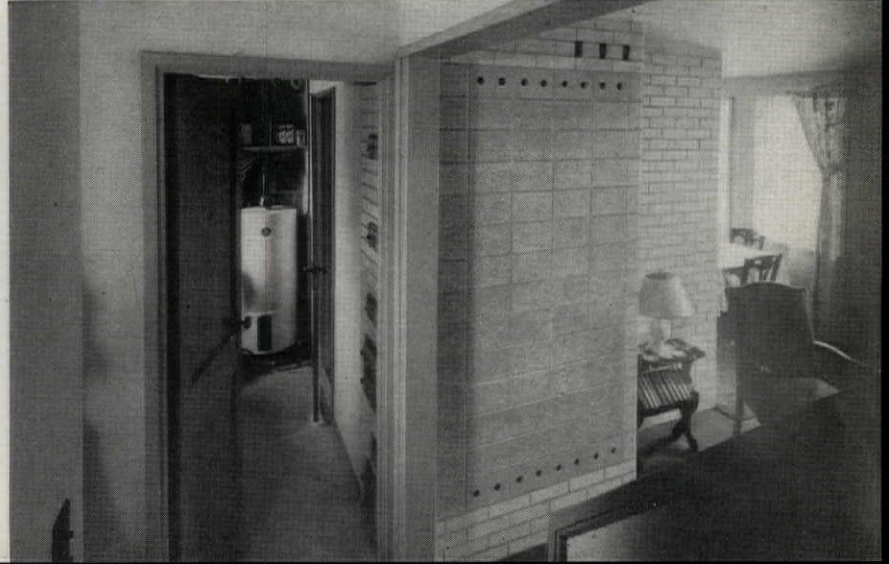
The manipulation of heating is as simple as with any other stove, but considerably cleaner. The coal bin is installed inside the house and opposite the firebox (which opens to a passageway) so that fuel can be shovelled directly into it. With this arrangement, carrying coal and ashes through the living room is avoided. The glazed surfaces of the heater can be wiped and kept clean with little effort.

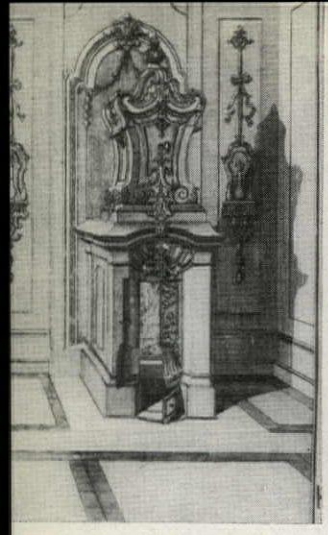
The new ceramic tile space heater represents more of a saving on critical materials than does the most economi-

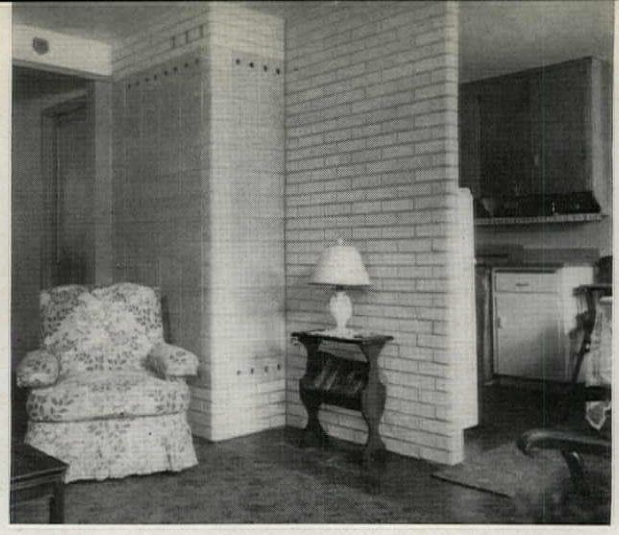


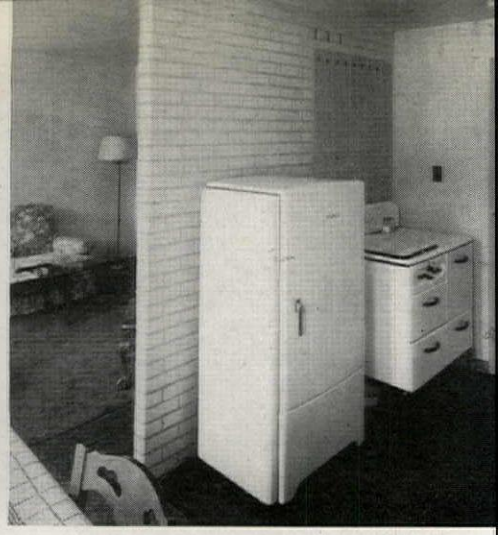
Avery Library, Columbia Univ.

Above, two ceramic tile heaters used in castles in the Tyrol; simpler forms, such as the top one, are still prized articles of furniture in many parts of central Europe. Below, the ceramic heater designed for Broadhead Manor. For details, see following page.









Left, above, a cast iron heater from central Europe, invented in 1728 by Johann Jacob Schuebler. At right, views of the Broadhead Manor heater from living room and dining space.

cally designed space heater on the market. It increases the livability of the room by the comforting effect of heat radiation emitted by glazed surfaces which are not obtrusive. The tiled surfaces merge so completely with the adjoining wall surfaces that a distinguished visiting architect, interested in the heater and looking directly at it, inquired: "Where is it?"

