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TIPS ON TOMORROW *from* TEXAS

★ Probably the most recently completed of all skyscrapers is the new Mercantile Bank Building in Dallas, Texas.

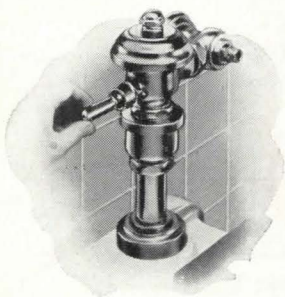
Designed to anticipate the banking needs and the requirements of modern business for years to come in a lusty, growing city, this new skyscraper has been termed by some "the building of tomorrow".

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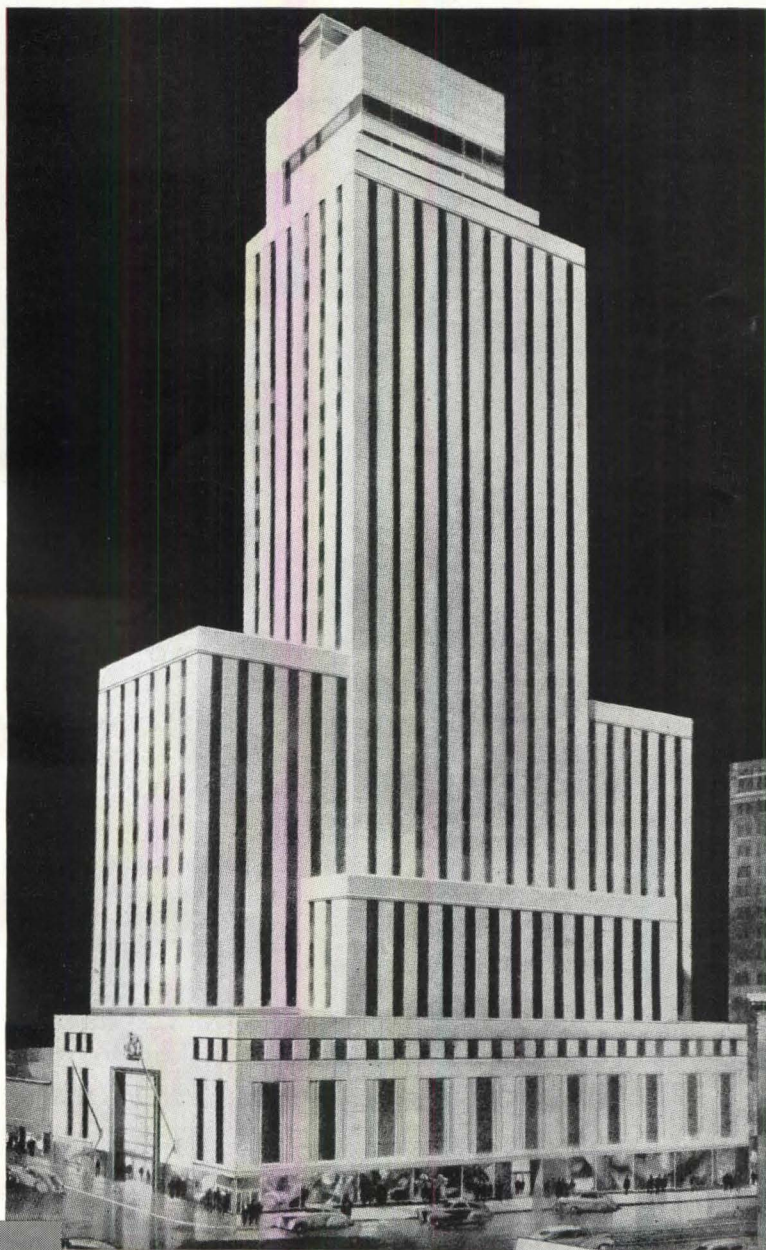
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THE RECORD REPORTS

**Postwar Plans • Lewis Committee • Farm Building First?
Graduated Plan • What About Lumber? • Slum Clearance
Subsidies • More NHA Building • Calls for Architects**

FOR MONTHS, Washington lawyers, publicity men and association secretaries have been taxi-ing to the Social Security Building, giving WPB officials carefully drawn plans for restarting their industries after the collapse of Germany. Sometimes, they give copies to a few friendly Congressmen. The plans usually are "confidential," perhaps because they attract more attention that way, but more likely because the word has become a routine stamp of responsibility.

What the WPB officials say when they get these plans is, like White House conversation, never quoted directly, but only paraphrased. Donald Nelson himself has the sentence, "Your suggestion will receive the most sympathetic attention," which may have filtered down. Somehow, many people are complacently telling friends that their plans are "as good as accepted."

Lewis Committee

For the building industry, this goes on mostly through Harlow Lewis' Facilities Bureau committee, to decide what kind of building should come first. The industry's group includes representatives of the many branches of construction, each reporting separately to his constituents, while WPB itself can take no official cognizance of the fact that the industry's committee exists. Naturally, reports on what, if anything, has been decided fail to jibe. Members agree at least that when civilian production is allowed, building should come forward quickly as an industrial leader.

Farm Building First?

One idea is that farm building take precedence in types of *new* buildings. Before there are new urban homes, new apartments, and post offices, the farmers would put up barns, silos and, perhaps, houses. The supporting argument is reasonably plausible: the farmers habitually do a great deal of building themselves without hiring additional labor. If they are given first priority, so to speak, on building materials, they will not have to rob war plants of workers. A similar purpose is expressed in the suggestion that construction be prohibited only in the areas where labor is tight; this is just

the opposite of present practice of building in war production communities.

Graduated Plan

Robinson Newcomb, of WPB's statistical staff, is credited with a proposal which, apparently, is acceptable in a general way but not in detail to the committee. It covers exclusively the relaxing of restrictions after the European war ends and war contracts have been cancelled. L-41 would be loosened on smaller but not on larger jobs. Jobs below some figure, say \$3,000, would be allowed under a blanket rule. Those between \$3,000 and \$10,000 would be allowed, but the contractors would have to report materials used, workers employed, etc. Building between \$10,000 and \$100,000 would be permitted on the word of regional officials. Larger jobs, finally, would have to be cleared in Washington. Criteria for clearance would include the usual things: proof of need, ability of workers, etc. By degrees, restrictions on larger jobs would be removed.

According to some committee members, this is but a partial description. It is, they say, an accurate enough fragment of a much broader plan whose nature, unfortunately, is not vouch-

safed; presumably it takes in the general disposition of materials until they become plentiful.

Product of Negotiation

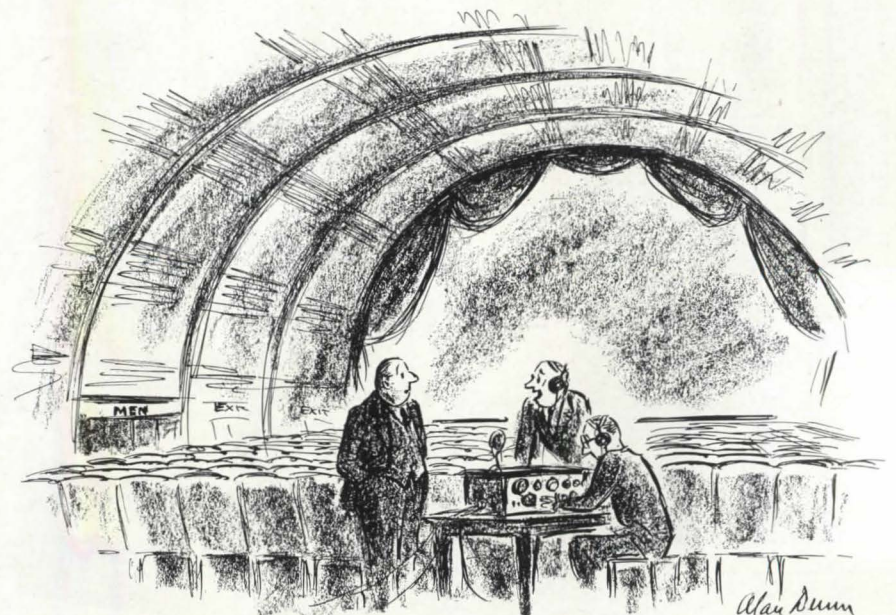
The plan soothes existing animosities so aptly without exciting new ones and, in form, gives so much to those whose feelings are ruffled, without new injury to the others, as to suggest that it is the product of negotiation rather than of solitary authorship. The idea is to get small builders, who have had nothing whatever to do for a long time and whose organizations have been dissipated, back to work first. Automatic clearance up to \$10,000 does that. Moreover, the small builders gripe most bitterly when they must fill out government forms; no reporting on jobs up to \$3,000, consisting presumably of repairs, satisfies that point.

The relief given to the smaller contractors, moreover, would not materially injure their larger competitors. First, the number of those who have survived and are ready to take on small jobs is too small to affect the market. Second, restrictions on larger jobs would be removed as soon as possible.

Fits Politics

The plan, additionally, fits easily into the immediate political atmosphere. In Congress, for example, much is being made at the moment of the plight of, and sorry future for, small business, and there are repeated professions of intentions to help. Maury Maverick, who became the head of the Smaller War Plants Corporation a few months ago, is one of the few executive officials

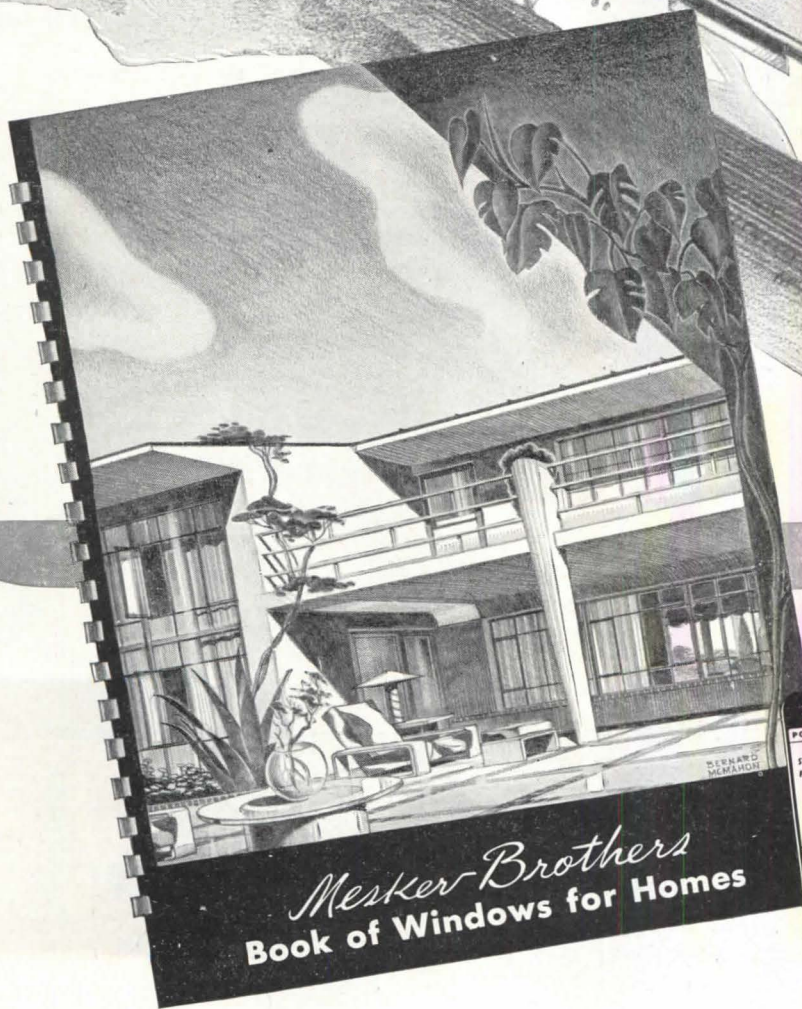
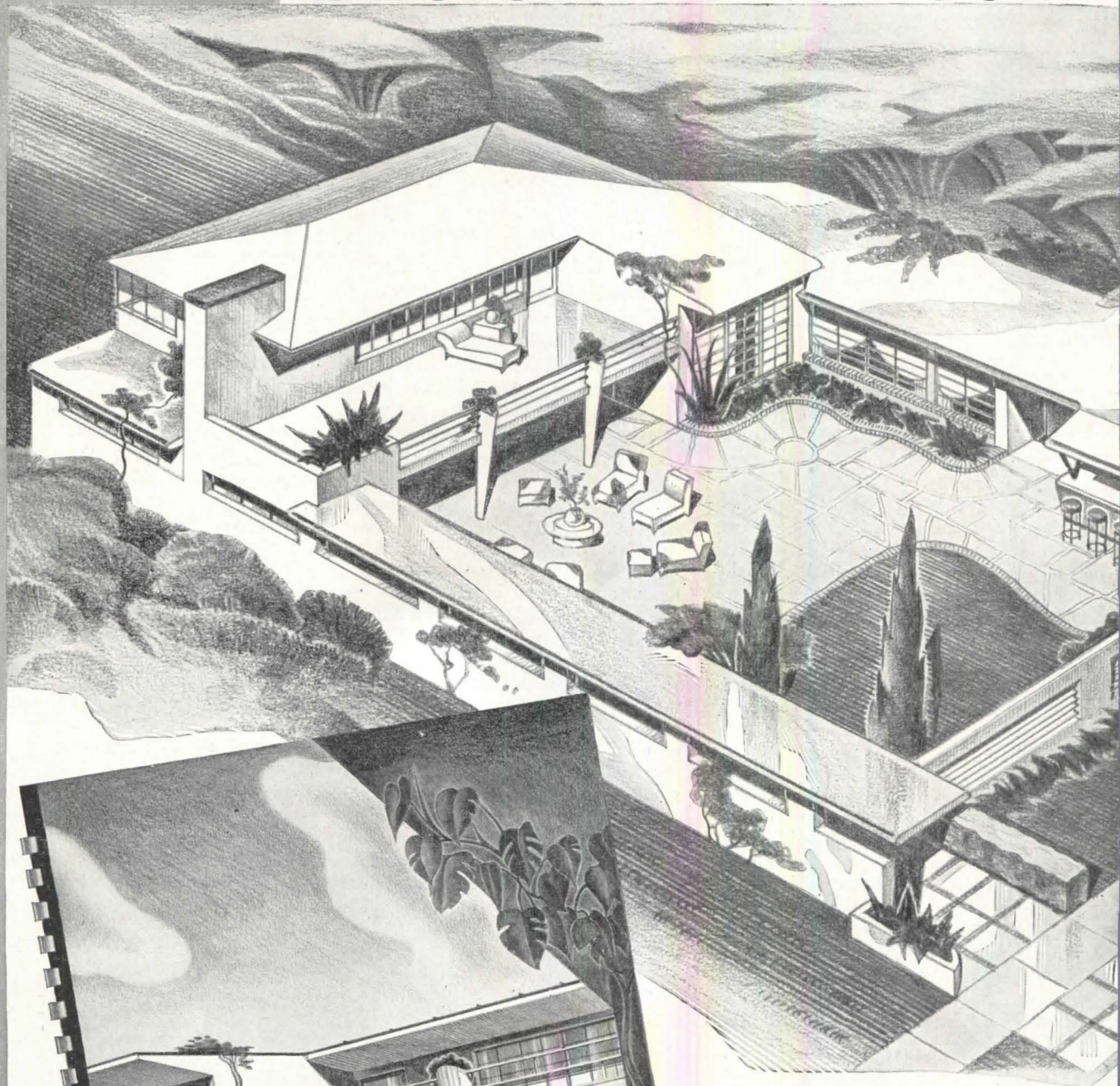
(Continued on page 10)



"It's those decibels from the room behind you that we're trying to eliminate."

