9

NEW PENCIL POINTS

WE'RE KEEPING THE MERCHANTS OF AMERICA "STORE FRONT CONSCIOUS"

★ Although Zouri manufacturing plants are devoted 100% right now to the war effort, Zouri is advertising to the merchants of America — in over 20 leading trade magazines — priming the pump, as it were, for the post-war construction era. This means acceptance for ZOURI Store Front Construction and future business for ZOURI — but more important to you, it means profitable work to do. ZOURI has always supported the architect and the reputable contractor — for ZOURI Store Fronts can be only as good as their design and erection. ZOURI STORE FRONTS, NILES, MICH.

What do you want in the post-war store front construction? ZOURI would be glad to hear from you!

Toward a Stronger Profession

Despite the difficulties that have been met by many architects in finding ways to apply their professional talents toward winning the war, we continue to believe that architectural men, on the whole, have made and are continuing to make a heavy contribution to this end. In order to support this belief by facts, we set out a couple of months ago to collect some rough statistics from AIA Chapter and State Association Secretaries concerning the war activities of their members. So far, we have had full responses from twenty-six of these groups and have been assured by six others that figures will be forthcoming soon. We expect that most of the fifty or more groups not yet heard from will be represented in time so that we may make a complete summary and report by the end of this year.

The evidence so far collected indicates that the totals will be quite impressive. Even though conditions vary in different parts of the country, not a single group that has reported is without representation both in the armed forces and among those responsible for the design of war projects. Several hundred architects are named as belonging to either the Army or the Navy and Marine Corps with ranks ranging from buck private to Brigadier General, from ordinary seaman to Commander. The national totals must reach at least into four figures—a respectable percentage of a comparatively small profession.

While we are not at liberty to divulge the nature, size, and location of war projects that have been designed by architects in civilian practice, we already have indications that such projects run in their totals into hundreds of millions of dollars, perhaps billions. These include not only army and navy establishments, but war industrial plants, housing, and other things clearly necessary for the conduct of total war. While it is true that in many cases these works were done in collaboration with engineers, it is nevertheless also true that without the participation of the architect they could not have been so well planned and would probably not serve their purposes so effectively.

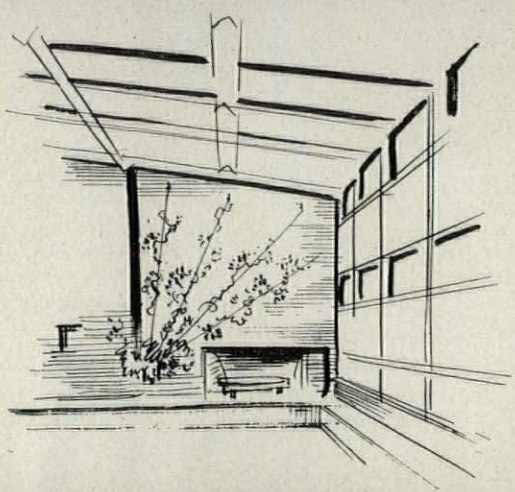
Other hundreds of architectural men have been serving technically in various government bureaus—federal, state, and local. When the record is complete, we believe it will demonstrate beyond question that the architect has a vital role to play in war as well as in peace. All this is cited as encouragement to those among us who have felt frustrated and who have inclined to develop a sense of inferiority toward our fellow professionals, the engineers. To these we can say with assurance that the architects have nothing to be ashamed of in the performance of their duty to their nation as specially equipped citizens, competent to help in emergency as well as to serve in what we like to think of as normal times.

Out of all these war activities, which have tended to disrupt the even course of architectural practice and the organization of the profession, we sense the growth of a feeling of increased solidarity among architectural men. At least there is a greater consciousness of the oneness of the constructive architectural purpose and a realization that it matters not so much what relative rank is held in the army of architecture provided the man at work is doing his job well. Many architects have given up their own individual practice to work in some of the large organizations as draftsmen and designers. This is making it clearer than ever that the whole profession, as a living and progressive body, comprises not only the independent architects but all those fellow workers of the drafting room and even the very youngest men who are still studying in the architectural schools.

We hope that somehow out of it all will come, after the war, a stronger and better American Institute of Architects, rededicated to the service of society. The Institute's Board of Directors has recently seen fit to appoint C. Julian Oberwarth of Frankfort, Kentucky, to conduct a membership drive in which the goal will be to unite the highest possible percentage of qualified architects as members of their national body. Mr. Oberwarth, when he was Regional Director of the Great Lakes District, was largely responsible for a remarkable increase in the membership of the Chapters in that area. We hope that he will have equal success in stimulating a more complete organization of the members of our profession on a national scale. We hope also that the Institute will recognize, to a greater degree than heretofore, the necessity of including the younger men as members and associates, with a voice in its affairs.

We will need, after the war, all the strength the architectural profession can muster to help solve the stupendous problems of reconversion and reconstruction. It will be well if all its elements can be firmly organized with a common aim, to exert their influence towards creating a future environment for our people worthy of a great nation. —K.R.

Photos by Hedrich-Blessing



Present Recreation Room, Rugen School, is so designed that when the school is expanded it can become a community living room, serving as a library, social room, and recreation center; it will be the lobby for the auditorium and recreation center. Since this photograph was taken it has become necessary to house two classes in it—an indication of the need for expansion. The planting box at left of the fireplace is designed for soilless gardening; pupils plan to grow vines in it, as indicated in the sketch at the right, making an educational project serve as wall decoration.

Rugen School, Glenview, Ill.

Perkins, Wheeler and Will, Architects

Many of the desires of advanced educators are realized in the Rugen School: extremely high level natural lighting, bilateral and glare free; classrooms with auxiliary units designed for efficient but unobtrusive supervision; a one-story layout, which helps to reduce first costs; carefully thought-out heating and ventilating; gay use of color; freedom for class seating arrangements—to mention a few.

The school, completed recently, is a war project, though not connected directly with a war housing development. As the first page of the specifications, of which part is reproduced below, tells, the existing Horace Mann School in Glenview had to be demolished to make way for a Naval Air Training Station. Somewhat previously, a school survey made for the local Board of Education had indicated the advisability of consolidating districts and providing new facilities. This school is part of the long range plan; the war, which in so many cases has prevented the implementation of such planning, here provided a stimulus for realizing it.

NEW RUGEN ELEMENTARY SCHOOL

BOARD OF EDUCATION DISTRICT, 34

GLENVIEW ILLINOIS

Perkins, Wheeler and Will
Architects

Merchandise Mart
Chicago Illinois

SPECIFICATIONS FOR CONSTRUCTION

IN GENERAL

1. WORK COVERED.
These specifications and accompanying Drawings are intended to describe and illustrate all material, labor and equipment necessary to complete construction under a General Contract of a new building on the east side of Shermer Road south of Glenview Road, for the Board of Education of Consolidated District 34, Glenview, Illinois.

2. PRIORITIES.
The Board of Education has applied for preference rating on this project. Since project is made necessary to vacate property for a Naval Air Training field it is probable that adequate rating will be available. The building has been designed for maximum use of salvaged materials and minimum requirements of new critical materials. Contractors are urged to plan all work to conserve on all material whether temporarily or permanently installed in project.

3. SCHEDULE.
It is imperative that the building operations on this project be completed in the least possible time. The Navy has required immediate clearance of the airport property and the Board must provide housing for its classes as early as possible. Successful bidder will be required to prepare schedule of construction as guide to the Board in planning temporary accommodations.

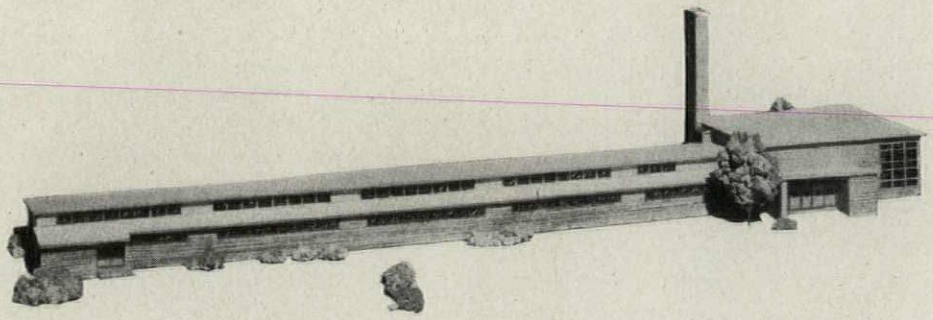
4. PREPARATION OF BIDS.
...sel. examine all drawings relating to this work, care-

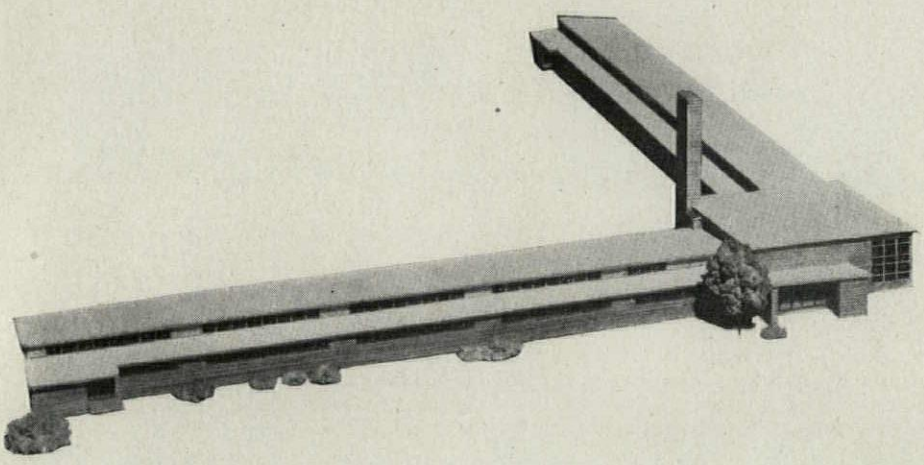
Glenview is an up-and-coming suburban residential community, not as yet directly affected by any great influx of war workers. In this sense it is more typical of normal conditions in American municipalities than Portsmouth, N. H., Vancouver, Oregon, or Norfolk, Va., or any of the other cities and towns which have grown so tremendously in the course of the war boom. Those communities have had to have schools too; but in most cases pressure of time, shortages of materials, and uncertainty as to the future have caused erection of either replicas of the numberless inadequate monumental schools of the past, or frankly temporary buildings, some good, some bad.

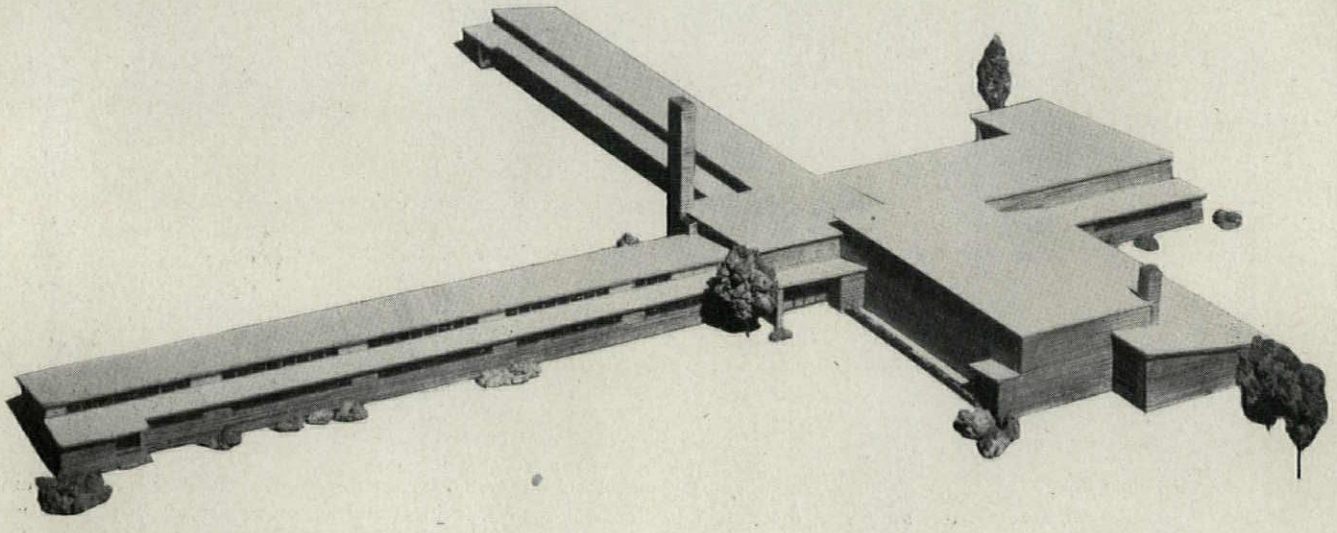
That Rugen is neither an inadequate Colonial structure with a lantern atop it, nor a transitory shed, is due in great part to the courage of the Glenview Board of Education. They had a program, an urgent reason for building now, and they wanted a school which would not become obsolete for at least a few years. The architects have asked that credit be given the Board, of which Mr. Harold Basquin is President, and Mr. H. Evert Kincaid (also Acting Director, Chicago Plan Commission) was Chairman of the Building Committee.

The four photographs of models on this and the facing pages show stages through which the Rugen School is expected to go. As experience accumulates, details of design, or even the complete scheme, are subject to modification; but the groundwork has thus been laid for a development which is reasonable in light of Glenview's predictable future.

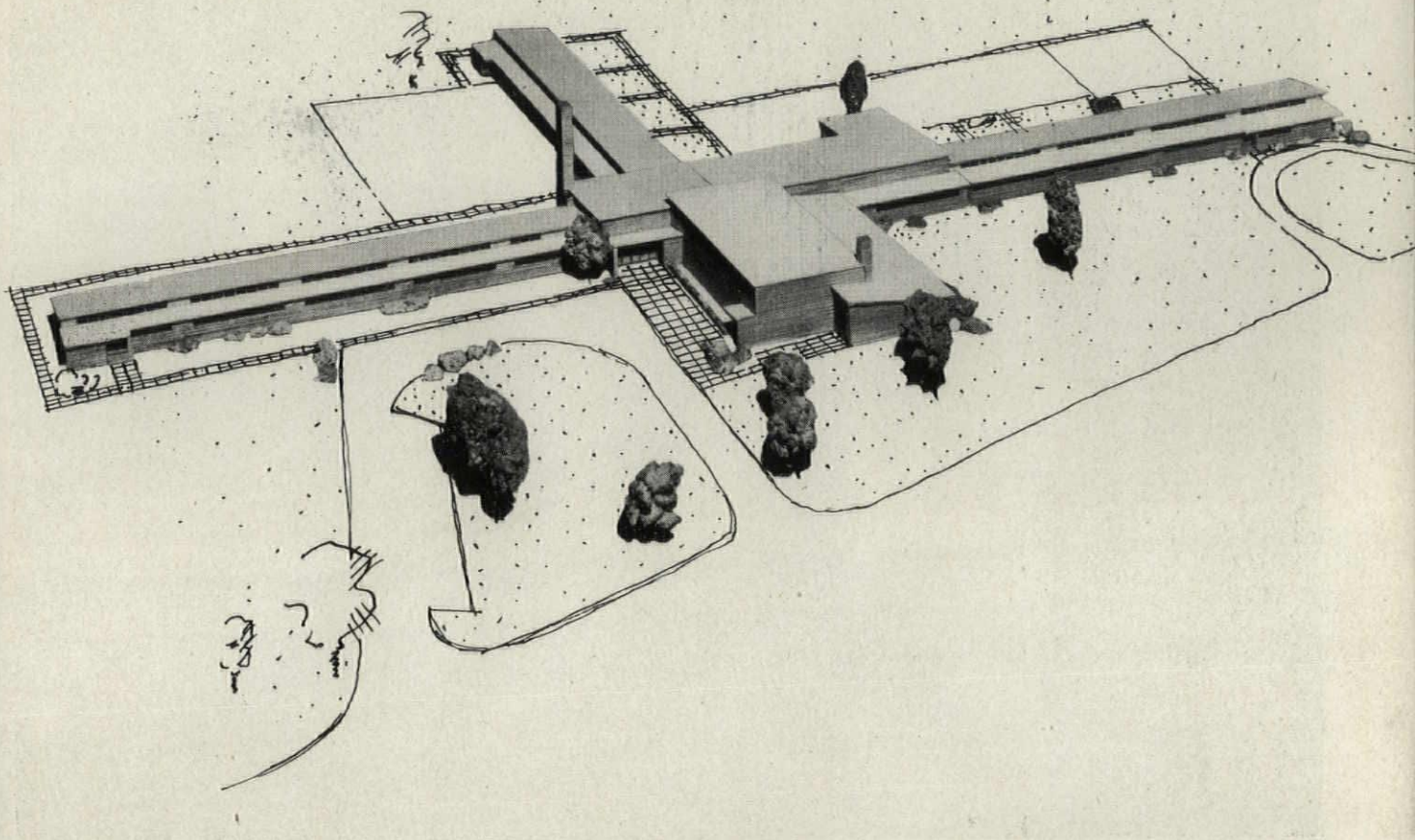
As the plan on page 38 shows, each wing is eventually to house a separate age-group, while the common facilities—which are also for community use—are grouped at the center. This means that the minor cruelties which older children, often unwittingly, inflict on younger have fewer opportunities to develop. One of the worst effects of the war upon the school is the overcrowding, the mixing of age groups, which occurs when all classes must be accommodated in the one wing.



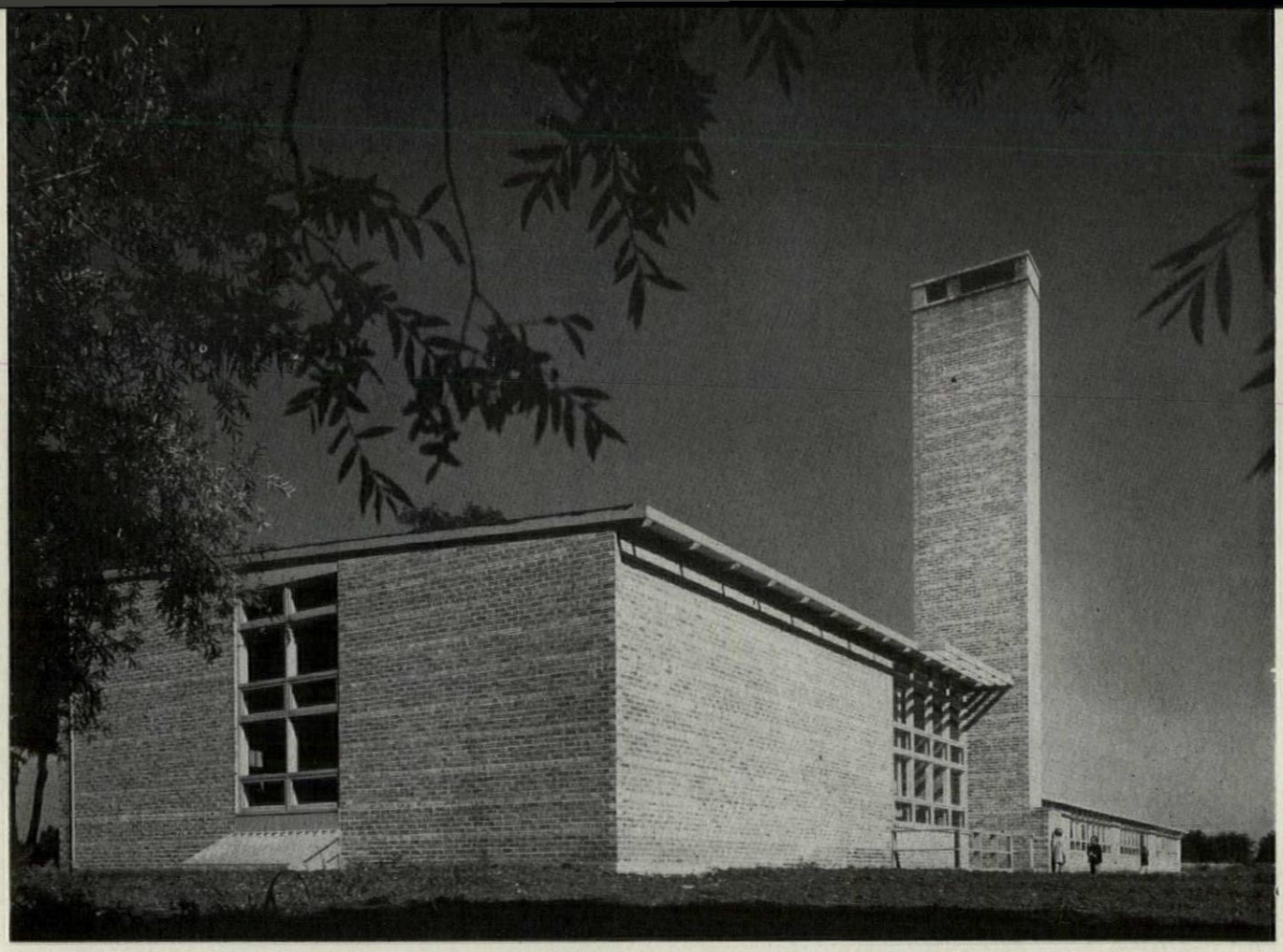


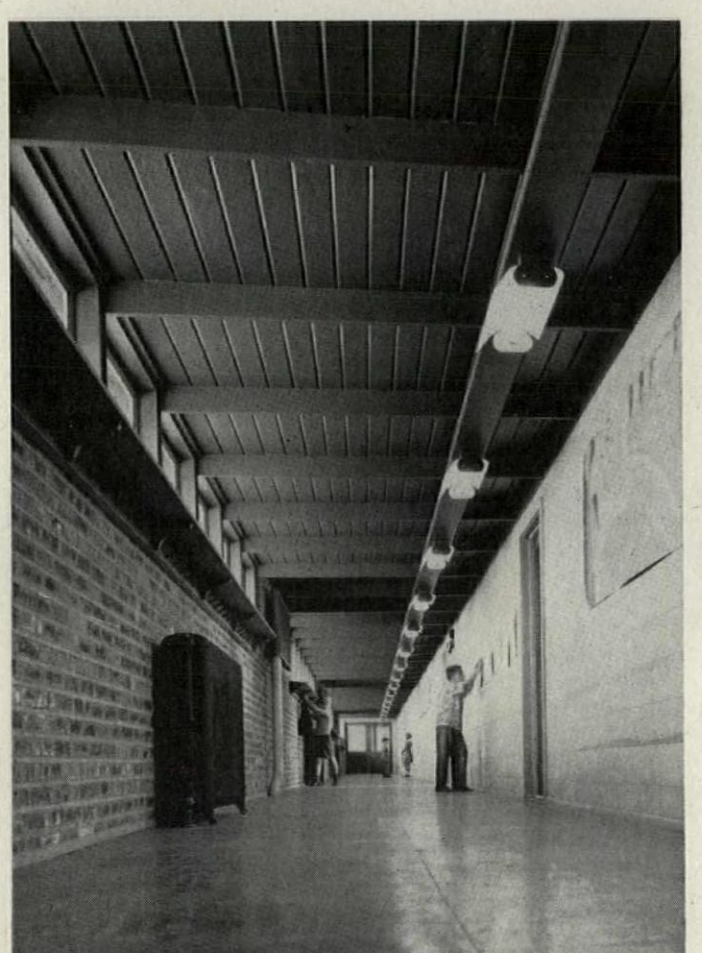


It seems impossible that costs per square foot of a building so sprawled out could compete favorably with those of the square box form which is ordinarily considered most economical; yet the table of comparative costs on a previous page shows this to be the case. Several factors combine to produce this result. In a one-story building in which each classroom has an exit leading directly outdoors, combustible materials can be safely used. Also, elimination of fireproof stair halls greatly reduces waste space and wipes out a costly type of construction. The lighting was originally to have been continuous Zeon tubing, but the war made fluorescent fixtures necessary—an entirely satisfactory (and permanent) change which cost much less than the original estimate for Zeon. The heating system, including a boiler of capacity sufficient for the ultimate building, cost substantially less than the estimated $15,000. Lockers, which were omitted from the corridor, have been replaced by a hat shelf and hooks at a cost of $32 for the complete installation; if and when lockers are added, square foot costs will rise slightly.



The low entrance, at right in the photograph below, has its roof slanted back away from the steps. This was done because gutters could not be obtained, and the pitch prevents rain, accumulated snow, or icicles from dropping down the necks of those entering the school.





All the material that could be used from the demolished Horace Mann School was incorporated in the Rugen School. The brick is new; it is reddish brown in color, and is left unsurfaced on the interiors. Asphalt tile, slightly darker, covers the concrete floors. Interior partitions are wood, left nearly a natural color; they are intended for use as tacking space for exhibits. When, in several years' time, the tack holes become conspicuous, the wall can be resurfaced. It should be noted that when this building was designed lumber was plentiful, and a design to conserve critical materials made use of it instead of steel.

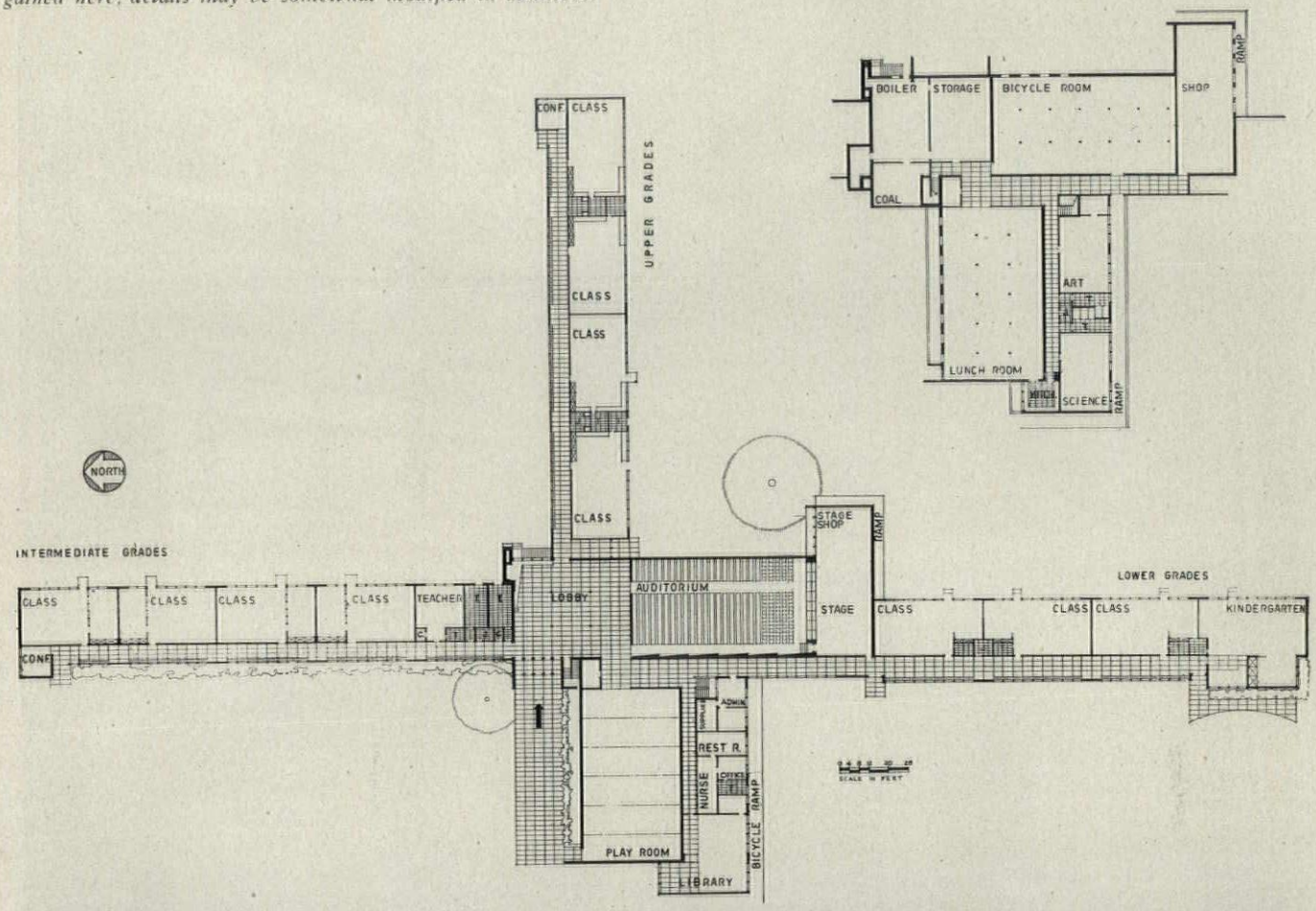
The material situation was, of course, a matter of concern to the architects. But they did not permit it to become an insurmountable hurdle. The school had to be built; it had to be good, for it was part of a well-organized permanent scheme. So the necessity for using wood became merely another factor to be used to advantage in design, along with such requisites as planning for the minimum which could house a growing community's needs, providing for later expansion, and fitting the building to the School Board's purse. In this connection, the following tabulation is of interest. The architects believe strongly that cost per usable square foot is the only fair method of comparison, because area, not cubage, is significant in determining utility.