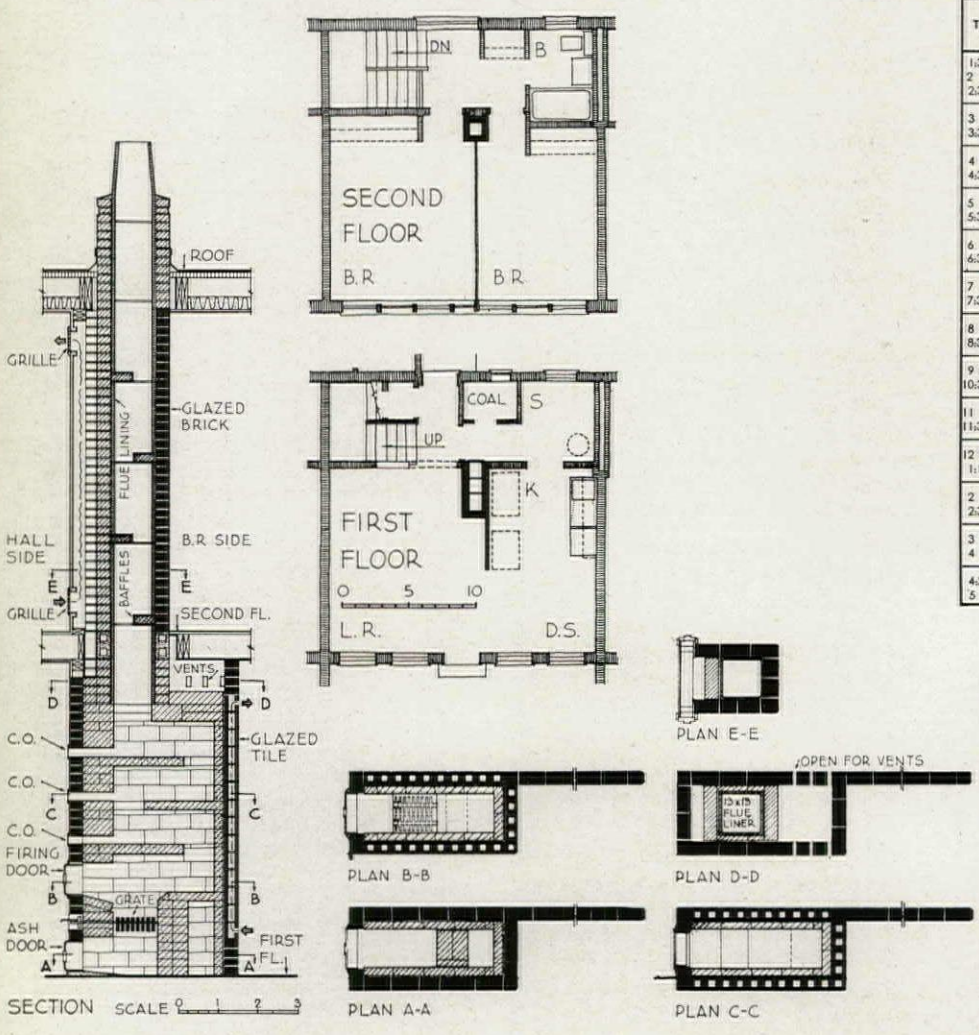
Whereas in Europe the tiles used for ceramic tile ovens are the product of highly specialized manufacture, we were compelled to design our units to be built from standard non-specialized American materials. We used readily available buff tiles of pleasant appearance. It will be a future possibility to apply tiles in various colors and forms. European tiles have for long been marked by a great variety of moulded forms, aiming at a maximum of radiating surface.

We used hollow tiles on the first floor to keep the surface temperature within advisable limits. By arranging holes on bottom and top of the communicating vertical cavities of the tiles, we were able to provide convection to supple-

(Continued on page 118)

TESTS WITH BITUMINOUS COAL			
Date of Test		1-19-44	1-20-44
Calorific Value of Fuel	Btu/lb	14,000	14,000
Estimated Loss, Combustible in Ash		700	700
Net Cal. Value	Btu/lb	13,300	13,300
Fuel Burned	lb	121.7	52.5
Heat Input	Btu	1,620,000	700,000
Co_2 in Flue Gas, Avg.	%	3.1	3.0
Flue Gas Temp., Avg.	°F	515	590
Estimated Efficiency	%	40	32.5
Available Heat	Btu	647,000	227,000
Heat Stored in Chimney	Btu	600,000	Not known
Heat Output	Btu	47,000	Not known
Heat Output, Avg.	Btu/Hr	7,830	Not known
Avg. Air Temp. Diff. Ins. and Outside House	°F	13	42.5
Estimated House Heat Loss	Btu/Hr	7,400	24,000
Heat Absorbed by House Walls and Unaccounted for	Btu/Hr	430	Not known

		Mean Temperature °F at Head Height		Weight of Fuel (lbs.)		Stack Conditions	
Time	Temp. of Out Door	Dwn. Sts.	Up. Sts.	Fired	Total	Temp. °F.	CO_2 %
1:30 PM	44	37	35				
2							
2:30				28.0	28.0		
3	45	38	37				
3:30				26.7	54.7		
4	44	40	37			242	3
4:30				29.5	84.2	563	4
5	40	45	40	37.5	121.7	453	4.5
5:30						519	
6	40	49	46				
6:30							
7	38	54	52			722	1
7:30							Mean 3.1
8	38	61	59			593	
8:30 PM				Banked Over Night			
9 AM	31	68	79				
10:30				New Fire, Disco Fuel			
11	33	70	78	31.5	31.5		
11:30							
12 N	36	69	77				
1:15 PM	39	73	80	30.6	30.6		
				Bituminous Coal			
2	41	76	82			541	3
2:30	41	80	84	21.9	52.5	554	2
3	41	83	87			627	3
4	41	87	90				
4:30						643	3
5	41	87	90			585	3



Hollow ceramic tiles which form the exterior surface of the heater have several functions: to reduce surface temperature, to provide convection heating (note inlet and outlet vents near floor and ceiling), to permit easy cleaning. Ceramic surface is an excellent radiator. In section, note baffles in flue which delay escaping gases until at least part of their heat is absorbed by the glazed brick chimney walls. Utilization of a heat source which is usually ignored in domestic work is perhaps the most important phase of the development. By using ducts, additional rooms could have been heated.

Measuring Urban Population Densities

A STUDY, PREPARED UNDER THE DIRECTION OF HENRY S. CHURCHILL, BY WILLIAM H. LUDLOW

This is the first portion of a longer study developed for the Citizens' Housing Council of New York, who will publish the entire work under the title, "Population Densities for New York City." The complete study contains data and proposals of which many relate particularly to New York; this section is in general applicable to most urban areas. In it an attempt is made to set up definitions which, though they may provide a uniform basis for discussing a subject of which widely varying interpretations have been made, are yet flexible enough to be used as guides for unusual cases.