—Drawn for the RECORD by Alan Dunn

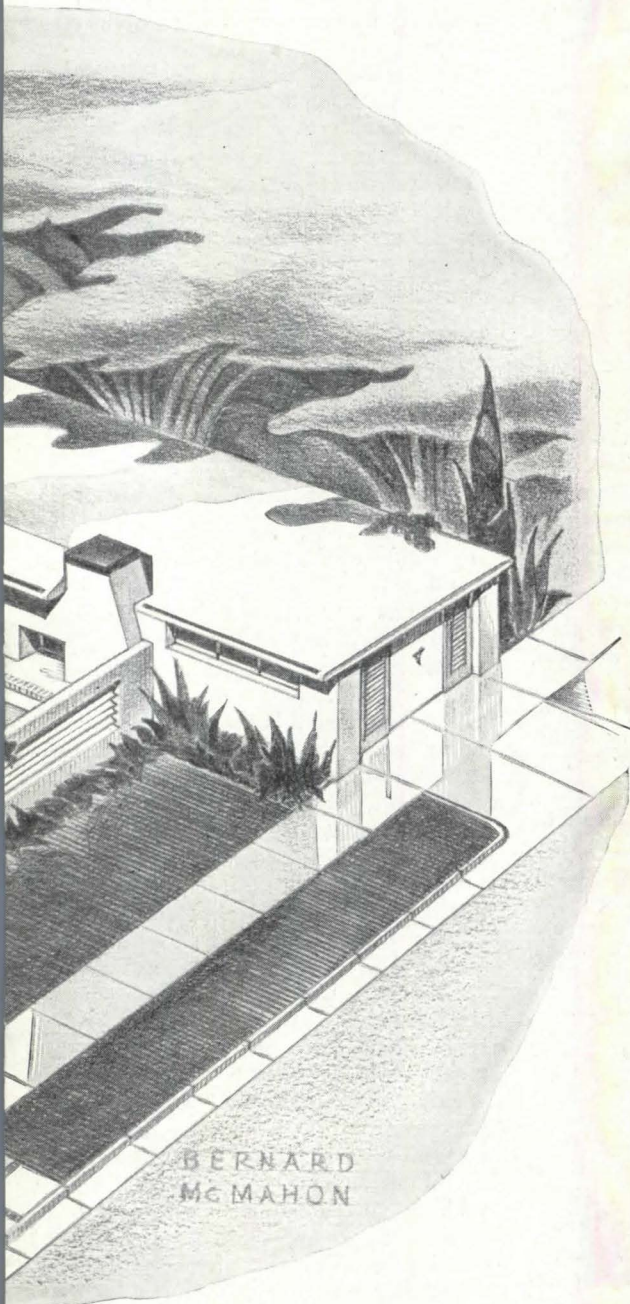
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MESKER	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	85%
SASH-A	YES	YES	NO	NO	YES	NO	YES	NO	YES	YES	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	50%
SASH-B	NO	NO	NO	NO	NO	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	25%
SASH-C	NO	NO	NO	NO	NO	YES	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	YES	YES	NO	30%
SASH-D	NO	NO	NO	NO	NO	NO	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	YES	YES	NO	35%
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genuinely popular in Congress. Maverick's staff and the staffs of two Congressional committees study everything coming from the agencies with an eye to effects on small business.

Evidently, the plan has been sanctioned by the Lewis committee but it cannot be said that it has gone beyond that. In government, there are a great many hurdles. Within WPB alone, the plan, to be realized, must clear through a multitude of divisions and bureaus, each of which may be critical. Finally, it must go before the board itself. Because construction is a major industry whose early reconversion might be eyed jealously by other industries, hesitation, at each step, seems more probable than speedy decision.

The first hurdle will probably be the Office of Civilian Requirements of WPB. Former OCR Chairman, White-side, helped to organize Lewis' committee, but he is gone. There will be some conferences with the new chief to enlist his support. If OCR gives housing a leading place on its list of essential civilian goods, something, although not very much, will have been accomplished. If, on the other hand, it puts housing far down, the battle may be lost.

What About Lumber?

This plan, or others like it, may be deferred indefinitely by the lumber shortage. The hope is, of course, that after victory in Europe, the main bottleneck—shortage of logging camp workers—will be smashed. Meanwhile, members of the lumber division are understandably irritated as new plans unfold for resuming construction. Again and again, they assert more emphatically what they have been saying for a year, "Lumber is and will be tight." New restrictions on uses are being drafted and circulated—for instance, the direct allocation of packing lumber to the Armed Services. There will be periodic releases on the subject. Naturally, the building people would like to find substitutes. In conversation, some of them, as in a trance, repeat, "Tile floors? Steel rafters?"

Other than lumber, the only important shortage is that of refrigerators. These could be assembled easily enough but for the lack of motors. On other fixtures, WPB policy is still to improve quality before permitting substantial increases in quantities.

Standardized Products

The building materials companies are keenly interested in preserving the more economical methods forced by the

war. They want to produce components in fewer standard sizes and shapes. Producers' Council, whose directors just held an annual meeting, goes further. It is pressing the idea of standard combinations of the various components; for example, a particular size of brick would be coordinated with a particular style of window frame. It is working up its campaign with American Institute of Architects, the P.C. to educate the manufacturers and the A.I.A. to educate the designers.

Sponsors urge that advantages will accrue throughout the industry. With fewer styles, manufacturers can turn out their wares faster and at less cost. Since they will need to carry fewer varieties of stock materials, jobbers will save overhead. Builders themselves will be able to secure faster deliveries. The cash savings, it is forecast, will be passed along to the home buyer so that, by tapping lower income markets, builders will increase volume.

The idea of standardizing components has been pressed in every industry since the war started. It is embodied now in countless WPB orders which are based on specifications drafted by American Standards Association. Through their encouragement of assembly-line techniques which require expensive equipment, greater use of standard designs should bring more business to the large companies, which are likely to urge it in every field.

Slum Clearance Subsidies

The campaign against federal subsidies for slum clearance seems to have petered out but its promoters say that they are merely digging in before their next offensive. This, like the last, will consist largely of presentations before Congressional committees, particularly those charged with watching over Washington, D. C., housing conditions.

The case put before Congress did not go over too well. Joseph Deckman, chairman of the housing committee of the D. C. Federation of Community Associations, and James C. Wilkes, Counsel for the National Association of Home Builders, made sweeping allegations of wastefulness in government building, claiming that private builders could do better at lower costs. This led into complicated cost comparisons during which the two sides never seemed to be talking about the same thing. Builders were indignant that government rentals were lower than private, partly by virtue of smaller depreciation charges; government men countered that their depreciation requirements in fact were lower since

their houses were twice as durable as those built privately. They had to be more durable because they were financed differently. Private builders doubted both that the government houses were as solid as claimed and that it was sensible to build for several generations. There was similar long-winded wrangling over each item of cost, interrupted irregularly by indignant outbursts that government building leads to communism.

Most strange was failure of the private builders to state clearly their actual grievances, to show why they feared being squeezed out by federal slum clearance programs. Analysis of the testimony of Clark Daniel, Washington builder, shows that it sums up, substantially, to this calculation:

Postwar Assumptions

After the war, practically all housing will be of the low-cost variety. The trend to small family units, high property taxes and other factors suggest that there will be little building of large expensive houses. On the other hand, there will be a large demand for low unit cost homes, both in the single house and in the apartment field. The demobilization of 11,000,000 soldiers and sailors, most of whom either will find or return to wives, points immediately to a vast demand for small homes. Civilians, moreover, either will take up new homes in war communities or move away, resettling somewhere else.

Given the large and almost exclusive demand for low-cost units, the small builders do not want government competition. They are asked whether they cannot do as well as large contractors in bidding for the government jobs. The answer is typical of all small business in dealings with the government. It is much harder for them to meet the lengthy and exacting specifications of the government, they say, than it is for a large concern. They lack the staffs to interpret the specifications. They lack the capital to dare risk going wrong. Undoubtedly, in a field like real estate, there are also some whose recurring income includes slight departures from specifications.

Congressional Reaction

Such a complaint, if expressed simply, would have had a good reception in Congress. For one thing, several Congressmen make a hobby of attacking government forms. For them, this would have been one more case illustrative of the general thesis that government is too technical, too inflexible and too fussy.

Builders themselves are not certain
(Continued on page 12)

Glowing predictions have been advanced suggesting that, shortly, we shall live in a "plastic" world. Our homes—our cars—even our clothes—will stem from these "magical" materials.

Enthusiasm for the broad usefulness and the growing application of plastics is, of course, justifiable—but, such enthusiasm must be tempered with realism. Plastics are man-made, resulting from our advances in chemical knowledge. But, like all other structural substances, plastics possess their limitations as well as their virtues.

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In the postwar years we shall see a tremendous



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(Continued from page 10)

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of how they would react to a proposal for revising specifications on their behalf. Because a government official at present cannot choose one bidder rather than another unless he can defend his choice precisely in terms of a regulation, such revision is necessary, apparently, to open the field to small bidders. Possibly standards could be set up under which builders able to demonstrate responsibility might be allowed more flexible specifications.

Regardless of specifications, many of the small builders object to government housing anyway. These are the speculative builders who want selling profits on their work and not contractors' fees. They are injured by any constructional large development, whether by government or the insurance companies. At the moment, they are not fighting the insurance companies.

More NHA Building

National Housing Agency, which supposed that its war housing would be complete by the end of June, now contemplates more building, chiefly on the west coast. It needs about \$200,000,000, with about half to cover the insurance of privately built houses under existing programs and the rest to cover temporary war housing.

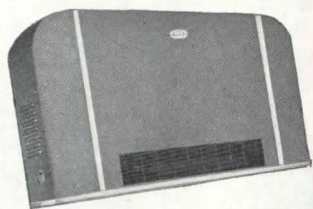
The Budget Bureau slashed this to \$100,000,000, submitting the reduced request to Congress. NHA also proposed to use \$45,000,000 to house the families of Navy men and \$25,000,000 for resumed war housing under the Lanham Act. The \$45,000,000 was cut out entirely by the Budget Bureau and the \$25,000,000 reduced to \$15,000,000.

The additional war building will detract from the amount of construction allowed, under the recent agreement with WPB, to relieve congested cities. The request for materials for such building has not yet gone to WPB.

Calls for Architects

In almost every Washington agency there are stories galore of new retainers for architects and engineers by the largest industrial companies. A big rubber company, for instance, is making up its blueprints for postwar rubber heels and tires. The same kind of blueprinting goes on in other big industries. On the other hand, there has been a drift to Washington of architects who had been looking over the Latin American field. They report that the field is rich enough but that the Latin Americans will hire only

(Continued on page 110)



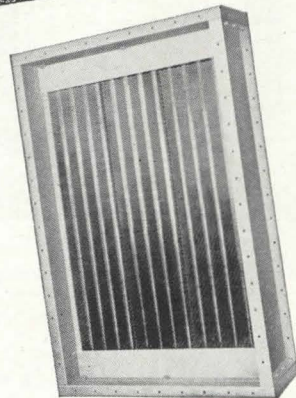
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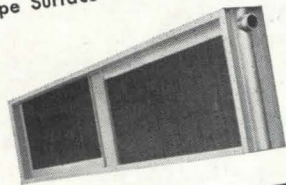
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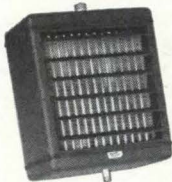


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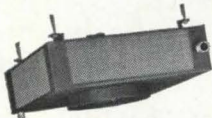
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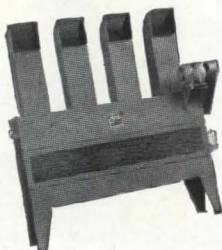
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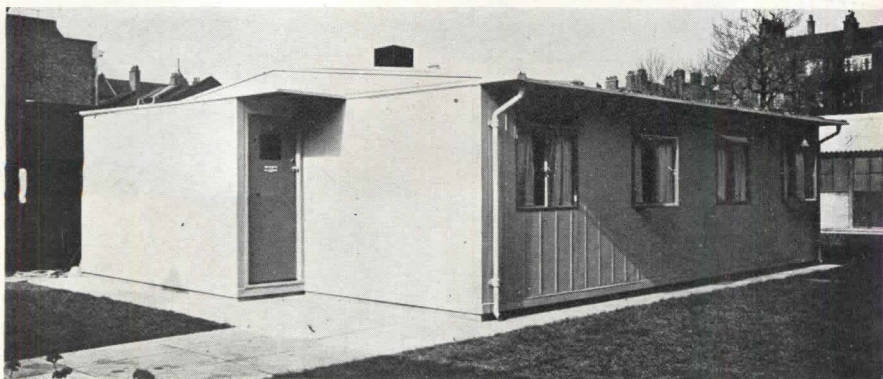
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British Official Photos

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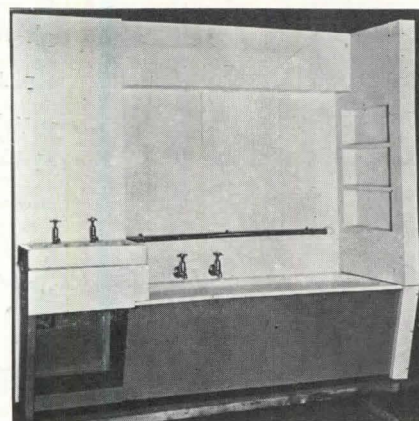
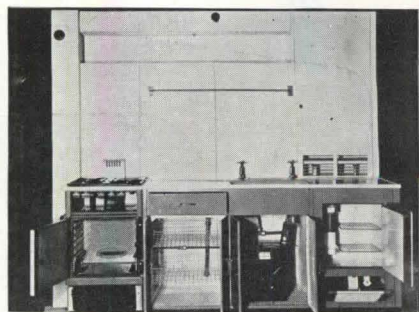
BRITAIN'S TEN-YEAR PREFAB

LONDONERS are having their first glimpse of the emergency factory-made house recently publicized by Mr. Churchill. Intended for the interregnum period after the war, the house is on exhibition on a site adjoining the Tate Gallery. It was designed by C. J. Mole, the Deputy Director of Works, and A. W. Kenyon, F.R.I.B.A., in cooperation with Dr. R. E. S. Radling, the Chief Scientific Adviser to the Ministry of Works.