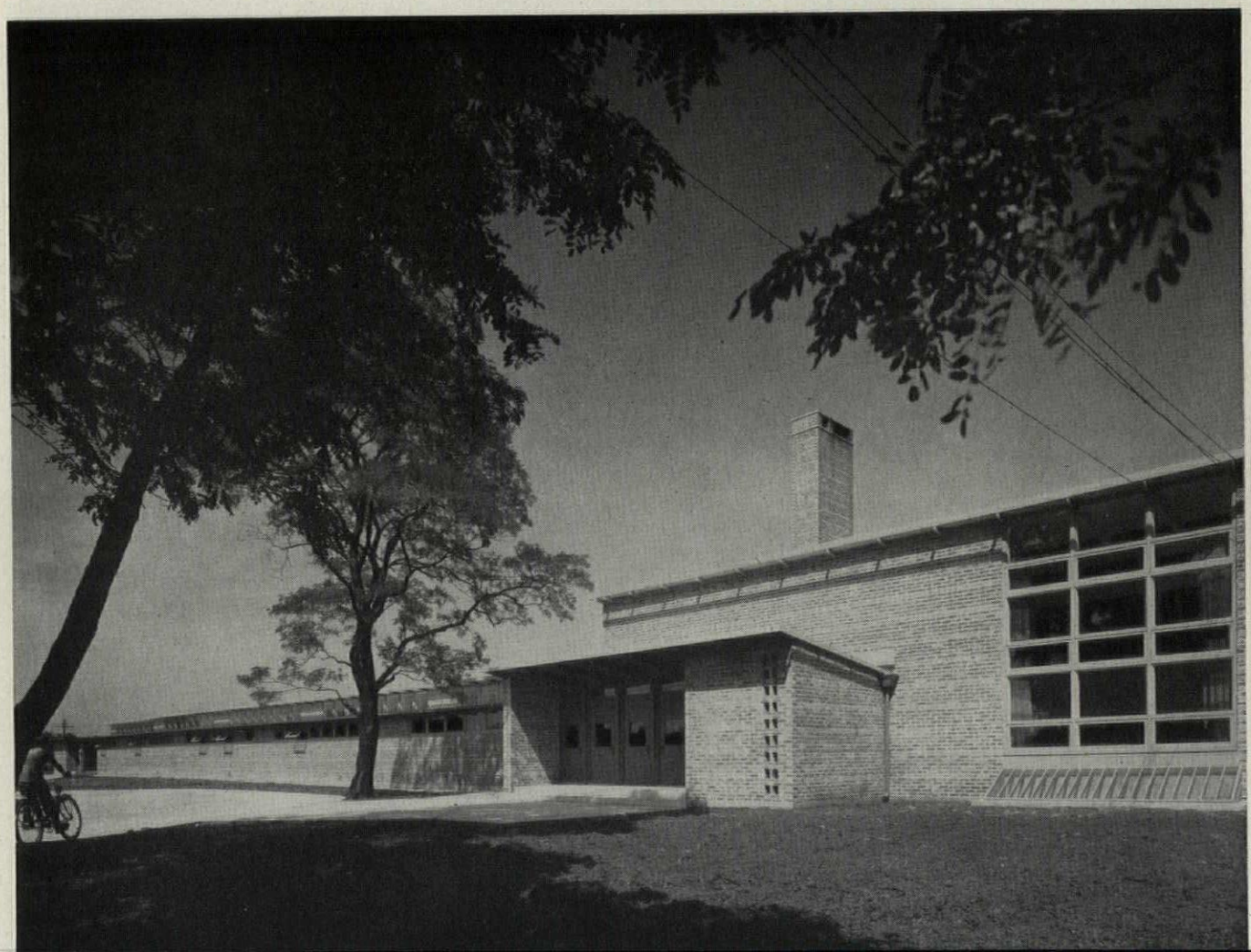
COST COMPARISON—RECENT SCHOOLS IN CHICAGO AREA

School	Construction	Date and Cost	Cu. Ft.	Cost Cu. Ft.	Net Useful Sq. Ft.	Cost per Sq. Ft. Usable
A	1 story Fireproof	1939 $287,000	671,639	$0.4275	27,452	$10.49
B	3 story Fireproof Air Cond.	1937 165,000	301,000	.548	13,732	12.00
C	2 story Fireproof	1936 465,000	1,416,235	.328	45,676	10.17
Rugen	**1 story Brick, frame**	**1942 49,500**	**132,918**	**.372**	**7,043**	**6.65**

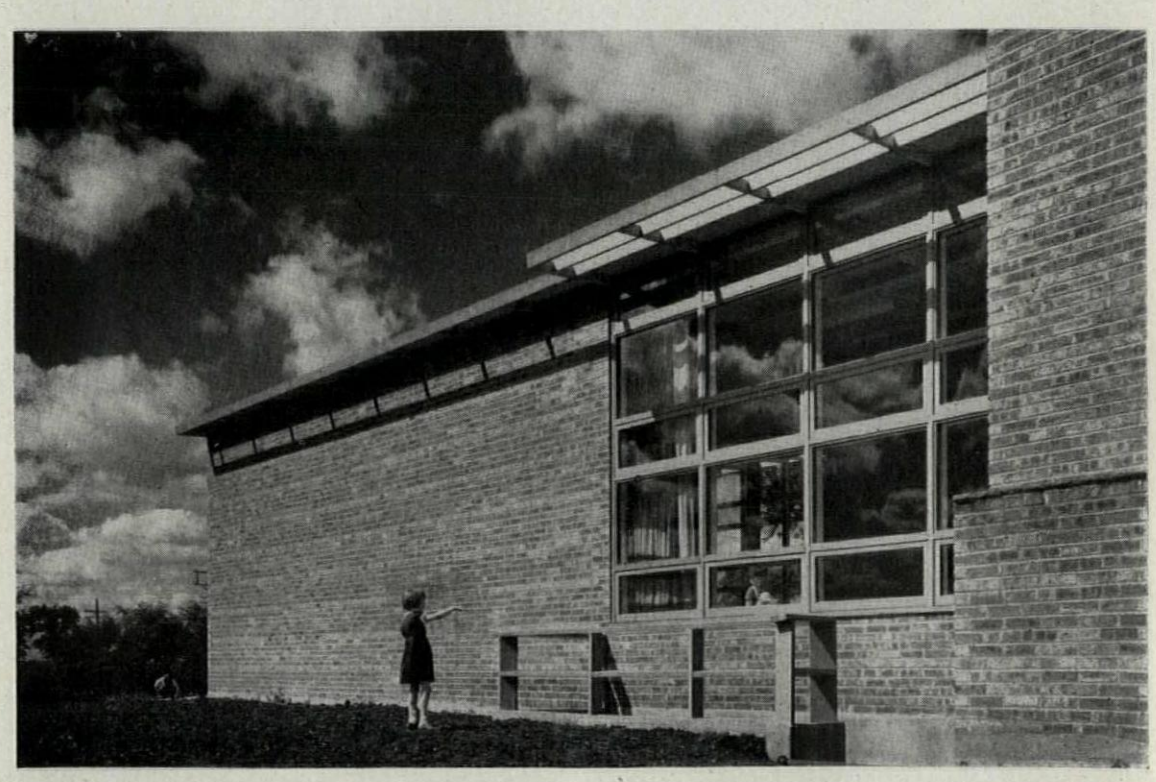
Corridor, shown at left, has space for pupils' exhibits; it is also a covered passage (open corridors were impossible due to climate); and will serve on occasion as the town's art gallery.

Plan for Rugen School, below, shows present scheme for complete structure. Only the wing labeled "Intermediate" is built now; addition for upper grades is likely in near future. The present Recreation Room is here called the Lobby. On the basis of experience gained here, details may be somewhat modified in additions.





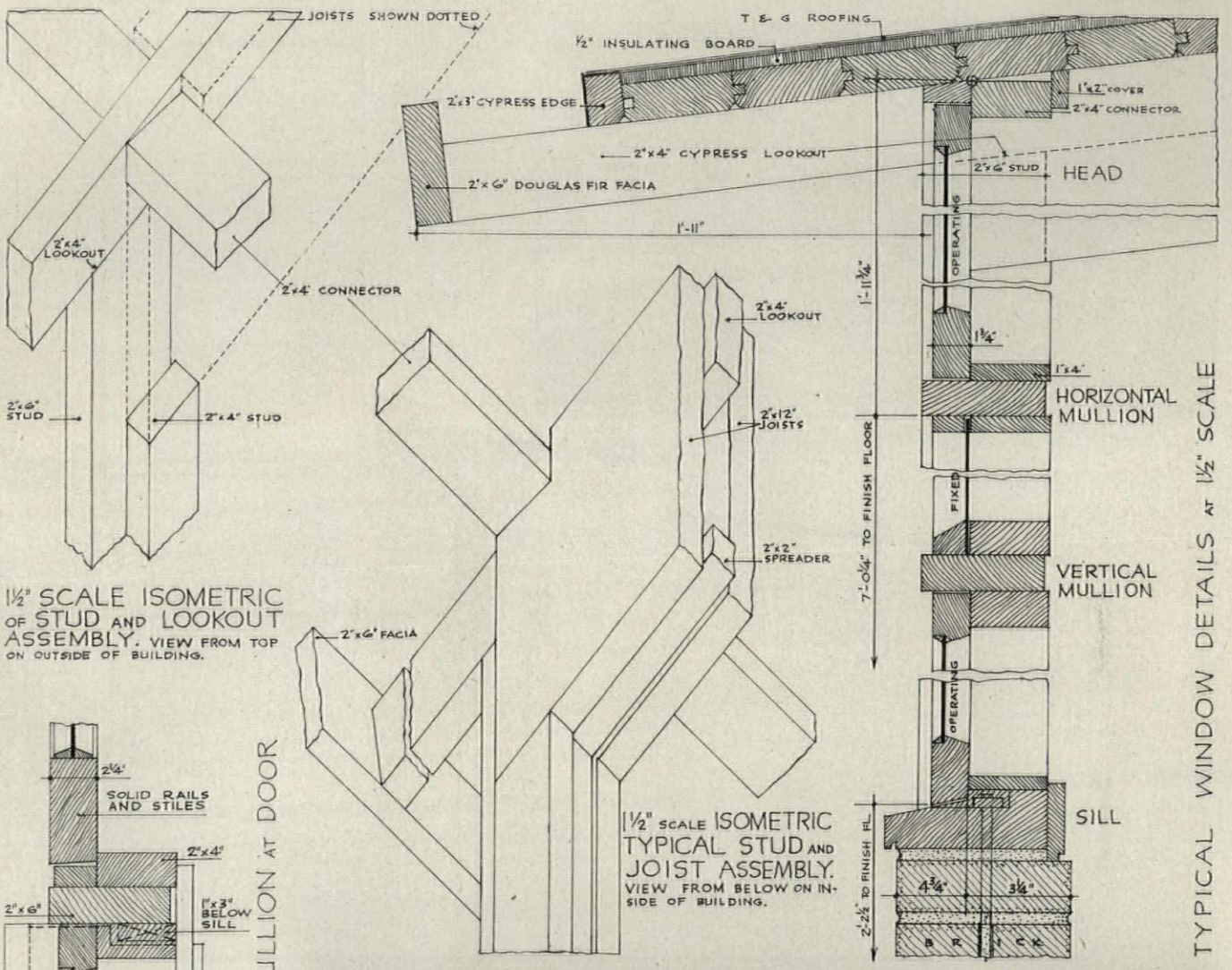
Interior and exterior of the Recreation Room illustrate several ideas which are used in one form or another throughout the school. Ceiling, painted a clear yellow-white for reflectivity, is visually "carried through" the windows under the eaves. Windows extend up between ceiling beams to admit maximum light. Curtains have to terminate at top transom bar; facia board on ends of rafter outriggers not only covers the gutterless eaves edge, but also acts as sunshade for the uncurtained top of the window when the sun is low in the morning. This wing is oriented east and west. Afternoon sun hits inner side of facia, is reflected back into room.



Selected Details

Typical Classroom, Rugen School; Perkins, Wheeler and Will, Architects

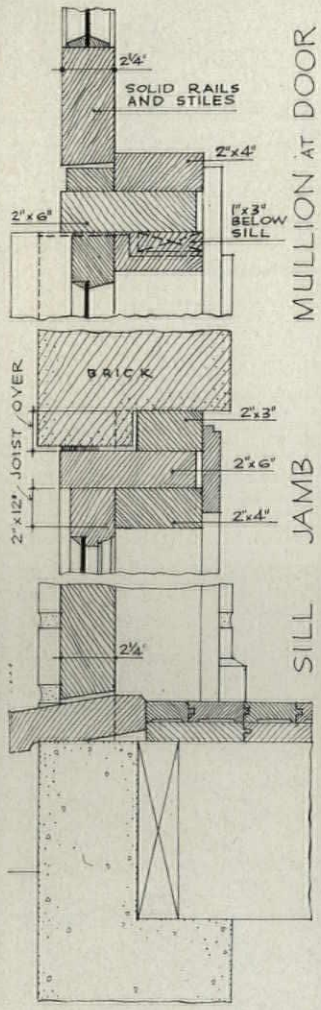
Window heads are carried up between beams, a device borrowed from Stanton and Mulvin's California schools. Color is used freely throughout. Ceilings are clear yellow-white; trim in classrooms varies, with one room red, another yellow, another blue, etc. This color appears on outside of classroom doors and under eaves.



1½" SCALE ISOMETRIC OF STUD AND LOOKOUT ASSEMBLY. VIEW FROM TOP ON OUTSIDE OF BUILDING.

1½" SCALE ISOMETRIC TYPICAL STUD AND JOIST ASSEMBLY. VIEW FROM BELOW ON INSIDE OF BUILDING.

TYPICAL WINDOW DETAILS AT 1½" SCALE

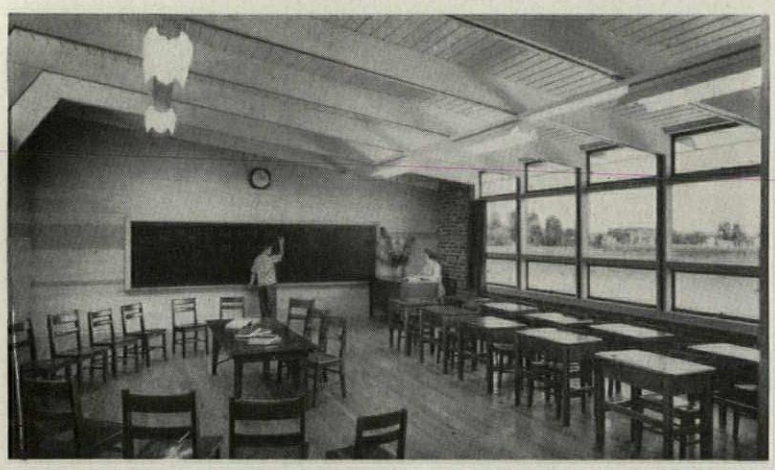


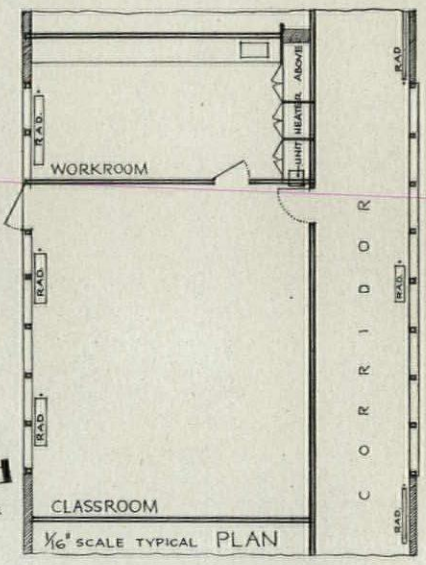
1½" SCALE DETAIL OF DOOR

Selected Details

Typical Classroom, Rugen School; Perkins, Wheeler and Will, Architects

Typical classroom contains many ideas beyond the obvious wide expanse of glass and bilateral window arrangement. The sloping ceiling is used to advantage for heating, lighting and ventilating.





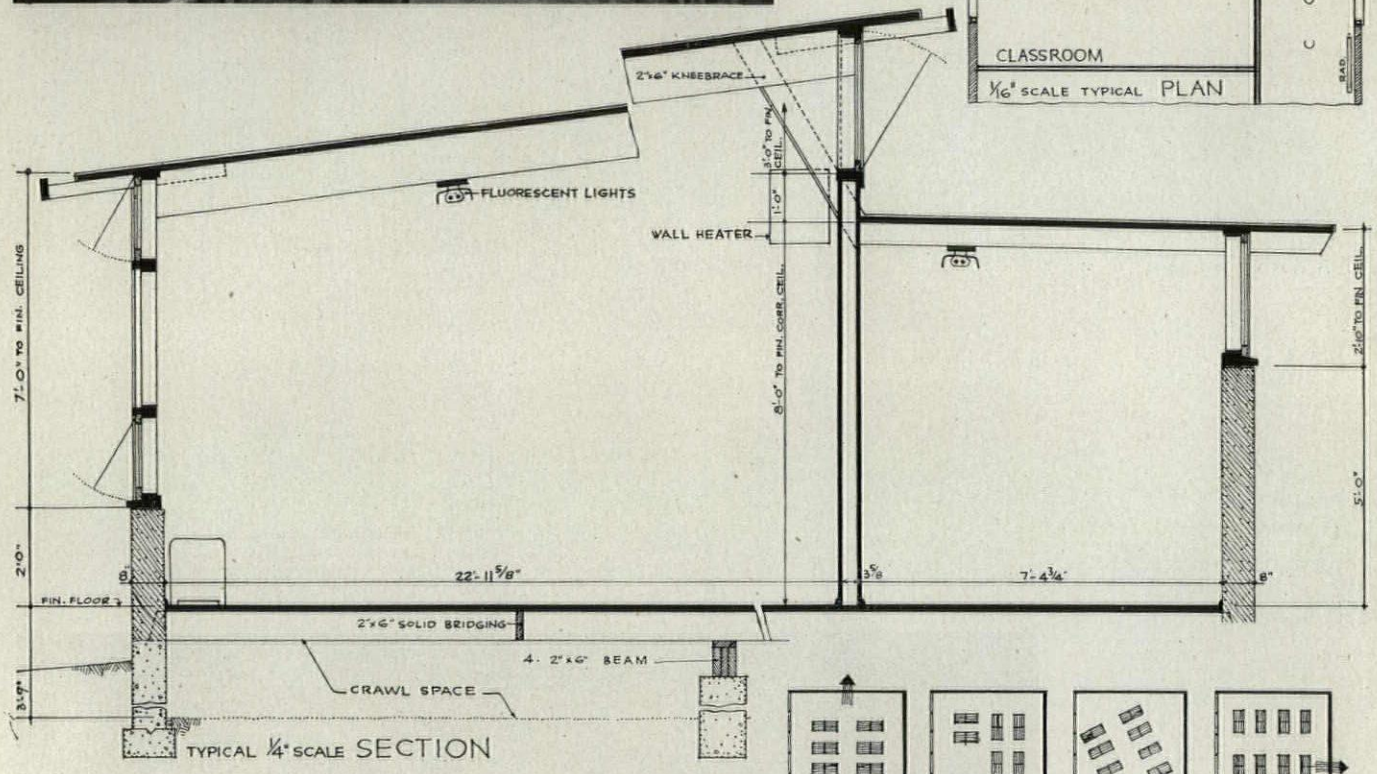
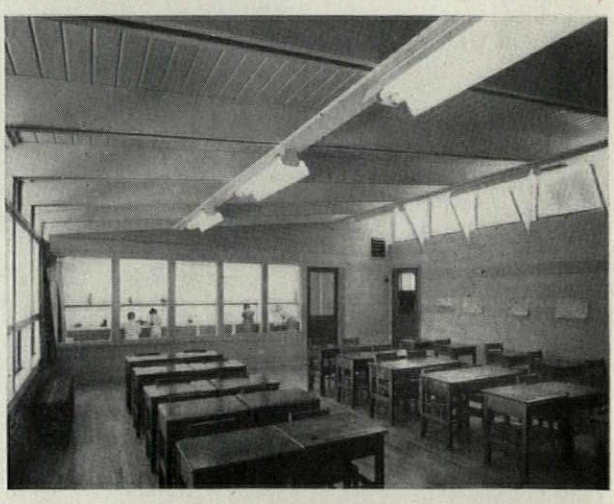


DIAGRAM OF POSSIBLE ALTERNATE SEATING SCHEMES

Natural lighting, evaluated in comparison with another good recent classroom on the facing page, is assisted by several design details. The light ceiling color is one; carrying window heads to the ceiling is another. The facia strip at the eave's edge reflects sunlight when sun is on opposite side of building and shades top areas of glass from direct sun rays. Kneebraces at high side of ceiling serve to diffuse light coming through the clerestory windows. Corridor roof is surfaced with white asbestos, which, even though it becomes gray with dirt, will still reflect more light through the clerestory than the conventional black roof.

Heating is provided by one-pipe steam radiators which do 40% of the job; industrial unit heaters built into the wall near clerestory windows supply the remainder. Roof has ½ in. of insulating board under the bonded surface, and a white top layer which aids in reflecting heat. Ventilating is aided by the law of gravity and positioning of ventilating sash, which help to induce a current of air across the room. Unit heater can also be used for ventilation.

In planning, use of movable furniture was anticipated. Partition between classroom and auxiliary classroom is glazed for supervision. In the auxiliary classroom, groups may gather to discuss or lay out projects, etc. Equipment here includes storage cabinets, workbench, and water for use in projects and for drinking.



Several factors are emphasized by the comparative light meter readings shown below. However, it should be remembered that: 1, the readings were taken in mid-August, when sun is relatively high and school is not in session; 2, later (or earlier) in the year, when school is in session, sun will be closer to horizon and hence will penetrate farther into classrooms; 3, readings were taken at sun noon. Readings in morning or afternoon would show increased sun penetration in the Rugen School because it is bilaterally lighted; in the other school, with light coming from one side only, footcandles of natural light would be lower in the afternoon. Photo at right; Lawrence B. Perkins, seated, (Perkins, Wheeler and Will) and an engineer from the Northern Illinois Power and Light Co. take meter readings, with Superintendant Hoffman in the background.

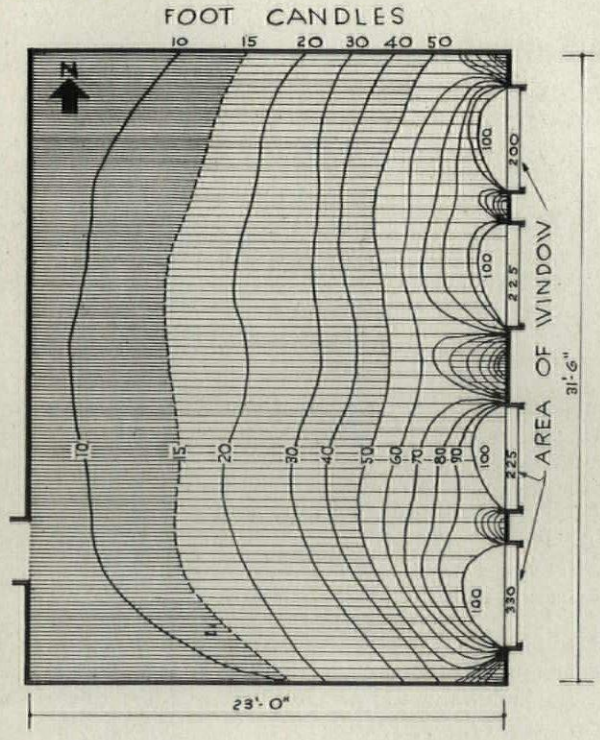
From 0 to 100 footcandles (at desk level) is considered highly satisfactory provided no spots of direct sunlight appear; 50 to 100 footcandles is an excellent range; from 15 to 50 is adequate; below 15, not really satisfactory. Faults which appear in the Rugen classroom include the somewhat darker, yet still satisfactory, areas at the corners, where solid walls are used; and the possibility that direct sunlight may enter the room at times. Note contrasting light and dark areas in other classroom. It is this contrast which produces uncomfortable glare.

DAYLIGHT CONTOURS—STANDARD CLASSROOM* (no clerestory)

Date: August 18, 1943 *Time: Sun Noon*

Heights	Window Wall
Floor to sill	2 ft. 11½ in.
Sill to head	8 ft. 0 in.
Floor to head	10 ft. 11½ in.
Head to ceiling	0 ft. 2 in.
Floor to ceiling	11 ft. 2 in.

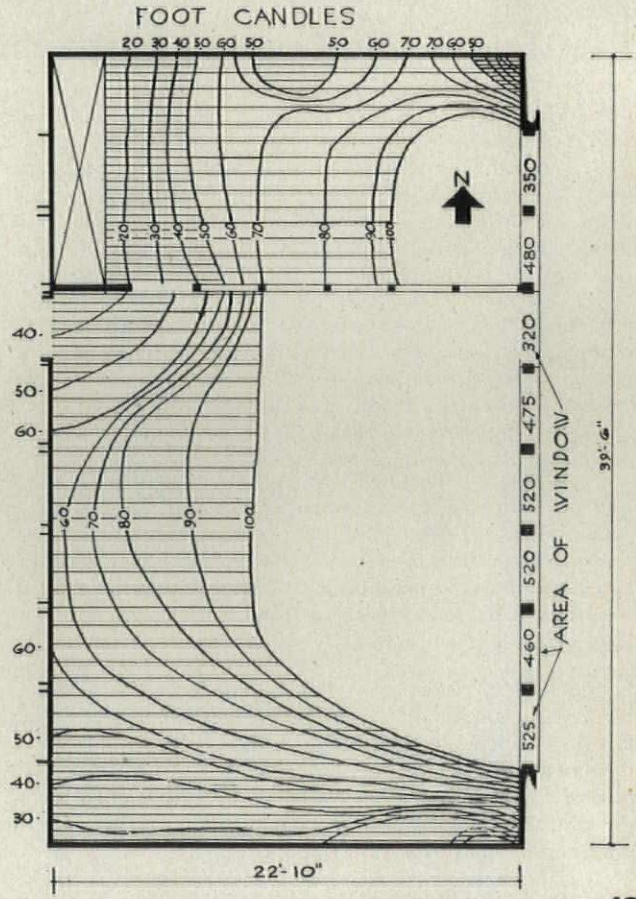
* *Standard classroom in a recent school, considered excellent, in the Chicago area.*



DAYLIGHT CONTOURS — RUGEN SCHOOL

Date: August 18, 1943 *Time: Sun Noon*

Heights	Window Wall	Clerestory Wall
Floor to sill	2 ft. 4 in.	9 ft. 0 in.
Sill to head	6 ft. 6 in.	2 ft. 10 in.
Floor to head	8 ft. 10 in.	11 ft. 10 in.
Head to ceiling	0 ft. 2 in.	0 ft. 2 in.
Floor to ceiling	9 ft. 0 in.	12 ft. 0 in.



John Frederick Stanton

The School Plant Re-examined

by John Lyon Reid, A.I.A.

Past Trends, War Lessons, Shape the Future School

The school, and the plant in which it exercises its function as both the learning center and the focal point of creative arts of the community, are claiming an increasing share of attention from educators, planners, and citizens. Since the entry of this country into the war much has happened which has intensified scrutiny of the school system, both as to teaching effectiveness and as to the place it is making for itself in the community.

This war has shaken to their roots all phases of the life of this country. We have been given cause to question everything to which we have grown accustomed, and to re-valuate our institutions, our habits, and our thinking, in terms not only of the needs of the present emergency but also of what we hope to be and to have after the war.

The schools have not been spared the effects of war. Many new opportunities for schools have been opened, many new points of reference have come to be established by which they are judged, and much wartime building and planning, together with new ideologies and practices, have contributed to a rapid acceleration in the growth of our concept of education.

In the field of school plant design the architect will find increased opportunities in dealing with education, one of the great factors of national life, once peace is achieved. In anticipation of these opportunities, it seems imperative to re-examine the entire field of education and school building, to consider the trends of the past, the lessons of the war and the place of both in giving shape to the post-war educational plant.

Although we have always taken pride in our free public school system, recent surveys and the War Department's recent figures do not wholly justify this pride. The latter data inform us that 28 men out of 1000 entering the armed forces do not pass the simplest of literacy tests and that a great many recent graduates of high school and college in this group are weak in the use of the English language. Of 4200 freshmen in 27 leading colleges, who were candidates for admission to the Naval Reserve Officers' Training Corps, 68% failed to pass the entrance test in arithmetical reasoning.

It can be assumed that these statistics are fair, and not unreasonably prejudiced in favor of the immediate needs of the armed forces. Most of the young Americans whose examinations form the basis for these figures have either recently been graduated from school or were in actual attendance at the time, so that the general standards of learning, ability, and health exhibited can be attributed to their schooling more than to any other factor in their lives.

All this can be taken to indicate that the country's schools are not doing their job as well as they might; and that it constitutes an indictment of the effectiveness of the educational system.

Another aspect of education that has been thrown into particularly strong relief at the present time is the relation of the school program and the school plant to the life of the community it serves.

There's not much similarity between the photograph on the opposite page and the one below. There should not be; there's 98 years between the lobby of the Exeter Union High School, Exeter, California, for which Franklin and Kump were architects, and the Plains Elementary School in Portsmouth, New Hampshire, which had no lobby but sent its pupils directly outdoors into sun, rain, or snow. The Plains School still has facilities for thirty primary pupils, but now has to accommodate 51—an example of what this war has done to schools. John Lyon Reid, author of the article, on leave from M.I.T., is a member of Ernest J. Kump Company, in California, an outgrowth of the former firm of Franklin and Kump, Architects.

FWA photo

The trend of the past ten years and more has been toward a closer integration of the curriculum of the school (and its scope) with the problems and opportunities of local communities. Many localities have a well defined plan of action to stimulate adult interest in programs of learning, of play, and of creative work fostered by the school. This development of the community school idea has been on a nation-wide scale and has had the sponsorship of many well-known educators. The adult phase of this community school program has had to contend with the inertia of custom, and with the difficulties presented by an inflexible or obsolete school plant.

The war and war construction have had much to do with an accelerated development of this school-community concept. The inertia of custom is yielding to pressures set up by wartime shifts in population and by the new demands made upon the schools by wartime needs. To these demands the answers provided by schools have fallen into line with the already established trend toward a closer school-community partnership. This partnership is likely to emerge from the war with its position solidified by the war experience.

Many new agencies and functions, born of war necessities, have legitimately made use of the machinery of the schools to carry out their work. The school house in countless instances has become the work center of draft boards, food and gas ration boards, disaster relief groups, war rehabilitation centers, nurseries for the children of mothers in defense work, clinics, training agencies for work in war industries, educational centers for men of the armed forces, and so on. But it should not be too quickly assumed that schools in peacetime will continue non-educational work because of these wartime precedents.

Our eyes are sometimes closed to the value of a school through matter-of-course acceptance. When we are deprived of the school its values are poignantly realized. This has happened to many defense workers who have wanted to move into new war housing developments where houses were completed far ahead of the schools. In such instances some have refused to move until schooling facilities could be assured.

The great wartime shift of population has posed many new problems in community living. Many, if not most, of the war workers have come to centers of war industry from distant parts, leaving behind all their former social, business, and professional contacts. The new communities built to house them are so large that they place too great a demand on community services existing in the older nearby areas, which are geared to peacetime needs. The new communities must be somewhat self-sufficient, with their own community service facilities. This aids in establishing new contacts for medical care, education and recreation, as well as shopping.