Discussion of urban population densities is confused by the many ways in which densities can be measured. For a given area, there may be as many different density figures as there are figures. Before there can be realistic discussion of densities, there must be clear definition of the way these densities are computed. Although it is not expected that the definitions used in this study will become the last word or final authority in this field, they are intended to provide sufficient precision to give comparability, together with sufficient flexibility to meet the many varying conditions which may occur in different types of areas and projects, not only in New York City, but in other urban areas. No matter how carefully such definitions are worked out, however, there will always be circumstances where they do not fit exactly. In such cases they should be used as general guides rather than fixed rules; nor would such latitude be likely to create wide differences in the computed densities.

In any event, measure of density is only a crude index of livability. Site planning and design of buildings are also very important. However, assuming reasonably good design, it is expected that density figures computed according to the following definitions will provide at least one useful index of openness and amenities.

Urban densities are commonly computed by dividing the number of persons or families (or a measure of the bulk of building) on a given piece of land by the area of that land. Differences in measurement arise both in defining the limits of the area to be considered and in the method of counting persons or families, or measuring bulk of building. For example, Manhattan is often spoken of as having an average density of about 240 persons per gross acre. This is true if parks, commercial and industrial sections are omitted. If the total area of Manhattan is included, the average density is only about 135 persons per acre. If, on the other hand, only occupied dwelling lots are considered, the average density is 570 persons per acre.* Much of the difficulty in dealing with densities is due to failing to specify the type of density referred to and in lack of clear definitions of density measurements for various purposes.

Definitions of Area Terms

In the case of a large area such as a metropolitan region or municipality, density can serve, for planning purposes, an an aid in determining the size of central commercial areas, industrial areas, and public facilities. In the case of residential areas, it serves as a measure of light and air, and the amenities, utilities, schools, playgrounds, local business and other service facilities which should be provided. In general, the larger the land area to which density measurements are applied, the more types of land use which it is desirable to include. Similarly, the smaller the land area, the more types of land use generally excluded.

The area terms defined below have been limited to those which are likely to be most generally useful. According to the principle established above, they apply to areas successively smaller in size, and the variety of land uses is successively limited. For purposes of simplification, the terms have been divided into three major groups with variations within each group signified by an appropriate prefix word.

URBAN AREA (or METROPOLITAN AREA):

A single municipality, a large subdivision thereof, or a group of adjoining municipalities forming a metropolitan area.

Total urban area:

All land area within designated limits shall be included. Water area shall be excluded.

Developed urban area:

All land within designated limits shall be included, *except* land undeveloped for urban purposes, such as agricultural or unbuilt land, unopened streets, unbuildable or unusable land.

RESIDENTIAL AREA:

Residential sections of a metropolitan area, a single municipality, or a portion thereof at least large enough to support a school and a reasonably wide variety of business facilities and public and private institutions.

Developed residential area:

All land used for residence, local or incidental business, public and private institutions, playgrounds, athletic fields, and small parks shall be included. The following shall be *excluded*:

1. Industrial, railroad, and airport properties.

2. City-wide business districts (usually not applicable to cities of less than 25,000 population).

3. Large parks and parkways, cemeteries, golf courses, and other recreational or institutional uses. Playgrounds in large parks, however, may be allocated to the residential areas they serve.

4. Vacant land or land undeveloped for urban use.

Predominantly residential area:

Includes the same uses as developed residential areas, except that some mixture of the above excluded uses may be included to the extent that they occur as areas too small to be shown separately on the maps or by the survey procedure used.

NET OR GROSS AREA (of Dwelling Lots):

Lots, blocks, or groups of blocks; may be used also for whole municipalities if complete detailed surveys are made.

Net Area:*

Land used for dwellings and incidental service uses normally furnished on the dwelling lot shall be included, such as driveways, small storage garages, parking areas, heating plants for large projects, play space for small children. *Excluded* uses shall be Nos. 1 to 4 above and:

5. Public streets.

6. Local business not directly beneath dwelling space.

7. Garage space for 3 or more cars not directly below dwelling space.

8. Public parks, and playgrounds for older children.

9. Institutional facilities such as schools, churches, community buildings, unless located beneath or above dwelling space.

10. Vacant parcels, or parcels undeveloped for urban use.

Gross Area:

The same as net area except that public streets shall be included up to the center line of bounding streets. For certain qualifications of this, see text below, *Street Measurements.*

Of the above terms, *developed urban area* is much more precise than *total urban area* and should be used whenever the necessary data for computing are available. In land use surveys made by the New York Regional Plan Association, all areas with more than one house per acre were considered developed. Although this is a convenient limit, more exact data on vacant lots and the major use of each parcel of land makes possible the exclusion of all land not devoted to urban purposes.

Developed residential area forms a convenient basis on which to determine average residential densities for a whole city or major sections of a city. It includes not only the sites of dwelling

* *Net area* as here defined is approximately the same as *net site area* as used by the New York City Planning Commission in "Sections Showing Areas for Clearance, Replannnig and Low-rent Housing," adopted December 9, 1942. The City Planning Commission's definition is not entirely clear as to treatment of garages or stores that are included in residential structures and which are partly beneath and partly not beneath dwelling space.

structures but also the commercial, recreational, educational, religious and cultural facilities which are located in residential areas. These facilities generally serve those living in the same urban neighborhood. Some of them may cater to the whole city or even wider areas, such as an occasional outlying department store, hospital, museum, college or state institution. In many cases the difficulty of determining to what extent a given facility serves its immediate neighborhood, and to what extent a wider area, makes it impractical to attempt any definition on the basis of service area. As a practical matter, if all large parcels are excluded which obviously do not serve more than the general section in which they are located, the inclusion of the smaller parcels would not appreciably affect the density calculations.

Predominantly residential area differs from *developed residential area* only in that it can be computed for large areas without a detailed survey covering each lot. In areas where there is spotty building and many vacant lots, the predominantly residential area may be considerably larger than the developed residential area. When the concept of predominantly residential area is used in connection with possible future development, areas not yet "predominantly residential" but ripe for building may be added. The total future predominantly residential area may be called "area appropriate for residence."