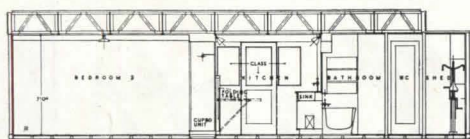
The prefabricated parts are erected on a concrete slab, tarred on top, after the necessary services and drains are laid. The floor sections are formed of sheet steel joists to which a wood flooring is directly screwed and are bolted together above the concrete. The end

and side walls, in panels and equal widths and containing steel windows, are next positioned, wedged and bolted to the panels and are set on a sheet steel sill at the floor level and between vertical and corner middle posts. The sections are tightened by means of steel wedges at the ends of three horizontal steel flats. Special mastic seatings make the joints weathproof. The sheet steel walls are swaged to provide stiffness, and are coated inside with a woolly anti-drum material. Within the external wall aluminum foil on paper is mounted on a light timber frame which resists loss of heat.

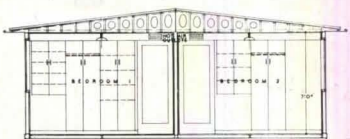
The houses, when massed-produced, will be publicly owned and licensed and are expected to last for 10 years.



Kitchen unit (top) is backed by bathroom unit (bottom). Closet unit has folding table and cupboards on kitchen side (center), wardrobes on bedroom

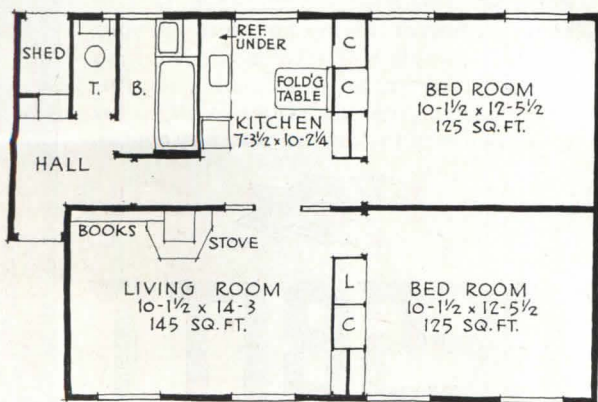


LONGITUDINAL SECTION

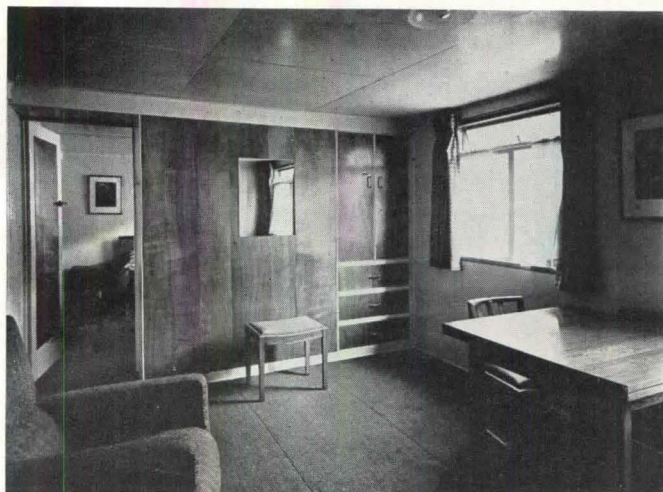


CROSS SECTION

Steel walls and roof are bonderized, primed and painted; roof is also tarred and sanded for protection against rust



0 5 10



One wall of well-proportioned living room is cupboard unit backed on bedroom side by wardrobe, drawers and linen shelves



Where was Mary when the lights went out?

THIS month we bring you another touching episode in the history of the Bjones family—who built a dream home, only to have it turn into a nightmare.

Upstairs, Mr. Bjones is entertaining (?) his boss—trying to make light conversation in a house as dark and dismal as Schickelgruber's future.

And where is Mary Bjones? Alas, she's down in the cellar fussing and fumbling with fuses—wondering why life is just one darn fuse after another!

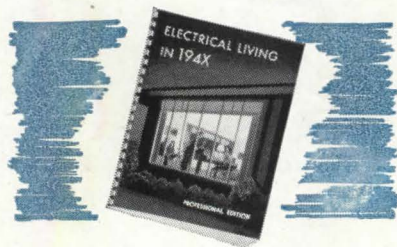
There are three reasons for the trials and tribulations of Mr. and Mrs. B . . .

First—their home was *inadequately wired* to carry the electrical loads imposed by modern lighting and electrical appliances.

Second—their home was not equipped with *modern circuit protection*—they could not restore electric service, at the flip of a switch, after the trouble was corrected.

Third—their home did not have modern circuit protection—*conveniently located*—they had to go to the "hard to get to" protective device in the cellar.

We have prepared a new book—"Electrical Living in 194X"—that will help you explain the urgent need for *better wiring and modern protection* to present and future home owners.



"Electrical Living in 194X" tells all about increased electrical loads in future homes—modern circuit protection—lighting and lighting controls—entrance equipment and distribution panels.

This big, profusely illustrated, 64-page book is free! Get your copy now, by writing Better Homes Department (AR-64), Westinghouse Electric & Manufacturing Company, Pittsburgh 30, Pa.

BETTER HOMES DEPARTMENT Six Point Advisory Service

. . . offers free technical advice on the selection, application, and arrangement of fixed electrical equipment in 194X homes—dimensions and clearances, for proper installation and easy access for servicing—placing of lighting outlets and controls—location and size of wiring, water supply, and drainage lines.

Send your electrical problems to the Westinghouse Better Homes Department. Our housing specialists will give you authoritative information, promptly.

Westinghouse

Plants in 25 Cities. Offices Everywhere

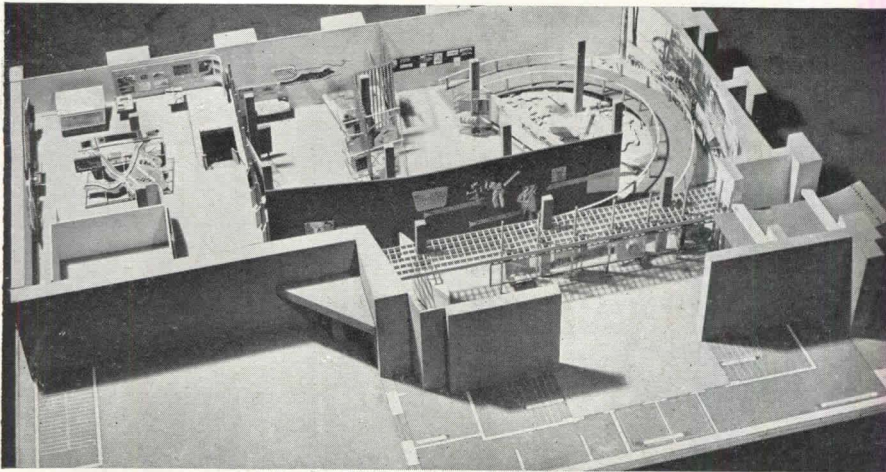
WESTINGHOUSE PRESENTS John Charles Thomas, Sunday, 2:30 p.m., E.W.T., NBC. "Top of the Evening", Monday, Wednesday, Friday, 10:15 p.m., E.W.T., Blue Network

NEW YORK'S POSTWAR EXHIBITION

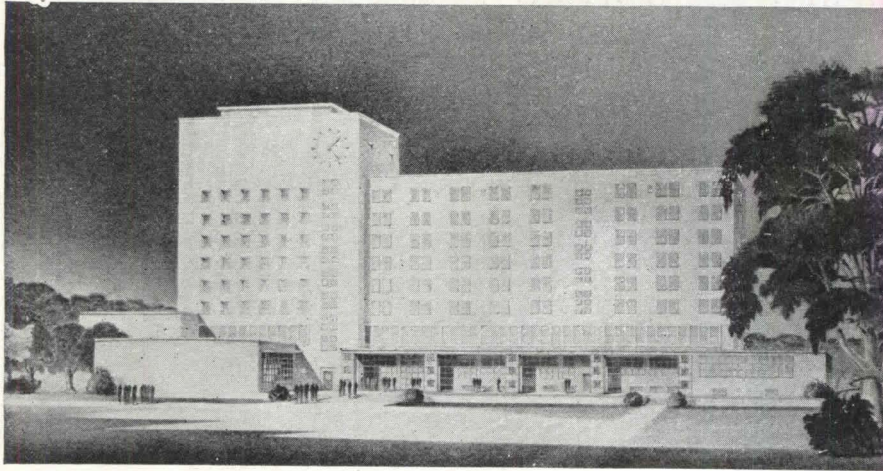
NEW YORK CITY'S much heralded peek into its future finally materialized last month when the Postwar Program Exhibit, scheduled originally for a late December debut, was opened with much fanfare by the Mayor.

Occupying the entire ground floor of the old Board of Education Building at Park Avenue and 59th Street, the Exhibit shows just what comprises the billion-dollar building program of the City Planning Commission. The central feature is a large floor map of the city (see photograph upper left), on which all the various projects are shown by colored, three-dimensional symbols—a red fireman's hat, for example, indicating a new fire station. From the raised semi-circular ramp, this diagrammatic map presents what amounts to an air panorama of the city, and gives a quick summary of the program as a whole.

The remainder of the Exhibit has been developed on a geographical basis, with a separate section for each of the five boroughs. There is a large project map for each borough, enlivened by numerous drawings and models.



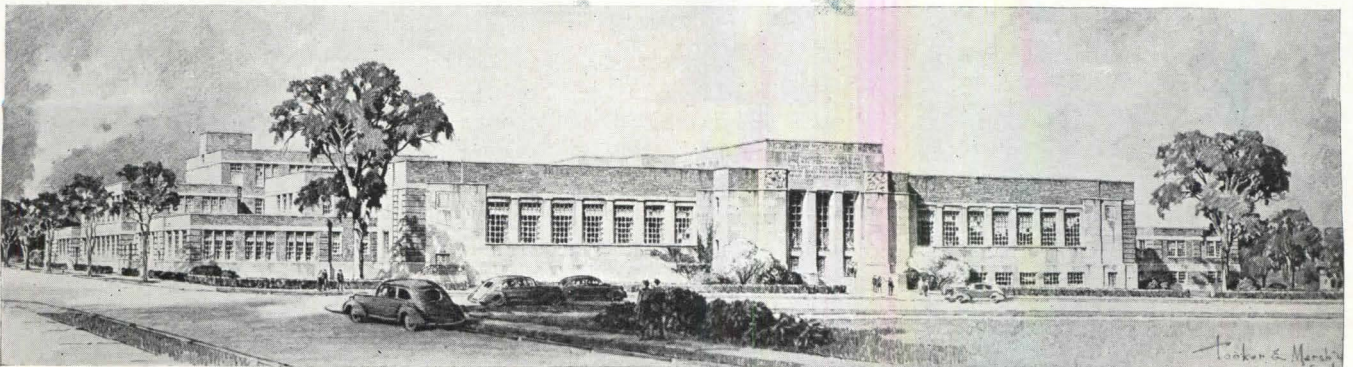
Rodney McKay Morgan photo



Top, left: the detailed architect's model of the exhibit (note the ramp). Skidmore, Owings & Merrill, Architects

Center: Nurses' Residence and School, Queens General Hospital; for Dep't. of Hospitals. William Gehron, Architect

Left: Wilbur Wright High School of Aviation Trades, Queens; for Dep't. of Education. Eric Kebbon, Architect



Morris Park Vocational High School, the Bronx. Tooker & Marsh, Architects



UNDER THE NATION'S ROOF

June, 1944

The "KEEP OFF" sign is being removed from the roof of the future. Architects more and more are designing to make valuable roof areas truly and literally "functional".



Hospital roofs with sun deck and recreational areas for convalescents; apartment roofs with real gardens and pools; city schools with sun-bathed play areas on spacious roof decks . . . these typify the trend to make the roof more useful than its basic "keep the rain out" purpose.



Such use of roof areas is not fantastic or "freak" thinking. There are many successful examples in use today. It's all in the "know-how". Ruberoid has developed sound, practical, tested specifications. They divide themselves into four types:

GARDEN ROOF - on which grass, flowers and small shrubs can grow year after year with no more attention than those on your lawn. Made possible by effective RUBEROID design of drainage and flashings. Cost is little greater than conventional promenade tile.

PROMENADE ROOF - a simple, practical, efficient method of installing clay promenade tile without the mess, weight and expense of a mortar bed. Entire application is confined to one trade, so there will be no divided responsibility. Particularly adapted for playground roofs on hospitals, schools, office buildings, etc.

HEAVY TRAFFIC ROOF - a husky, tough, concrete surfaced roof on which factory trucks may be used constantly, on which oil drums may be stored and where any kind of activity (that would not damage a good concrete sidewalk) may take place year after year. The whole trick is in knowing how to pour the slab and what to put under it. Cost not excessive.

LIGHT TRAFFIC ROOF - a permanent roof surface of black mastic material—requiring no expansion joints and very little, if any, annual maintenance. Relatively low in cost and adapted only to light foot and hand truck traffic. Gives excellent results as an inexpensive playground roof for schools.



Write your nearest RUBEROID office for complete specifications.

The RUBEROID Co.

Asphalt and Asbestos Building Materials . . . Industrial Insulations

For up-to-the-minute information on your roofing and building problems consult our nearest sales office:

NEW YORK (18)—500 Fifth Ave. • CHICAGO (1)—307 North Michigan Ave. • BALTIMORE • ERIE • MILLIS (Boston) • MINNEAPOLIS • MOBILE

TO THE ARCHITECTS
 who are now planning
 2025*
 SCHOOL BUILDINGS



BLOOMFIELD JUNIOR HIGH SCHOOL, Starrett & Van Vleck, architects

Let the Leaders
 IN BRONZE AND ALUMINUM FABRICATION
 help you with your Post-War Plans!