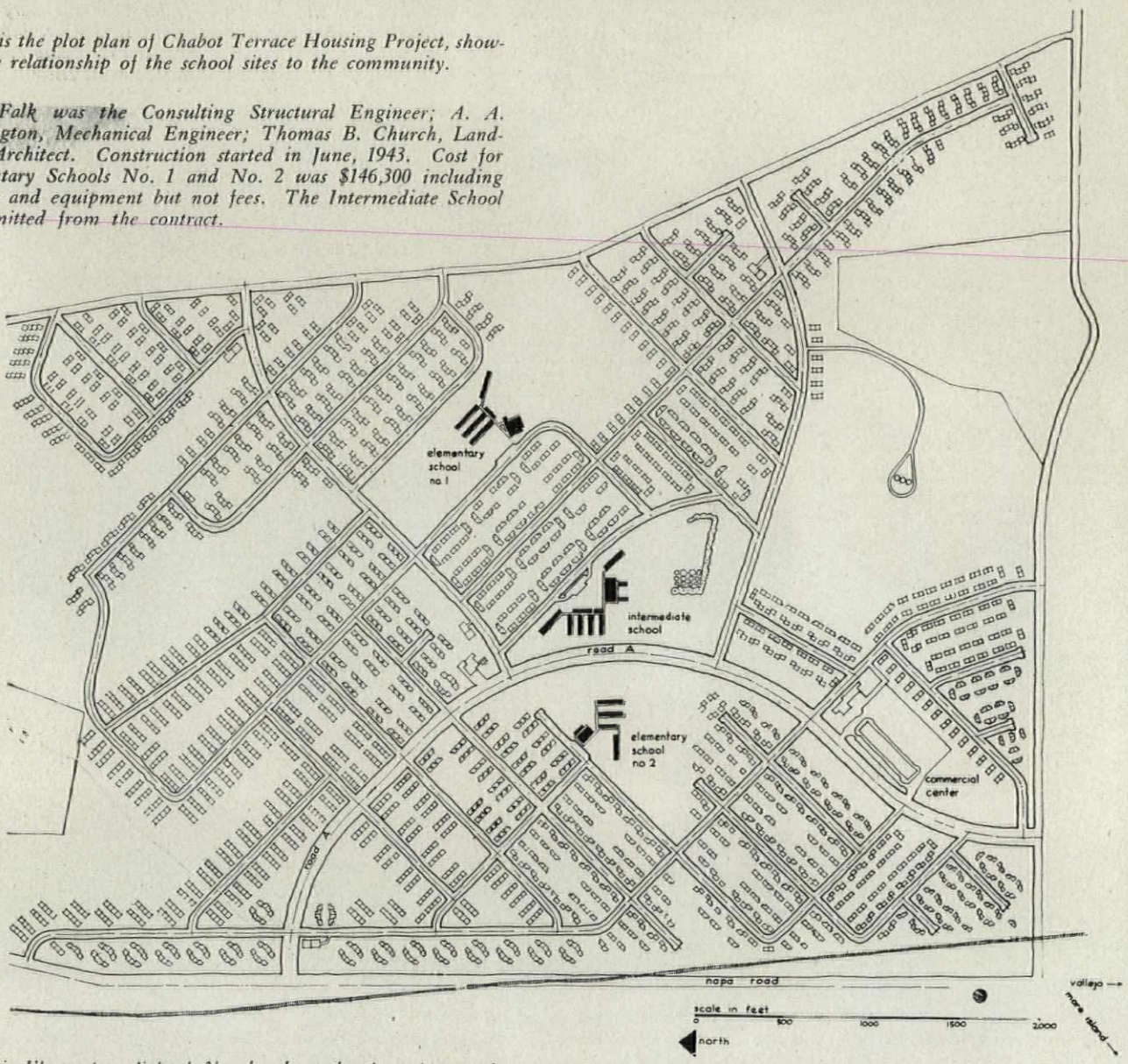
Scores of wartime cities, large and small, have sprung into being on empty land. In these new cities relative freedom is found from problems of existing traffic and use patterns, and from questions of land values. This has made it possible in planning them to seek to establish more desirable community relation-

(Continued on page 50)

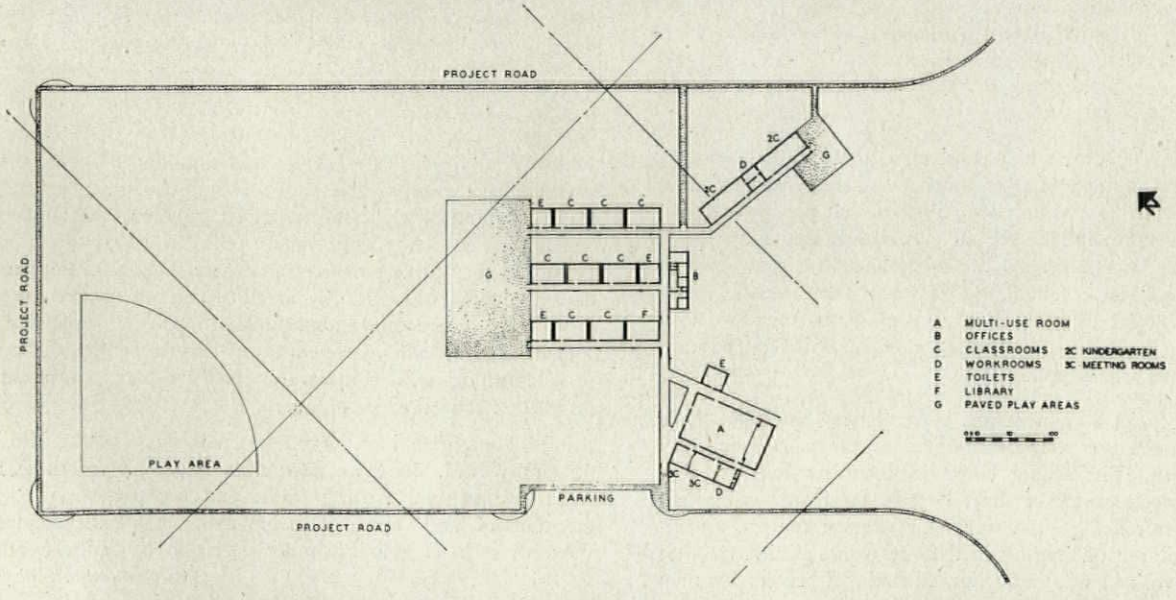
Schools, Chabot Terrace War Housing, Vallejo, Calif.
Franklin and Kump—William Wilson Wurster, Architects Associated

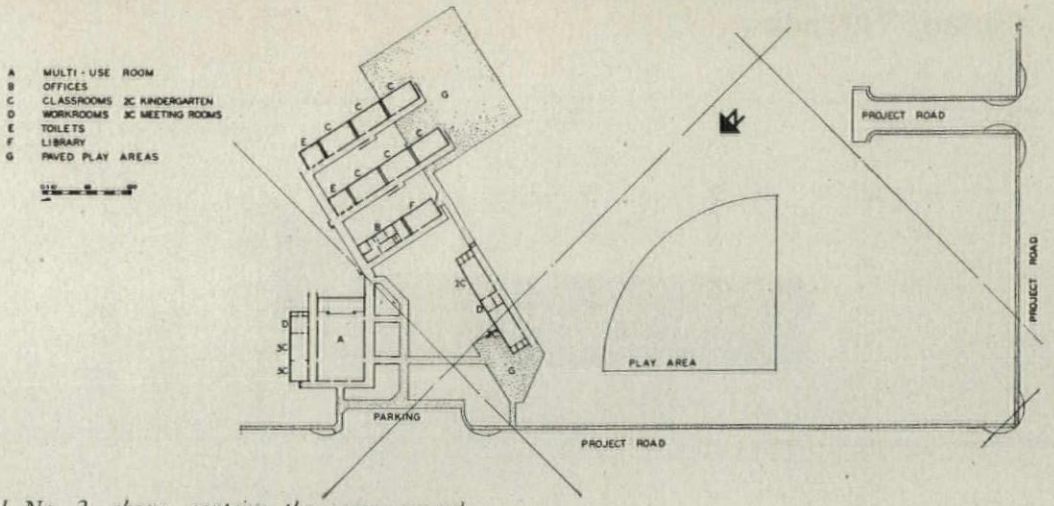
Below is the plot plan of Chabot Terrace Housing Project, showing the relationship of the school sites to the community.

Mark Falk was the Consulting Structural Engineer; A. A. Coddington, Mechanical Engineer; Thomas B. Church, Landscape Architect. Construction started in June, 1943. Cost for Elementary Schools No. 1 and No. 2 was $146,300 including utilities and equipment but not fees. The Intermediate School was omitted from the contract.

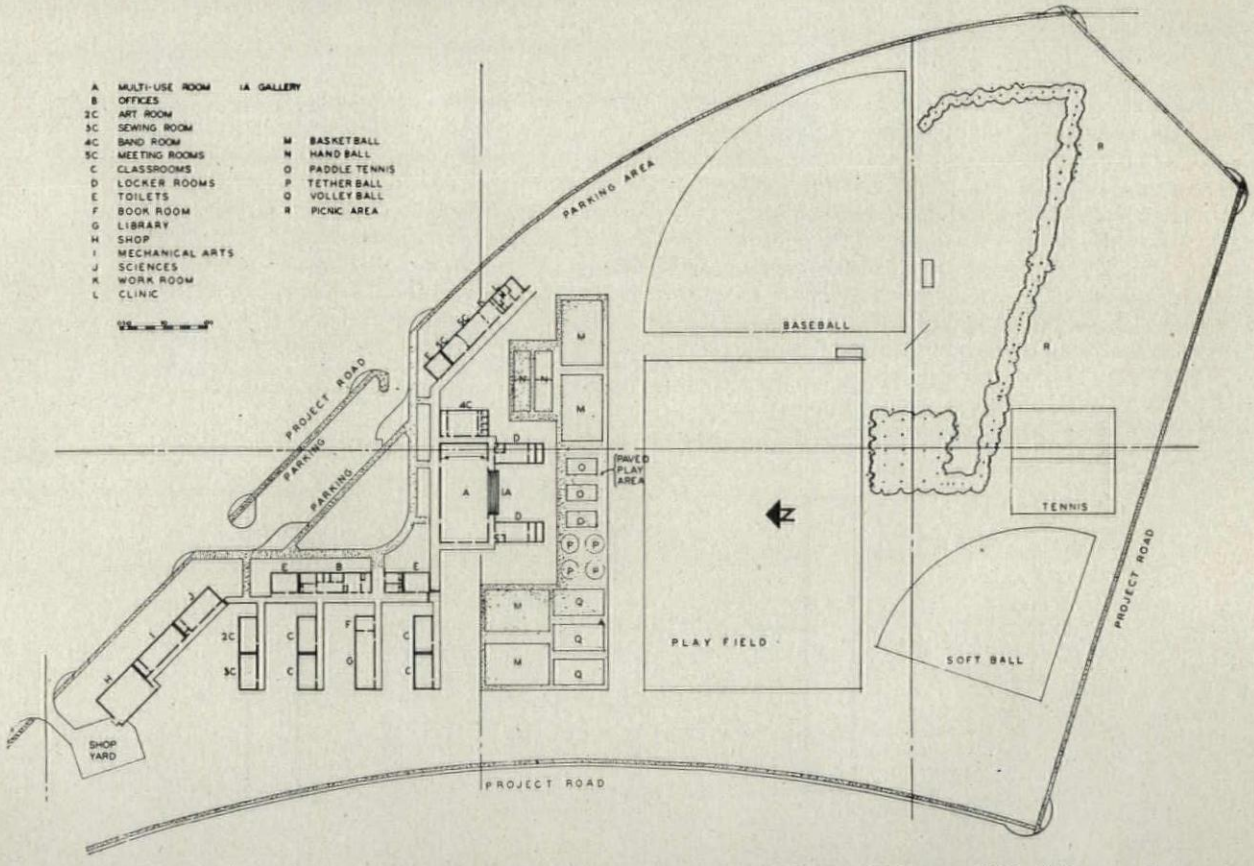


Below is Elementary School No. 1. In order to reduce costs unit "A", the auditorium-gymnasium-community room, was not built as originally designed. A typical classroom-sized unit was substituted for the contemplated structure.



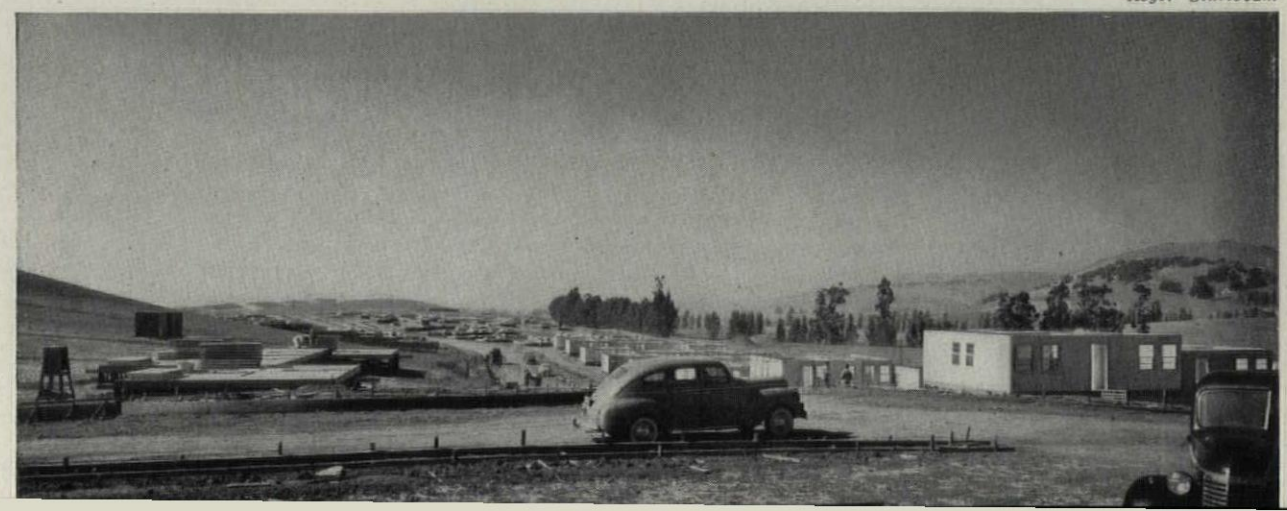


Elementary School No. 2, above, contains the same general features as No. 1. The less expensive multi-use room was also used in this school. Below is the plan of the Intermediate School, which also was eliminated to reduce costs, but whose lack may seriously hamper the educational program of the community.

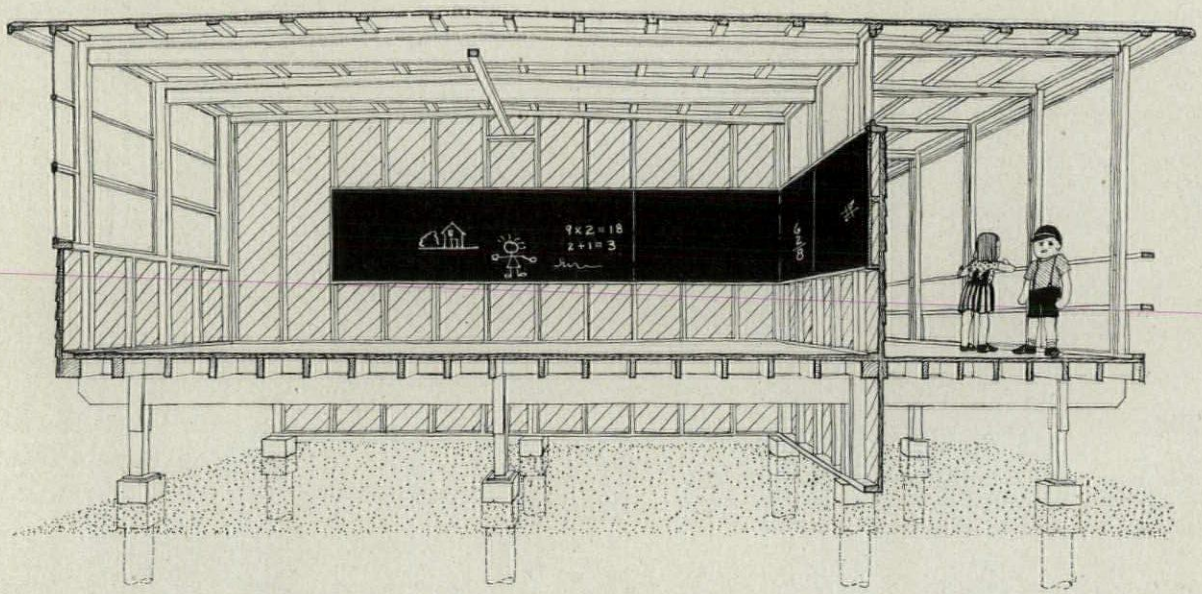


Photograph below is a general view of the site showing construction under way on the houses in August, 1942. (The complete project will be presented in a future issue of New Pencil Points.)

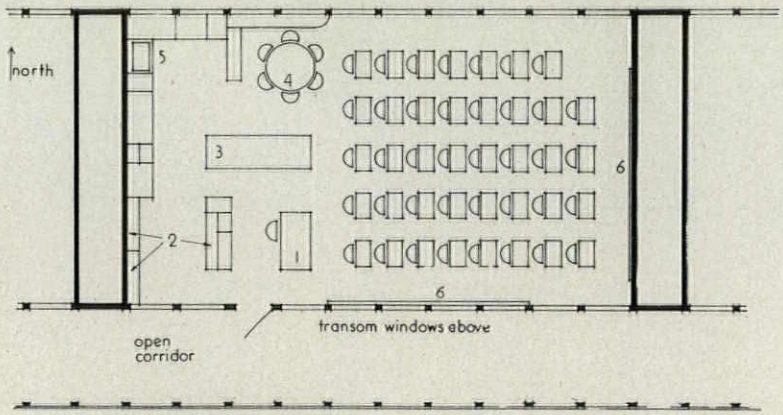
Roger Sturtevant



Schools, Chabot Terrace

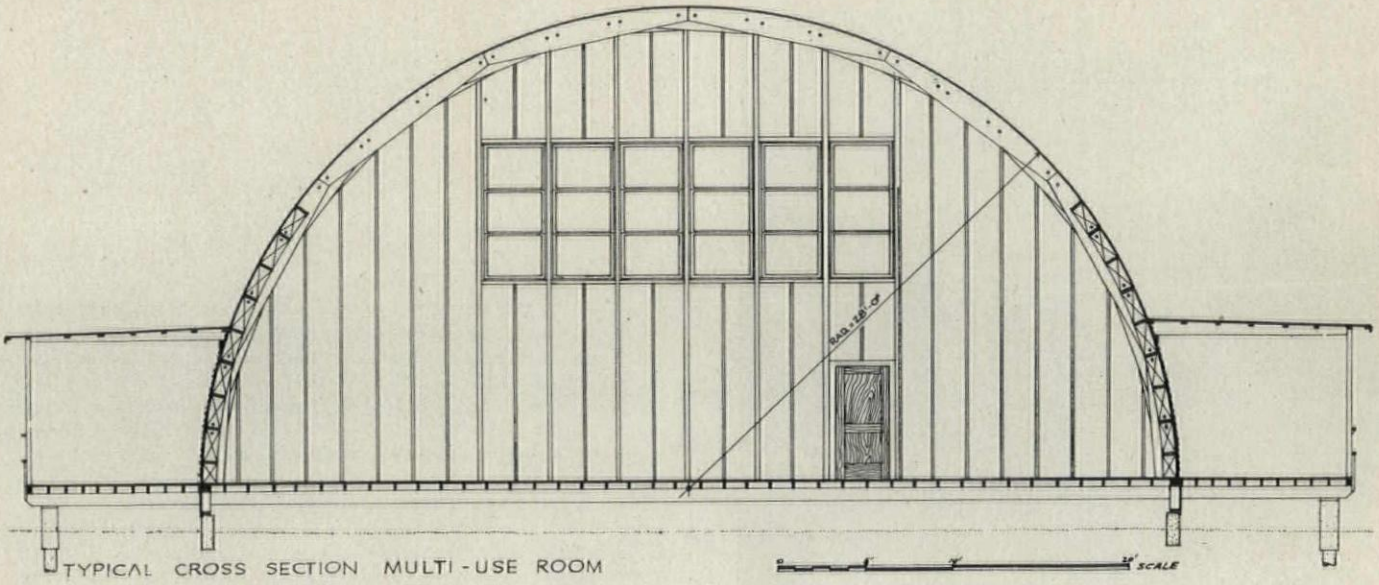


Construction on the Chabot Terrace school started June 28, 1943. It was built by the Emergency Operations Unit of the PBA. The buildings are built on concrete piles, approximately 8 ft. on centers longitudinally and 11 ft. transversly. This type of foundation was necessary because some of the buildings were placed on filled earth, and where they were not, clay-adobe soil prevailed. On these bases 4x10 girders 8 ft. on centers support 2x6 floor joists 16 inches on centers. Seismic forces are resisted by diagonally-sheathed shear walls. The sheathing extends from the top of the concrete pile cap to the sill of the corridor windows, on the corridor walls, and to the roof, on the end walls. The subfloor and roof sheathing are laid diagonally to provide two horizontal diaphragms. Vertical shear walls extend on three sides of each classroom. None of the intermediate subfloor joists needed diagonal bracing. The classroom ceiling is supported by 2x16 joists 4 ft. on centers with 2x4 blocking, placed flat, between. The corridor ceiling has 2x10 joists 4 ft. on centers. Each classroom is an independent structural unit, separated from the adjoining room by 4 ft.



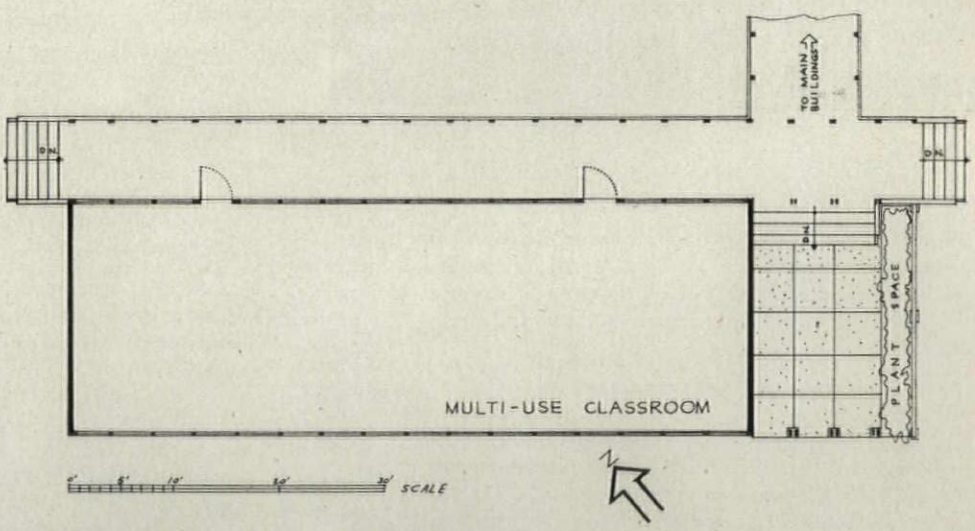
plan of classroom
1. teacher's desk
2. wardrobe storage
3. project table
4. reading table
5. sink
6. blackboard

The typical classroom has clear inside dimensions of 22x40 ft. The span was determined as much by the size of available framing timber as by school building codes. Originally this span was uniform for all units excepting the multi-use room. It should be noted that all the equipment in the classroom is in standard units which can be rearranged to suit the needs of a particular type of class or a change in classroom procedure. The seating arrangement is also flexible as long as movable furniture is used.



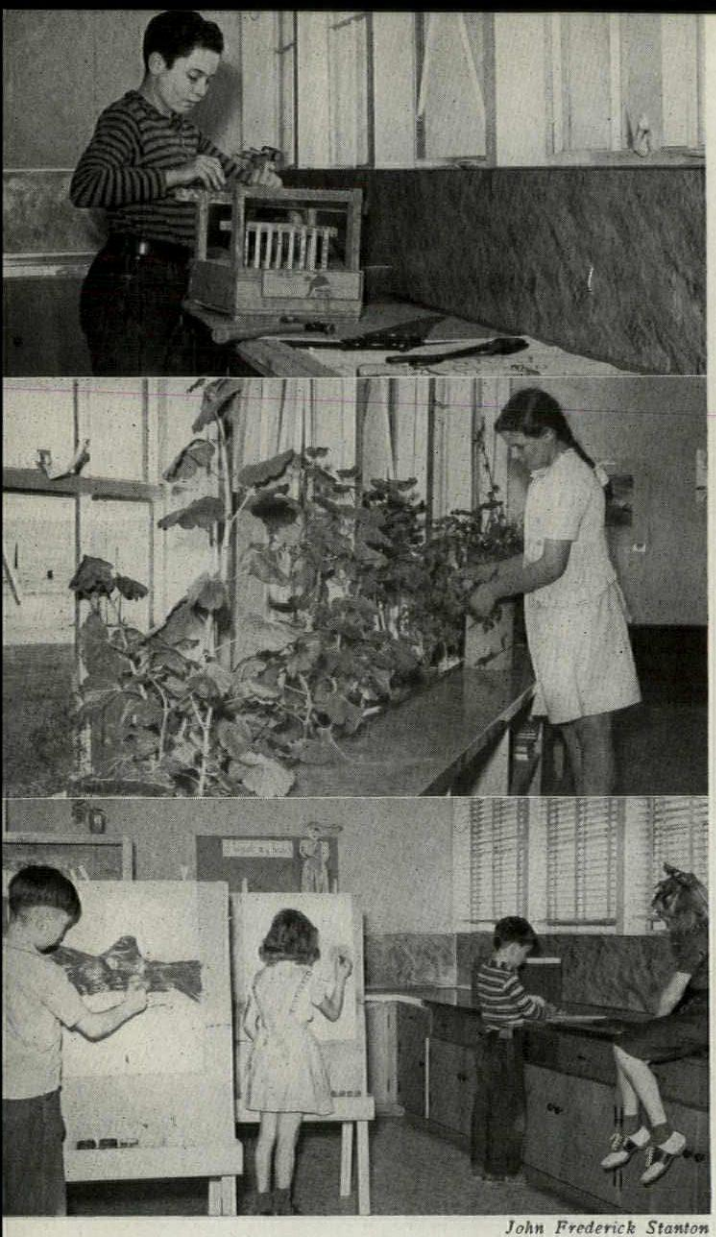
The multi-use room shown above was intended for the intermediate school. Although this school was eliminated, the design of this building, much like that used in the Carquinez Heights School, nevertheless is most interesting. Construction here required the use of laminated wood arches consisting of three 4x16 timbers, placed 16 ft. on centers. The roof was to be diagonally sheathed.

Exterior of all buildings is surfaced with 1x6 beveled redwood siding which was painted. Roofs are of composition with mineral surfacing. Interiors are of 1x6 Douglas fir, tongued-and-grooved and V-jointed. This surfacing is finished with a light stain. Heating for all units is supplied by gravity type oil heaters. Lighting fixtures are of the direct type.



The plan above shows the typical multi-use room substituted for the unit shown at the top of the page. The room used here has the same span as the typical classroom; that is, 22 ft. wide. This limits use quite drastically since games requiring a large area cannot be played in them. However, the change from the original scheme was deemed advisable both from the point of view of economy and because of the shortage of framing timber. Moreover, since the project is not expected to endure after the war, the schools have not been designed as permanent buildings.

Chabot Terrace is a development of some 3,000 houses, built under the auspices of FPHA for workers at the Mare Island Navy Yard. The 3,000 homes are now housing a population of approximately 10,000, of which the expected school population is: 60 for the Nursery School; 120 Kindergarten; 960 Elementary Schools; 390 in the Intermediate School; and 288 in the Senior High School. In order to economize on critical materials, these schools are expected to operate on a double shift basis, that is at 200% of capacity. Being for tax-free war housing, the population which these schools serve provides no additional school tax revenue for the school district. The government and the district cooperate to an extent. Cost of construction, equipment, and furniture was provided entirely by Lanham Act Funds. The school district pays part of the maintenances and operation expenses, through tax and tax allotments. The remainder is made up by the U. S. Government in lieu of taxes.



Publication of photographs of this type in a school study was, a few years ago, a tremendous step forward. It meant that architects were beginning to realize that changes in educational theory and practice really had an effect upon the type of building a growing curriculum needed. Obviously such activities as building a rabbit hutch, tending a garden and making finger paintings require different classroom facilities than learning the three R's. In the past few years, where climate permitted, classes began to move out-of-doors for an increasing proportion of the curriculum. Field trips began to be used in the lower grades as well as in high school and college. Now, as the photograph on the opposite page shows, even a reading class for youngsters is held in the outdoor classroom. All these photographs are of Ducor Elementary School, a rural school in the Ducor Union School District. Architects were Franklin and Kump.

John Frederick Stanton

(Continued from page 45)

ships than is possible in older cities. Wartime construction, hemmed in by restrictions, the need for speed and frequent compromises, is no place to look for the realization of an ideal, yet the community relationships so established provide much of interest.

A constantly recurring determinant in the form of these new planned communities is the schoolhouse, which serves as the nucleus of neighborhood or community units. Many facilities for answering the adult needs of the community are found in these schools, sometimes only as a matter of expediency, sometimes to mutual advantage of school and community; but at any rate the complexion of the whole school plant is undergoing a change. These schools become something of a symbol, the expression of a central organism which serves the needs of the community, young and old alike. That many of the citizens of these communities show some apathy toward the ideals of planners, educators, and social workers is not necessarily a significant commentary in the face of present conditions.

These two points, then—the promise of a re-examination of educational methods, and the recent further crystallization of the community school concept, both due in some measure to the war—are factors to be watched in postwar schools.