The term *net area* is the one most commonly used in computing densities for individual buildings or projects. It refers only to those parcels of ground upon which dwellings are built. If stores or other community facilities are built on the same lot with dwellings, it is necessary to exclude the area that they cover in order to maintain comparability with developments which are devoted solely to dwellings. When stores or community facilities are part of a dwelling structure, the portion of such uses not directly beneath (or above) dwelling space are excluded. Although this may seem to be an unnecessarily precise and confining requirement, application of these definitions to a number of existing projects indicates that it is a refinement of considerable importance.

Whether storage garages should be included within *net area* or not is a particularly difficult problem. Ordinary zoning procedure allows storage garages even in the most restricted districts, provided they are intended only for use of families dwelling on the same lot. In one and two-family house areas, the one or two-car garage as part of the house or on the back of the lot does not appreciably affect openness or amenities, and the definition of net area does not require their exclusion. In multi-family construction, however, the situation may be considerably different. For example, a one-story garage requires about 200 square feet of land coverage per car, while an average 4-room apartment might require about 1,000 square feet of gross floor area. If the apartment building has 5 floors, the land coverage would be 200 square feet per family, or the same as that needed to provide for the family car. With buildings of 12 or 14 stories, if each family had a car, the space taken up by garages might easily be twice that necessary for the apartment buildings themselves. Obviously, then, the developer who provides a garage for each apartment would have substantially less open space and amenity at a given density than the developer who relies on garages on adjacent lots to provide for his tenants. Thus the area covered by garages for more than two cars (except that beneath dwelling space) is excluded from *net area*. Even this requirement is not entirely equitable as the child playing in the shadow of a garage wall well knows, particularly when the garage may have several stories instead of only one.

Density measurements based on net area may be generally satisfactory when applied to normal street and lot patterns. In considering super-block development, however, where the proportion of gross area in streets is often much smaller than in the normal block pattern, gross area becomes a much better measure of general openness of design. For instance, a redevelopment project site on normal Manhattan blocks has 36 per cent of its gross dwelling area in streets. After replanning into super-blocks it may have only 15 per cent in streets, the developer thus gaining enough land to increase housing accommodations by one-third without increasing building heights, coverage or density within property lines. Light, air, and general openness are thus greatly reduced and pressure on public services in the neighborhood correspondingly increased. Thus, in establishing density regulations, it was found better to apply such regulations to gross rather than to net area.

In connection with large apartment projects, especially those with an appreciable part of their site in private streets, service drives or parking areas, a measurement of out-door living area is sometimes useful. Such projects should be encouraged, especially if they are laid out in large super-blocks, reducing the area in public streets, and providing additional automobile access and parking on private land. However, since the land area available for green space, active and passive recreation, and the like, may be considerably reduced by private streets, drives, or parking areas, a measure of the amount of open space not devoted to automobile access and storage is desirable. The term *out-door living space*, therefore, can be used to refer to all net area not covered by buildings or devoted to private streets, drives and parking areas. This measure can be useful in comparing projects on normal city lots or blocks, and on super-blocks of various types. Use of this measurement for density regulation, however, is not recommended, since it might tend to discourage desirable types of super-block design.

Street Measurements

In connection with the foregoing definitions of area terms, considerable difficulty arises in measuring street areas, both as to boundary streets and as to street areas serving uses which are excluded from the various types of areas. In general, it is deemed desirable to follow the usual practice of measuring boundary streets up to the center line, thus allocating all street area to the property on one side of the street or the other.

In case of exceptionally wide streets, it is contended that the portion of street area primarily serving through-traffic needs should be eliminated. For instance, the definition of gross area used by the U.S.H.A. includes street area only up to 40 feet from property line. Although an exceptionally wide street gives greater openness and more sun-

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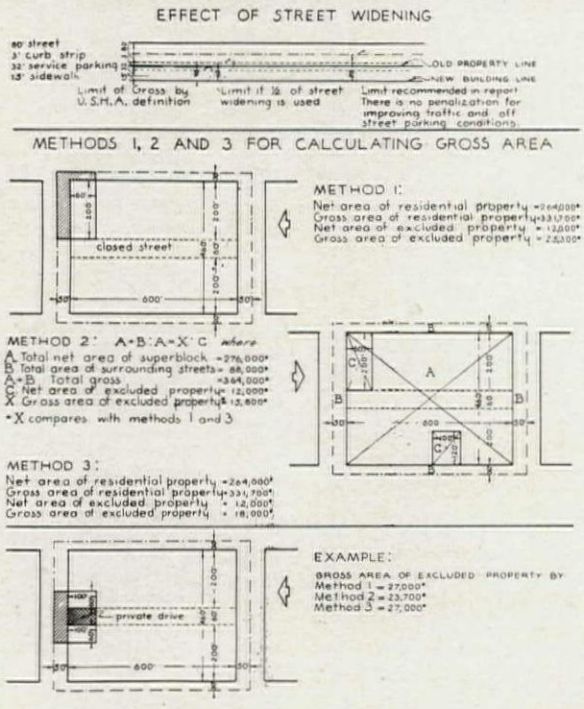
Methods of Street Measurement for Gross Area Calculation



MEASURING DENSITIES

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light and daylight, particularly with high buildings, it was found by experimentation that ordinary lots on streets over 100 feet wide would have excessively high net densities, in proportion to lots on normal width streets, when the gross area is measured to the center line. (See Chart 5.) Thus on streets over 100 feet wide, the gross area should not include any area beyond 50 feet from the property line. This requirement also simplifies measurements where street areas are of irregular shape.

In the case of a developer who is prepared to donate land for widening boundary streets, however, this requirement would reduce the gross area when the new street width is to be more than 100 feet. The widening of boundary streets should not thus be discouraged, since it often provides for more adequate through-traffic facilities. Therefore, in such cases, the center line of the bounding street or the 50 foot maximum distance should be based on the original street lines before widening.

If an area adjoins a large park, cemetery, body of water, spacious institutional grounds, or other large permanent open space, with no street intervening, some allowance should be made for the added openness of environment thus provided. As in the case of wide streets, it is recommended that the area of such open space may be included in gross area up to a distance of 50 feet from the property line.