For years, architects regularly specified General Bronze windows, doors and architectural metalwork for outstanding jobs. This continued preference has made General Bronze the leader in bronze and aluminum fabrication.

When building starts again, that leadership will be maintained. New mass production techniques are being perfected by General Bronze—techniques that will result in finer aluminum windows at greatly reduced costs—a combination of quality and economy vitally interesting to those architects now planning schools and other post-war buildings.

If you are now working on post-war plans, we suggest that you allow us to help you with your detailing. Consult Sweet's or write today for complete information on General Bronze products and the name of our nearest representative.

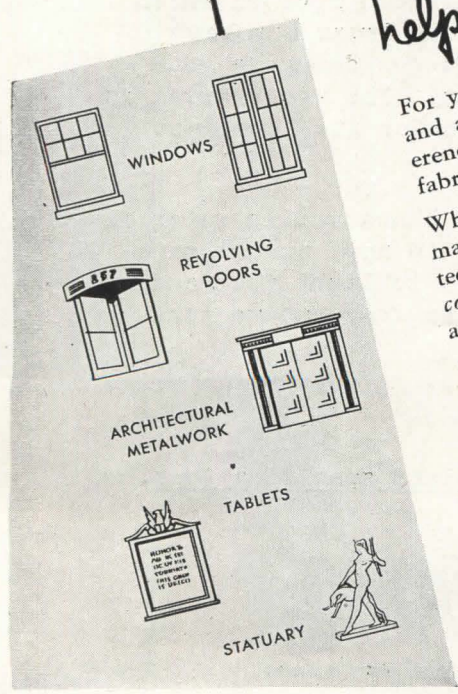
*From "Statistical Summary of V-Day Projects" tabulated by F.W. Dodge Corporation

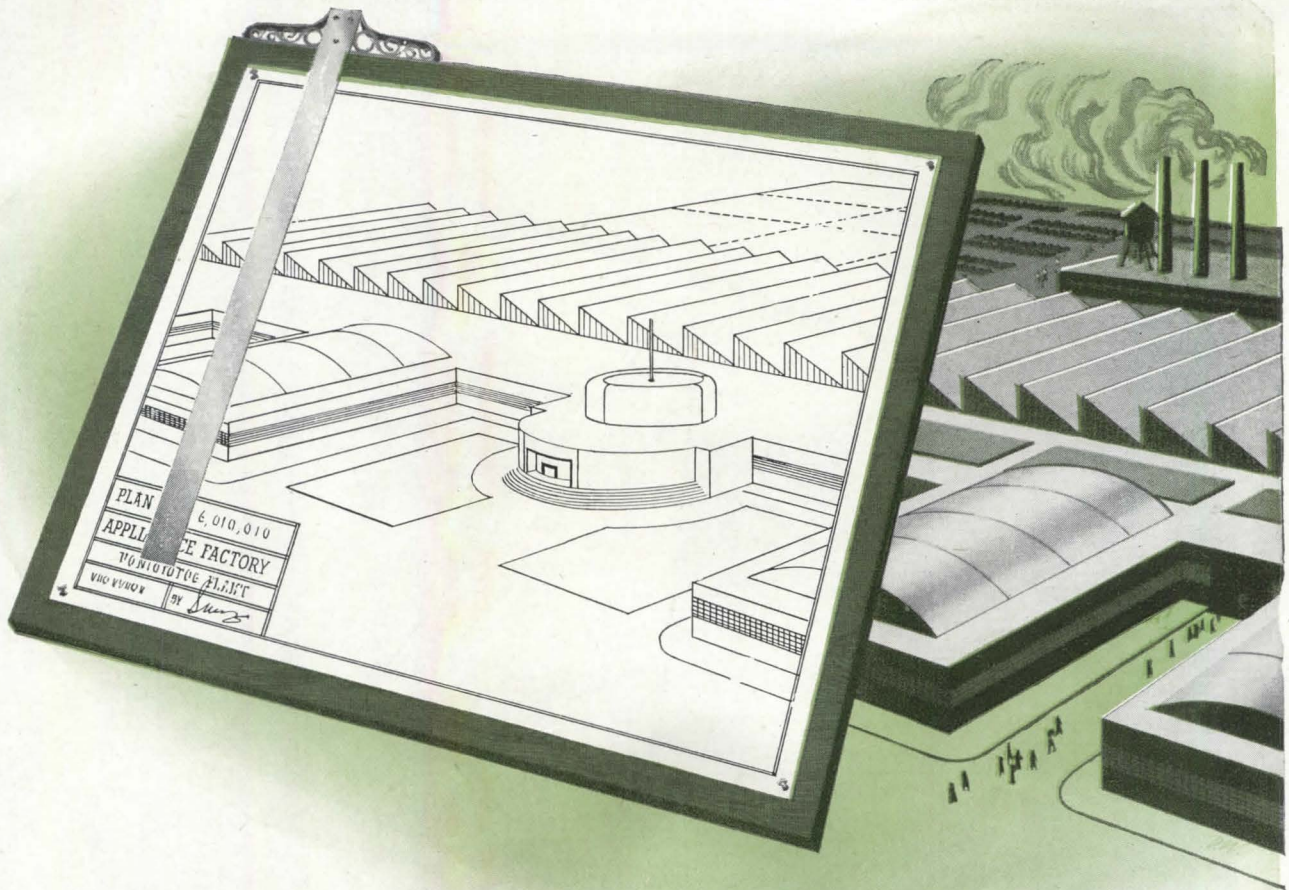
GENERAL BRONZE CORPORATION

34-19 TENTH STREET
 LONG ISLAND CITY, N.Y.



FIVE CONSECUTIVE ARMY-NAVY "E" AWARDS FOR PRODUCTION





Tomorrow's "Production Miracles" are on Architects' Drawing Boards TODAY

Plans for post-war reconversion of war plants to competitive peacetime production occupy an important place in the thoughts of astute manufacturers.

Many an architect and engineer is busy on these plans. Undoubtedly you are, too, or soon will be.

Air Conditioning is a vital part of such plans—for its war-proved benefits of better precision control and higher worker efficiency.

In the post-war world, every factor which improves product and lowers cost will be employed. Modern Air Condi-

tioning is near the top of the list.

Modern Air Conditioning means Westinghouse—and its years of pioneering research and engineering experience.

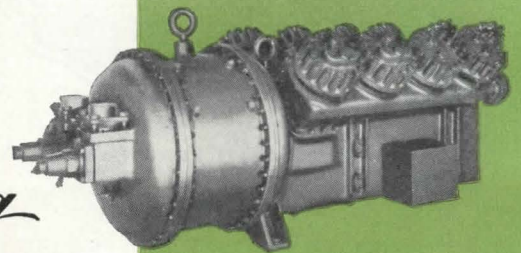
For essential war uses in factories, hospitals, airports, military bases, etc., Westinghouse Air Conditioning and Industrial Refrigeration Equipment is available today.

For executives, architects and engineers now planning post-war reconversion and modernizing, dependable data and competent application engineering assistance are ready.

Phone your nearest Westinghouse office, or write on your letterhead to Westinghouse Electric Elevator Company, 150 Pacific Avenue, Jersey City 4, New Jersey.

HERMETICALLY-SEALED FOR DEPENDABILITY

Westinghouse pioneered the Hermetically-Sealed Compressor. Hermetically-sealed means light weight • small size • low maintenance and operating costs • high efficiency • long life.

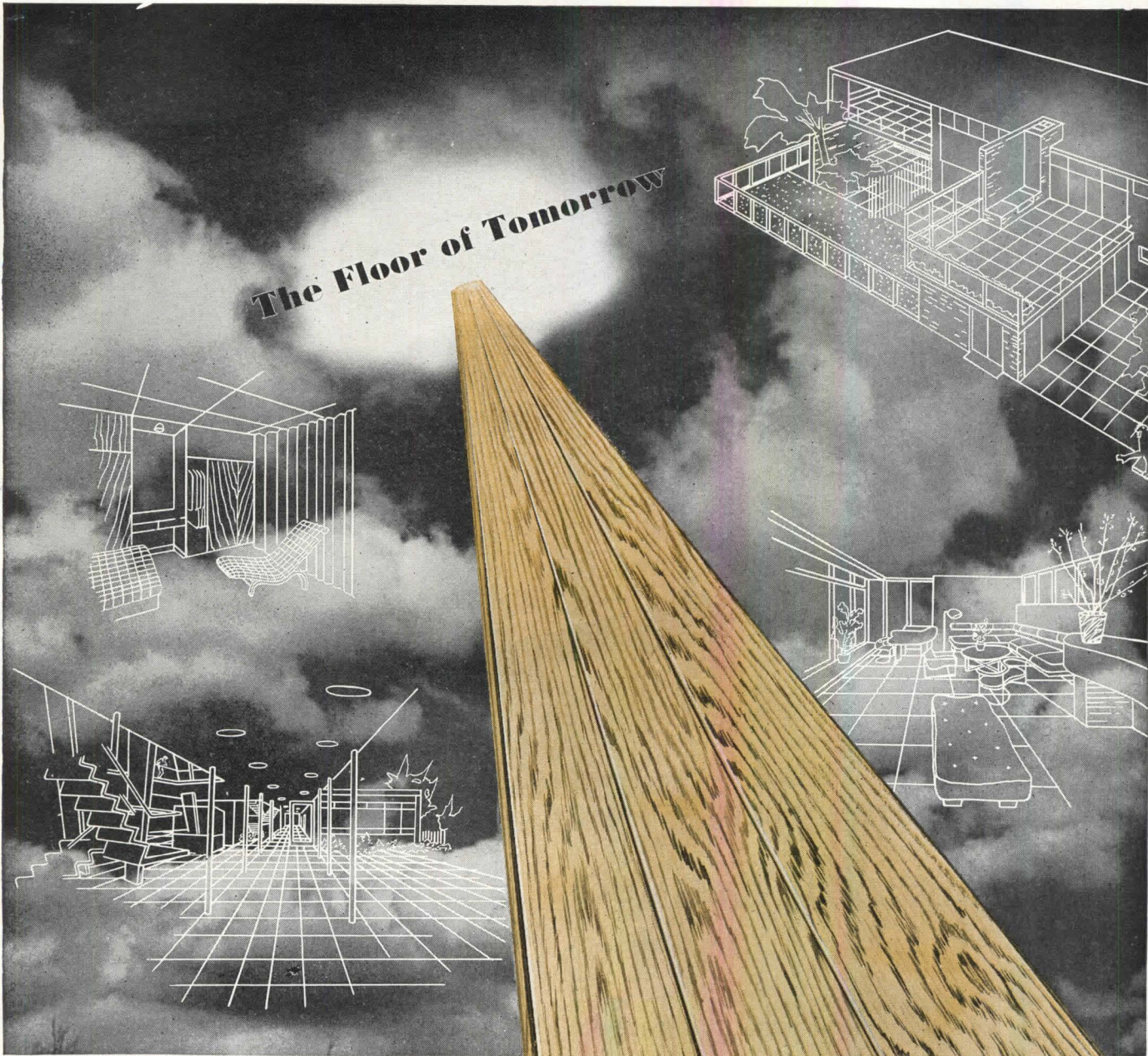


Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE
Air Conditioning



WESTINGHOUSE PRESENTS JOHN CHARLES THOMAS • SUNDAY 2:30 EWT., N.B.C.
"TOP OF THE EVENING" • MON. WED. FRI. 10:15 EWT., BLUE NET.

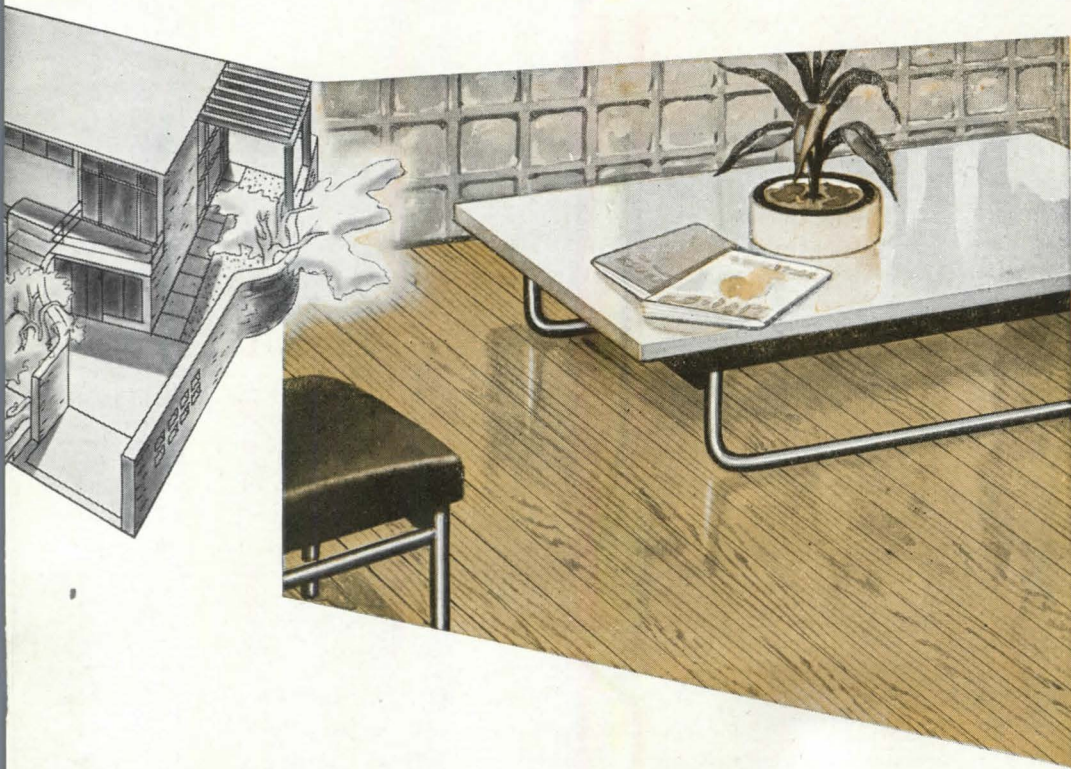
The Floor of Tomorrow



THE WORLD'S LARGEST MAKER
OF HARDWOOD FLOORS



AMERICA'S
MOST BEAUTIFUL FLOORS



Bruce Streamline Flooring with the New Bruce Finish

WHAT IS THE NEW BRUCE FINISH?

Here is a new deep-seal floor finish that brings out the full beauty of the wood by developing its natural grain and figure. Deep penetration, the secret of this floor finish, seals the pores of the wood against dust and dirt and produces a long-lasting, lustrous finish that will not scratch, peel or chip.