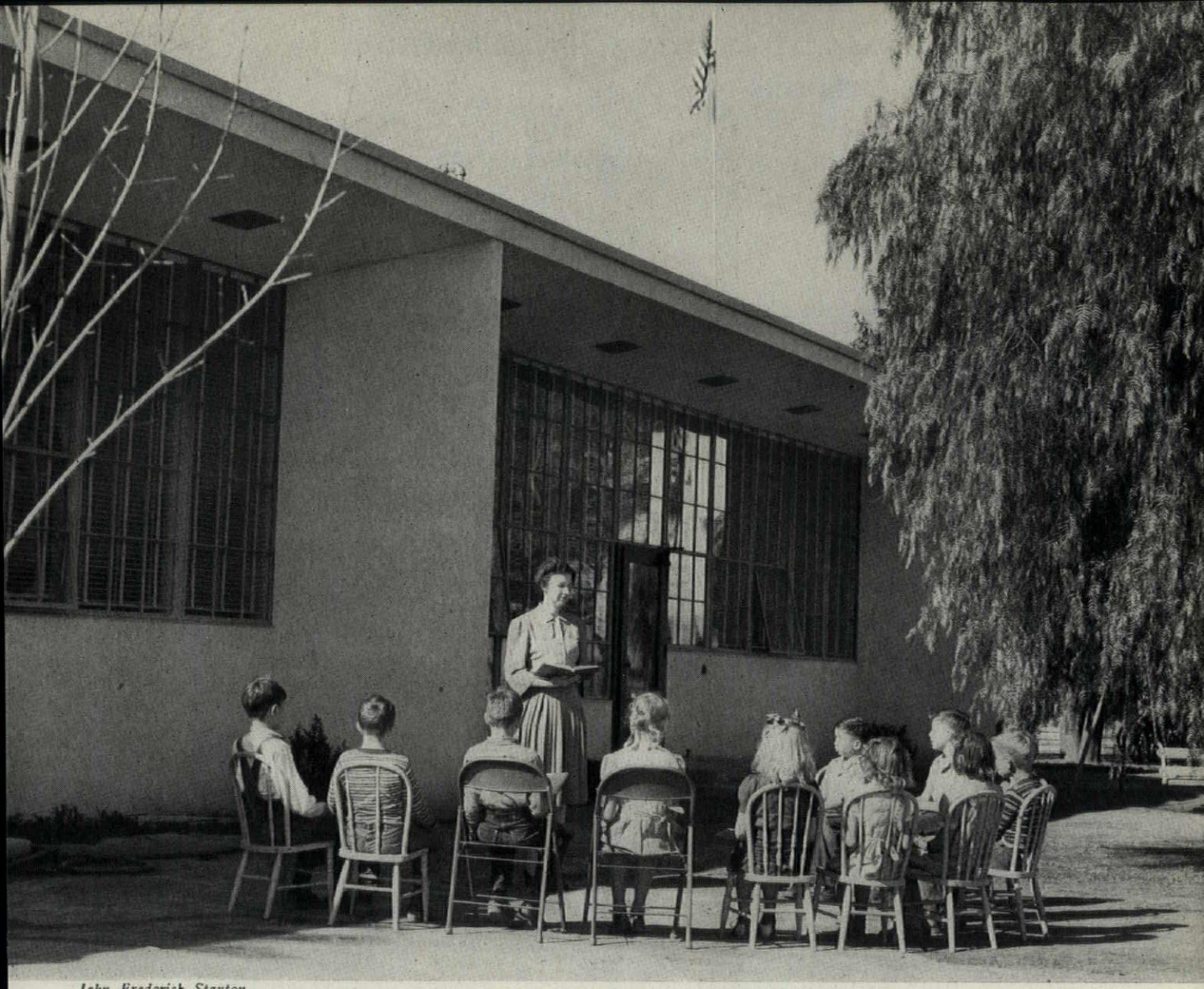
However, hopeful, enthusiastic predictions about the place that schools will occupy in the world-to-be are being booted about with gusto. Architects, planners, and educators have not been slow to seize upon the school as a once-neglected, but now important, embodiment of a new democratic spirit, and have proceeded to give it the works.

The architect will bear a great burden of responsibility in giving form to the postwar school plant. He is faced by a great divergence of educational aims and methods, and needs to be familiar with all phases of educational ideology, technical advances and legal data in order to discharge his function with skill and with credit to his profession. He must be able to design a school plant that becomes, in the hands of educators, a responsive instrument in the educational process.

Educational Aims and Procedures

To presume to define education is entirely beyond the scope of this article. But the nature of education and of the processes associated with it have a direct bearing on the determination of the forms of its shelter and related facilities. This is an attempt to examine some of those aspects of education which may be expected to affect most the work of the architect.

The executive organization of the public school system is probably one of the purest expressions of democracy in our country today. The Board of Trustees or the Board of Education is elected by public vote to serve its community, usually without pay, and is directly answerable to its district for the quality of the school system. This form of organization makes it possible for the school system to be a direct expression of the needs and



John Frederick Stanton

culture of its own district, although state standards and controls serve to give coherence to the many districts.

The smallness of this unit of organization contributes greatly to the existence of wide divergencies of aims and methods that characterize the school system—in general, an evidence of the working of democracy. In the existence of differences may be much of value as well as many difficulties. The range of views held by educators is so wide that there is room to believe that some confusion exists in educational aims.

There are two schools of thought in educational methods and aims, generally known as the traditional and progressive. These two terms are used here with some hesitation since they inevitably connote a judgment of their respective values, but certainly none is here intended. In fact, an architect who approaches a school client with a conviction one way or another regarding the comparative values of teaching methods runs the risk of imposing an alien interpretation on his client's needs.

The traditional school of educators holds that principles and truths are abstract and unchanging; that education aims to teach a student to think by referring in the teaching process to these truths and principles; and that a student properly grounded will be able to adapt the method of thought and analysis thus learned to any specific set of conditions. The activity program which aims at the coordination of mind and body is given less, rather than more, emphasis.

Opposed to this is the progressive school. It believes that education is achieved through experience and that branches of knowledge are assimilated by relating them to units of experience; that thinking becomes more real and useful when derived from conditions within range of the direct experience of the child. It follows that this system makes use of an extended activity program, intended to coordinate mental and manual skills.

The recent trend in education seems to favor the latter school of thought as does our present experience with education during the war. However, the war has indicated also an increasing need for the basic studies of mathematics, science, and English.

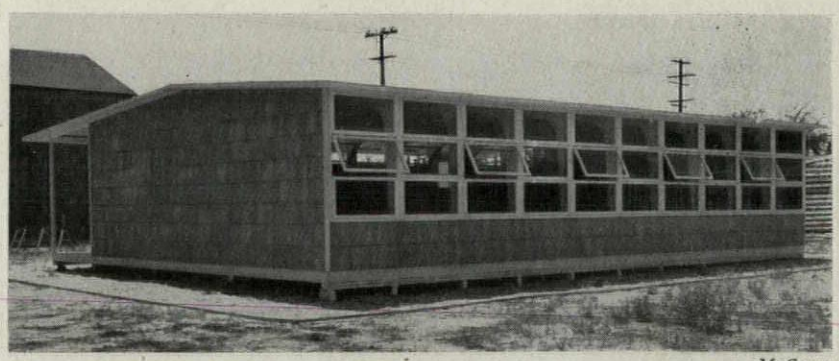
Our factories find that the best workers are those whose mental and manual skills are coordinated and who have a background of good general education which fits them for useful work by a short course in the special machines and techniques used in their task.

The skill that seems to be most generally adaptable is one developed in general terms by experience in broad classifications of machine tool operation. In vocational education highly intensive specialization in operating machine tools may not be undesirable in itself, but will probably involve heavy expenditures in capital outlay and operation that means a sacrifice of other desirable features of the school plant.

This tendency to specialize in education is characteristic, and curricula are increasing in complexity. There are courses given in calculus and in comptometer operation; in Greek and in hair

Manufactured, Prefabricated, Classroom-Office-Kindergarten Units

Ernest J. Kump Co., Architects



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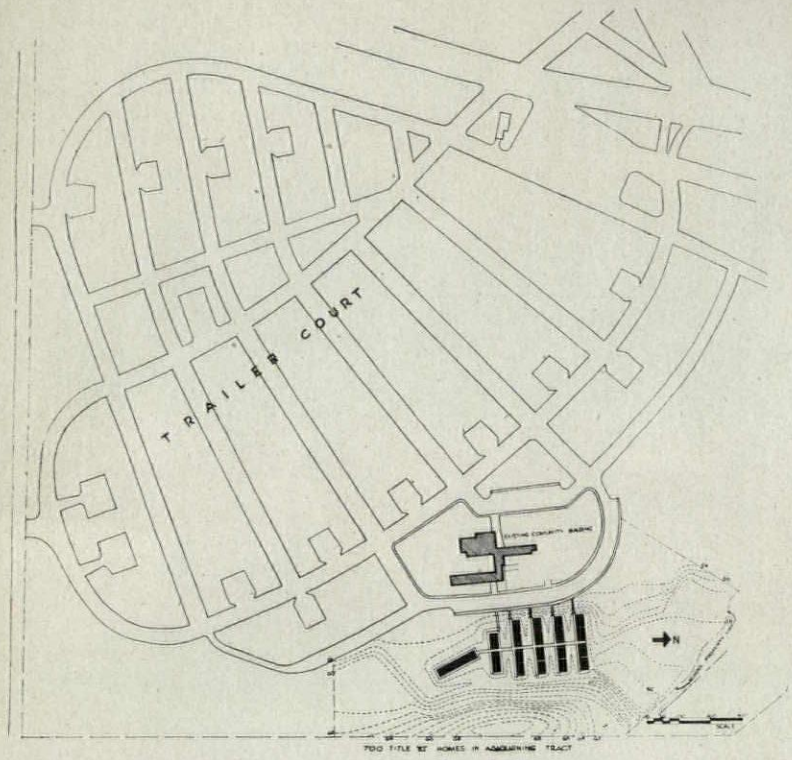


Designed for the Standard Engineering Corporation, these are portable school units built of panel construction supported by laminated 3-hinged wood arches. Interiors are shown on the following page. Wood floors are covered with mastic paving; wall panels are prefinished, of composition board on interior surfaces and with exteriors of shingle, siding, or plywood. Inside ceiling surface is insulating board, roof is mineral-surfaced composition. Lighting is furnished by indirect silvered-bowl reflector units. Heating is provided by gravity type, oil-fired space heaters. Blackboards are of composition. Cost per classroom unit (24 x 40 ft.) is under $3,000. One classroom, knocked down, can be transported on a single truck.

The San Pablo School, an elementary grade school in San Pablo, Calif., has 12 of these, used as classrooms, 2 kindergarten units, an office, library and multi-use room. Construction of the school has just started.

dressing. The field of subject matter in which instruction is being offered is becoming so spread out, and so much is offered, that it seems incredible that any one subject can be treated well. This is partly because of a demand for these knowledges and skills by students, partly because of the increasing specialization within the teaching profession, which seeks to justify its own specialization.

Not often considered a part of the whole educational picture is the varied array of agencies whose job it is to teach in one way or another. The school organization is generally thought to be the various, but simple, classifications of primary, secondary, and university levels of the public school system. But either supplementing these or competing with them we have numerous agencies, many of which teach only through subsidiary departments, as an answer to special needs or conditions. Some of these are: local, state, or federal government agencies; libraries; zoos; concert halls; business schools; parochial schools; and many others. It is obvious that this duplication of agencies invites waste, overlapping of functions, and perhaps a confusion inherent in our democratic freedom of choice.

Correlation in some measure of the work of these agencies as well as their plants would appear to be a desirable program in many communities, especially the smaller ones whose ability to support public institutions is limited. For instance, welding together into one series of related buildings the museum, library, concert hall, and high school, would create a learning and cultural community center in which the work and position of all would be enhanced.

The growth of the community school idea has already been mentioned here, but we might go farther with some of its educational implications.

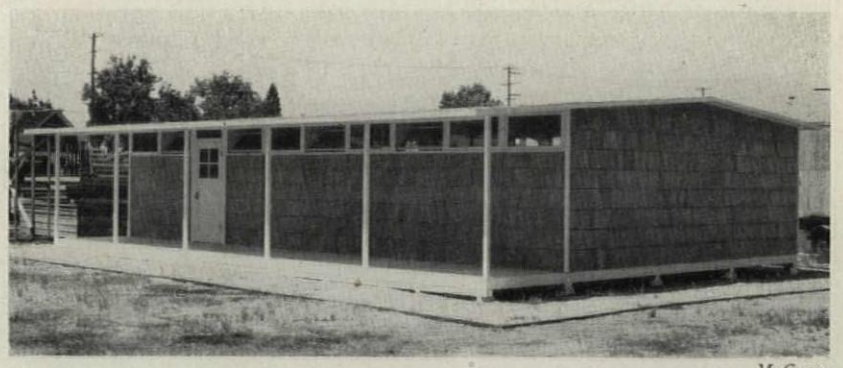
For the adult, it means in general the breaking down of the adult's belief that education is completed on graduation from school. His needs for learning are of exactly the same nature as those of the young student, except that his needs are more mature. Education is a continuing process. The adult is sensitive about returning to school; his interest must be cultivated with much tact and understanding, which requires the services of competent administrators and facilities for conferences. Exactly what he studies depends completely on what his needs are in his locality and the facilities offered by the school plant.

His participation may be in the form of organized recreation and athletic play, of social activities, or of forums and lectures. A fine line must be drawn concerning the kind of activities offered him, between those which have educational or creative value, and those whose only aim is amusement.

Of inestimable help are the services of the adult in planning the curriculum through meetings with the school administrators and the Board of Trustees, and in actually assisting in some of the learning activities of the students.

For the young student the community school idea, in a progressive curriculum, means that the community itself, as well as the classroom, becomes a laboratory for learning. To be specific on this point, let us suppose that the transportation system of the community is to be studied by a class. The study may cover

Postwar implications of this type of school construction are most provocative. The San Pablo School serves a recently completed trailer court and a 700-house war project to the east.



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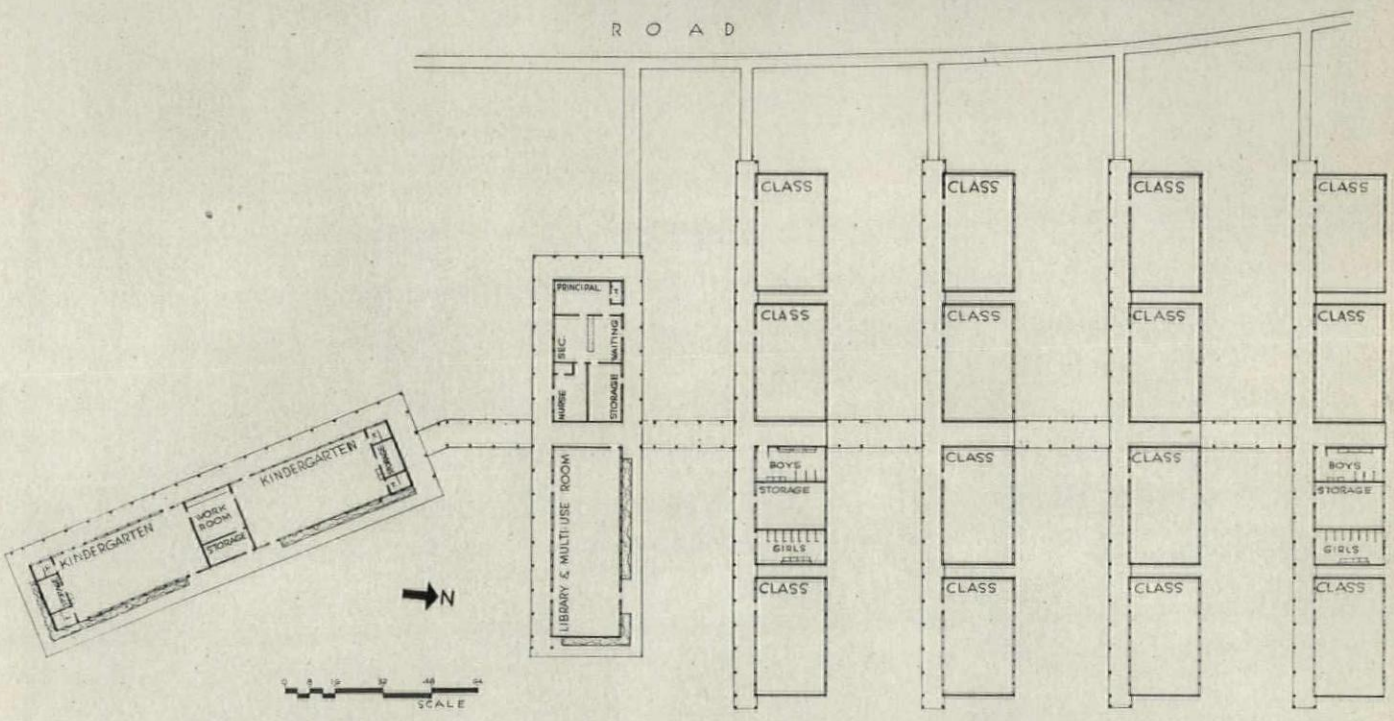


two days' time or three weeks', depending on the maturity of the group and the nature of the problem. At the preliminary meeting the teacher outlines to the group a general description of the subject and the method of attack. The class probably will be divided into groups, each group to gather material on different phases of the problem. One group may go to the library to study the rules and regulations of interstate commerce. Others may spread out over the community to gather information on local bus and street car lines, railroads serving the local area, and truck freight lines. In the meantime officials of street car lines, freight agents, etc. may meet with the class to discuss their problem with them. There will be many conferences, and large charts will be prepared for elucidation and comparisons. In the final meetings all the information will be correlated and conclusions drawn.

This is only one of many types of study that may be drawn from the local scene. It is described here in detail so the variety of activities may be sensed. The school plant must be such that these activities can be carried on efficiently; it cannot be confined within the four walls of the traditional classroom.

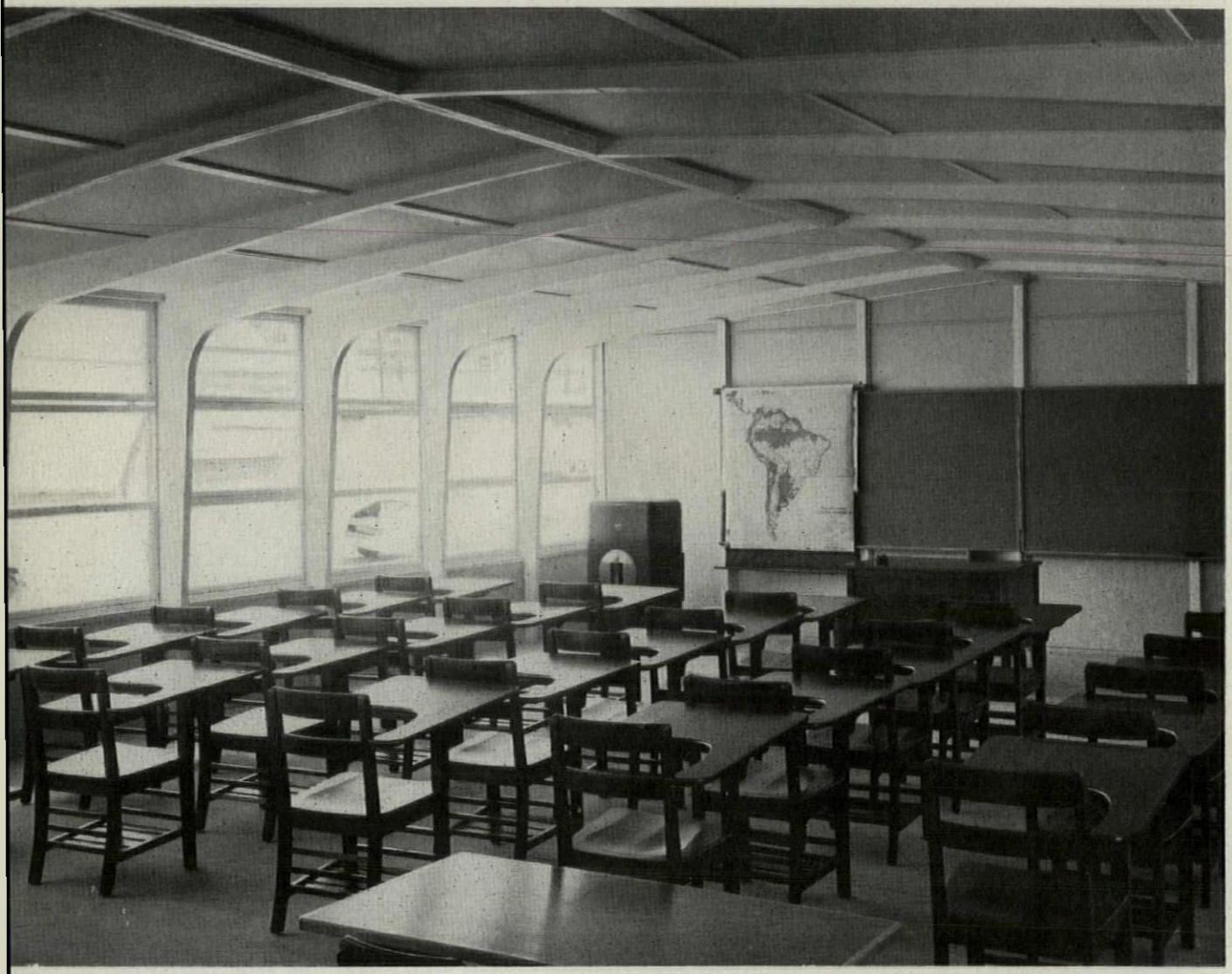
Such expansion of curricular activities is taking place in all grades, to varying degrees, under the teaching methods of both traditional and progressive schools of thought. Activities such as student clubs and student government, once generally thought of as extra-curricular, are now regarded as comparable in importance to work in supervised classes. In lower grades the teaching is likewise growing in activity and range, but because very young children must be constantly supervised, their work is localized in the indoor classroom, or the outdoor classroom if they are fortunate enough to have one, or they may be taken on short trips accompanied by their teacher. This teaching can benefit by being implemented by audio-visual aids, the public address system, and devices generally unknown to the teaching techniques of ten or fifteen years ago.

The nursery school is another feature of the public school system whose general acceptance has been widened because of the demands of our war economy. In areas where war industries have made use of women workers, nursery schools have come into prominence. Their recent rapid growth in importance has been due to the war. Nursery schools in some cases have been organized and operated by factories where public schools have not been able to undertake the job.

Although this recent nursery school growth has been a wartime expedient, it has done much to establish the value of pre-school training. Many authorities believe that the greater part of a child's personality is fixed by the time he is six years old. The very young child benefits from group contacts and supervision in the nursery school, and does this without losing any of the advantages of family relationships. It is generally agreed among the educators that the child who has gone through nursery school is better prepared for the primary school than the child who has not.

I believe it pertinent here to level one serious criticism at educators for their failure to master an idea that if properly understood would greatly aid the architect in his attempt to translate

Prefabricated classroom designed for the Standard Engineering Corporation by Ernest J. Kump Co., architects. The school of which this is a part serves the community of San Pablo, which adjoins Richmond, California—where there is great shipbuilding activity. The town is another victim of war growth.



their needs into buildings. In its essence it is this: Teachers and educators in general understand the school plant as a building that provides shelter from the weather. It is of the greatest importance to them in their work to grasp the significance of the complete school plant as an instrument of education even greater in use possibilities than textbooks and laboratory supplies. The plant is a tool for teaching. Its value must be measured in terms of increased teaching effectiveness. In order to realize these possibilities, the thinking of educators must be carried far enough to determine plant requirements, not merely in terms of blackboard areas and number of pupils per class, but in terms of instructional procedures, arrangements, and uses. The educational plant is a tool, responsive to program needs. The educator must aid the architect in determining its form.

Cost Factors

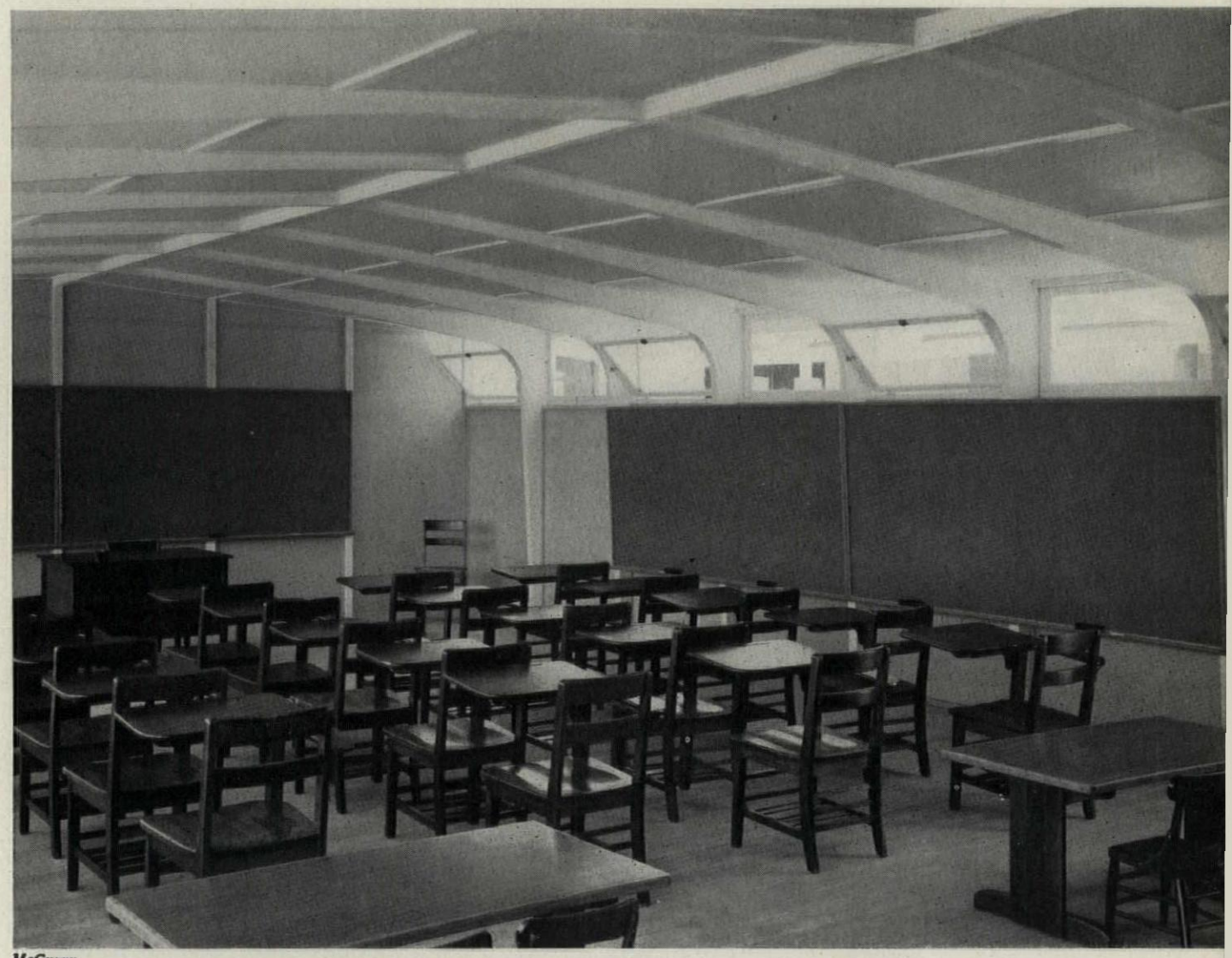
For our present purpose, a scrutiny of the field of education would be incomplete if only its philosophies and teaching techniques were considered. Behind the educational facade of teachers, pupils, curricula, and schools, there exists the machinery of operation which makes possible the educational function, and which directly affects the work of the architect in the field of costs.

In 1932, considering the country as a whole, roughly 75 % of all money spent on education came from the county and local taxes, 18% from State governments, and the remainder from other sources. Because of the local source of the large part of this money there is much unevenness in the money available to different districts. This is shown by the fact that in the same year the money spent per pupil in two different states varied from $154 to $31. Within many states there is a disproportionate distribution of the money used for capital outlay between urban and rural districts, but where consolidation programs are in operation expenditures tend toward a better balance. Most state governments recognize the need for providing money for current expenses but not for capital outlay, and thus the actual building money for school plants comes from the local district and reflects the prosperity of the district.

There is need for States to equalize their responsibilities in the two fields of plant construction and in operating expenses; there is some prospect of this in the offing. Some recognition of this problem was apparent in the PWA program of the 1930's. By making education a state function and redistributing the tax burden the children may be able to share more equally in educational opportunities. As it is, the children of poorer areas are penalized.

Salary levels of school teachers are so low they are almost a matter of national concern. Children, whose minds are in the formative stage, are worthy of contact with the highest type of individual only, and yet salary inducements are not adequate to secure such a type. A good teacher is a highly skilled worker, whose period of training is long, hard, and expensive, and

As the photographs show, the building is supported by laminated three-hinged wood arches, 4 ft. on centers, and is lighted by a clerestory on one side and full length windows flush with the ceiling on the other. Classroom units, of panel construction, are prefabricated. Project is shown in greater detail in preceding pages.



McCurry

whose abilities, though they may be directed differently than those in more highly competitive business enterprises, are deserving of comparable salaries. The only answer to the need for improved teaching personnel is better pay. From 50 % to 65 % of school money is disbursed in the form of salaries; and if this percentage is increased the money available for capital outlay will shrink below its usual 10 % to 15 %.

The prospect, then, is that expenditures for school plant operation will increase due to: Increased community responsibilities; expanding teaching programs; higher salary costs. Equally true is that it will be harder to increase the amount of available school money for many years to come due to: War expenses; mounting cost in the operation of the federal government; increased living costs, etc. It can be left to the traditionally fertile architectural imagination to find out how much money is left to build the school of the future. In the face of this a discussion of the values of monumental as against more informal and economical schools seems academic.

Intimately related both to questions of cost and problems of regional planning is the matter of land sites for school plants. Programs of health, recreation and play, and the increasing openness of planning, demand larger sites. In California the minimum acceptable site for elementary schools is five acres and even larger ones are desirable. It is not always possible to obtain sites of such size. Some experienced educators recommend 20 acres for primary schools, 40 acres for secondary schools, which is intended to apply to urban districts as well as to those in the rural areas. Of the need for larger sites there can be no doubt. Of the probability of obtaining them there can be much doubt when urban schools are faced with the present high cost of land and the impossibility of finding the means to make the land available.

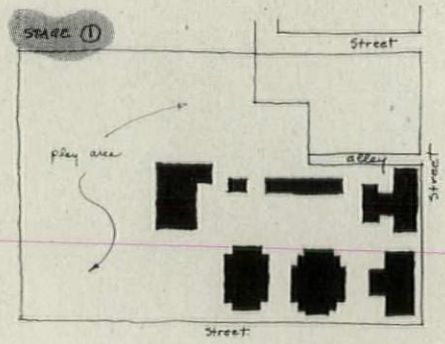
Rural areas have developed a workable and widely practiced system of bus transportation for their pupils. The same principles applied to urban areas would result in moving school sites to available, more open land, on the urban fringe. This might be one of the possible solutions to the difficult problems of the site for the urban school, whose children must have the advantages of air and play space.