A further difficulty in street measurement arises in excluding street area serving excluded uses. The most obvious method would be to measure the street area in front of the excluded use up to the center line of the street. In the case of corner lots, the street area would be measured up to the center line on both frontages and would also include that part of the street intersection falling within center lines. Thus, this method might result in a high proportion of street area assigned to excluded uses if these are located on corner lots or wide streets.

Another method of measurement, which is useful because it can be applied without a separate measurement of street areas in front of excluded uses, is based on the assumption that the percentage of total area in streets is also the same as the percentage of area to be assigned to both the excluded and included uses. Stated as a formula, this relationship could be expressed by the proportion (see Chart 1):

$$\frac{\text{Total Gross Area}}{\text{Total Net Area}} = \frac{\text{Gross Area of Excluded Use}}{\text{Net Area of Excluded Use}}$$

This method assigns more equitably the high proportion of streets at or near intersections to all property using the street for access. Furthermore it can be readily computed for large areas without undue additional measurement of maps because the "x" in the equation is usually "Gross Area of Excluded Use."

Objection has been raised to this method, however, when applied to super-block developments where the proportion of gross area in streets has been materially reduced by providing access to dwellings not by streets of normal width, but by service drives or merely by walks. If commercial or industrial buildings occur in such blocks, they often require a higher proportion of street area to service them than that which would be necessary for residence or recreation uses alone. Therefore a third method has been proposed which would exclude street area amounting to one-half the total area of excluded commercial or industrial uses. This ratio is based on the fact that in normal block development for New York City, 30 to 35 per cent of the gross area is in streets. Similarly, in 16 cities included in the study of "Urban Land Uses" by Harland Bartholomew, an average of 33.6 per cent of the developed area of the cities is occupied by streets. Thus it is assumed that the area in streets normally necessary to service commercial and industrial uses is at least one-third of their gross area, or one-half the area in private lots. For developments that have less than one-third of their area in streets, therefore, it is assumed that the lower percentage in streets is attributable to better planning of street area in relation to residential and recreation areas. Consequently commercial and industrial uses should have a "normal" area of street equal to one-half their area assigned to them, the remainder being assigned to the other uses.

This subject of measuring street areas should have further study. For purposes of general measurements, either the second or third methods above would be as suitable as the first and much more convenient to use when large areas are involved with many excluded uses or when reasonably accurate maps are not available. For purposes of density regulation, however, the first method should always be used, except possibly for certain types of large-scale projects with excluded uses. In such cases the second or third methods might be used but applied only to a tract of land in a single ownership.

Measurements of Population and Bulk

In addition to misunderstandings in regard to definitions of area terms, the measurement of density involves difficulties in selection and use of the other component of the calculation, which is usually stated in terms of *persons* or *families*. Although not always recognized as a type of density measurement, bulk of building in relation to land area is closely related to—and for certain purposes is more important than—*population* density in the strict sense of the word. Bulk of building may be measured in terms of height and coverage, or 12 stories high at 15 per cent net coverage.

If *families* or *persons* is used, distinction must be made between conditions that may exist at a given date and the capacity of the buildings in families, or in persons at a given standard of occupancy. Most types of building bulk measurement are more appropriate in determining adequacy of light and air, but less useful when considering adequacy of open space or need for "population facilities" such as schools, stores, playgrounds and transit. Some of the more important advantages and disadvantages of these alternative methods of measurement are outlined below:

Population Measures

TERM	ADVANTAGES	DISADVANTAGES
PERSONS	*Appropriate for measuring population distribution and densities over large areas relying on census data or special surveys. For smaller areas, measures actual occupancy.*	*Changes from time to time without alteration of buildings, and without change in the number of occupied dwelling units, particularly in new communities with a high proportion of young, growing families. Cannot be applied to buildings in the planning or construction stage except by relation to a standard of occupancy, in which case it becomes "persons capacity" (see below).*
PERSONS CAPACITY	*Can be applied to buildings in the planning and construction stage as well as to built-up or partly built-up areas at assumed standards of occupancy. Very useful in planning "population facilities" such as schools, stores, parks and playgrounds. Generally changes only with construction, alteration or removal of residential structures.*	*Methods of estimation and standards of occupancy vary considerably with the income level, type of family, etc. Estimates may be based on number of persons for each size of dwelling unit, for each bedroom, or average persons per room. These measurements should be in terms of person per construction room as some types of room counts include dinettes or bath rooms as half rooms.*
PERSONS PER ROOM	*Useful in determining the degree of crowding in living quarters. Usually computed by dividing the number of persons by the number of rooms. Variations of this method include omitting rooms not usable for sleeping, counting young children as half persons and omitting infants.*	*Does not measure crowding on the land. Complicated by differences in methods of counting rooms and persons.*
FAMILIES	*Appropriate for measuring the actual number of families housed, but should be considered in relation to the proportion of family quarters vacant. Generally used for small areas.*	*Family size may vary substantially. Number of families changes from time to time with the vacancy ratio. It is not always clear that "families" is equivalent to "households" or occupied dwelling units, nor whether single person families are included.*
FAMILY CAPACITY OR DWELLING UNITS	*Little chance for ambiguity, since family quarters are generally well defined by the provision of kitchen equipment. A structural change is generally required for increase or decrease. Can be accurately*	*Number of persons occupying the family unit may vary from one to many and the "average family size" may not be applicable to any given area. If used for regulation, may hamper provision of small dwell-*