THE SCRATCH TEST PROVES ITS SUPERIORITY!

Half of this panel is surface finished the ordinary way and the other half Bruce deep-seal finished. A coin scraped across both finishes will chip and mar the surface finish but leave the Bruce finish unharmed.

The floor in the home of tomorrow will be beautiful—durable—economical—and easy to clean. That prophecy is sure to come true because such a floor is Bruce Streamline Flooring with the new Bruce Finish.

Six years of research, development and use before and during the war by the world's largest makers of hardwood flooring have proved this modern floor for modern building.

Owners will be enthusiastic over Bruce Streamline Flooring with its new Bruce Finish because of its many extras—its streamline styling, its damage-resistant qualities, its ease of maintenance, and its rich glowing beauty.

Architects and builders will like it because it permits faster progress—as much as 3 to 5 days saved on a house job because Streamline Flooring is ready for use the moment it's laid—no sanding, no finishing required. And with it they will give their clients a better floor with a better finish at a cost lower than an ordinary hardwood floor finished on the job.

Yes, here is a flooring you can specify with assurance—a flooring proved by years of service, yet as modern as the home of tomorrow itself.

E. L. BRUCE CO. Memphis, Tenn.

Post-war planning for warriors

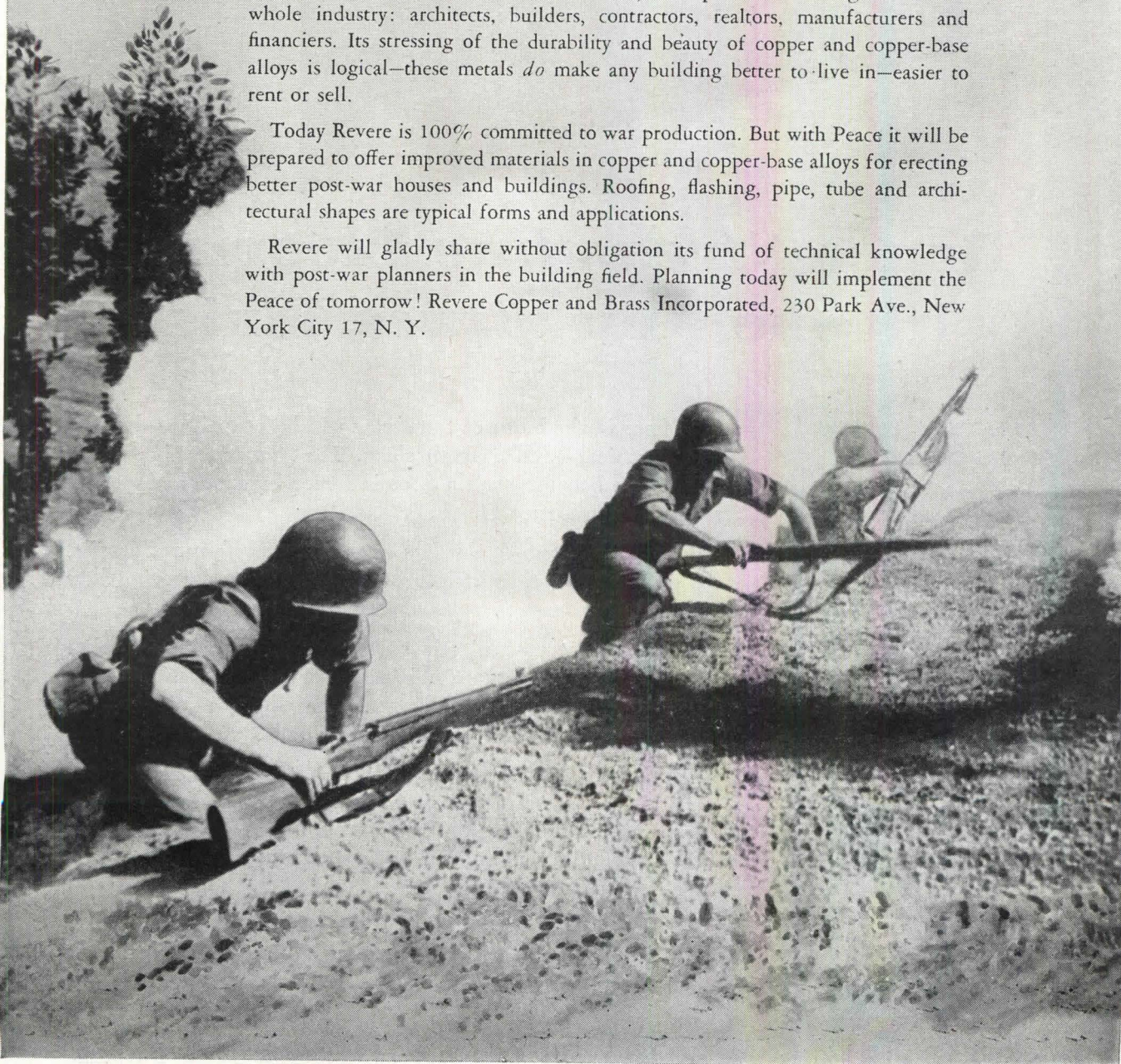
Today is not too early to think of tomorrow "when the boys come marching home again". How can they best be honored? How best can the community express its gratitude and at the same time keep alive the glory of their sacrifice and service?

We believe that Mr. Dinwiddie's proposed Church Community House provides a solution of considerable significance and highlights a well-defined trend in future war memorials.

Revere feels that its current national advertising featuring the ideas of various architects and designers on the over-all subject of post-war building benefits the whole industry: architects, builders, contractors, realtors, manufacturers and financiers. Its stressing of the durability and beauty of copper and copper-base alloys is logical—these metals *do* make any building better to live in—easier to rent or sell.

Today Revere is 100% committed to war production. But with Peace it will be prepared to offer improved materials in copper and copper-base alloys for erecting better post-war houses and buildings. Roofing, flashing, pipe, tube and architectural shapes are typical forms and applications.

Revere will gladly share without obligation its fund of technical knowledge with post-war planners in the building field. Planning today will implement the Peace of tomorrow! Revere Copper and Brass Incorporated, 230 Park Ave., New York City 17, N. Y.





Here's a monument the living can use

— which copper and brass can keep in use

Already many communities are planning how best to honor their war heroes. I have a concrete suggestion to make. Instead of some conventional monument, why not plan to build a Church Community House? It could honor all veterans and, in addition, become the very heart of all those cultural and social activities designed to build better community morale. It might be denominational, interdenominational, even undenominational — depending upon circumstances.

Here could meet various young people's religious and social groups. Here adults could gather for discussion and recreation. (Folding partitions would allow the use of one, two or three rooms, depending upon the size of the gathering.) In the large Assembly Room, various community "act-togethers" could be



comfortably accommodated. Likewise Veterans organizations. Many church or community functions involve a luncheon or supper. Here again, the serving facilities are flexible and include a modern kitchen. A small Library, a Game Room and Crafts Rooms also enter into the design. A Nursery Room is provided, too.

The Entrance Loggia would be connected to all those of the community who are part of the Great Cause. Here a base-relief, plaques, pictures and other recordings could extol their services and—in mute appeal—ask that the principles they sought to preserve and perpetuate be not forgotten.

If you think that your own community might deserve a Church Community House, I suggest you send for a booklet. It gives, in greater detail, some of the features already briefly described, together with various sketches and plans. It indicates, too, how copper and brass alloys can make such a building more lasting—and beautiful. This is free. Send for it today.

JOHN E. DINWIDDIE

Revere is glad to help plan when building can be resumed. Their inherent qualities. Their protection, improve heating in different ways, they make an investment and provide rust-free to rent, or to sell.

Today Revere is 100% completely developed still further the application of these new alloys, together with those now planning for post-war. They are available, without obligation, to share, without obligation. Write Revere Executive Office, New York 17, N. Y.

Naturally, in this limited space barest outline of a Church Community House could be given. We will be glad to send you a detailed illustration. Just write today to Revere.

BUY MORE WAR BONDS

REVERE
COPPER AND BRASS
Founded by Paul Revere
Executive Office: 230 Park Ave.

This advertisement appears in The Saturday Evening Post, April 15, 1944.



— which copper and brass can keep in use —

In designing his CHURCH COMMUNITY HOUSE—described on the opposite page—Mr. Dinwiddie has made free use of copper and brass. Such a building must be built to last for many years. Hence, copper is naturally employed to give adequate weather protection, season in and season out, in sunshine and in storm. In this connection, the use of copper edging the roof—is highly significant. Copper not only protects against the elements, but as Time passes, the metal will acquire a characteristic patina and become a highly pleasing decorative feature of the building.

Elsewhere, among many uses, bronze, a copper alloy, serves to make window and door frames, tight and trim. It is also employed in the hot and cold water systems and for air conditioning and refrigeration.

are standard for both new building and remodeling. They're specified for roofing, flashing, gutters, downspouts, weather stripping, termite-proofing. Ideal for non-rusting hot and cold water lines; heating and air conditioning lines; storage tanks; thresholds, window frames, doors and brass or bronze accessories add beauty inside and outside the house.

Copper gives longer life to any building anywhere, any time, because it protects, preserves, perpetuates.

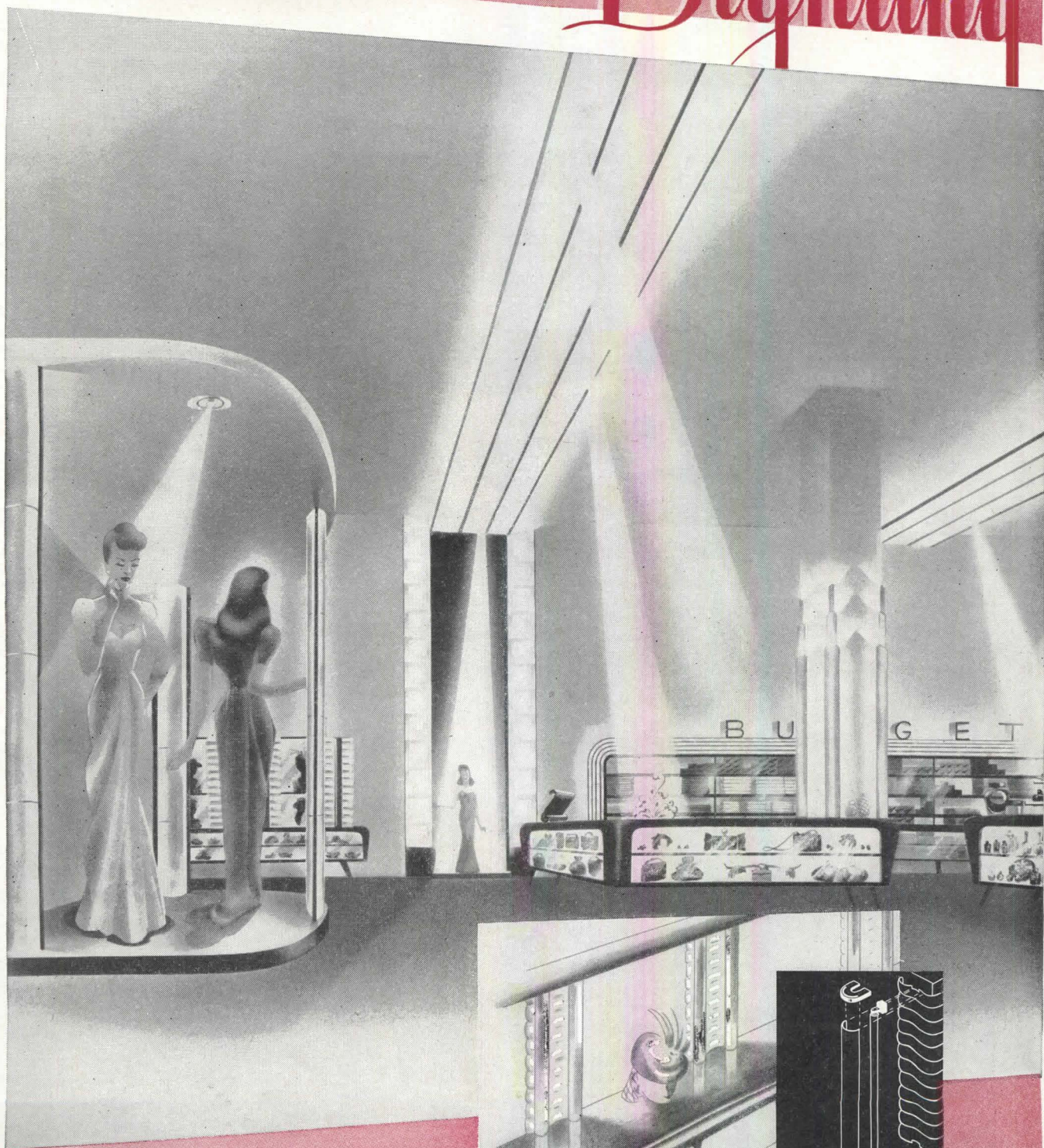
After Victory, Revere products will again be available for all building purposes. Distributors throughout the U.S.A. will be then able to supply builders and contractors. Why not begin shaping your plans for post-war days? We'll be glad to discuss, without obligation, any particular building problem you may have. Write Revere Executive Office.

BUY MORE WAR BONDS TODAY

REVERE
COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
Executive Office: 230 Park Ave., New York 17, N. Y.

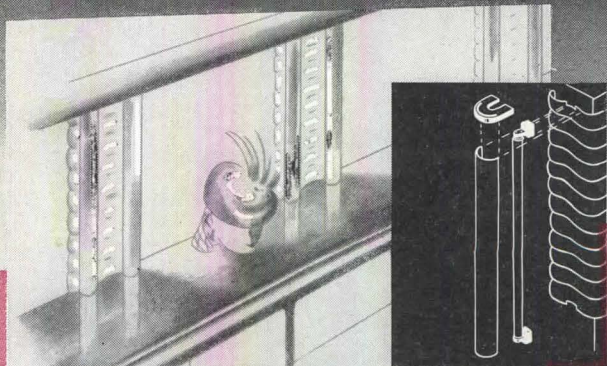
Light helps create both spaciousness and intimacy in this unusual store interior. Luminous ceiling areas, together with vertical light masses on the pillars and room end niche seem to push back walls and ceilings. While light from adjustable spots draws the eye to details of merchandise, helps create sales.

"Lighting



Right, wall units like this, with shielded fluorescent lamps in front of corrugated reflectors, could give featured merchandise silhouette backlighting to provide effective selling display.