In anticipating postwar problems there has been an unreal preoccupation with questions of community planning and of the ideal sites for schools in the community. Such problems are more likely to be in terms of existing sites and their possibilities for expanding, and in terms of the reconditioning and growth of the structures now standing.

Not all school districts will face the prospect of expanding enrollments. The slowing growth of our population and the tremendous and as yet relatively unknown population shifts may mean that a program of contraction is in order for some areas.

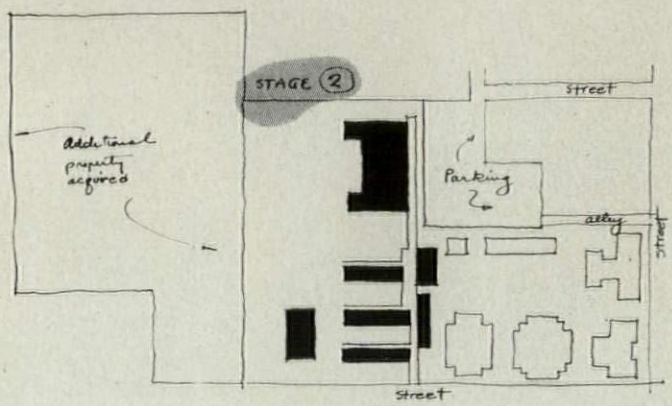
Controls and Design Standards

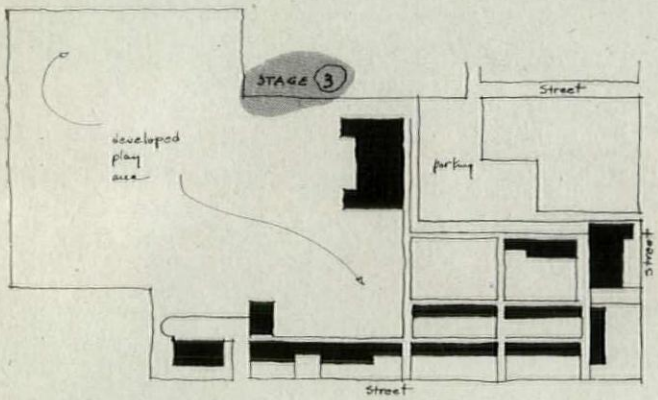
In practically every state in the country there are building regulations, the purposes of which are to secure certain minimum



This is a school plant as it existed in 1935. Some buildings were obsolete, more buildings were needed, and a larger site was mandatory.

As the first step in modernization, new property is acquired, one of the obsolete buildings is razed, and new prefabricated building units are located for the best present use of the site and the best relationship to the remaining buildings.





The ultimate form of the school plant is here visualized, taking into account anticipated development and use of the entire plot. Prefabricated building units used in the second stage are relocated on the site and form part of the new plant. Room is left for further expansion. This represents efficient use of the site area. Sketches on this and other pages were especially prepared by Robert Kaestner and the author.

standards in school plant design. To insure uniformity of requirements and justice in their enforcement, they are almost invariably set up as codes.

Requirements as to fire, panic and structural safety lend themselves to codification without running the risk of working hardships. They are usually based on performance standards and allow considerable freedom in design without necessarily imposing hindrances on the designer.

There are other standards, however, which do limit designers and school districts, not necessarily in their intent but in the nature of their requirements. For example, when a code specifies a 12 foot ceiling height in classrooms, or a window area of 1/6 or 1/10 of the floor area, it is an unnecessary restriction on the development of new schoolroom designs. In both of these examples the intent is probably to insure adequate light based on a scheme of unilateral lighting; or to provide a given amount of air per student.

When a system of bi-lateral windows is used these standards are useless; light then comes from two sides of the room and cross ventilation can be obtained. If the code stipulates, however, that a given number of foot candles shall fall on every desk in the room, no matter where the desk may be located, then there is an encouragement to ingenuity of design consistent with the maintenance of minimum standards. This is only one example; there are many.

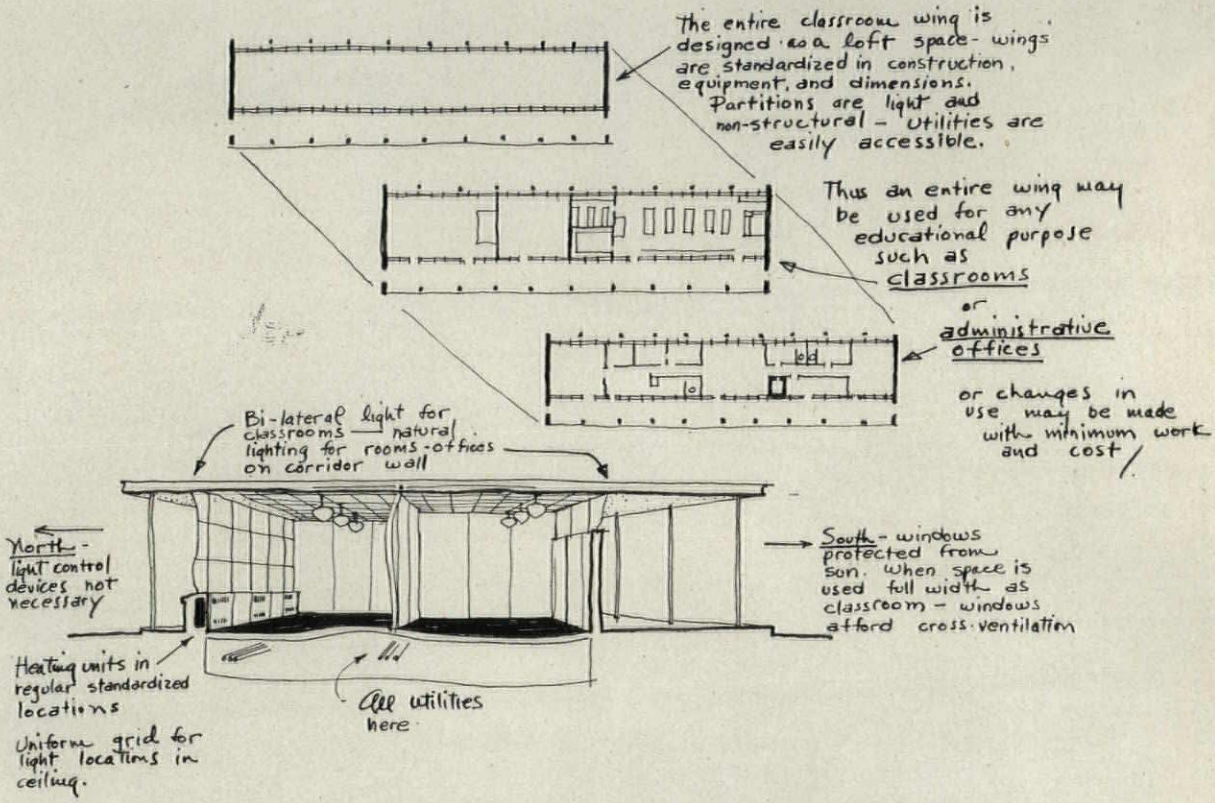
The influence of design exerted by code requirements is equalled by the nature of their enforcement and interpretation. The code and the manner of its enforcement are interdependent. It may be enforced by an arbitrary and literal interpretation; or it may serve as a guide by reference to which all problems are judged on their merits.

In California there is a very fortunate segregation as to types of requirements. The State Division of Architecture passes on matters pertaining to structural safety, resistance to seismic forces, fire and panic. Its judgment is based on code requirements, and allows the freedom of a wide range of intelligent solutions.

The Division of Schoolhouse Planning of the California State Department of Education, under Dr. Charles Bursch, deals with problems of function, of site arrangements, of lighting, of hygiene, and of teaching facilities. Each design is analyzed and judged on its own merits, with reference to performance standards and in the light of past experience. As an indication of the effectiveness of this agency, this writer believes that it is in a large measure responsible for the development of modern school plant design in this state.

Fixed standards of design and layout may do more harm than good. They are often improperly used as devices to avoid creative and independent thinking, and even at best they only determine minimums which should serve as points of departure. They are subject to immediate obsolescence. A 23-by-36-foot classroom is inadequate by any standard if it fails to meet the needs of a specific program.

In the sketches below are illustrated principles of unit design based on the experience of Franklin and Kump and the Ernest J. Kump Company. The influence of many other school architects is, of course, discernible. It should be noted that the clerestory window is dropped below the corridor roof. Franklin and Kump first did this in the Ducor Elementary School. A later development is to be seen in the Exeter School.



Standards may not be universally applicable. Just a few years ago a study of school design was published in which it was stated: *"satisfactory classroom orientation, in order of desirability, has been found to be southeast, east, west, or south."* In the practice of our office it has been found that *north* is the only desirable orientation of major window areas for maximum seeing efficiency. Well——?

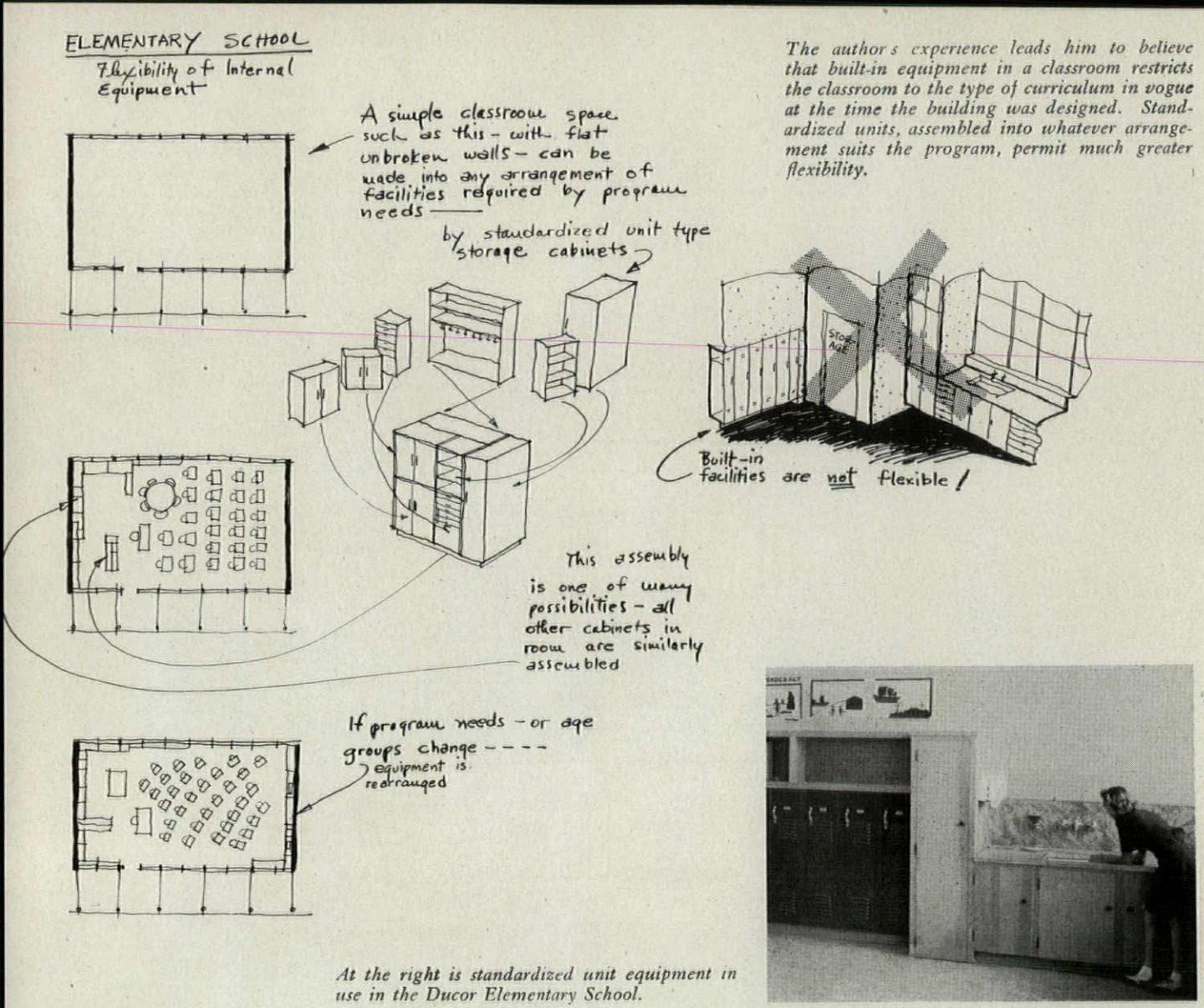
Design of the School Building

The architect is the key man in the design and construction of the school plant. His problem is the resolution of the program needs of the school district into a well balanced, well integrated design. The implications of this are often overlooked. To use costly materials or mechanical equipment, to develop an unnecessarily complicated structural system that demands more than its relative share of the building budget, and because of these, to sacrifice needed space or educational facilities, is a failure of the architect's professional service. If the school board wants more than the budget will allow even with the most judicious use, the board should be so advised and not find this out on the night of the bid opening; they should then be helped in formulating a building program that is within their reach. If a school board is totally unacquainted with building problems, the architect becomes the educator, the school board the pupils; but never must the architect impose his educational philosophy on the board. He may do so as a citizen, however.

I cannot be specific concerning the minutiae of building problems. Solutions must be *found* for special problems, not pulled out of a book. Nevertheless some comments on different pertinent subjects are incorporated in the hope that they may provoke thought.

Building costs: As was mentioned, the architect must be able to provide more building for less money. This has been especially true in war-time schools. But therein lies a challenge to the ability of the architect and a real opportunity for creative work. The philosophy behind the building of war-time schools has unfortunately been to provide something that will get by for the duration, until something better can be had. Instead, improvements on the practices of peace-time, rather than substitutes for them, must be developed. Experimentation should be stimulated in the direction of light, airy, quickly built structures with improvements in teaching facilities.

Adult education: The use of the school by the adult imposes certain unique problems. He uses the school plant generally at night and this use brings up considerations different from those of daytime use. Exterior lighting must be such that parking and entrances are well related and easily found. Paths of travel in the building must be simple and direct. The administrative offices must be separate from those used by the daytime staff, and they must be provided with ample conference areas, and facilities for keeping separate records and files. Since the size of furniture used by adults may be different from that used by the daytime pupils, classrooms for instruction must have flexible seating and equipment with spaces for furniture storage



The author's experience leads him to believe that built-in equipment in a classroom restricts the classroom to the type of curriculum in vogue at the time the building was designed. Standardized units, assembled into whatever arrangement suits the program, permit much greater flexibility.

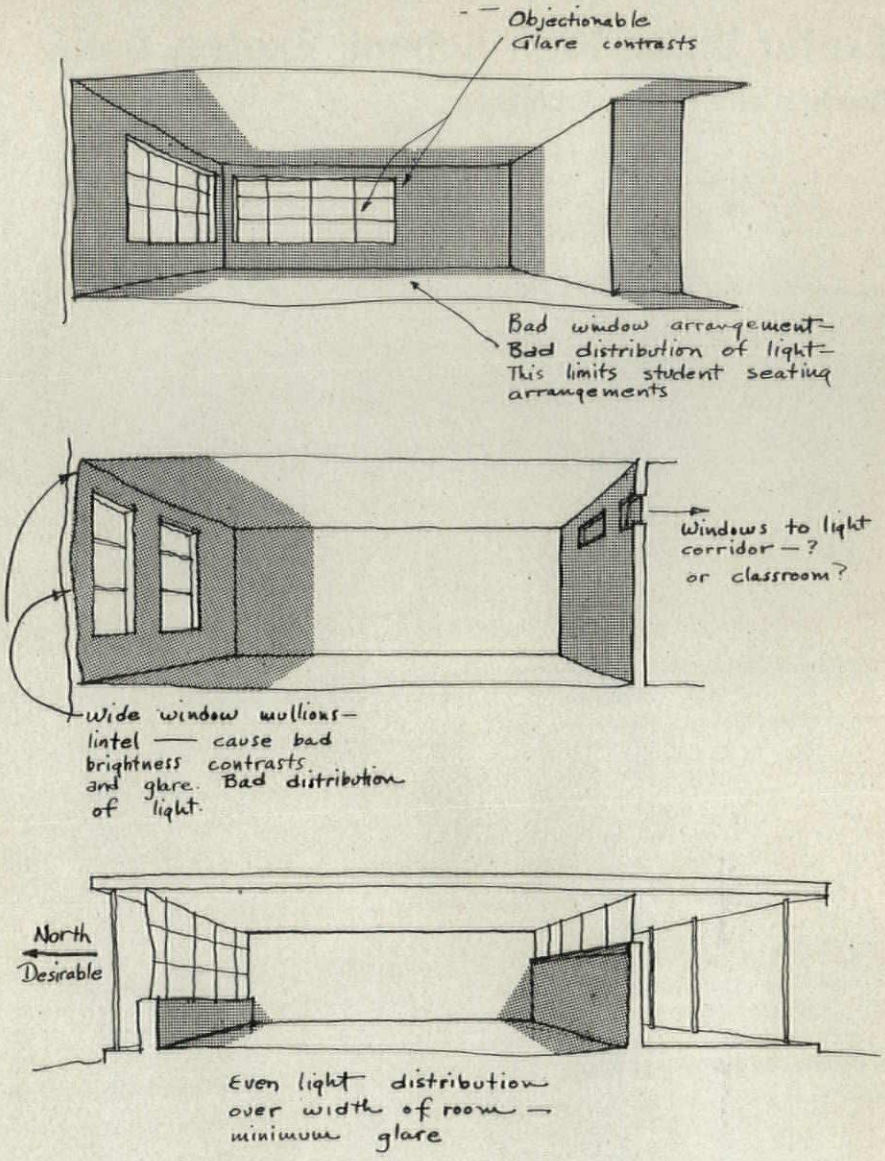
At the right is standardized unit equipment in use in the Ducor Elementary School.

as well as separate storage for adult work. Where the district allows it, there should be recognition of the need for smoking.

Flexibility: The anticipation of growth and change through flexibility of plant is of greatest importance and can do much toward postponing eventual obsolescence. The manner in which flexibility is achieved is dependent on the type of use. For instance, an elementary classroom is something of a self-contained unit; its flexibility is one of equipment and of internal arrangements. The problem of flexibility in the high school plant is more complex. The mathematics room and language room of this year may, next year, have their spaces consolidated and converted into a biology laboratory. An entire classroom wing should be considered as a loft space with interior partitions such that they can be easily rearranged and mechanical lines and equipment readily accessible. Large spaces such as cafeterias and study halls must be capable of accommodating many functions with a minimum of change or rearrangement. Gymnasiums and auditoriums are expensive spaces and should yield many types of use.

Lighting: In a well designed schoolroom the use of artificial light during the day should be resorted to but seldom, even in eastern zones. Much study has been directed towards design and use of artificial light when its importance is secondary to the proper use of natural light. If artificial light is needed to supplement daylight it should be mechanically controlled by photo-electric cells. In the experience of our office, unilateral light is altogether unsatisfactory. The endorsement of 8 to 12 foot candles on every desk in the room by authorities in lighting represents a minimum. 60 to 75 foot candles and even much more are possible on all desks with bilaterally lighted rooms in the California area. In our practice it has been found best to provide, in both longer walls of a classroom, windows which are continuous from wall to wall and which extend flush with the ceiling line. Wide window mullions or blank walls adjacent to window areas in the same plane produce highly objectionable glare sources. Blinds or louvres are most satisfactory when properly adjusted and fixed at the correct position. Bilateral lighting should not be considered a feature peculiar to one-story buildings only; it has been developed in European examples of multi-story buildings.

Mechanical equipment: The most difficult problem posed by mechanical equipment is its integration into the design of the building so that it is capable of flexibility in use and in rearrangement. Convector radiators and light outlet locations, especially, should be placed in a regular pattern, the former on outside walls, so that new divisions of space by partitions will not unbalance the system. Water, gas, and power should be easily available for installing new equipment. Radiant heating has not been particularly favored in California because, even during winter, heat is not always necessary during the entire day.



The question of window area and orientation has long plagued school architects. Many school building codes have required, on the window side of the standard, unilaterally lighted, 22-ft.-wide classroom, that part of the wall next to the blackboard be solid, to prevent glare on the board. In many classes today, blackboard work is limited. Where it is required, diffused lighting from either natural or artificial sources can eliminate the objectionable glare.

The advantages of its use are more applicable to colder climates where heat is needed for a longer daily period. The effect of such new items of educational equipment as television on the size and shapes of rooms is unknown as yet. Their use can be anticipated in the near future and their requirements will demand changes in our traditional room layouts.

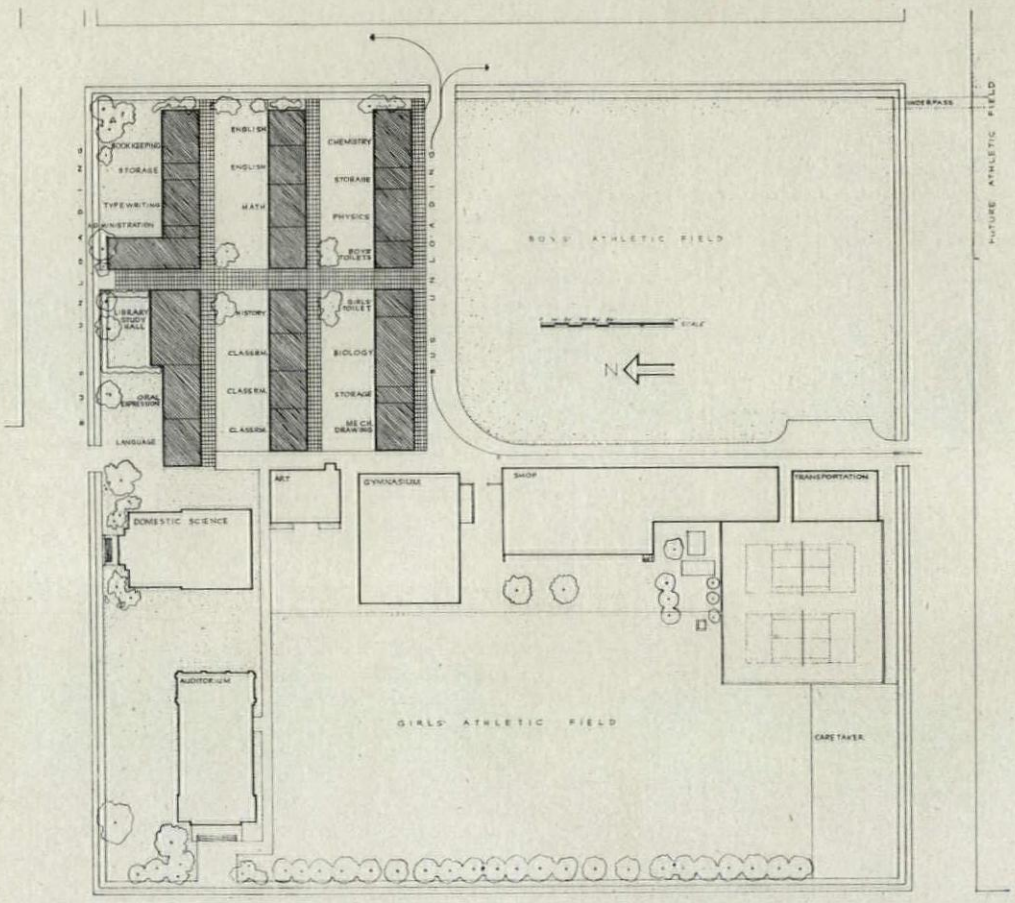
Prefabrication: This building technique has grown rapidly during the war and has been used on some wartime schools. Its full significance, however, will be in the field of postwar construction. One of the potentialities of prefabrication lies in the prospect of obtaining building economies. As has been pointed out, this is particularly applicable to schoolhouse construction in solving problems of cost. Prefabrication's advantages would be limited if confined to cost only; as important as economies are the many other ways in which its use may serve as a help in the development of education. We are not yet fully aware of the complete extent of its postwar applications, but some of them are already being seen. Prefabrication's wartime products have left an unpleasant taste in the lay citizen's mouth; one of its first assignments will be to live down its wartime reputation. New materials, new factory methods and factory tools, will produce prefabricated building units and products which in finish and appearance values will command wider acceptance, and together with this, wider markets. With a rational unit system of structural parts will come the standardization of furniture, equipment, and the tools of teaching. The consistent and complete integration of the entire educational plant will be more possible of realization than at present; the mixture of handcraft methods and factory processes now employed will become less characteristic of the building trade.

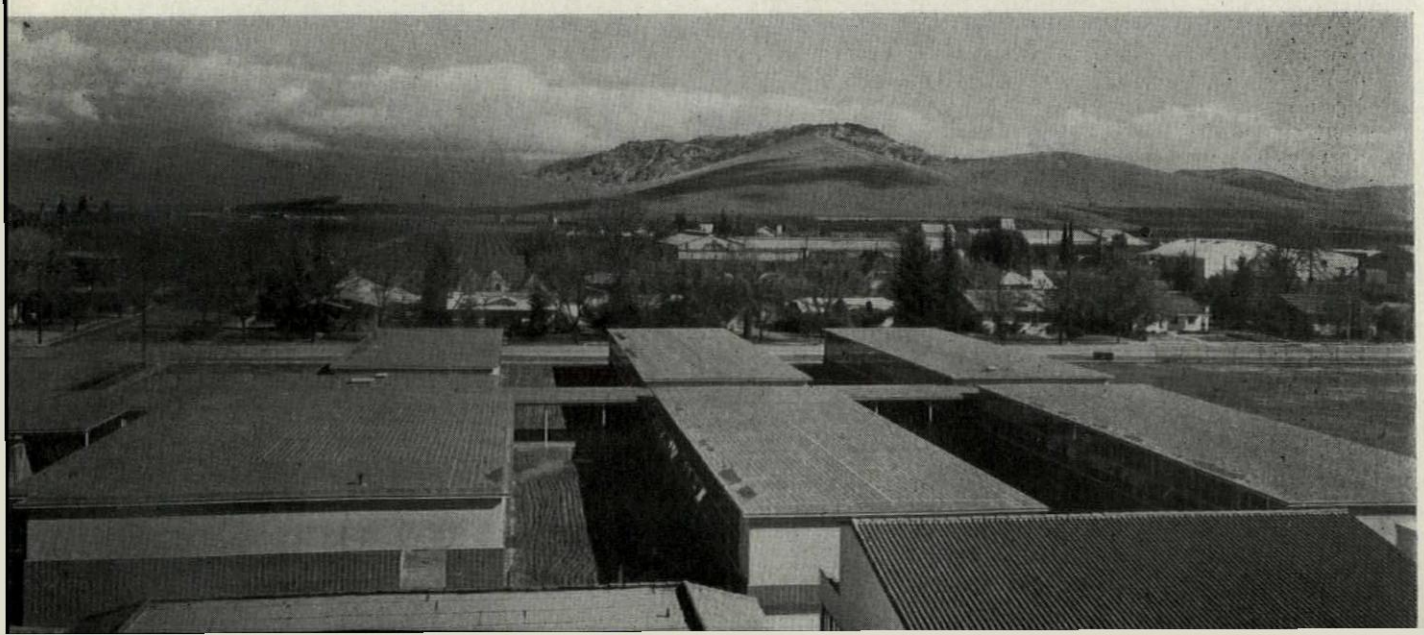
Many school districts now find it difficult to absorb improvements in curriculum and method because of permanent and costly plants rapidly approaching obsolescence. They cannot afford to abandon their present schools and rebuild, although many of them would like to. A gradual growth or change in their plants will be possible by means of light prefabricated classrooms which can be located in available spaces on their sites, as needed. When it is possible, finally, to get rid of the original permanent buildings, these light, manufactured classrooms may be rearranged on the site in terms of the best use of the land. This would seem like a far-fetched prediction were it not for the fact that many schools in this state are now replacing their original structures gradually with modern schools; but the modern additions are equally fixed on the site. This makes it hard to plan in terms of the full eventual use of the site area. Thus prefabrication may afford a means of achieving a fluidity in building which is capable of meeting the needs of the constantly changing fabric of community and regional life. The schools of the future must be a flexible organism capable of developing with our growing concept of education.

Exeter Union High School, Exeter, Calif.