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MEASURING DENSITIES

TERM	ADVANTAGES	DISADVANTAGES
	applied to buildings in the planning stage or to single and two family areas which have been subdivided, but not completely built-up.	*ing units or may prevent desirable conversion of large into small dwelling units.*
Bulk Measures		
COVERAGE AND HEIGHT	*Easily computed for single buildings, projects or small areas. Readily understood.*	*Does not allow for setbacks and variations in height of different parts of a building or project. Reasonable restrictions for light and air may still permit very high population if rooms are small, thus overloading "population" facilities.*
FLOOR AREA RATIO	*Relatively easily computed for single buildings, projects or small areas by dividing gross residential floor space of all stories by land area. Allows for flexibility of design. Can be applied to non-residential space.*	*Does not allow for differences in room and apartment sizes. If used for regulation, it may tend to result in minimum room sizes in new projects.*
CUBAGE	*An important element in regulating adequacy of light, air and openness. Allows for flexibility of design. Can be applied to non-residential space or structures more accurately than floor area ratio method.*	*Does not allow for differences in room and apartment sizes. If used for regulation tends to result in minimum room sizes and low ceiling heights in new projects. Difficult to compute for existing structures. Difficult to formulate satisfactory rules for computing cubage. Cubage computations for above ground level bulk would be different from cubage computation for cost estimates which include basement space.*
ROOMS	*Easily applied to built-up areas and proposed projects. Directly related to persons capacity measured in average persons per room.*	*Can vary if dinettes or bath rooms are counted as half rooms. Relation to building bulk may vary substantially with room sizes and amount of space in halls, dinettes, closets, etc.*

The above review of some of the advantages and disadvantages of various methods of population and bulk measurement indicates that no single method of computation will give entirely satisfactory results for all purposes. Selection of a relatively small number of the more useful measurements is, therefore, necessary. Often the measurements selected will depend on available data more than the most accurate method for the purpose in mind.

Selected Terms for Density Measurement

In order to simplify as much as possible the discussion of density in this report, only a very few of the many possible density terms will be used. These will not include terms such as might be useful for general city planning purposes, but will be confined to those necessary for the purposes of this report. Although other terms are used in this report on account of the type of data available or in order to translate figures into other commonly used terms, the following terms are considered most suitable for purposes of measuring existing densities:

Floor area ratio (net). As defined by the City Planning Commission,* "Floor area is the total area in square feet of all floors used for residential purposes including public halls, stairwells and elevators serving dwelling units. It does not include the floor areas of basements not used for dwelling purposes, community rooms, project offices or other non-residential space." The designation (net) after floor area ratio indicates that it is the ratio of floor area to net area as defined in this report. It is thus differentiated from floor area ratio (gross) given below. Floor area ratio (net) is a very convenient measure to use since for buildings without stores or other non-residential space except in basements it can be quickly computed, providing there are no setbacks, by multiplying the height in stories by the percentage of net coverage. For example, an apartment building with a floor area ratio (net) of 1.8 could be 3 stories high at 60 per cent net coverage, 6 stories high at 30 per cent net coverage or 12 stories high at 15 per cent net coverage.

Persons per net acre. This is one of the most commonly used density measurements. It is very useful in measuring the density of population at a given date in an existing project or in an area already built up. It can be applied to projects in the planning stage only by assuming certain fixed relationships of persons to other given data such as number of rooms, number of dwelling units, or floor area.

Developed residential acres per 1,000 persons. This term is stated as "acres per 1,000 persons," instead of the more usual "persons per acre," in order to facilitate breaking it down into its component parts such as playground and park acres per 1,000 persons, business acres per 1,000 persons, net acres (of dwelling lots) per 1,000 persons, etc. This method of stating this term also helps prevent confusion with persons per net acre, which is the reciprocal of net acres per 1,000 persons multiplied by 1,000.

In addition to the above terms, the following three terms are recommended for purposes of regulation of densities. Although the reasons for selecting these terms are given in more detail in Part VI, they are briefly explained below in order to show their relationship to the three terms given above.

Floor area ratio (gross). In order to relate bulk of buildings not only to the size of lot but also to the width of adjacent streets, this ratio is computed by dividing the total floor area by "gross area" (net area plus one-half of adjacent streets). Although difficulties will undoubtedly be encountered in the measurements of street areas as indicated above, this measure is recommended because it regulates bulk directly in relation to surrounding open space, whether privately or publicly owned. It is particularly useful in assuring adequate light and air, although additional requirements for yards, courts, height, etc., would also be necessary.

Rooms per gross acre. In addition to a bulk regulation, more direct control of population density is desirable, not only to control more closely the outdoor living space on the lot for each person housed, but also so that the sidewalks, streets, utilities, transit facilities, schools, playgrounds and parks in the neighborhood shall not become excessively overloaded. As shown in Tables 1 to 3 below, occupancy rarely exceeds one person per room over any large areas in New York City.

Acres of playground and park per 1,000 persons within one-quarter mile. It is suggested that an attempt be made to apply some measure such as this to large scale projects and their surrounding neighborhood up to one quarter of a mile. The required acreages, if not already available in the neighborhood, could be provided at public or private expense either within or outside the project but within one-quarter mile walking distance. Few children will use a playground that is more than that distance away. The application of this provision to projects less than one block in size is doubtful.

Rooms as a Measure of Density

Because number of rooms has not been previously suggested as a measure for regulating density in multi-family areas, the following paragraphs bring out some of the characteristics of this method:

1. There is very little ambiguity in what is often termed a *construction room*. This may be defined as an enclosed space for private occupancy designed to be used for living, sleeping, eating or cooking, excluding bath rooms, toilet compartments, strip kitchens located in closet space, halls, foyers, closets, storage and similar space. No "half-rooms" are counted.

2. *Number of rooms* bears a direct relationship to persons capacity measured in terms of average persons per room and is very useful in establishing the relationship between dwellings and the neighborhood facilities adequate to serve them. Just as good engineering practice required the planning of water plants, sewerage systems, bridges and the like with adequate capacity for the probable maximum load, so neighborhood facilities must be adequate for the capacity population of the neighborhood rather than the number of persons who may be living there at a given date.

3. Although New York City and Manhattan Island had a median of 0.78 persons per occupied room in 1940, the occupancy of new low and medium rent

* City Planning Commission *op. cit.* p. 5

housing projects in New York City approaches very close to one person per room in the great majority of cases. (See Tables 1 and 2). Furthermore, with the possible exception of the first year or two after construction, the relationship of persons to rooms has remained approximately the same for most of these projects over a period of years. This is due in some cases to a management policy of moving families to apartments most suited to the family size when changes in family size and vacancies in the proper size of apartment occur.