Hear the General Electric radio programs: "The G-E All-Girl Orchestra", Sunday 10 p. m. EWT, NBC; "The World Today" news, every weekday 6:45 p. m. EWT, CBS.



GE MAZDA LAMPS

GENERAL  ELECTRIC

creates Atmosphere..."

IN THE POSTWAR DEPARTMENT STORE

GENERAL ELECTRIC brings you another in its series of postwar lighting perspectives by outstanding architects and designers. Here are some stimulating ideas on store lighting developed by a well-known designer who knows stores, EGMONT ARENS.



This is what Mr. Arens sees ahead:

"In my opinion, modern store interiors will depend more and more on the architecture of light in which the decorative elements and fixtures will be subordinated to the lighting pattern to create atmosphere.

"Using light as a building material was an abstract idea until the 1939 World's Fair proved what amazing effects were possible. There this new art of architectonic display lighting was demonstrated on a large scale.

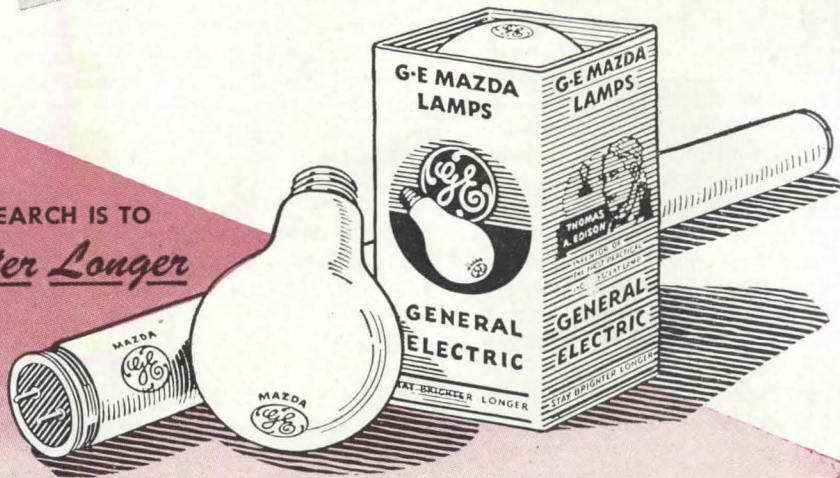
"This department store interior shows how a designer could use prefabricated sectional or unit lighting fixtures to build up spaciousness that invites customers and intimacy that provokes a buying mood . . . an irresistible combination for sales."

A NEW BOOKLET, "Lighting to invite more customers" will give you more details on Mr. Arens' ideas on building with light to add distinction to new stores and modernize existing stores. Write General Electric, Dept. 166-AR6, Nela Park, Cleveland 12, Ohio.



THE CONSTANT AIM OF G-E LAMP RESEARCH IS TO
MAKE G-E LAMPS *Stay Brighter Longer*

Make your war bond investment
count to the full—
BUY WAR BONDS AND HOLD THEM.



REQUIRED READING

MIRACLES AHEAD!

By Norman V. Carlisle and Frank B. Latham. New York 11 (60 Fifth Ave.), The Macmillan Co., 1944. 5 by 8¼ in. xi + 288 pp. illus. \$2.75.

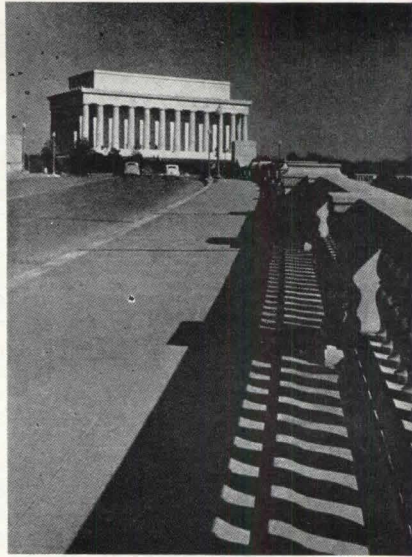
The astonishment with which Alice gazed at her Wonderland was mild as compared with the amazement which any one of us would register could we walk suddenly into tomorrow's wonder-strewn world as pictured by Messrs. Carlisle and Latham.

Imagine: a house whisked onto a rented lot in the morning and guests for dinner that evening; unit rooms which can be traded in like last year's car; skeleton apartment houses into which the tenant moves his own partitions (or rents them) to cut up his leased space into as many or as few rooms as he wishes, arranged and sized to meet his personal needs; smokeless furnaces; refrigerators that keep your meat at one temperature, your cream at another, your oranges at a third; stoveless kitchens with a place for everything and (miraculously) everything in its place, where the cooking is done in "a bright, clean electric utensil that plugs in along the kitchen counter" and doubles for a serving dish; automatic heat controls in those cooking utensils which "will see that each vegetable or meat dish is done at the right moment to serve piping hot. . . ." Everyone is going to have a helicopter, of course, and television, and teardrop cars with plastic sky-view tops and transparent noses. . . .

If you believe in advertisements and the flood of advance publicity, all these "miracles" are really going to come to pass. Many of them already have been developed; many others are in the blueprint stage. But most of them will not be ready for the general public until some time after the end of the war.

What this book does, and does well, is to describe fully, yet in simple terms, the myriad new developments in almost every field: in electronics, medicine, radio, chemistry, and so on. There is an excellent chapter on metals, another on wood, paper and glass, and a particularly helpful one on "Chemistry Magic" which deals with plastics, synthetic rubber, etc. In that sense this is a highly useful book.

It is also an exciting book—exciting because in these war years we are starved for new things, and here is promise of more new things than we have ever seen together before. War stimulates rather than stifles the inventive brain; no doubt many another "miracle" will swell the already impressive list before the war is over.



"The Lincoln Memorial stands in majestic simplicity . . ." From "Our Nation's Capital"

OUR NATION'S CAPITAL

A Portrait in Pictures by Mary Eleanor Browning. New York (67 W. 44th St.), Hastings House, 1944. 6¼ by 8¼ in. 101 pp. \$2.00.

The photogenicity of many-sided Washington, D. C. is once again proved in this collection of 130 extraordinarily beautiful camera studies by Mary Eleanor Browning. Everything is here: imposing government buildings, monuments, parks, churches, quiet suburban streets, busy downtown corners. There is no text other than simple identifying captions; the photographs are allowed to speak for themselves—and speak, they do.

Like all portraits, however, this of our national Capital is somewhat over-flattering. Washington is not wholly beautiful, as Miss Browning's exquisite photography would have us believe. She is the sort of artist who can make a slum street more picturesque than pathetic—witness the Georgetown scene on page 51 of the present volume. It would have somewhat spoiled the book, to be sure, but a more honest picture of the city would have been achieved had one or two *un*-beautiful scenes been allowed within the pages.

THE MISSING TECHNICIAN

By John Gloag. London, W.C. 1 (40 Museum St.), George Allen & Unwin Ltd., 1944. 5 by 7½ in. 108 pp. illus.

"The industrial designer is the missing technician in industry," Mr. Gloag reports. He is speaking exclusively, let it be understood, of British industry, for he pats America on the back for "giving opportunities to the right men"

in the field of industrial design. Yet even here, obviously, Mr. Gloag's missing technician is not always consulted.

Mr. Gloag's definition of the industrial designer is worth quoting: He "is *not* a 'styler'; he is *not* a 'putter-on' of shapes or patterns. He should be a man with an inventive and a receptive mind, with the sort of training which will enable him to apply his imaginative powers to the study of materials and mechanical processes for fabricating materials."

As for the use of an industrial designer, the case of Mr. Christian Barman's work on the H.M.V. Electric Iron, an entirely streamlined affair with "no lumps, bumps, screws or projections, or any untidy external interruptions to the surface"—is cited. It sold like hotcakes.

The interesting thing about that iron is that Mr. Barman is an *architect*. "It is significant," Mr. Gloag says, "that the training of an architect gives the profound, far-ranging interest in, and knowledge of, a diversity of materials, which, in alliance with a creative imagination, can produce such an unconventional but highly effective and convenient article as the H.M.V. Iron."

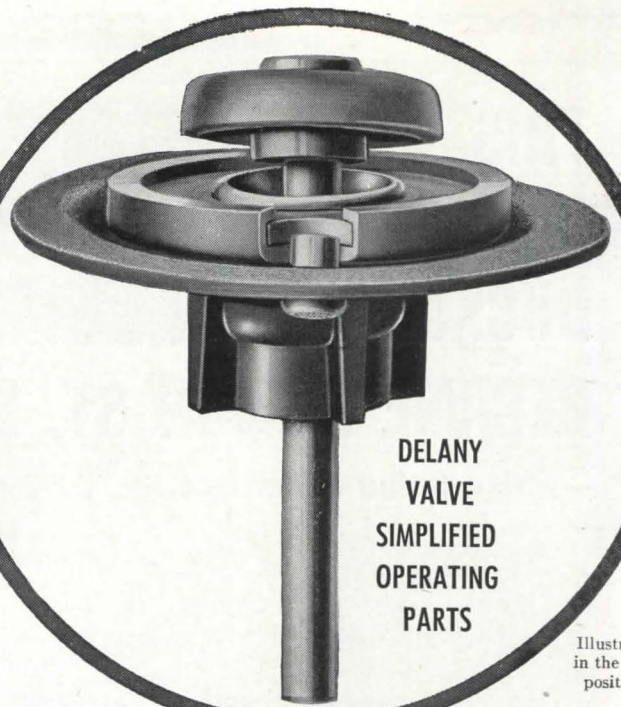
Mr. Gloag is not in favor of a firm having one full-time industrial designer: for no matter how brilliant and inventive such a man may be, working over a continuous period with the same organization is bound to make him stale. What he prefers is the setting up of "design research committees" composed of creative men and executives. How these committees function is described in considerable detail. One important point brought out is that each should be made up of two groups: a group of independent designers (two or more); and a group of specialists and executives drawn from the manufacturer's permanent staff.

As for the need for progress in design, Mr. Gloag has this to say: "For far too long 'olde England' has been dished up for foreign consumption. For many years manufacturers of all manner of products have put over the idea that Queen Anne is not dead, but alive and implacably unprogressive, and that the first four Georges are still on their thrones. To rake up ideas from the past and to misuse our great new industrial capacity for reproducing them, would be a disastrously retrogressive policy—a form of commercial suicide." That goes for us, too.

There is an able discussion of plastics, and some very pertinent comment on old materials with new properties. Numerous diagrams—of irons, closets and trailers, for example—and 16 excellent plates add to the interest of this brief volume.

(Continued on page 28)

**ITS
SIMPLICITY**
is your assurance of
EFFICIENCY



DELANY
VALVE
SIMPLIFIED
OPERATING
PARTS

Illustrated
in the open
position.

SIMPLICITY is vital in time of war—less material—less assembly—less maintenance.

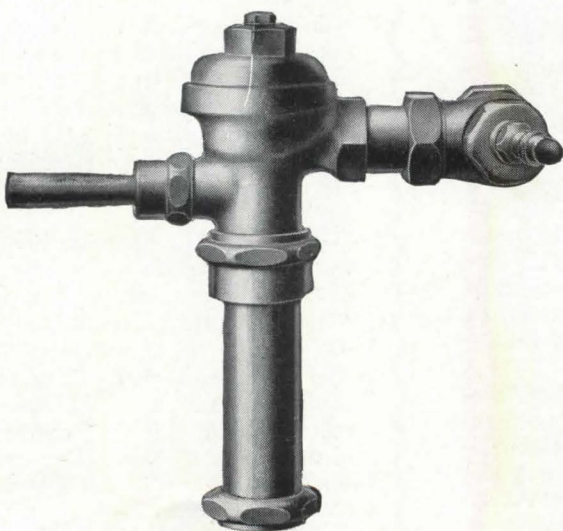
The six SIMPLE operating parts illustrated above do the work of upwards of a dozen in the average valve.

The SIMPLICITY of the Coyne & Delany Flush Valve was readily recognized and developed an instant acceptance in all types of war construction.

The SIMPLICITY of the changes made in the Victory model and from tests of the materials substituted, we are convinced that we have added to the high efficient performance record of the Coyne & Delany peacetime valve.

This SIMPLICITY concretely has lowered the operation cost on all projects where our valves are installed as all non-critical parts are interchangeable with the previous essential metal parts.

We will be pleased to send you Booklet #D-11 giving complete information.



*Victory Model DELANY FLUSH
VALVE equipped with No. 50
DELANY VACUUM BREAKER*

SINCE 1879
Coyne & Delany Co.
BROOKLYN N.Y.

(Continued from page 26)

THE CONDITION OF MAN

By Lewis Mumford. New York 17 (383 Madison Ave.), Harcourt, Brace & Co., 1944. 6¼ by 9½ in. x + 467 pp. illus. \$5.00.

As this latest book by Lewis Mumford is not intended to have, and does not have, special interest for the architect, it would not merit review in an architectural publication were it not for one thing: out of the abundant philosophical wealth contained in its many pages there comes an understanding of the human race which certainly should benefit the architect in his dealings with his clients, and in his interpretation of our cultural heritage.

The present volume is the third in the series that began with "Technics and Civilization" and continued with "The Culture of Cities." In Mr. Mumford's own words, it "deals with the purposes and ends of human development." What modern man really is, whence he came, where he is headed, and what he can make of himself if he will, Mr. Mumford here attempts to answer. The picture is, of necessity, a somber one. The truth of man's muddling ways is not over stressed, but neither is it veiled in too easy an optimism. Yet from the chaos of the past another and larger truth unquestionably emerges. As the preface points out: "Not once, but repeatedly in man's history, has an all-enveloping crisis provided the condition essential to a renewal of the personality and the community. In the darkness of the present day, that memory is also a promise."

What Mr. Mumford has done is to trace modern man's heritage from pre-Christian days down to the present. Like all history, the result is an amazing display of logical development. The thinking characteristic of one era naturally leads into the sometimes quite opposite thinking characteristic of the next. "Cultural disintegration," Mr. Mumford calls its downward trend. Greece and Rome, Plato, the prophets, Christ, Francis of Assisi, Machiavelli, protestantism, capitalism, Casanova, Marx, Rousseau, Freud—all these and many more stride through these pages with a new vitality of interpretation.

But it is Mr. Mumford's final chapter that is of particular interest here, looking forward, as it does, to the opportunity and the promise of the postwar period. "In anticipation of the postwar tasks," Mr. Mumford says, "perhaps the most important thing to remember is that our mission is not the simple one of rebuilding demolished

(Continued on page 30)

THIS "UGLY DUCKLING" BECAME A MAIN ST. BEAUTY



—with a facing of Architectural Concrete Slabs!