Franklin and Kump, Architects

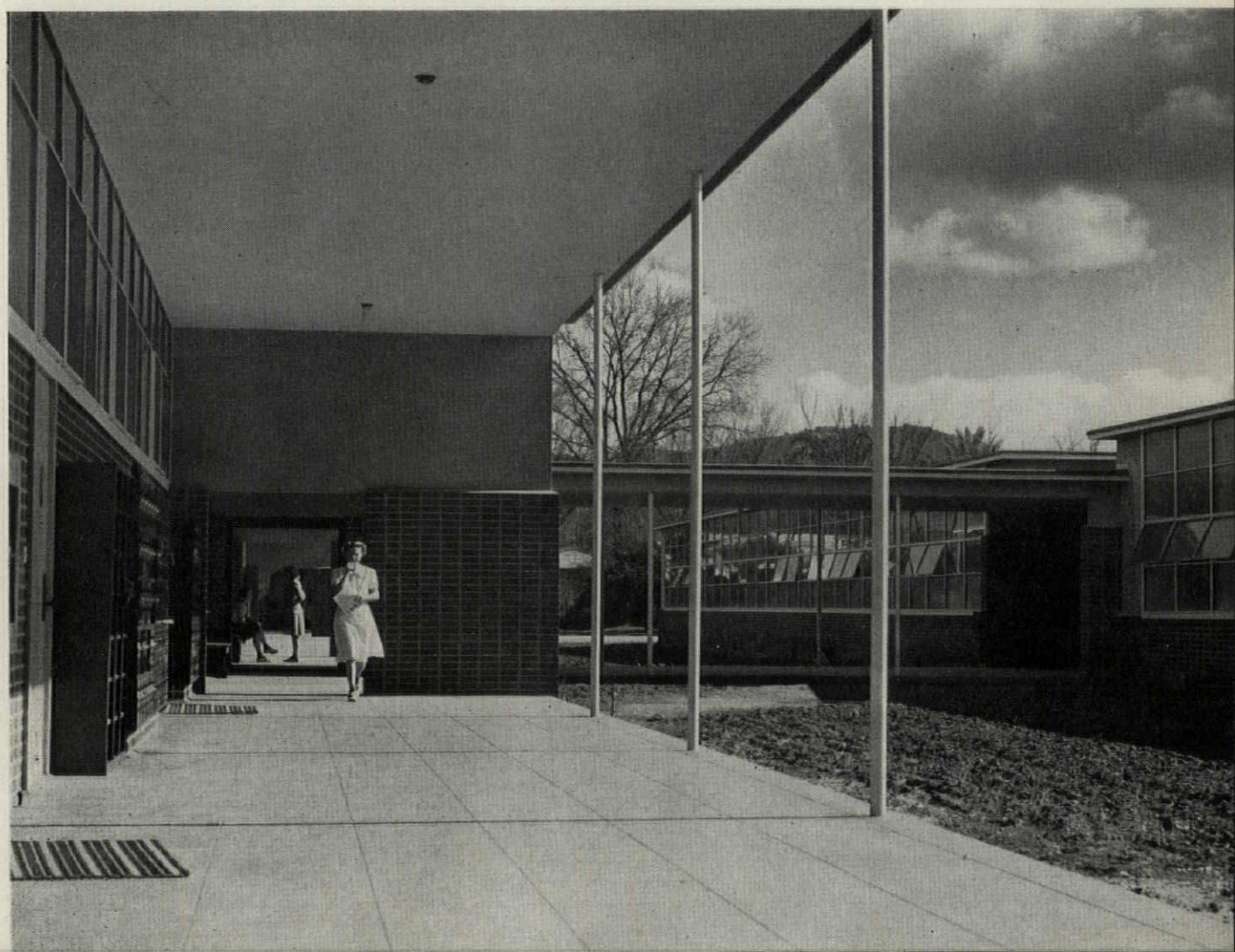
Exeter Union High School, unlike some of those shown previously in these pages, is not a war project. The architects consider it one of the best prewar schools in many ways. Exeter is a moderately small country town; many students are brought in to school by bus from outlying districts. Plot plan below shows that this is a modernization of an existing school, and that parts of the old plant remain in use for the present.

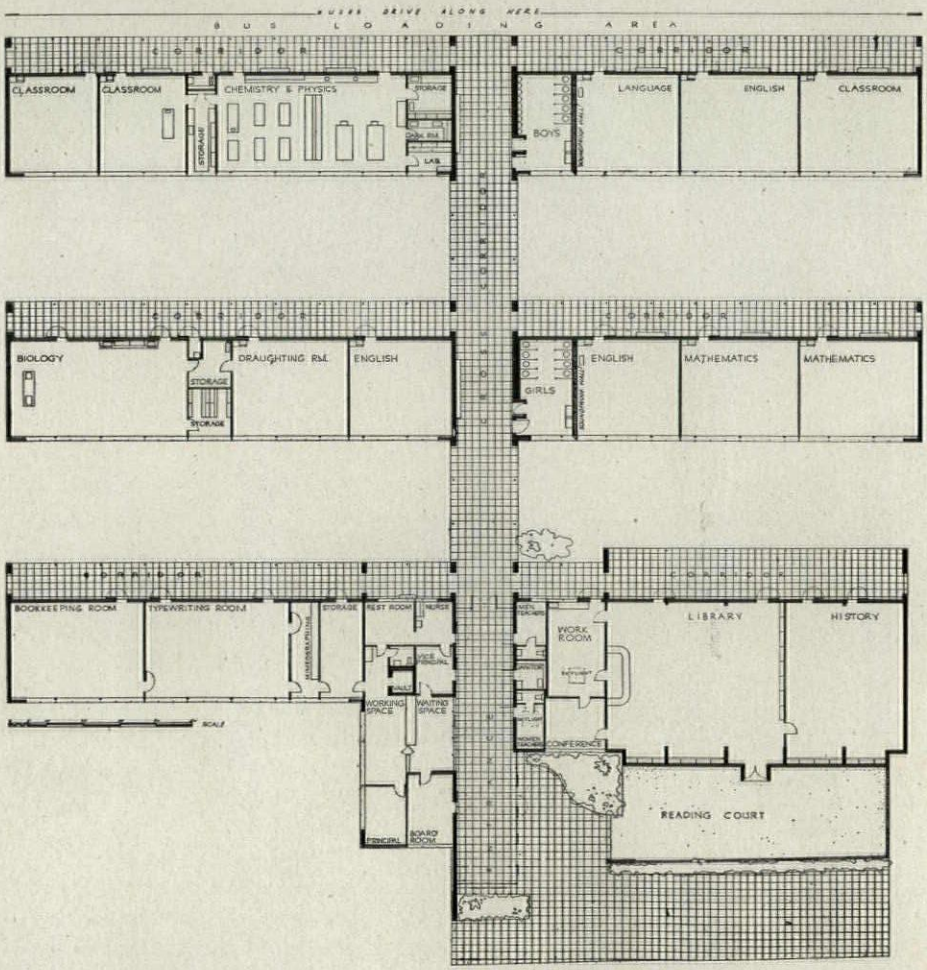




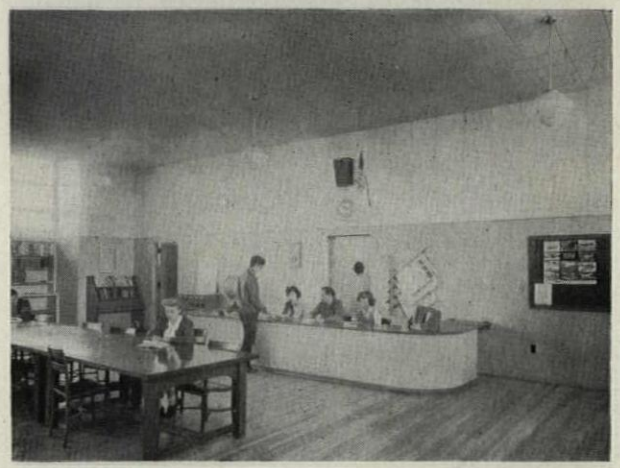
All photos by John Frederick Stanton

South corridor is used for bus loading and unloading in afternoon and morning, out of school hours. The major window orientation is north throughout. Construction in general is brick foundations on concrete footings (to reduce costs), with wood frame, brick veneered, above. The library wing has rigid steel framing. End walls of each wing, and corridor walls, are designed to take seismic forces. Exterior is faced with brick and stucco; sash are steel, and floors are concrete in corridors, maple inside. Cost of construction was $156,008, not including fees. Roofing is 6-oz. copper. A. A. Coddington was the mechanical engineer.




BUSES DRIVE ALONG HERE
BUS LOADING AREA
CLASSROOM
CLASSROOM
CHEMISTRY & PHYSICS
STORAGE
LAB
BOYS
LANGUAGE
ENGLISH
CLASSROOM
BIOLOGY
DRAUGHTING RM.
ENGLISH
GIRLS
ENGLISH
MATHEMATICS
MATHEMATICS
BOOKKEEPING ROOM
TYPEWRITING ROOM
REST ROOM
NURSE
WORKING SPACE
WAITING SPACE
VICE PRINCIPAL
PRINCIPAL
BOARD ROOM
WORK ROOM
LIBRARY
HISTORY
CONFERENCE
READING COURT

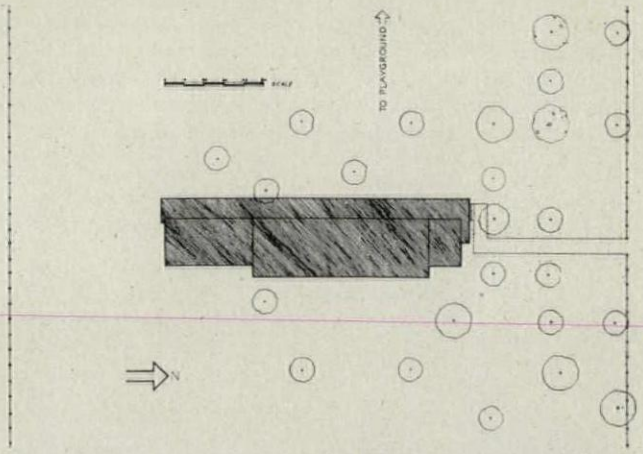
Interiors have Douglas fir plywood partitions, finished with light stain. Ceilings are finished with acoustic tile and insulated with mineral wool. Blackboards are slate. Heating, originally designed for copper convector radiators, was changed slightly by war necessities. Steam radiators taken from razed school buildings on the site were eventually installed. Steam comes from the existing plant; there is supplementary gas heat in the office wing for evening use. Classroom lighting is direct.



Below, library; at right, library desk, and above, typical classroom.

Elementary School, Ducor Union School District, Ducor, Calif.

Franklin and Kump, Architects

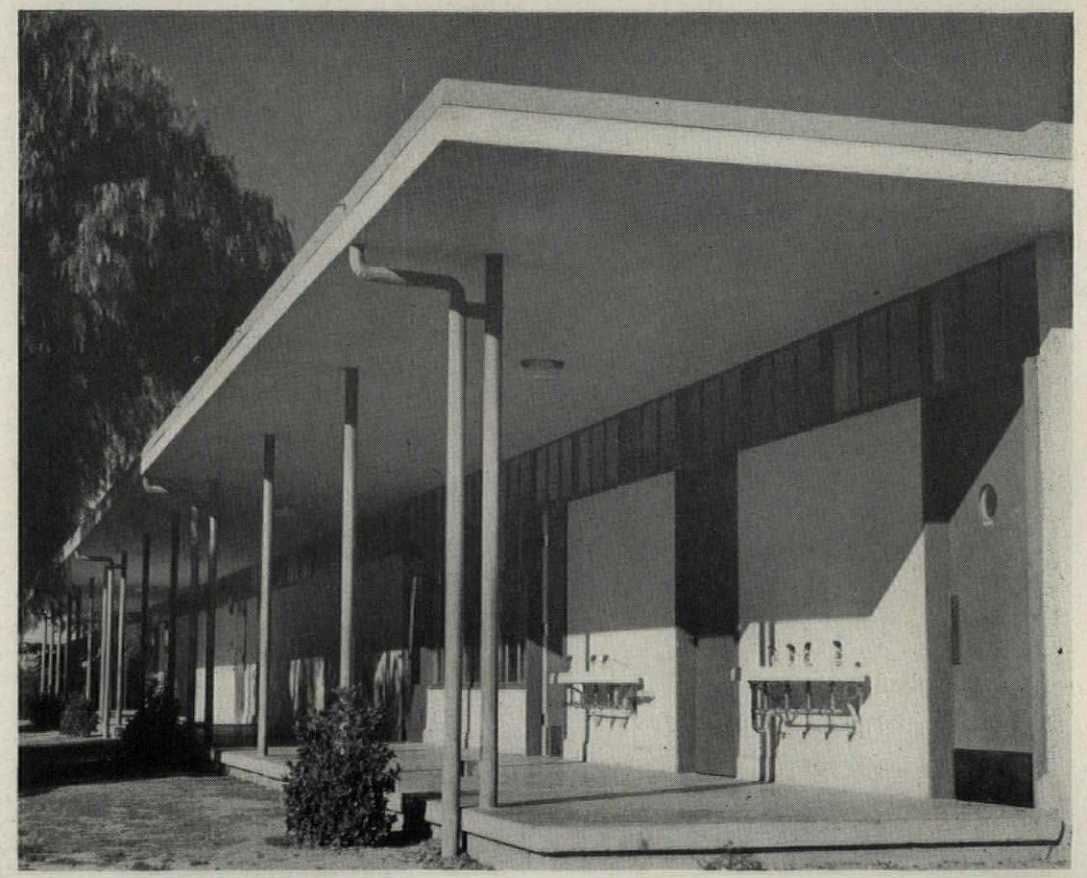


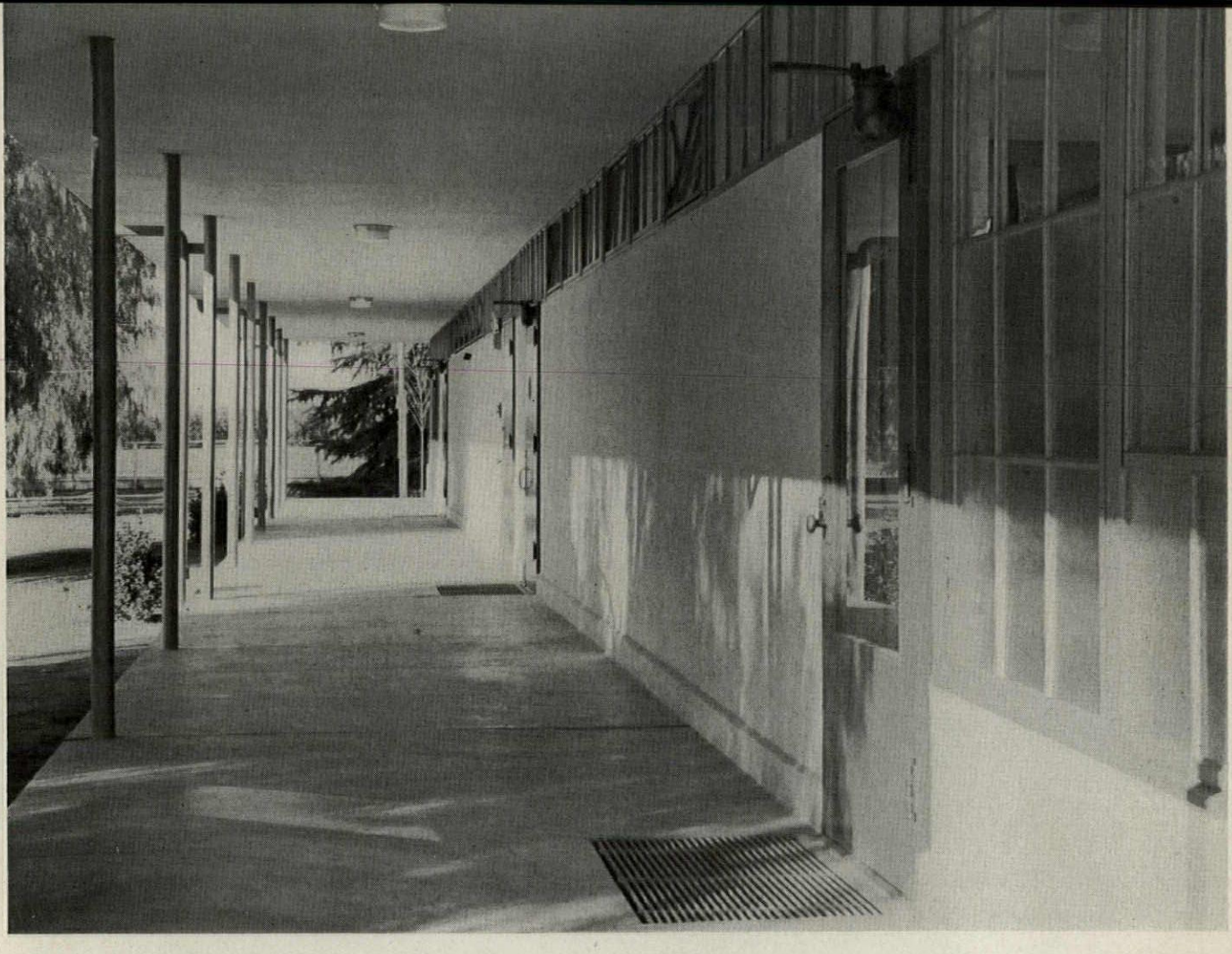
All photos by John Frederick Stanton

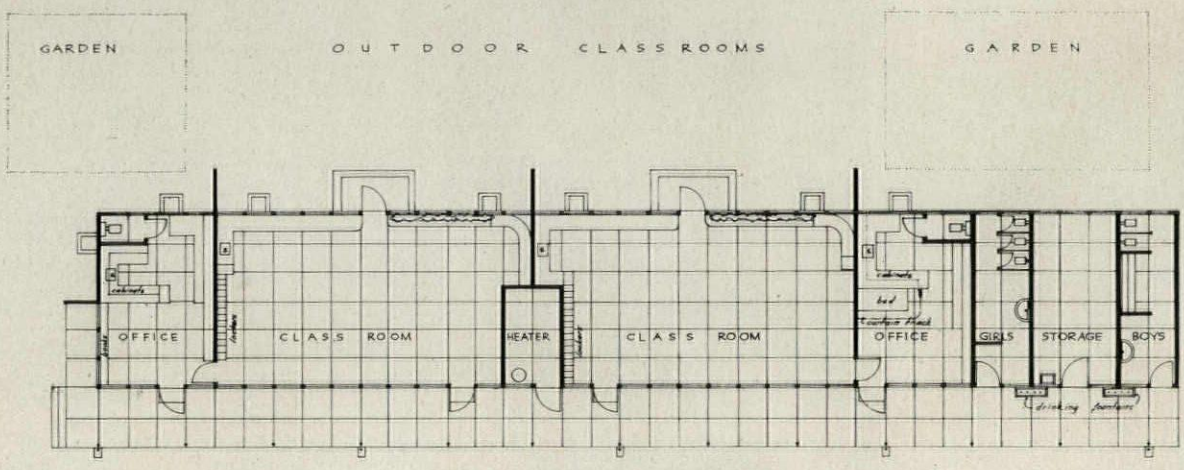
Ducor is a small town; the school is decidedly rural in character. In designing it, the architects found the teachers' participation in planning to be most helpful. Orientation of classrooms is east, principally because the many trees on the site required. The site is quite large, with a large recreational area to the west (not shown in plot plan).

Shown below are the outdoor corridor and the west wall of the classrooms, broken by wing walls which not only give a degree of privacy and sunshade to the indoor-outdoor classroom units, but also stiffen the building against seismic forces. Clerestory windows were put under the corridor roof in this school for the first time in Franklin and Kump's work. This detail was simplified in the later Exeter School.

Construction is wood frame, stuccoed, on concrete foundations. Roofing is of galvanized iron tiles; sash are steel; floors inside are covered with linoleum; corridor floors are concrete. Blackboards are slate, with metal trim and chalk trough. Tackboards are of composition. Interior walls and ceiling are plastered. Heat is supplied by an oil-fired hot air furnace. Cost, not including fees, was just under $22,500.





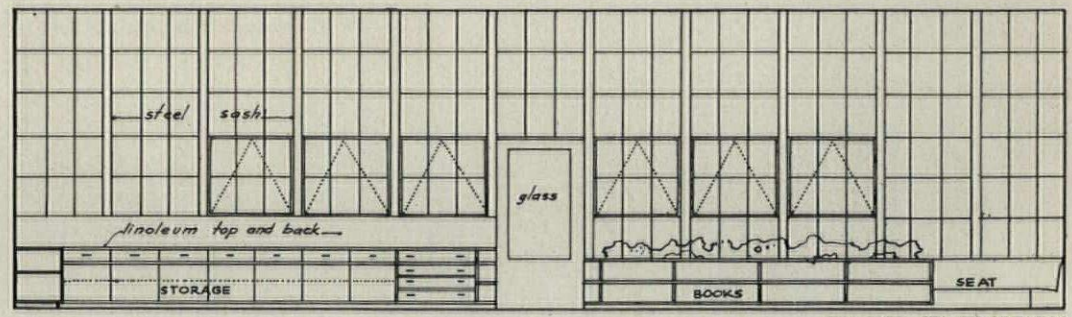


Plan and photographs of Ducor Elementary School on this page show a few results of collaboration between architects and school personnel in the early stages of planning. The outdoor corridor houses the drinking fountains. Gratings shown in the corridor floor at classroom doors serve as footscrapers; the site is muddy and requires that some such provision be made. It can be seen in plan that each office contains a reasonably complete kitchenette, and that activity areas of classrooms are amply provided with storage and work facilities, many of them of a unit type, so they can be regrouped to satisfy changing needs.

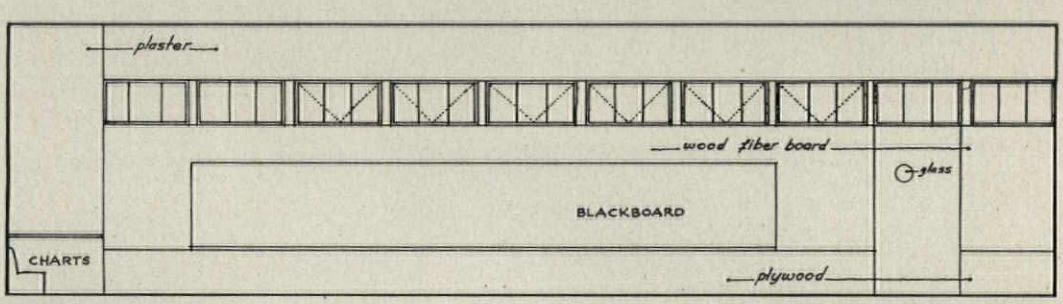
Selected Details

Typical Classroom, Exeter Union High School; Franklin and Kump, Architects

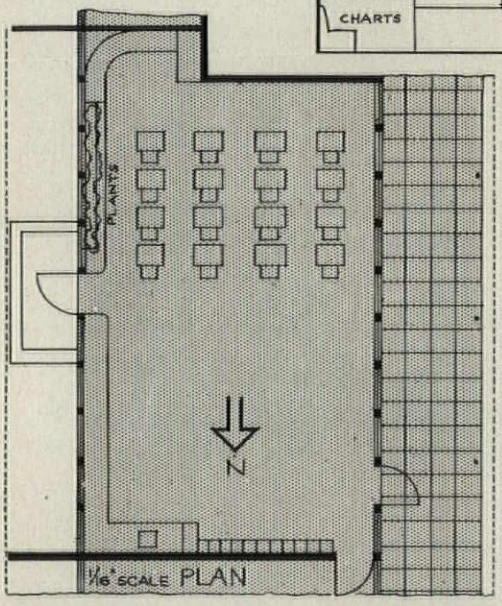
Orientation of this classroom differs from Franklin and Kump's usual practice due to site conditions. Activity area is included within classroom; study alcove in southeast corner. Clerestory is under corridor roof; construction somewhat complicated; compare with Exeter classroom on following page.



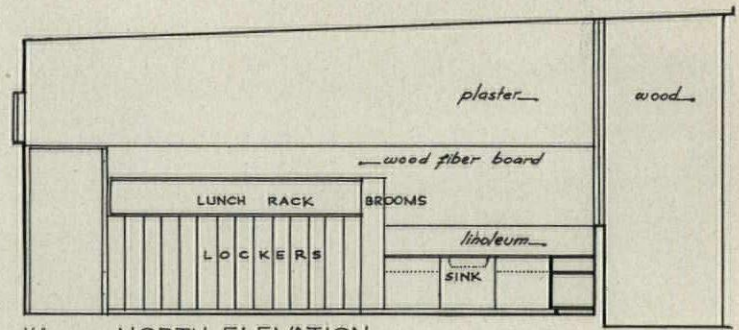
EAST ELEVATION



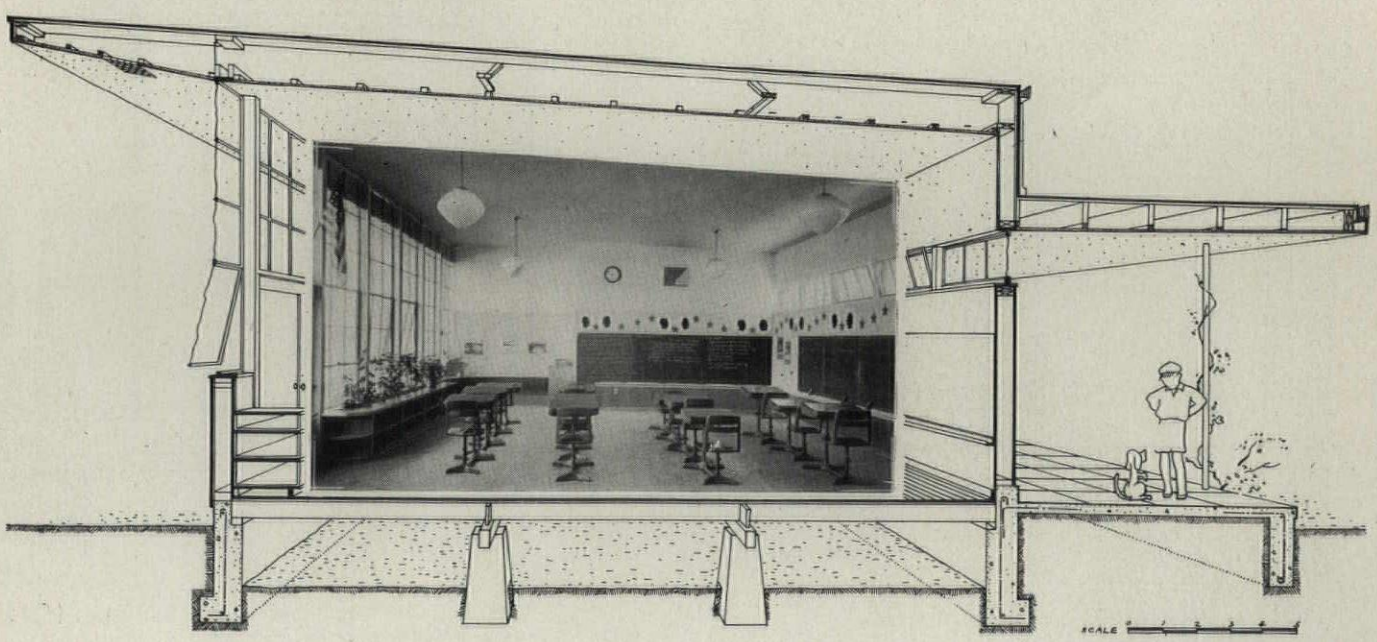
WEST ELEVATION



1/16" SCALE PLAN



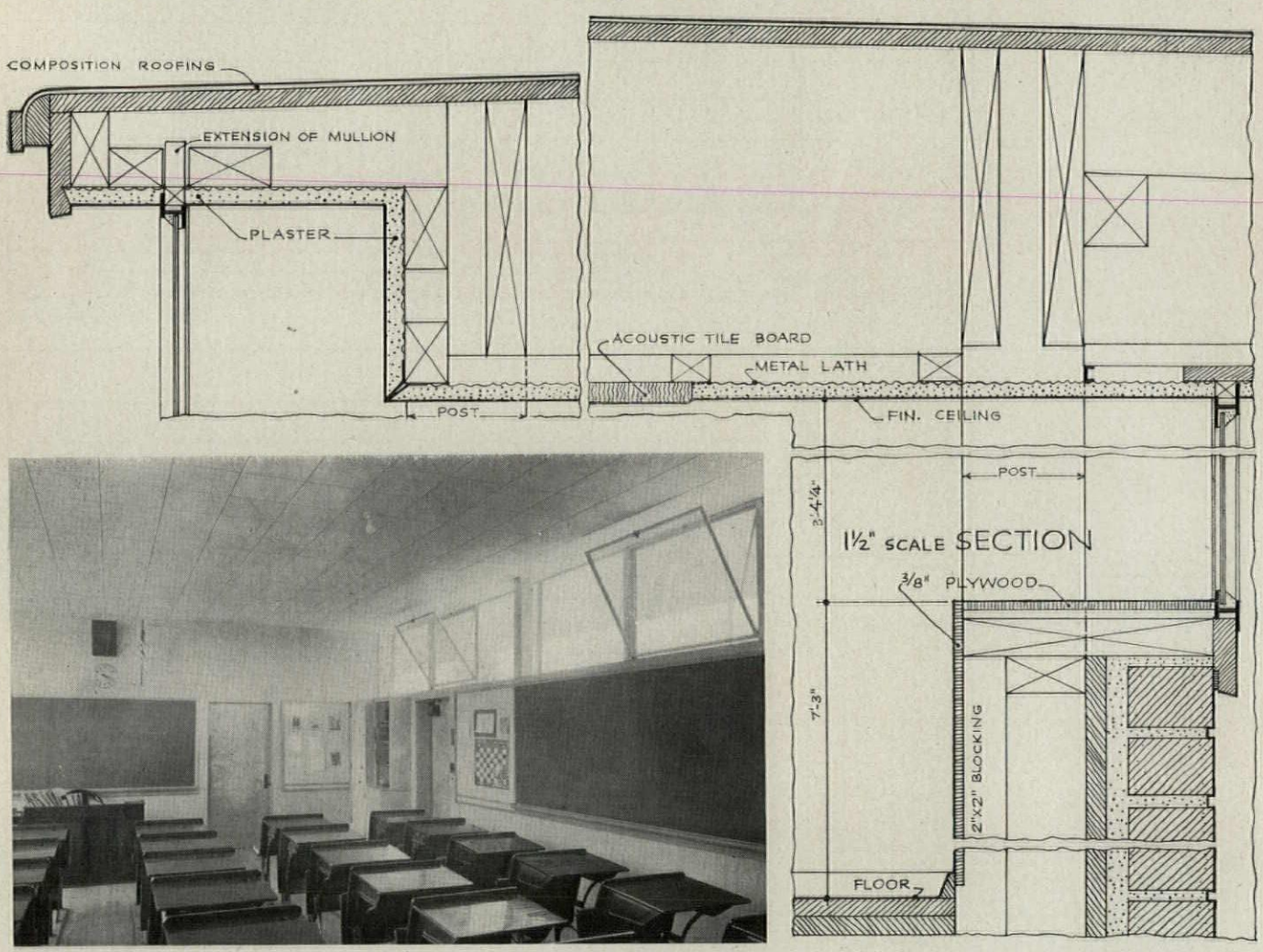
1/8" SCALE NORTH ELEVATION

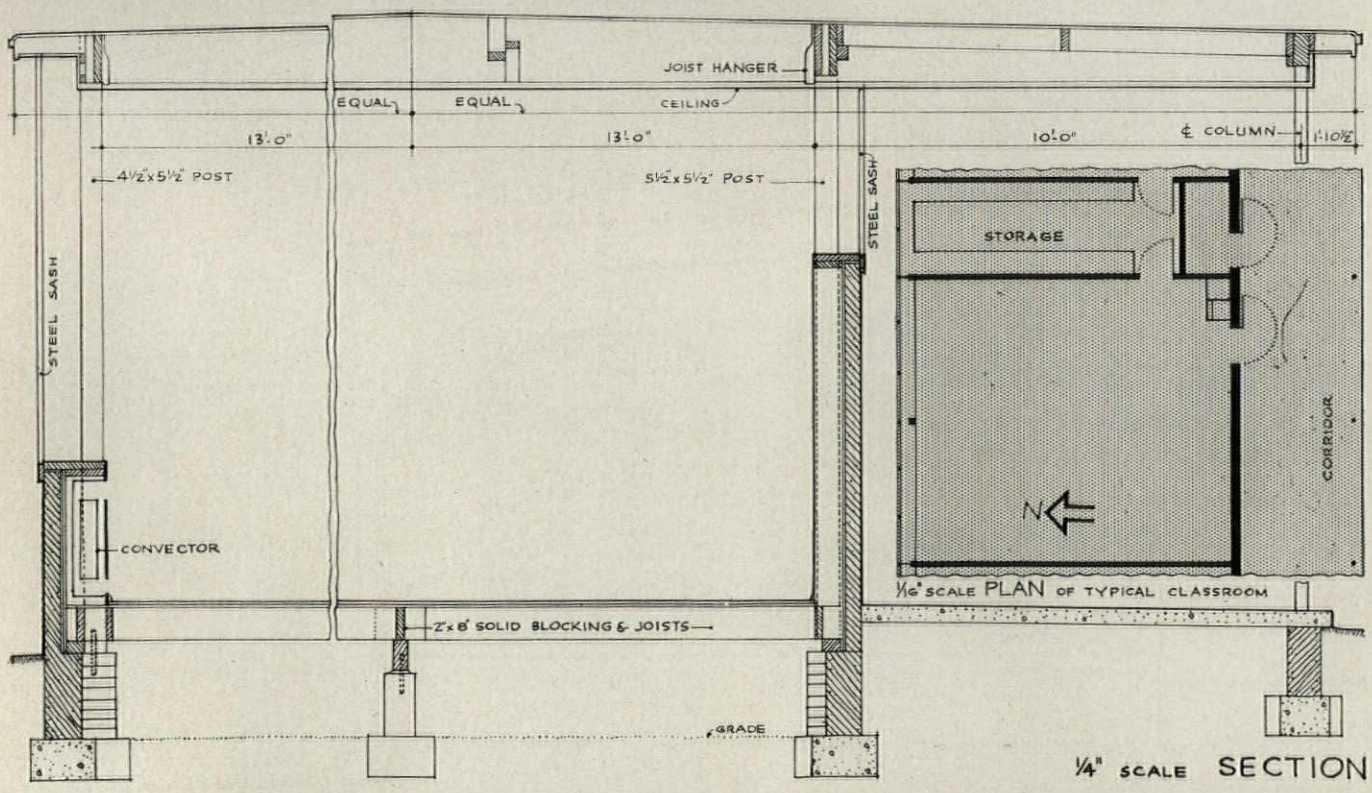


Selected Details

Typical Classroom, Ducor Elementary School; Franklin and Kump, Architects

Orientation to north, bilateral lighting made possible a room wider than it is long. Note steel sash applied to exterior wall faces, and simple structure, even though clerestory is below corridor ceiling. No activity area needed in high school classroom.