4. The proposed regulations on the basis of *rooms per gross acre* will apply only to new multi-family buildings, and will not apply to new or existing single or 2-family houses where the occupancy is likely to be considerably less than one person per room, or to existing multi-family buildings where a high vacancy ratio is likely to result in a lower overall occupancy measured in persons per room. In medium and low-rent apartments of modern design, vacancy ratios are likely to be very low. For the New York City Housing Authority projects, vacancy and collection losses on dwellings were less than .08 of 1 per cent in 1939 and only .03 of 1 per cent in 1941.* For all limited-dividend projects under the New York State Division of Housing, only .32 of 1 per cent of the apartments were vacant on December 15, 1938, and practically none in October 1943.* Furthermore new low and medium-rent apartments of good design with adequate neighborhood facilities, particularly playgrounds, would offer accommodations very attractive to families with children. Such families are more likely to average at least one person per room than those without children, since the average number of rooms that they can afford to rent is likely to be no more than that of families without children, although the number of persons is more. Consequently for new low and medium-rent apartments with adequate neighborhood facilities, an average occupancy very close to one person per room is likely to be reached.

5. In older buildings or those in the higher rent groups, or when considering *persons per room* for the city as a whole or selected areas, the effect of vacant apartments must be taken into account. This is done in Table 3, which shows an average occupancy for the city as a whole of about three-quarters of a person per room. In Queens and Richmond with large proportions of single-family houses, persons per room are considerably lower, in the other boroughs where apartments predominate, generally higher. In Manhattan, the many vacant apartments give a slightly lower median persons per all rooms than the city median. In the selected health areas, the newly built high-density sections such as the Grand Concourse and Dyckman Street areas have greater than the city median of three-quarters of a person per room. It is only in the typical one-family house area and the Park Avenue section that the median persons per occupied room is markedly below three-quarters of a person per room. In the Lower East Side and Columbia Heights only the rather heavy vacancies bring the median persons per all rooms somewhat below three-quarters of a person. In general, the data on selected health areas indicate that, except in very high rent areas, new unsubsidized building construction is likely to have about the city median of three-quarters of a person per room. In regard to very high income families, a building originally designed for them is likely to house lower income groups as it increases in age and factors of obsolescence tend to draw high income families to the newly built dwellings located in the more fashionable neighborhoods. Thus it is unwise to expect an occupancy of less than three-quarters of a person per room even in buildings originally designed for very high income families.

* See annual reports of the Authority for 1939 and 1941.

* State Division of Housing.

Table I. Average Household Size and Persons per Room in Public Housing Projects in New York City.

Project	Population December 1941	Average Household Size	Persons per Room
Clason Point	1,579	4.0	.93
Vladeck (City)	916	3.8	.96
Williamsburg	5,942	3.7	1.04
Red Hook	9,347	3.7	1.00
Harlem River	1,957	3.4	1.00
Queensbridge	11,062	3.4	.97
South Jamaica	1,515	3.4	.97
East River	3,865	3.3	.90
Vladeck (Federal)	5,129	3.3	.93
First Houses	384	3.1	1.00
Kingsborough	3,647	3.1	.88
Wallabout	633	3.1	.83

Source: New York City Housing Authority, Eighth Annual Report, 1941, p. 22-3.

Table 2. Average Household Size and Persons per Room in Limited-Dividend Projects Under the New York State Housing Law.

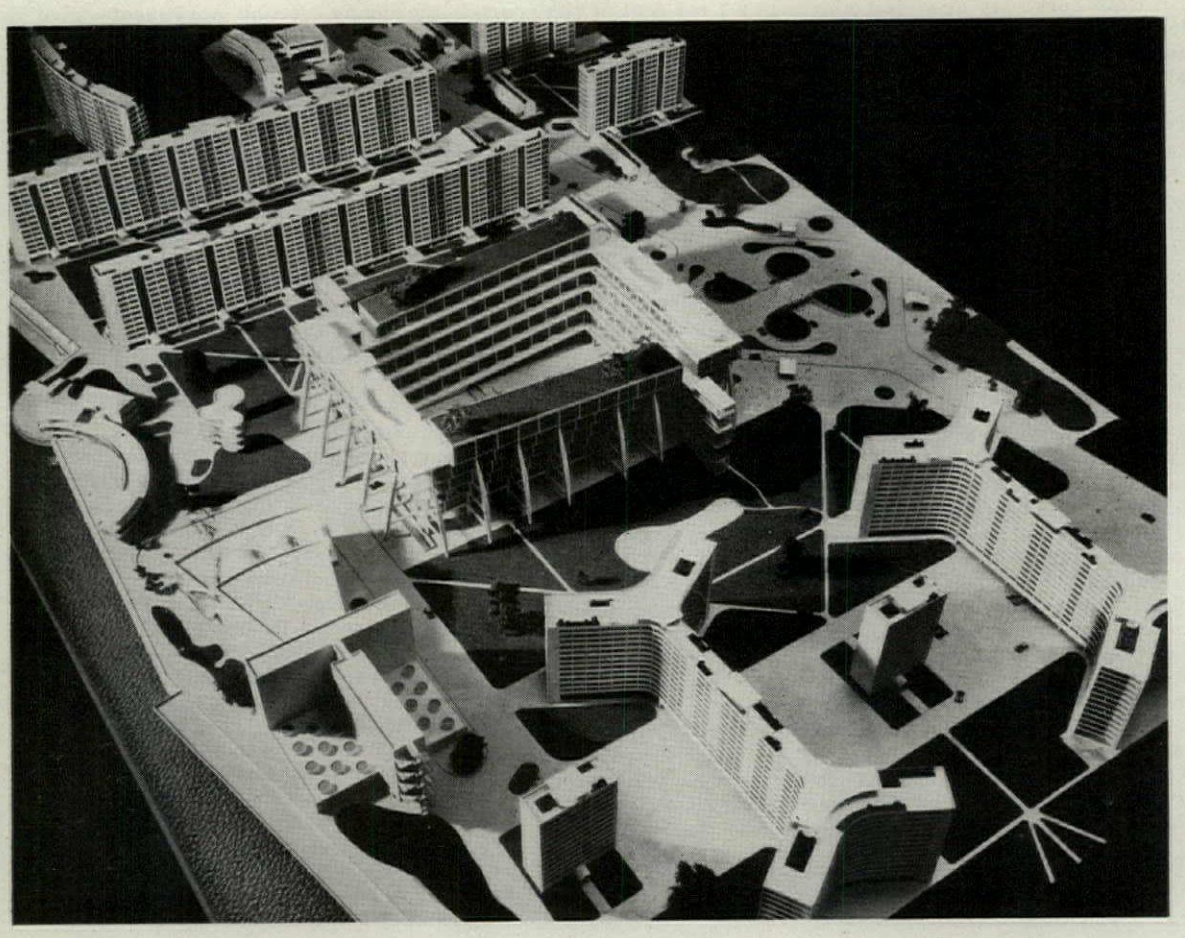
Projects	Population June 1943	Average Household Size	Persons per Room
Amalgamated Housing Corp.	2,700	4.3	1.17
Amalgamated Dwellings, Inc.	875	3.7	1.03
Farband Housing Corp.	463	3.6	1.05
Academy Housing Corp.	1,650	3.5	1.07
Manhattan Housing Corp.	145	3.3	.93
Stanton Housing Corp.	141	3.2	1.04
Hillside Housing Corp.	4,540	3.12	.92
Stuyvesant Housing Corp.	294	3.1	.97
Brooklyn Garden Apartments, Inc. Fourth Avenue project	496	3.0	.77
Boulevard Gardens Housing Corp.	2,600	2.7	.79
Knickerbocker Village, Inc.	3,771	2.4	.72
Brooklyn Garden Apartments, Inc. Navy Yard project	314	2.2	.66