ARCHITECTURAL CONCRETE SLABS applied over old brick finish on the Wickert Building, Escanaba, Mich. The facing is buff; base course is green; and the monolithically cast raised letters are in green vitreous aggregate. The matrix is Atlas White cement. Architects: Hubert & Gjelsteen, Menominee, Mich.; Contractor: Mike Rettman, Bark River, Mich.; Slabs by Badger Concrete Co., Oshkosh, Wis.

THESE "thin" pre-cast reinforced concrete units, made of selected aggregates exposed in a matrix of Atlas White portland cement, can enhance the appearance and value of existing stores, shops and other buildings. Color, as with Terrazzo, is limited only by the aggregates—quartz, granite, ceramics and vitreous—and by the contrast or blend of the matrix. Exposure of the aggregates after casting, creates varied and interesting textures.

Slabs may be made up to 100 sq. ft. or more in size; and curves, channels, angles and combinations of returns and reveals can be cast in a single unit.

Hooks and anchors for attachment are cast integrally with the slab. Since over-all thickness is only 2 to 2½ inches, it is often possible to retain existing walls and still stay within building lines.

For further information see our Catalogue in Sweet's or ask for the booklet, "Architectural Concrete Slabs." Write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

OFFICES: New York, Chicago, Albany, Boston, Philadelphia, Pittsburgh, Minneapolis, Duluth, Cleveland, St. Louis, Kansas City, Des Moines, Birmingham, Waco.

AR-ACS-45

Prefabricated
ARCHITECTURAL CONCRETE SLABS

made with ATLAS WHITE CEMENT

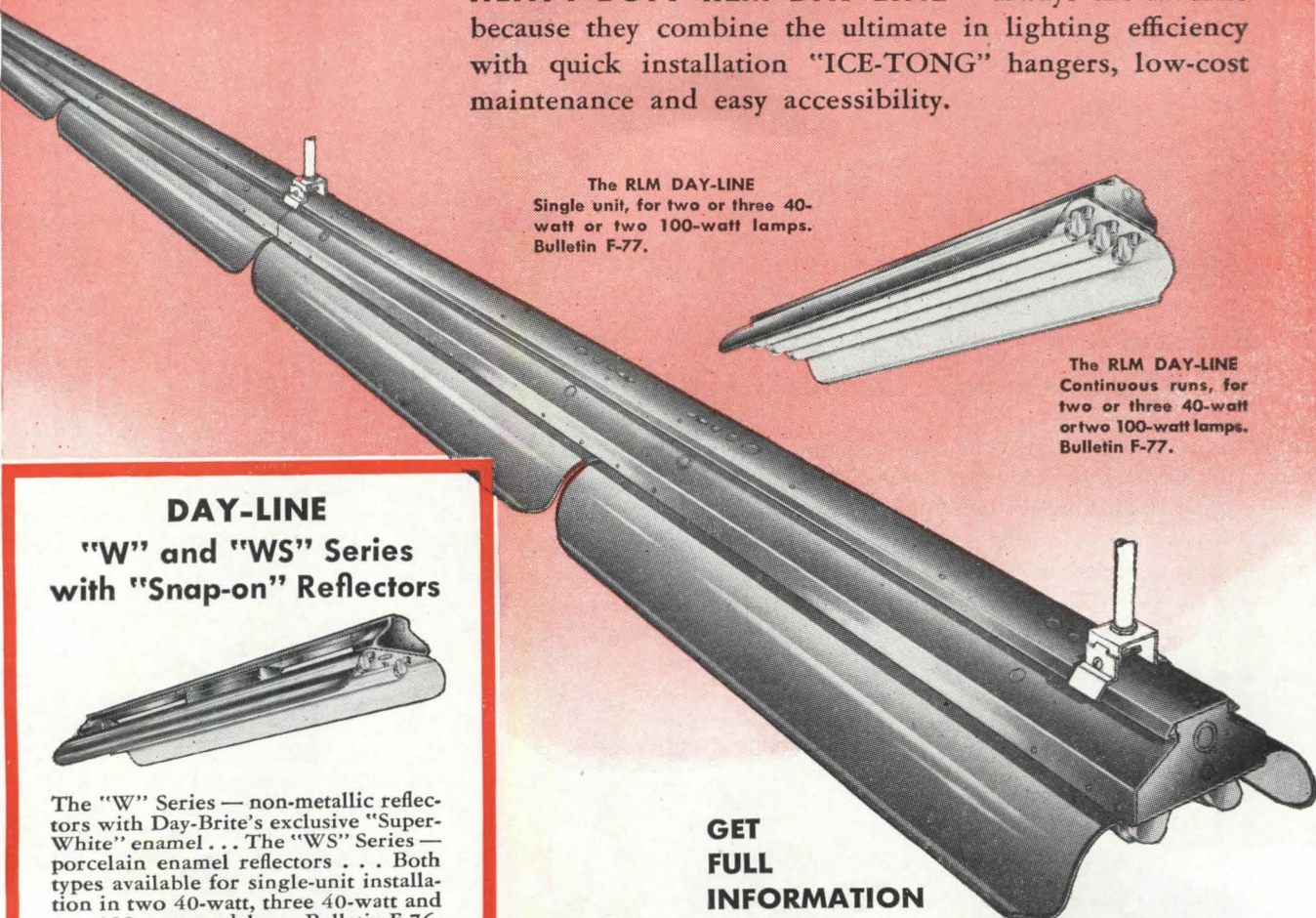


BACK AGAIN

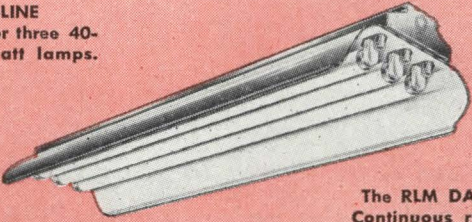
POPULAR "DAY-LINE" INDUSTRIAL FIXTURES

Again Available with Porcelain Enamel Reflectors

HEAVY-DUTY RLM DAY-LINE — always the favorite because they combine the ultimate in lighting efficiency with quick installation "ICE-TONG" hangers, low-cost maintenance and easy accessibility.

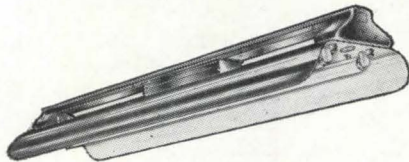


The RLM DAY-LINE
Single unit, for two or three 40-
watt or two 100-watt lamps.
Bulletin F-77.



The RLM DAY-LINE
Continuous runs, for
two or three 40-watt
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The "W" Series — non-metallic reflectors with Day-Brite's exclusive "Super-White" enamel . . . The "WS" Series — porcelain enamel reflectors . . . Both types available for single-unit installation in two 40-watt, three 40-watt and two 100-watt models . . . Bulletin F-76.

GET FULL INFORMATION

Contact your local Day-Brite engineering representative or write for the Bulletins which contain complete, valuable information fully describing and illustrating both continuous and unit mounting Day-Line Fixtures—including dimensions, mounting diagrams, photometric data, weights and prices.

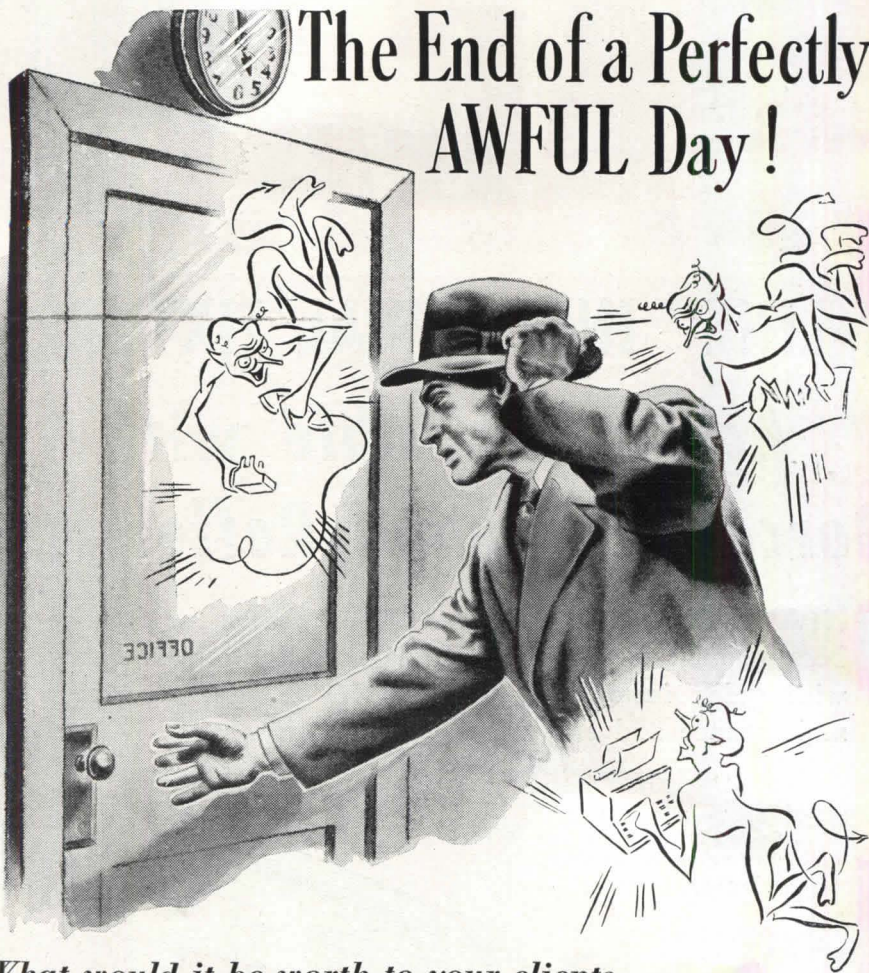
DAY-BRITE LIGHTING, INCORPORATED
5463 Bulwer Avenue — St. Louis 7, Missouri

Day Brite
LIGHTING FIXTURES

DAY-BRITE
The Sign of Quality
Look for this Label

Nationally distributed through all leading electrical supply houses

The End of a Perfectly AWFUL Day!



*What would it be worth to your clients
to be rid of the noise demons?*


BUSINESS IS HECTIC ENOUGH these days without having energy and efficiency sapped by the noise demons. Their unceasing din is enough to send anyone home nervous — irritable — defeated. That's why clients will be glad to know they can put an end to these trouble-

makers—for good—with an economical ceiling of Armstrong's Cushiontone.

Cushiontone absorbs up to 75% of all noise striking its surface. Not even repainting affects this high efficiency. What's more, Cushiontone is light reflecting, attractive, quickly installed.

New Free Booklet gives the facts. Write for your copy, and the name of your nearest Cushiontone contractor, to Armstrong Cork Co., 2406 Stevens St., Lancaster, Pa.

ARMSTRONG'S CUSHIONTONE

Made by the  makers of
Armstrong's Linoleum and Asphalt Tile

REQUIRED READING

(Continued from page 28)

houses and ruined cities, converting war industries to peacetime manufactures, repairing the broken bodies of the wounded or the broken souls of those who have borne witness to more violence, terror, and misery than the human spirit can endure. All these tasks are essential; but they are only first aid. . . . In every department of our culture, we must lay the foundations for a new set of purposes, a new drama, a radically different mode of life. . . . The bulk of our institutions no longer corresponds to the needs and possibilities of human life; and this is true, not merely of traditional structures, but of many that boast their unqualified modernity: some of the last, indeed, are already the seediest, the most completely disserviceable, in terms of valid human purposes."

FREEDOM FROM FEAR

The Interrelation of Domestic and International Programs. By Louis H. Pink. New York (49 E. 33rd St.), Harper & Bros., 1944. 5 1/8 by 8 3/8 in. 254 pp. \$2.50.

Here is a book based on the tenets of the Atlantic Charter: that every man should be free from fear and want, and guaranteed the right to work. It is of interest here chiefly because of its two chapters on housing.

"Architects and planners," Mr. Pink maintains, "have shown a singular inability to make public housing developments attractive to the eye. We have bathrooms, electricity, gas stoves, steam heat, hot water, and plenty of light, air and yard space, but our projects are pretty much all alike: They are too apt to be rows of boxes, one after another. There is too much fixity of design, too little success in achieving variations that blend with the topography and create charm and character. . . . There is a suggestion of the joy of life in much of the European housing—or was, before the war—that is lacking in ours. The solution may be to permit greater freedom among local architects, who frequently complain that their best work is obliterated by the rigid rules of federal authorities, remote from the scene. There should be more open contracts in which all architects are encouraged to develop new ideas."

The main consideration in public housing, Mr. Pink says, should not be cost, but the type of project best adapted to local conditions, for these projects are not intended as temporary shelter, but planned to last 50 or 60 years, and their appearance is therefore important.

(Continued on page 122)

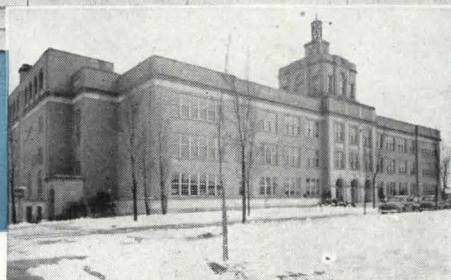
Aluminum Entrances

CONTINUE TO SAY A CHEERY "GOOD MORNING"



Entrances, skylights and tower are aluminum.
Architectural Division, Board of School Directors, Guy E. Wiley, Architect.

Let's Look at the Record



Installed thirteen years ago, the aluminum entrances to Steuben Junior High School, Milwaukee, continue to present a pleasing appearance today. And even though exposed all these years to the eager exits of thousands of children, the aluminum doors are in top-notch condition mechanically.

The aluminum skylights in this building, and the cast aluminum tower, are also reported to be in excellent condition.

In employing aluminum here, it was the intention of the School Board to let the

metal weather normally. It was felt that the aluminum would serve an extremely useful purpose by reducing the amount of painting and other maintenance required on the building. It has accomplished that, helping to hold down upkeep costs.

Alcoa is receiving reports on many aluminum architectural installations all over the country. They will serve as a guide in making recommendations on the use of aluminum as you make plans for postwar construction. ALUMINUM COMPANY OF AMERICA, 2167 Gulf Building, Pittsburgh 19, Pennsylvania.

The Window
of the
Future is
Aluminum

ALCOA ALUMINUM



Reg. U. S. Pat. Off.

LETTERS FROM RECORD READERS

Architect at Work

Record:

Your idea in collaborating with a number of specialized magazines is very fine and I hope it will bring the desired success.