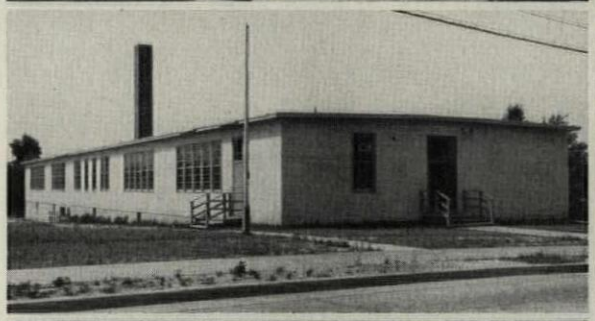
These Are Typical War-Built Schools

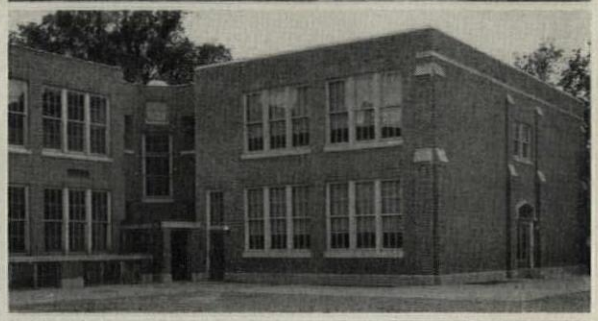
Federal Works Administration Projects Literally Dot the Land

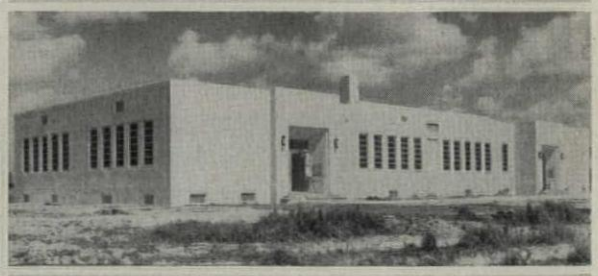
The ten schools below were selected, not quite at random, from quite a number available in the Federal Works Agency. All are War Public Works FWA projects designed and built as part of the program of works considered essential for the maintenance of civilian living standards. Some are temporary, some permanent. They come from many states, many types of educational districts, and they almost uniformly ignore the up-to-date standards for school buildings which this and other magazines have publicized in the last few years.

Quite rightfully, FWA is proud of the volume of such work, produced under war pressure. But in example after example one sees in it a seizing upon pressure of time, materials, etc., as an excuse for designing in the easiest way. Execution ranges in quality from moderately good to poor; it is in conception that they fail completely. Compare them with the Rugen School in this issue.

Photos below, first column, top to bottom: One-classroom bungalow adjacent to Emerson Grammar School, Burbank, Calif., Patterson School, eight classrooms, Washington, D. C., built of asbestos sheets and plasterboard; addition, Carolina Beach School, Wilmington, N. C.; addition, Forestville School, Forestville, Md.; six-classroom and gymnasium addition, Morrison High School, Warwick Co., Va. Second column, top to bottom: two-classroom, office, and heater room addition, Stark School, Livonia, Mich.; addition, Elementary School, Maple Grove-Rock Island, Ill.; four-classroom addition, Lordship School, Stratford, Conn.; eight-classroom Military Trail Elementary School, West Palm Beach, Fla.; new Plains Elementary School, Portsmouth, N. H. Architects' names are omitted partly because photographs were received just before going to press (FWA does not furnish such data unless specially requested), partly to spare the architects embarrassment.







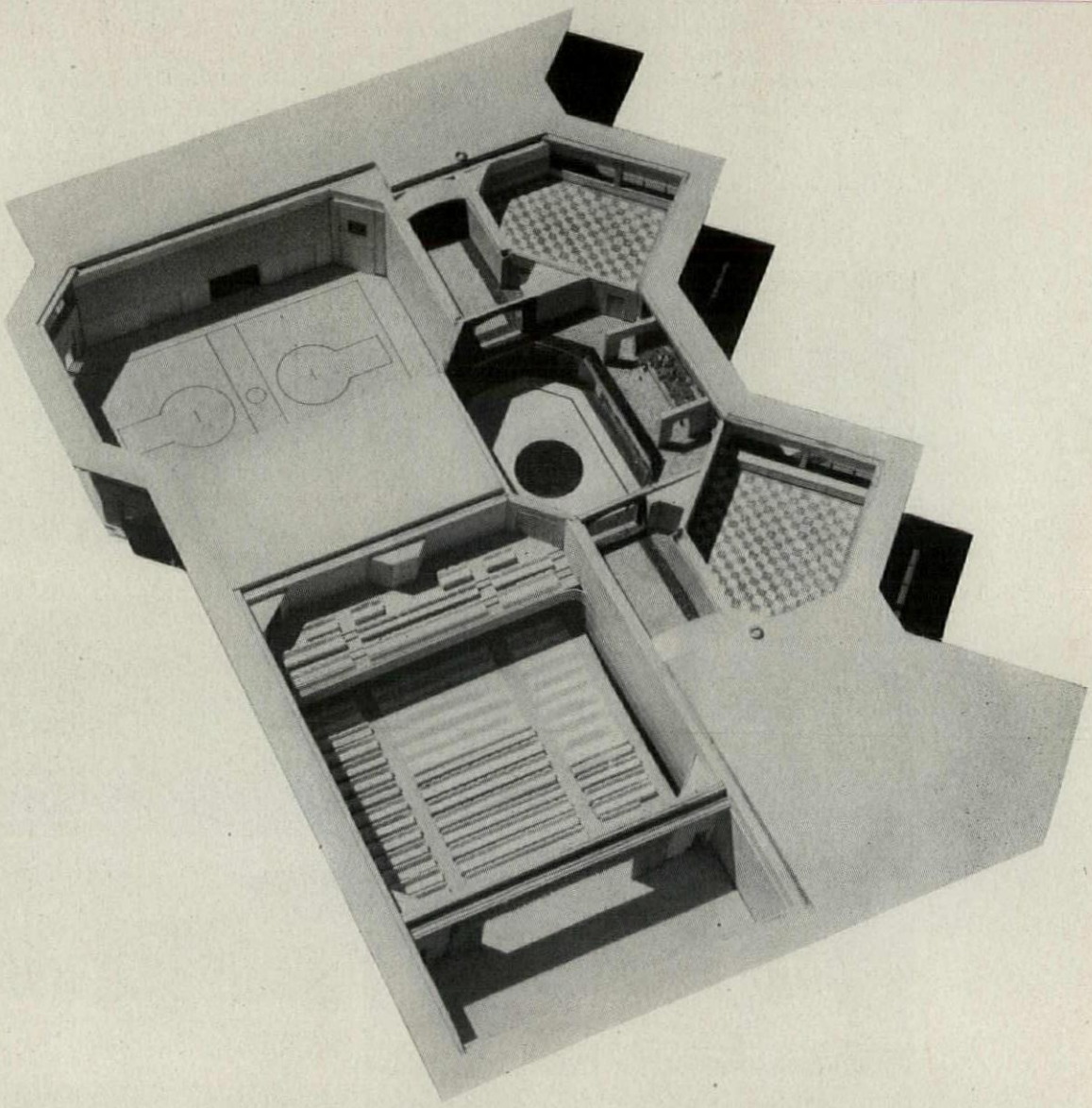
Study for a Postwar Elementary School

Childs and Smith, Architects

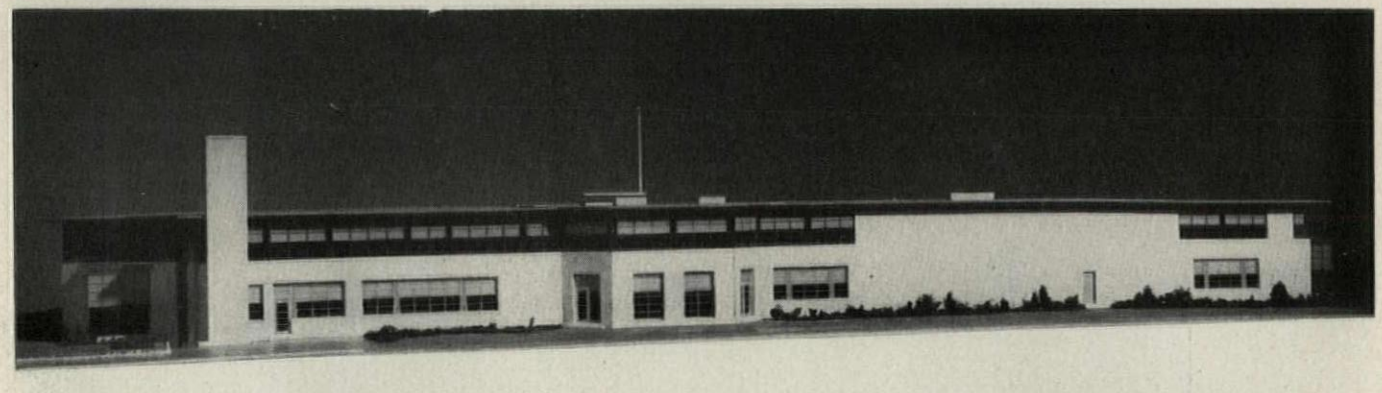
Say the architects:

"The school of tomorrow may well become the capitol of the neighborhood in which it is located, providing for civic and adult use as well as student activities. Should parents bring their children in helicopters in place of motor cars, larger sites will be needed in the country and roof decks for deplaning in our cities.

"More intensive development of sites will provide for outdoor class work in a variety of projects, including: gardening; animal and nature study; model and actual building construction; music and drama, all in addition to our former single use as play and recreational areas. This development may lead to part-time participation of older



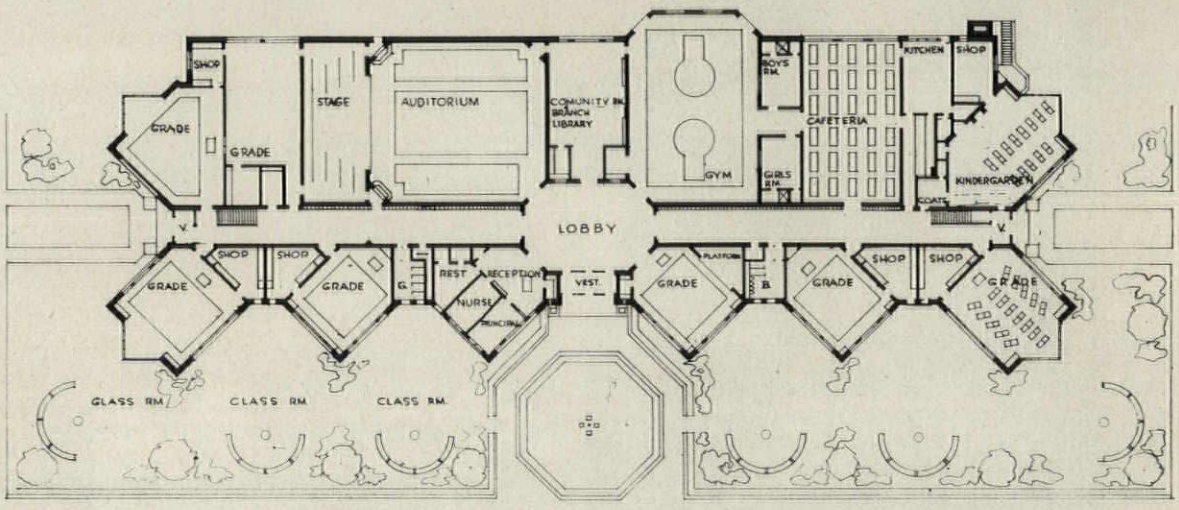
Photos Hedrich-Blessing



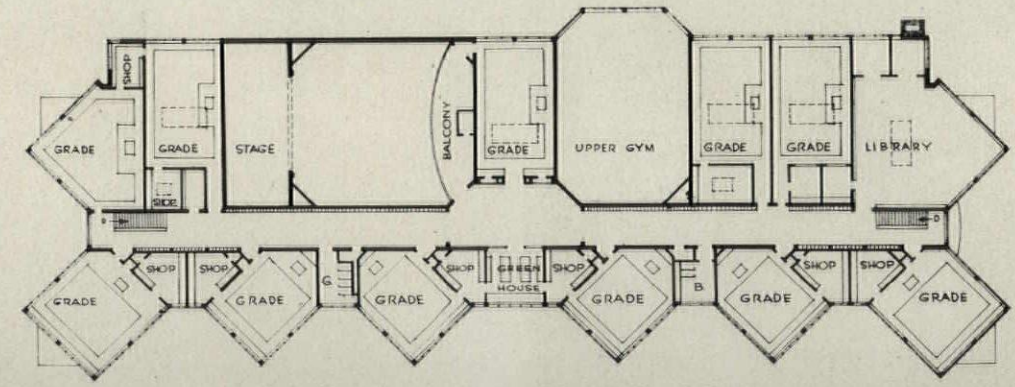
student groups on adjacent farms, in summer, and in factories in winter. Parks, brooks, and lakes may well form a part of our future school sites resulting in a richer life for young and old.

"Supplementing the gaiety of youth, our former dreary institutional structures will be replaced by an architecture of light, cheer, and color. Although built in a substantial manner for minimum maintenance, they will be far more flexible, with demountable interior partitions, standardized units of equipment as far as possible, that may be moved or replaced to suit the varying teacher needs and requirements. Many new materials (such as plywood, plastics, aluminum) will play a great part in providing more livable, sanitary, and cheerful classrooms. Color in new "Velon" rustless screens will be a great asset. Control of light by polarized glass may eliminate many headaches, actual and otherwise. Chemistry has gone a long way during the war and we may expect great development in both rubber and asphalt tile floors, as to durability and maintenance. Combination of plastics, asphalt and rubber will give us a grease-proof product more rigid and durable in every way. Provision of acoustic material will greatly lessen the noise nuisance in all parts of the school. Undreamed-of development of color and the redecoration of school class rooms, in paint, paper and murals, from year to year, as is customary in our homes, will add and retain greater charm for all ages.

"In the mechanical branches, greatly increased plumbing facilities will be provided. Practical development in fluorescent lighting will supply sunlight on cloudy days. Possibility of radiant heat, both solar and artificial, is in the offing. Air conditioning, in special rooms, at least, will relieve the torrid days of summer as in our cafes and movie theaters of today. Electrical units and window ventilation may replace our old cumbersome, expensive central ventilating systems."



Above, first floor, below, second floor

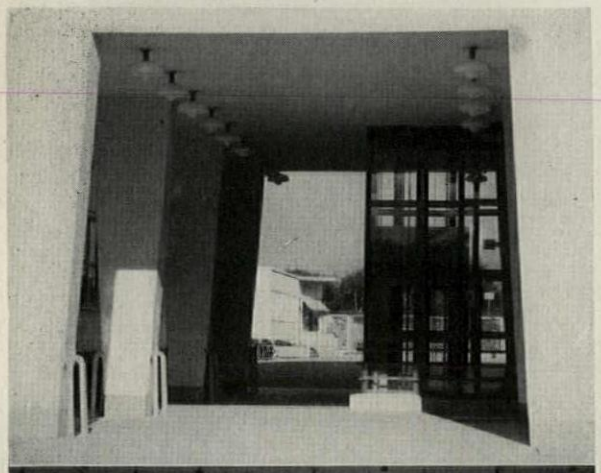


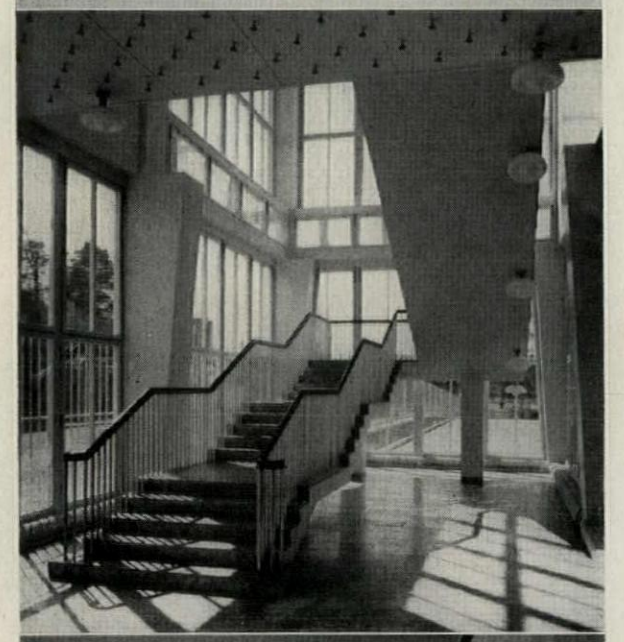
Below and on facing page, photographs of model

L. M. Ericsson Building, Stockholm, Sweden

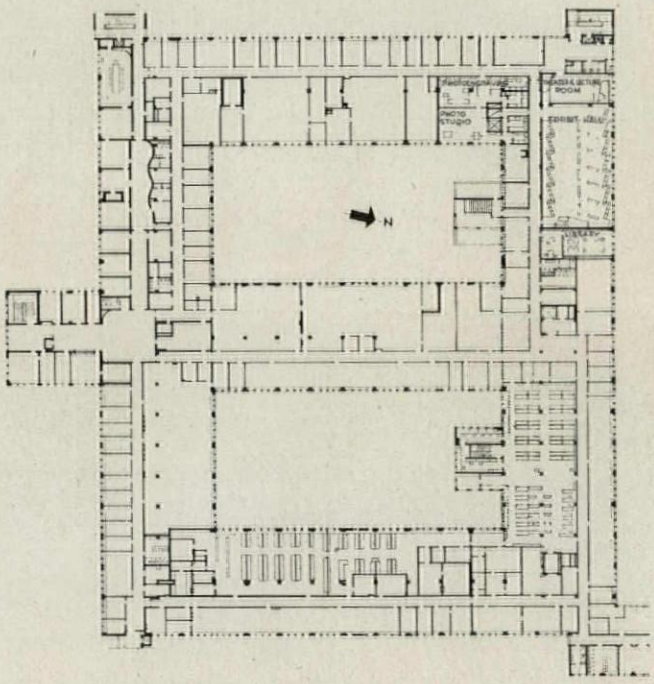
Ture Wennerholm, Architect

Photos: L. M. Ericsson from Simons

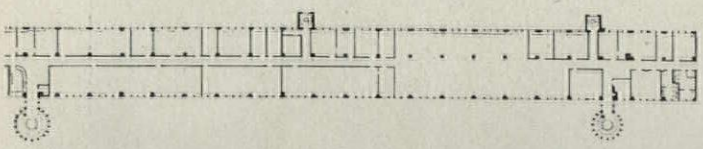




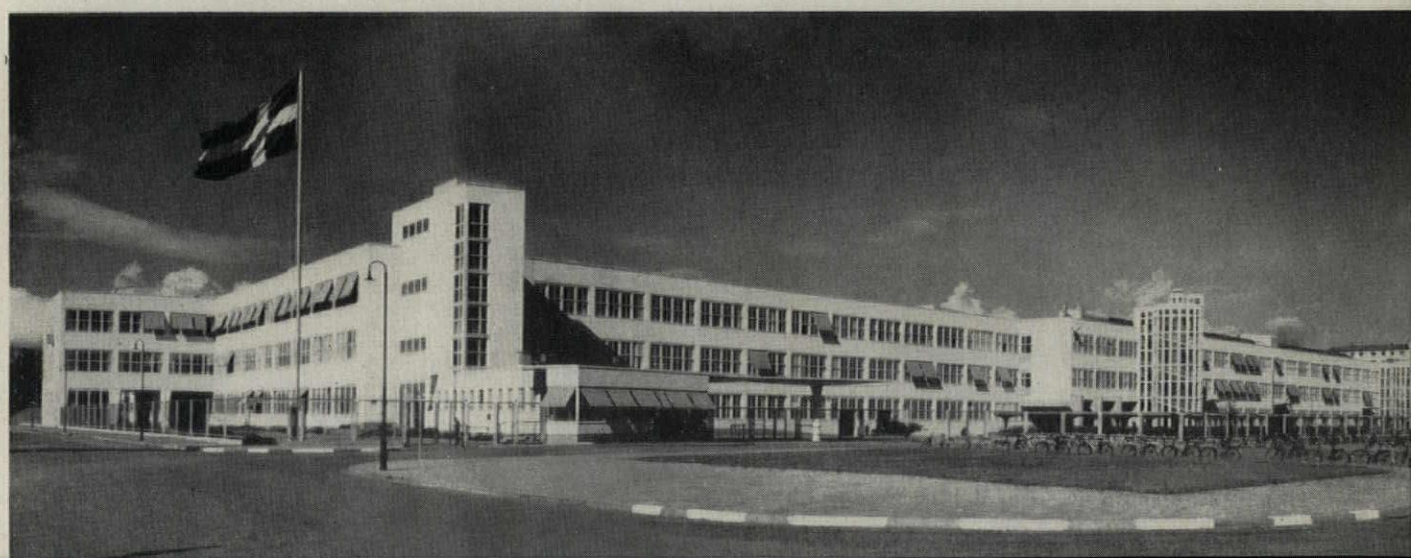
L. M. Ericsson manufactures telephone and communications equipment for shipment all over the world, a business which started in a small way in 1876. Until 1936, it conducted its affairs inefficiently in widely scattered plants. In that year, the company called in Ture Wennerholm, official architect of the State Building Commission and designer of one of Stockholm's first modern office buildings, of the Tennis Stadium, and of the Swedish Match Building. Much study in Sweden and abroad preceded actual planning; the process of consolidating many small plants and offices was tremendously complicated. Construction was started on the site in an outlying district of Stockholm in March, 1938; by April, 1940, some factory departments were installed; by November of that year the plant was in full swing.

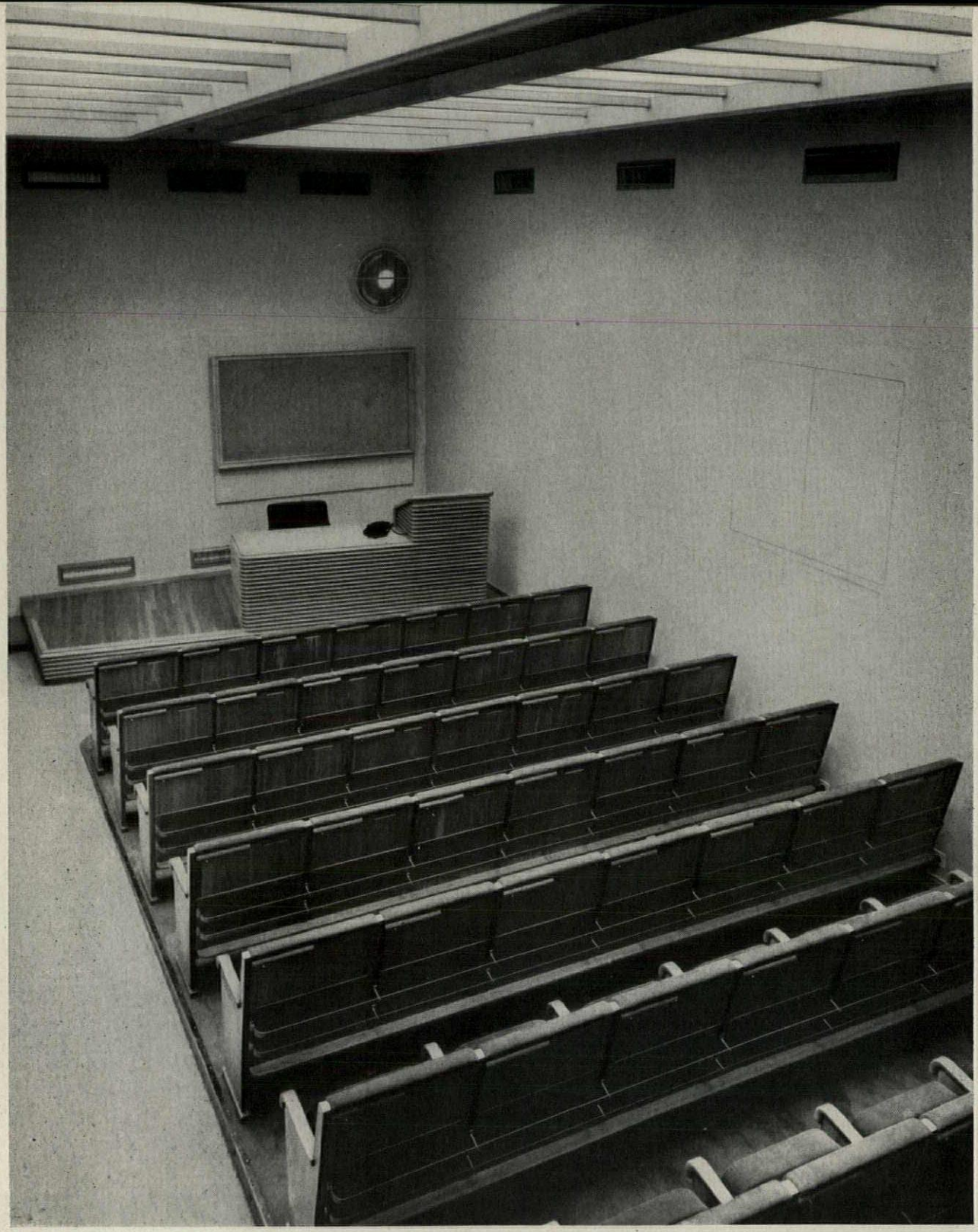


Plot plan on page 75 shows the extent of site development, felt necessary because the great number of employees forms an almost distinct community. The one-story wing at right houses guards' and porters' lodgings. Ground floor of main building contains shipping offices and some shops. Other precision shops are on the second floor; third floor: offices, laboratories, lecture hall, exhibit hall, photo studio, executive suite; top floor: dining rooms, lounges and reception rooms for executives. Roughly, the site covers a million square feet; the main building is 724 ft. by 426 ft. Much attention was paid to heat and sound insulation and to intercommunicating and operating devices.



Above, exterior, suite of executives' dining rooms, each with small balcony. Below, main facade. Left, typical (third) floor plan.. Facing page, top to bottom: Entrance portico, housing operatorless elevator, supervised by photo-electric cell; executives' entrance stair, with air inlets penetrating the sound-insulated ceiling; pool in executives' roof-top dining suite.

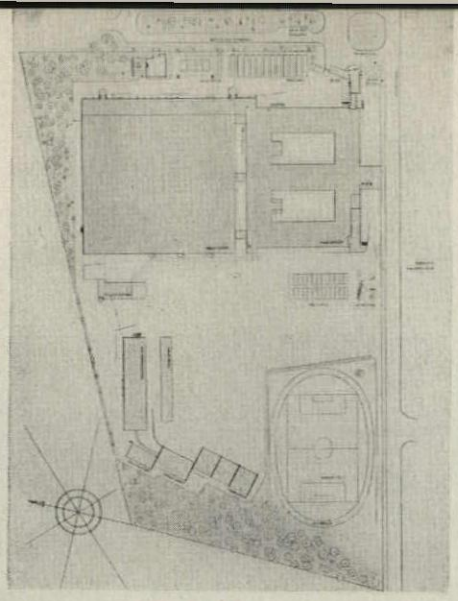




The L. M. Ericsson building is the largest built in Sweden in years, possibly the largest non-military structure recently completed in Europe. It is of reinforced concrete and steel, with aerated concrete insulation on exterior surfaces. Expansion joints divide the building into units 131 by 230 ft., except for the machine hall, which has a monolithic ceiling, 377 by 413 ft. The entire plant is designed for flexibility of space use except for necessary fire walls. Great expanses of windows make the interior light and airy. Ceilings are finished with perforated tile, through some of which conditioned air is blown into the rooms. Floors are linoleum.