Source: New York State Division of Housing.

Table 3. Persons per Room in New York City, its Boroughs and Selected Health Areas, 1940.

Borough	Per Cent of Occupied Dwelling Units with More than One Person per Room	Median Persons per Occupied Room	Percent of Dwelling Units Occupied	Median Persons per All Rooms
Manhattan	19.0	.78	88.8	.69
Bronx	24.1	.83	95.6	.79
Brooklyn	20.0	.79	94.0	.74
Queens	11.8	.69	91.7	.63
Richmond	12.2	.66	88.2	.58
City	18.8	.78	92.3	.72
Health Area No. & Location				
33.2 Bronx, Grand Concourse	.83		95.3	.79
40 Bronx, Western Westchester Ave.	.82		94.4	.77
85.1 Brooklyn, Ocean Parkway	.82		94.6	.78
1.2 Manhattan, Dyckman Street	.81		96.5	.78
6.2 Manhattan, Hamilton Heights	.78		93.0	.73
79 Manhattan, Lower East Side	.78		80.2	.63
10.2 Queens, Jackson Heights	.72		94.4	.68
23 Brooklyn, Columbia Heights	.72		88.4	.64
35.31 Queens, typical one-family house area	.64		96.7	.62
41 Manhattan, Park Avenue	.58		87.0	.50

Source: Computed from U. S. Census, *Population and Housing*, Statistics for Health Areas, New York City, 1940, Table 6. Average persons per room cannot be calculated, since data on total number of rooms are not available. However, the relation between the median and the first and the third quartiles indicates little skewness. This statistical measure indicates that the arithmetic average and the median are nearly identical.



Schematic Study of a Civic Center, *prepared in 1936 in London by Marcel Breuer and F. R. S. Yorke.*

STUYVESANT SIX

(Continued from page 70)

people. Its size and the fact that it has been actually designed and accepted by the authorities make it a precedent for postwar construction. The redevelopment of eighteen New York city blocks as one single property comes as a revolutionary experiment, not only as to housing, but as to city planning and capital investment.

The Corporation's approved project has been discussed in the press, pro and contra. It has been criticized mainly as to its social aspects: for the lack of community facilities, for tax exemption, for segregation, for the density of land used—some points of which criticism I agree with, some not.

What I strongly felt, however, observing the various reactions, was the curious lack of a deeper-going consideration from technical, functional, and human points of view; in other words, as an architectural and planning achievement. How are the apartments? How will the people live in their private units? How much air and sun will they have? How far need they go for their cars? Can they park them? How private are their windows? Will they receive standards of comfort and health on the level which planners and architects can offer today? To what extent is it possible to create improvements of the above points, without having to increase rents?

These professional points were probably sidestepped because such an analysis should preclude the presentation of another project, proving that the qualities I mention do not need to be impractical Utopias, luxuries, or merely nice ideas.

The thoughts above suggested the preparation of a comparative study. Economic considerations were to be the same as those upon which the corporation based its project.

As this study was intended mainly for comparative purposes, and as there was no financial backing from any source, many problems had to be excluded which are organic parts of the whole: relations of the project area to the surrounding areas, the traffic and communication problems of its adjacent streets, its relations to a "master" plan of Manhattan, social implications. It is a limited project, but by accepting the Corporation's economic considerations, I did not give up the aim to outline the human and functional standards which I believe essential for the "postwar," or for a long term investment.

The story is composed of two site plans, employing the same type of buildings: the VARIATION, with practically the same density as the Corporation's project, so an exact comparison of the solutions is possible;

and STUYVESANT SIX, which employs not relatively but fully satisfying standards as to window-to-window distances, park and play areas, and community facilities. The density of this project is about 19% lower than that of the Corporation's project, which latter does not sufficiently allow for the degree of healthful comfort and pleasantness I wish our postwar production could accomplish.

Twelve to fifteen stories give, according to accepted computations, the most rentable form of elevator type buildings. Fewer stories fail to use the duplex elevators to capacity and higher buildings add rapidly to costs of special machinery, service piping, and structural work. The buildings in these studies are fifteen stories.

"Stuyvesant Six" suggests:

Cross Ventilation:

which would certainly be warmly appreciated by most people in this climate, to relieve the humid heat of summer days and eliminate the usual mixture of kitchen odors in stair halls and corridors. To achieve this without losing on elevator efficiency, a new type of apartment building had to be invented. In each wing on three sides of a central communication tower, every third floor may be called an intermediate one. It serves as an approach on level to apartments type "D" and also for the two apartments "B" on the floor above and below. Apartments "A" are approached directly on the level from halls between the intermediate floors. This system gives, to two-thirds the total number of apartments, complete cross ventilation with about half of the remaining third having corner ventila-

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