Elevators are automatic, operated by photo-electric cells, and are said to ascend, open their doors, descend, etc., without any pushing of buttons. (Our correspondents have not told us how this is done!) Just inside the door of each executive's office is a telephone dial. An official who visits another office than his own ticks off his own number as he enters, thus informing the telephone operator of his whereabouts.

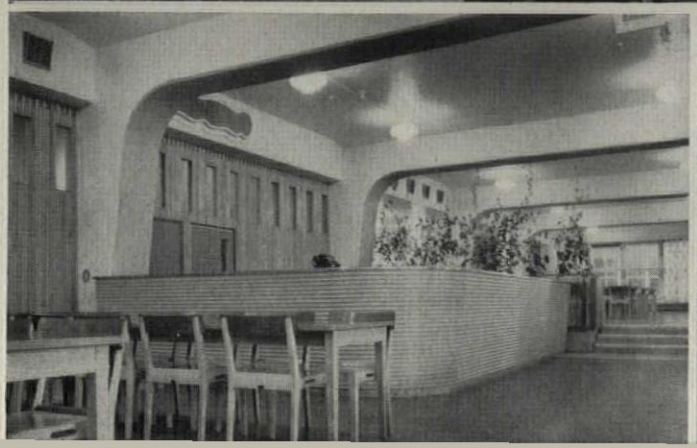
Cooperating with the architect were Astrid Sampe-Hultberg, textile designer who designed and installed fabrics; and Ewald Dahlskog, who designed an intarsia mural in the board room. Photo above is of the lecture room which has a projection booth and is acoustically designed.



At left, site plan, showing community facilities provided. By utilizing natural ground slope and blasting parts of the rocky site, a subterranean portion of the building was made possible. This contains storage room, air raid shelters, a garage, and dressing rooms for employees; elevators and stairs take them to their work.

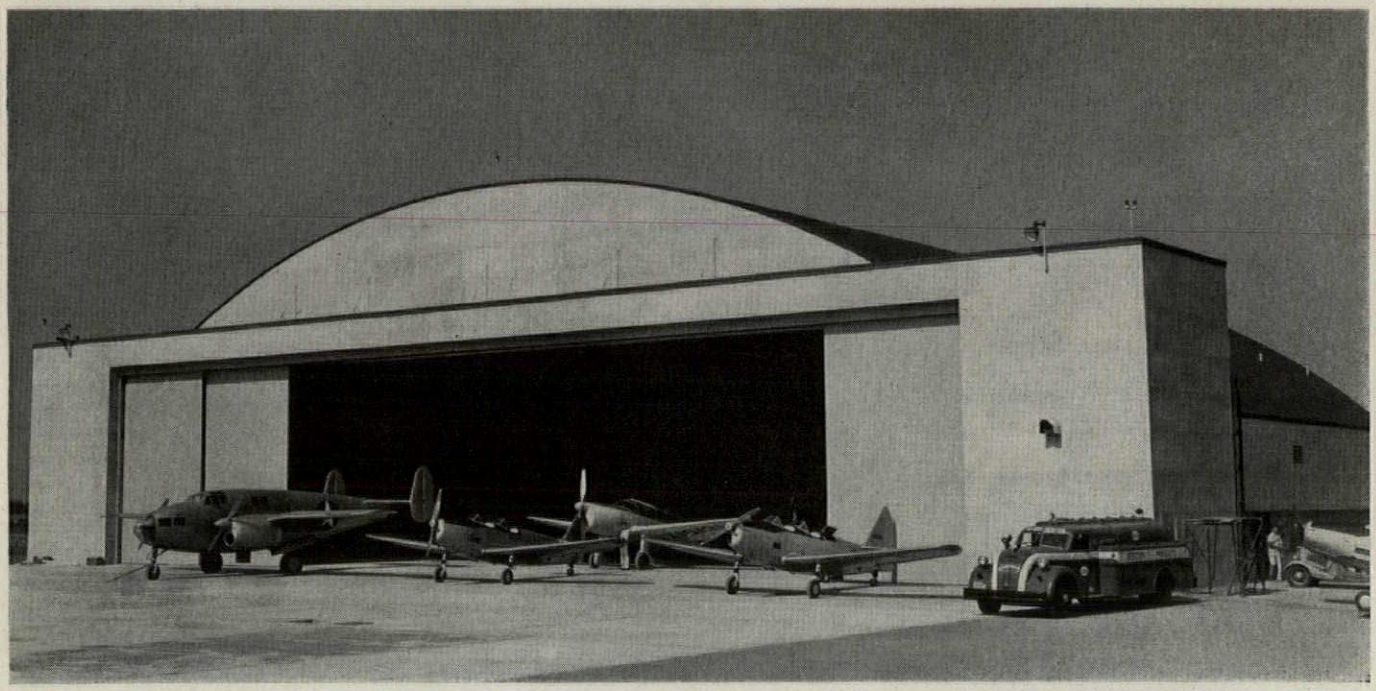
Photos below: top row, left to right: Main entrance hall, executives' floor, with serpentine desk and cylindrical glass telephone kiosk for visitors; 300-ft.-long drafting room. Center row left, executives' lounge with free-standing fireplace; right, executives' dining room. Bottom row, left and right, two views of employes' dining rooms—two rooms which can be thrown together by a sliding partition, and which feed 4,000 employees daily.

Photos: Nordiska Kompaniet, by Holmén, from Korch



Wood Hangar, Hagerstown, Md.

Albert Kahn Associated Architects and Engineers, Inc.



Completed Fairchild planes now roll out the factory doors into an unusual wooden hangar which has just been completed near the main assembly plant of Fairchild Aircraft Division of Fairchild Engine and Airplane Corporation on the municipal airport at Hagerstown, Maryland. Believed to be one of the largest of its kind in the country, this hangar has been built of laminated yellow pine arches, measuring 170 feet across. It is 120 feet long.

Every conceivable convenience, commensurate with war-time economy, has been incorporated into the structure. With a capacity of 35 Fairchild PT-19 trainers, provision has also been made for a flight test office, airplane and engine shop, parts stockroom, Army Air Forces inspection office, Air Transport Command dispatching office, pilots' lounges for both men and women, ready room, showers and rest rooms. These quarters have been built into a two-story structure which forms the north side of the building. For servicing planes in the large hangar there have been built into the concrete floor three parallel ducts carrying 110, 220 volt and hi-cycle current as well as compressed air lines. These lines are accessible from any part of the floor. Steam heat is piped into the building from the main plant. Air is pulled up through steam heated radiators and dispersed by large blower units, thus converting strong steam heat to temperate heated air. Direct incandescent lighting is used for general illumination with portable fluorescent fixtures available on the floor for detailed work on planes whenever needed.

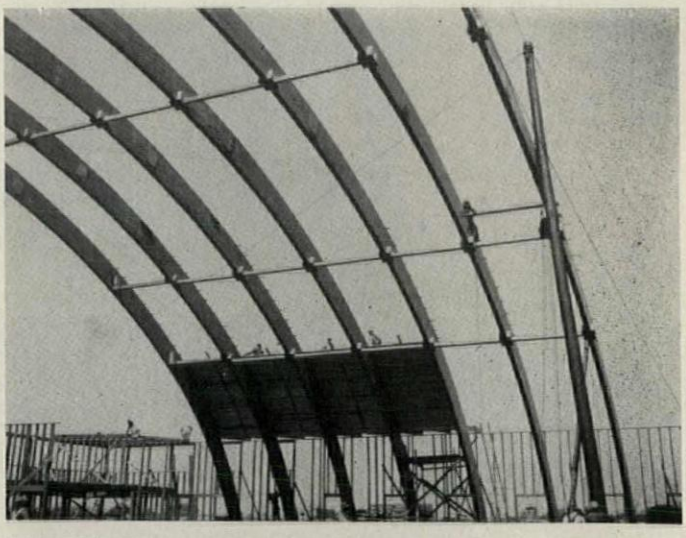
The Fairchild hangar contains many innovations in construction plus some new uses of pre-war building practices. The bottoms of the arches are joined by 1″ rods. Strips of 1″ x 8″ yellow pine, laminated and glued, form huge arches. Each arch has 48 of these strips, which were built up as a unit from the inside radius to the outside in large jigs. Each arch consists of four sections which are butt-joined and held in place by four metal splice plates 5/16″ thick. The maximum height of the arches is 48 feet along the center of the building. Arches are placed 10 feet apart and are covered with 2-inch tongue-and-groove lumber, which in turn is surfaced with asphalted sheets, gravel-finished for protection.

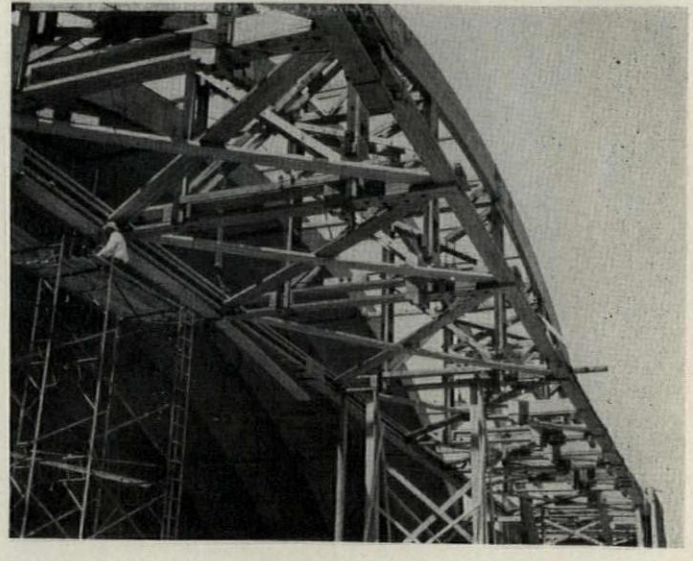
Wood studs, size 2″ x 6″, frame the sides of the building, are covered with vapor-sealed insulation board. Asbestos sheets, ¼″ thick, butted along vertical joints and lapped horizontally, form the outside surface of the sides.

Horizontal wind and racking loads are taken up by a large truss built into the foremost bay of the hangar. To the bottom of this truss at the front are attached the door guides. The doors, designed by Fairchild engineers, are each 17′ x 27′ and are made of a series of ¾″ x 5¾″ vertical and horizontal members, covered by ⅜″ plywood, glued and nailed to both sides of the frames. Doors operate on rollers over tracks embedded in the concrete floor and are manually opened and closed. When open, the eight doors are in "pockets" at either side of the front of the building. Ten red obstruction lights are placed along the roof and on the top sides of the hangar.

A concrete apron in front of the building, 170′ x 130′, is used as a storage and service location. It has steel tiedown rings embedded in cement and outlets for electric current.

This type of construction uses less material in the roof support and permits a greater span.





Photos on facing page: top, completed hangar; bottom, structure nearly complete. This page: top, erecting the laminated wood arches in four sections each; center, roofing of 2-in. tongued-and-grooved lumber being placed on the arches; bottom, rigid truss in front bay to take wind and racking loads.

Discussions on Urbanism

This is the seventh installment of the reports of seminar discussions held by the Planning and Housing Divisions, School of Architecture, Columbia University. Concluding installments will be published later.

14 Urban Redevelopment, by Carl S. Stern, Lawyer; Counsel for Long Island State Park Commission, State Board of Housing; Board of Directors, Citizen's Housing Council; Member Committee on Slum Clearance; Chairman of legislative subcommittee drafting New York Housing Authority Act.

Continued from the August issue

We may pause for a moment to consider the methods of control. Control over projects may be continuing, like the control public utility commissions have over public utility companies, railroads, and telephone and radio companies. Or it may be embodied in a contract which redevelopment companies undertaking a particular project may make with a local community. In the recently passed amendment to the Redevelopment Companies Act, New York has provided for the ownership and operation of a project by a redevelopment company, which is subject to a certain amount of regulation. But the Act provides that if the redevelopment company surrenders its tax exemption, and pays back the taxes saved, or if the tax exemption comes to an end, the restrictions on its operation in the public interest cease unless otherwise provided by contract with the city. In short, here is a concern that is only partially run on the public utility principle but may step out from regulation upon termination of tax exemption.

The Redevelopment Companies Act as amended provides for the use of a contract with the community as the method of regulation. It seems to me that this form of regulation is to some extent illusory. It protects neither the company nor the public. The project is subject to the police power of the State. If the practices of a redevelopment company dealing with large numbers of people should cease to be in accordance with the mores of the community, the State might change the situation by legislation affecting all publicly aided projects. Nor is the contract system good for the community, for since change is the only thing that is certain, vital interests of the community may be adversely affected if the community is straight-jacketed by an ill-advised contract. The continuing power of regulation is the most effective way to insure operation in the public interest.

Primary in the considerations of urban redevelopment is the problem of the assemblage of land. This may be divided into two major questions: the assembly of parcels of land and the clearance of the site; and land costs or values.

It it rare to find contiguous pieces of land all ready for development. It is more common to find a pattern in which good and bad buildings alternate in the same area, and where very few parcels are under single ownership. In order to insure a satisfactory area for clearance and development it will be necessary to acquire parcels of land. In order to insure acquisition there must be available the power to take by eminent domain.

Limitations on the power of eminent domain are twofold: those imposed by the Constitution of the United States and those imposed by State Constitutions. Under both, land may be taken only for a public use and upon payment of just compensation. We may assume that clearing up blighted areas is a public use, and that if taking land furthers the harmonious development of a city, it will be sustained as a taking for public use.

But under the Constitution of the State of New York, there is a different question. The New York constitution allows the Legislature to grant the power of eminent domain "to any city . . . to any public corporation, and to any corporation regulated by law as to rents, profits, dividends, and disposition of its property or franchises, and engaged in providing housing facilities." In so doing it has followed a pattern heretofore known, of granting the power of eminent domain to public bodies *and* to *public utility corporations*. If the Redevelopment Companies Act had granted the power of eminent domain to a corporation that was not limited as to rents, profits and dividends, the law would be in this respect unconstitutional. If it had granted it to a corporation that could immediately step out of the restrictions, a serious question would be raised whether this was a proper case for delegating the power of eminent domain. The Act grants the power of condemnation to the City. For the City to exercise that power for the benefit of a concern that is not subject to regulation, or that can step from under regulation at any time, will undoubtedly raise a question that the courts must settle. This is particularly serious under the amendment to the Redevelopment Companies Act, for the amendment makes redevelopment under the Act a "superior public use"—that is, the city may condemn for the redevelopment company property already employed for a public purpose such as school buildings, railroads, and the like. Regardless of the decision of the courts, the question still remains whether it is a sound public precedent to have the power of eminent domain used to create private housing projects that may be a law unto themselves. Gramercy Park, the only private park in New York, is a delightful spot. But there would undoubtedly be great public clamor if eminent domain were to be used to create another Gramercy Park.

Many people feel that the rehabilitation of cities is rendered difficult if not impossible because land costs "are so high that redevelopment for private or public use is out of the question." And in the Uthwatt report it is stated that the cost of sites is so great as to prohibit "their use for the erection of working class houses" other than by subsidized projects.

There is no question that the price tags placed on land by New York City, through assessed valuations, are high. Frequently they are out of proportion to their market or any economic value. The Real Estate Board in a statement published in 1942 said that in New York City there were 2,417 sales at an average of 63.8% of their assessed value. In private conversation with an official of one of the large savings banks, I was told that recently their average sales for cash were at 47% of the assessed value. The New York Sun frequently records sales of parcels at less than 47% of the assessed value.

In reorganizing corporations under modern methods, the Court would simply squeeze out the water—that is, the difference between the capitalization and the sound economic value of the property of the corporation in reorganization. It did this recently in the second reorganization within a generation of the Chicago, Milwaukee and St. Paul, where it wiped out not only the preferred stock and the common stock but, in addition, a hundred million dollars worth of bonds. When, however, we come to urban land values and the difference between economic value of land and its assessed valuation, we encounter a different problem. Professor Spengler spoke about the necessity for revising New York City's tax structure and has indicated possible methods of bringing tax assessments into line with reality. But until there are substantial modifications, anything like a realistic valuation of New York City real estate is likely to be impossible of achievement for many reasons.

(a). The greater part of the borrowing power of the city is limited to ten percent of assessed valuation. The city would be tremendously hampered by a reduction in assessed valuation since the kind of debts affected by the debt limit provisions are now $1,433,604,293 against an assessed valuation of $16,115,642,742.

(b). The city's current expenses other than debt service must be kept within two percent of assessed valuation. Since the city is now suspending 1.838% of the assessed valuation, if valuation were cut in half there would have to be a material cut in present expenditures.

(c). In the past, purchases and loans upon property were made with the assessed valuation in mind. These transactions have run into large figures. Many loans are held by insurance companies and savings banks.

(d). If an attempt is made in eminent domain proceedings to take a man's property, he is theoretically entitled only to the market value—what a willing purchaser will pay a willing seller. Now, despite sales at less than half the assessed valuation, the courts (in eminent domain proceedings) tend to have the award somewhat approach the assessed valuation. And they cannot be harshly criticized for this because the land owner has been paying taxes not upon values established by the current market, but upon a basis fixed by the community. It is one thing for a man to take a loss in U.S. Steel common; the community has had nothing officially to do with establishing its value. But the law requires the community to base tax assessments on the value of the property taxed, and it is on those assessments that the taxpayer makes his contribution to the city's support. It seems unlikely that if eminent domain is to be employed to acquire land, the price that the courts will require the purchaser to pay will be much less than the assessed valuation.

There are minor expedients that may keep the cost of land assemblage down. Communities may set up land reserves. Tax delinquent land may, under appropriate methods, be taken over by the city and exchanged for other land in areas sought to be developed. Something of this sort was done in Syracuse. Streets may be closed in exchange for private concessions. A police power strongly enforced may result in demolishing improper structures. Condemnation techniques may be somewhat improved and, in line with a recent decision of the Supreme Court, there may be, to some extent at least, values frozen as of the time a particular project is launched. Some people have fostered the idea that blighted areas should be permitted to rot their way out until they are so valueless that they can be taken for practically nothing. I question whether anyone can seriously make that suggestion as a practical matter.

The most radical and far-reaching suggestion is the Hansen-Greer proposal that local governments buy up blighted areas and slums by condemnation when necessary. Thereafter the communities would lease such land as was not required for public purposes to private or public enterprises for redevelopment in accordance with a master plan. Costs of acquisition would be kept as low as possible by the bargaining power of local governments or decisions of the courts in condemnation proceedings. But the proposal would ignore the cost of land in fixing the ground rents for the leased land. These rents would be based solely upon the estimated earning power of the land under the new lease. Assuming that local communities might be unable to raise the money to purchase the land, the proposal suggests that the federal government might advance money and be repaid solely out of the projects' earnings. If earnings were insufficient, the excess would be written off as the cost of remedying a national evil. As in the case of reorganizing private corporations, this program would involve writing down land values to their economic values in the projects affected. Unlike the reorganization of private corporations, whatever loss there is would be borne by the community instead of the individual owner. To the extent that the land owner would be over-paid, this would be a subsidy.

The methods to be adopted will depend upon the kind of development; whether the project is to be built by a private corporation, by a public utility company, or a public agency. The Uthwatt report looks to leasing land, not sale. Three plans much discussed in this country, the so-called Hansen-Greer plan, the FHA plan, and the Urban Land Institute plan, envisage creating a public agency which will acquire the land and will then either lease, as under the Hansen-Greer or FHA plans, or lease or sell as provided by the Urban Land Institute plan.

New York has implemented in its laws various possibilities. The result is something of a hodge-podge; laws with differing controls and controlling bodies govern public housing, limited dividend housing, and leasing by cities of their land, giving rights to regulated corporations, subject to certain controls, to mortgage the fee of the land. More recently there has been the Redevelopment Corporation Act which provides for owners in a particular neighborhood getting together and replanning their neighborhoods with certain compulsory powers over the neighbors who will not come in voluntarily. Finally there has been the Redevelopment Companies Act with the recent Hampton-Michell Amendment which looks to the handling of segments of redevelopment projects through corporations subject to some regulation.

Large amounts of public and private funds should be available for redevelopment purposes after the war. The national income will probably continue at a high level. It is unlikely that the colossal budget of the United States will drop to the prewar basis. Investing institutions will have funds seeking investments. Private concerns will have large reserves of capital. There will be substantial private savings.

The question of the form that financing will take will largely depend upon the methods adopted. There should be no difficulty in obtaining debt capital, the question of getting equity capital—the capital that will take risks—should be affected by the amount of controls over operations and profits. Controls may actually limit profits. If there are thorough controls it may be impossible to interest private concerns on a profit basis. But this does not eliminate private enterprise or private capital. Private architects and builders may be employed. Many projects may be leased or sold to concerns with few restrictions. Others, such as housing projects, may need more thoroughgoing controls. It is conceivable that equity capital may be furnished by municipalities as, for example, is done in public housing developments where the project is owned by the housing authority and only the debt securities are sold to the public. There have been suggestions that if private capital be employed it come in on an investment, not a speculative, basis, and that a certain small return be guaranteed with the possibility of limited earnings in excess however of the guaranteed return.

Urban development can be achieved only if the public is determined to have it. If there is such a determination, no real obstacles will stand in the way. We have no adequate statistics as to cost. Investigation may show that a substantial part of the cost can be amortized out of economic savings that may be achieved by redevelopment. But if communities are determined that their future life and the health of their citizens demand substantial reconstruction of the community, it is unlikely that cost alone will be an insuperable obstacle. People go to great lengths to obtain what they have determined they need. The Maginot Line is said to have cost $500,000,000. In February,

Discussions on Urbanism

1943, the New York Times stated that the present war was costing the United States over $253,000,000 a day.

Perhaps public opinion can not be crystallized until a committee of Congress, or some public body, makes the kind of public investigation and report that has preceded other great reforms such as that in the insurance industry, railroads, and public utilities. The Urban Land Institute, an off-shoot of the National Association of Real Estate Boards, recently urged Congress to establish a committee to study proposals for postwar urban redevelopment, and Senator Taft has introduced a resolution asking for a committee to study the work of the NHA and to recommend a program of postwar activity in housing.

An authoritative study and report that will do for America what the Uthwatt report may do for England, crystallize public sentiment, would be the surest foundation for a real program instead of mere patchwork plans which tend to perpetuate or repeat errors of the past.

The accompanying charts were compiled by the author, Carl S. Stern, and were found to be extremely valuable in the course of the seminars at Columbia University. The Editors are grateful for permission to include them here.

CURRENT PROPOSALS FOR POSTWAR REDEVELOPMENT OF BLIGHTED AREAS (1943)

(From The Urban Land Institute, Washington, D.C., News Bulletin No. 8, August 1, 1943)

	Urban Land Institute Plan	Greer-Hansen Plan	F.H.A. Handbook Plan
Land Acquisition	By a "local land commission" operating under a federal charter, with state sanction, having power of eminent domain, with authority to reconvey properties for private redevelopment.	By "the local government" under state authority to assemble land for private redevelopment through the power of eminent domain when necessary. (An unspecified type of local agency is contemplated.)	By a "city realty corporation," a corporate arm of the city, authorized by state law to acquire land for lease to approved private redevelopment corporations.
Jurisdiction of Land Assembly Agency	The metropolitan area as defined by the U. S. Bureau of the Census.	The metropolitan area.	The urbanized area.
Funds for Land Purchase	Federal loan to the local land commission.	Federal advances to the city.	Funds derived from sale of properties taken for tax delinquency, and funds borrowed by the city realty corporation (against credit of property acquired, and not against general credit of the city).*
Cooperating Federal Agency	A "federal urban land commission" established within the National Housing Agency.	National Resources Planning Board and National Housing Agency in planning matters. "Appropriate federal agency" in financial assistance.	Various agencies of the federal government.
Reconveyance of Land for Private Redevelopment	By sale or lease to private builders or redevelopment companies.	By leasing to private enterprise.	By lease to redevelopment corporations.
Planning for Redevelopment:	Redevelopment in accordance with a master plan.	Redevelopment in accordance with a master plan.	Redevelopment in accordance with a master plan.
Funds for Planning	Local funds supplemented by grants from the Federal Urban Land Commission.	Advances and technical aid for planning when necessary.	Local funds.
Area to be Planned	Metropolitan area as defined by the U. S. Bureau of the Census.	Metropolitan area as determined for each city.	Metropolitan area.
Administration of Plan	Over metropolitan area.	Over metropolitan area.	Within corporate boundaries of city.
Planning Agency	Local land commission.	Metropolitan planning commission.	City planning commission.
Taxation of Redeveloped Properties	Land sold, and leasehold value of land leased by the federal land commission, and all improvements to be taxed at the prevailing city rate; assessed values of land sold and leased by the commission to be on the basis of reconstituted use values.	Improvements to be taxed; ground rents for land would include payments to the city equivalent to taxes.	The city realty corporation would "pay taxes on property that produces revenue."

*The realty corporation could also act on behalf of the city "in making fiduciary and other contracts with agencies of the state and federal government, relating to the acquisition and financing of sites duly selected for rehabilitation."

Each of the three plans contemplates that:
The local land assembly agency will acquire land for public purposes, as well as for private redevelopment.

In reconveying land for private redevelopment the local agency will have authority to disregard acquisition value when the establishment at a lower value is necessary to put the land to its most beneficial and appropriate use.

Redevelopment will be governed by adequate safeguards and controls exercised by both federal and local authorities.

ANALYSIS OF NEW YORK STATE LAWS RELATIVE TO URBAN REDEVELOPMENT (1943)

	HOUSING AUTHORITY	HOUSING COMPANIES	REDEVELOPMENT CORPORATIONS	REDEVELOPMENT COMPANIES
GENERAL POWERS	To provide for low cost housing: erect, operate, maintain, including offices, social, recreational, communal, or other non-housing facilities deemed appurtenant.	To provide for low cost housing: acquire, construct, maintain, and operate, including very limited commenal facilities.	To clear, replan, rehabilitate, or reconstruct substandard or insanitary area, including erection of industrial, commercial, residential, or public tructures and facilities deemed appurtenant.	To clear, replan, reconstruct, modernize substandard and insanitary areas; and provide adequate, safe, and properly planned dwelling accommodations and such business, commercial, cultural, or recreational facilities deemed appurtenant.
LIMITATIONS ON EARNINGS		6% on stocks and debentures. (5% on mortgages).	Maximum earnings 5% of redevelopment costs.[1]	6% of development costs.[1]
LIMITATIONS ON RENTS	Authority limits rentals to make applicable to income groups not supplied by private enterprise.	Maximum rentals prescribed in the law.	To be approved in redevelopment plan.	Regulated by contract with city.[2]
WHO PLANS	Planning commission or the local legislative body.	The company with approval of State Commissioner of Housing and in conformity with planning, zoning, sanitary, or building laws of the municipality.	Planning commission.	Planning commission or local legislative body. (In New York City, the planning commission.)
WHO CONTROLS	Authority, with criticism and suggestion of State Commissioner of Housing who must approve changes in project.	State Commissioner of Housing, who has right of designee on board of housing company.	Supervising agency (in New York City, Board of Estimate) who has right of designee on board of redevelopment corporation.	Supervising agency (in New York City, (a) Comptroller or (b) — if equity securities issued to insurance companies — Superintendent of Insurance).[2]*
CONTROL OVER OPERATION		Commissioner has control over tenant selection, salaries, accounting, contracts for maintenance, etc.	Supervising agency and planning commission may set certain standards. Salaries limited by plan; rentals to be approved in plan; supervising agency controls accounting provisions.	Control over contracts for salaries, construction contracts and improvements or operation, accounting and operation practices.[2] Control over rentals, regulated by contract.[2]
WHO MAY INVEST IN EQUITY SECURITIES	(Housing Authority may sell bonds.)	Insurance companies provided all stock has been issued to insurance companies. Savings banks — if all stock has been issued to savings banks and if not more than 3% of the assets of the bank.	Insurance companies and banks may sell any real property in the area developed by the corporation and take stock in exchange.	Insurance companies and savings banks may sell any real property within area developed by the company and take stock in exchange. Insurance companies may own the stock of a redevelopment company.
CAPITAL STRUCTURE		Mortgage money up to 66⅔%. Equity securities must equal at least 33⅓%.	No restriction on size of mortgage. First lien mortgages legal for savings banks and insurance companies.	No restriction on size of mortgage. First lien mortgages up to 80% are legal for savings banks and insurance companies. Equity securities must equal at least 20%.
CONDEMNATION[4]	By authority.[5] By the city, on petition from the authority.	By housing company on certificate from commissioner.	By corporation,[6] on certificate of approval of condemnation by supervising agency. By city[5] on certificate of approval of condemnation by supervising agency.	By city.[5] and[6]
TAX EXEMPTION	Projects except state projects are tax exempt but city may fix or agree to sum to be paid in lieu of taxes. State projects: value of property over assessed valuation is exempt.[3] Maximum — 50 years.	Projects completed before 1939 may be exempt from local taxes. Projects completed 1939-1949: cities may exempt to extent of increase over assessed valuation.[7] Maximum — 50 years.	Projects may be exempt from any increase over assessed valuation for ten years.	Property may be exempted from any increase over assessed valuation for twenty-five years.

*Planning commission — approval of plan.

[1]Under a cost-plus 5% or 6% provision, the earnings may be substantially in excess of 5% or 6% of capital investment in the event that mortgage and equity money are not supplied by the same person.

[2]Where the insurance company wholly owns the securities of the redevelopment company, control is regulated by contract with the city under the Superintendent of Insurance and not under the supervising agency. All controls cease on approval of the contract except those provided for by contract. All controls cease under supervising agency or contract on expiration of term specified in contract or election by company to pay back prior tax benefits received.

[3]Until December 1, 1943 insurance company may purchase land and erect dwelling facilities thereon, not subject to control of any state or municipal agency. (Parkchester was erected under this law.)

[4]Under the Constitution the legislature is authorized to "grant the power of eminent domain to any city, town, or village, to any public group, and to any group regulated by law as to rents, profits, dividends, and disposition of its property or franchises and engaged in providing housing facilities."

[5]Award of condemnation is not to be increased by any increase in value because of construction or proposed reconstruction of the area.

[6]Where public land is to be condemned, the use by a redevelopment company is deemed a superior public use.

[7]Maximum assessable limit in state project — actual cost of project.