As far as we are concerned we have already finished two projects, are working on another and expect to start shortly on the fourth.

—RICHARD KIEHNEL, *Architect*

Architect Serves Best . . .

Record:

Your article, "Making the Most of your Architect," which appears in *Nation's Schools*, is a very clear statement of facts.

I have enjoyed similar experiences in participating with educational boards of both schools and colleges and have always found that the architect serves best when he can serve from the inception of the building program. It is necessary for him to become acquainted in all detail possible relating to the general and the special purposes of the building and in manner of its use. The interplay of suggestion between boards and the architect in stages when the building is entirely plastic, make it possible for the boards to reach the most effective school plan without waste, extravagance, or omission.

I think that you have undertaken an excellent work for which the members of the architectural chapters throughout the nation will feel sincerely indebted.

—WM. WARD WATKIN,
The Rice Institute

For the Profession

Record:

As to your efforts regarding "Influencing owners and getting clients," we feel that it is a splendid step and will no doubt do a great deal for the architectural profession.

We think that if additional copies of the editorial, "Making the Most of Your Architect" could be sent with the publications, the architect would be able to mail them individually to prospective clients.

—RALPH D. HUSZAGH, *Architect*

Sells Profession to itself

Record:

I am pleased with the idea, with all its intent and purpose. The results should prove of far-reaching value. Thru my mind goes, and may I give,

this parallel. A small boy was in a tough fight and close to losing when his big brother came along to cheer him on. He then won that fight. Are we not all brothers in the construction industry especially during this emergency. There will no doubt be a time when we will be needed as big brothers to you or some other part of the industry. Let us hope we can then do our part.

We are interested in quite another phase of your article in *Nation's Schools*, and have found traces of a trend in other articles and magazines. Most sales managers need and use it. Your magazine directed to the profession has and must continue to have it. That phase is, selling the profession back to the profession, to itself. Sounds odd but we believe in it. All articles which have been intended for the public, outlining the value of architectural services, have automatically sold it back to the profession. The need for this phase, or trend, will vary with the locality and size of the organization but should be of value to all.

This office established in 1896 has watched the work of the profession and your magazine over the years with interest. We anticipate the work and trends of the next ten years with even keener interest.

—FREDERICK W. RAEUBER, *Architect*

Reaching Prospective Clients

Record:

I think the idea is splendid!—because in collaborating with highly specialized magazines you are reaching the prospective clients who are interested in the particular types of architecture featured and in which different firms are specializing. You are doing a splendid service for the architects, who are unable to help themselves in that way.

—HARVEY P. SMITH, *Architect*

A Banner Venture

Record:

Local population in Ogden, Utah area has doubled because of concentrated war construction work. Key men here and in several other places in Utah are at work on a construction program with the hope of holding the greatly increased population. Your presentations in current issues of the several publications is a banner venture and I will do what I can to see that your program is helpful to those interested.

This office now has attractive com-

missions for postwar construction work in connection with schools, buildings for public utilities, churches and miscellaneous.

Your efforts invite and merit the fullest cooperation of architects and engineers.

—LESLIE S. HODGSON, *Architect*

What About Materials?

Record:

I think it is a great stunt and should prove invaluable to us architects.

If there was a way for the manufacturers to inform us and the general public what is going to be available for building the better class home after the war, I believe it would relieve some of this anxiety that the changes are going to revolutionize the home and all the present homes are going to be out of date.

—A. J. KRUEGEL, *Architect*

Inquiries Getting Active

Record:

I believe your intention of increasing interest in postwar planning a commendable one and timely.

Considerably more inquiries have been made by potential clients than at any other time during the past three years. Locally, the activity among the architects seems to be in churches, small factory buildings and lastly, small retail merchandising establishments.

—LINWOOD A. GARDINER, *Architect*

"Prettifier" Bugaboo

Record:

Your article in "Nation's Schools" was fine and distinctly a step in the right direction.

It goes without saying that an architect must be a skillful and experienced planner and designer else he lacks the fundamental requirement and should not be in practice. Unfortunately, there seems to be a general impression among laymen that he is primarily an artist, a dreamer, and a painter of pretty pictures.

Those of us, whose practice for a great many years has been largely in connection with important commercial and industrial projects, know that skill in plan and design must be coupled with competent engineering and experienced business administration.

Perhaps in some of your future articles you could impress the prospective client with the fact that the services of the trained and experienced architect include:

a. Competent engineering service on all structural and mechanical problems relating to building construction. Even when it becomes advisable to employ specialists in certain lines, the archi-

(Continued on page 134)

You "build in" plumbing

Why not specify a built-in sound system?

FACTORIES, hotels, office buildings, auditoriums, hospitals and schools have proved that communication through sound systems is so important that nearly every modern building should have provision for built-in sound facilities. This wide acceptance indicates that it is wise to provide for a *built-in* sound system in the design, rather than to add it after the building has been completed.

The sound system is no longer an accessory. Like the other built-in utilities—plumbing, heating, lighting, air-conditioning, the sound system developed logically; the experimental stage; portable or added-on sound equipment; and now—modern *built-in* sound.

It costs less to build in a sound system than to add it later.

See our catalogue in SWEET'S. If you need assistance in designing adequate sound systems into your projects, call on RCA sound specialists or write RADIO CORPORATION OF AMERICA, Sound and Picture Section (70-52), Camden, New Jersey.

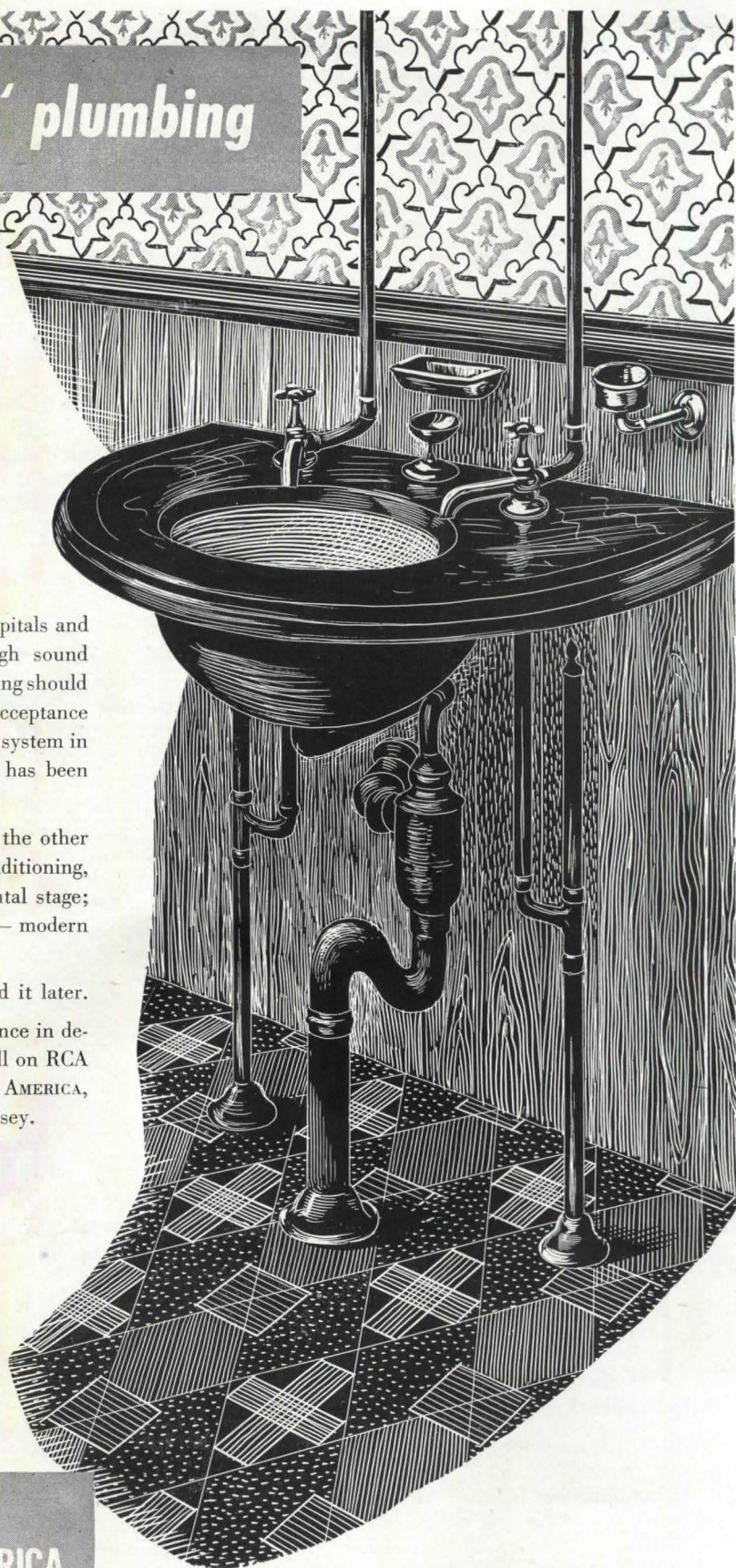
RCA SOUND SYSTEMS



RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION - CAMDEN, N. J.

LEADS THE WAY... In Radio... Television... Tubes...
Phonographs... Records... Electronics



Buy War Bonds

FOR BETTER BUILDING

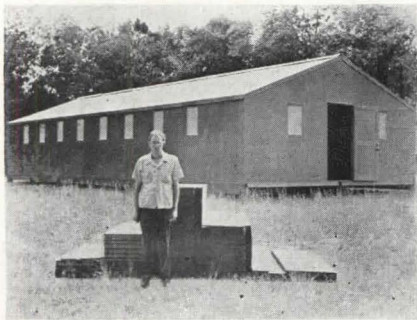
INDEPENDENT HEAT CONTROL FOR APARTMENTS

Room temperature to fit the individual tenant's needs is made possible by a new apartment house heating control system just announced.

This "personalized heating" is achieved by equipment using one or more thermostats in each apartment. The necessary controls may be installed in existing houses as well as incorporated in the heating systems of new buildings. The system not only will result in greater comfort for the residents, but, in the opinion of the developers, will also reduce heating costs and provide a new rental attraction stimulating a high rate of occupancy.

The principle of the system was demonstrated to the press in New York last month with the aid of a model of a typical apartment house. The model was based on the building for which detailed plans were submitted to leading architects and heating engineers in connection with the developing company's recent \$10,000 competition for the design of heating systems incorporating personal apartment heating principles.

Manufacture of the controls on a commercial scale will begin as soon as materials are available. Minneapolis-Honeywell Regulator Co., Minneapolis.



20 by 48 ft. Army barracks of plywood-metal panels needs little shipping space

CONSTRUCTION SHORT-CUTS Plywood-Metal Panels

A new technique of construction utilizing factory-fabricated plywood-plastic metal panels which retain the outstanding properties of each material, has been announced by the U. S. Plywood Corporation.

Known as *Armorply*, the material combines plywood, plastics (used as the adhesive) and light metal of paper thickness. It was developed by Mac-Millan Clements, metallurgist of U. S. Plywood, in collaboration with Vernon F. Sears, the company's staff architect,

and other members of the laboratory staff. Advantages claimed include:

1. The material serves three purposes—framework, sheathing and exterior siding or roofing—and thus is time and labor saving.

2. The material can be factory-fabricated in sizes required and shipped flat; shipping space required is very small, a two-car garage needing only 2 by 2 by 10 ft.

Potentially useful to a wide variety of industrial and other applications, the principal immediate prospect for the technique and the product, in the opinion of the sponsors, appears to be prefabricated houses and other prefabricated structures. U. S. Plywood Corp., 616 W. 46th St., New York 19.

Quickly Constructed Partition

A new type of partition construction—a 2-in. solid partition of Rocklath plasterboard and Red Top plaster—is said to help solve the problem of lumber shortages by cutting lumber requirements for partitions 90 per cent below the standard frame construction. It also reduces the amount of metal required, and produces a partition that can be built quickly, is non-flammable and strong.

Installation is simple. Runner strips are nailed to floor and ceiling where the partition is to be located. These runners have grooves in them into which the Rocklath core of the partition fits. The framing is then completed with the vertical erection of 24-in. wide square-edge Rocklath. The lower end is put in the groove of the floor runner, then the top end is sprung into the groove of the ceiling runner. Plaster applied over core. U. S. Gypsum Co., 300 W. Adams St., Chicago 6.

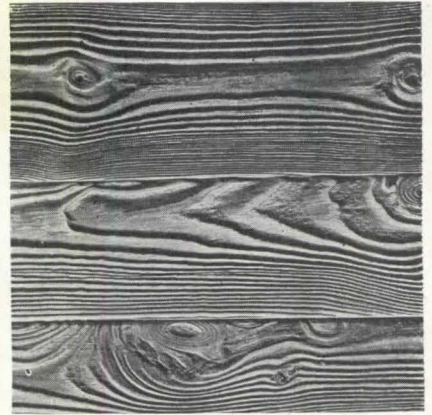
For Farm Construction

Especially designed and fabricated for repair, maintenance and new construction of farm buildings, the new *Coverall Board* is an asbestos-cement board said to be suited for both interior and exterior construction. It is smooth surfaced, requires no painting for its protection. Made in sheets 4 ft. wide by 8 ft. high; available for prompt shipment in any desired quantity, with no priority requirement. The Philip Carey Mfg. Co., Cincinnati, Ohio.

Wood Paneling

A finished wood wall paneling called *Amerwood* comes ready to install, and features "natural wood beauty."

The *Amerwood* process creates a bas-relief etched effect of the wood's



Wood wall paneling with bas-relief effect

own makeup, the manufacturers report, and accentuates the natural graining of the wood. Each panel is weathered, sealed, completely finished, ready for easy installation. Trimmed panels lock tightly together to assure a sealed installation, with no joints or overlay moldings necessary. Available in light or dark natural finishes. Harvell Mfg. Corp., South Bend, Ind.

PLASTICS

Combined With Glass

Plastics reinforced with glass fibers provide a new structural material differing radically in mechanical properties from all existing materials, and one which may, in the course of a generation or two, alter radically our ways of living, Dr. Frank W. Preston, of the Preston Laboratories, told the annual meeting of the Society of the Plastics Industry last month.

Dr. Preston spoke on the "Significance of New Data on Combinations of Plastic and Glass Fibers." His talk referred particularly to data on the use of glass-reinforced plastics for structural parts of aircraft, developed by the Materiel Command, U. S. Army Air Forces, Wright Field, and by the research laboratories of Owens-Corning Fiberglas Corporation.

"The problems of the airplane builders have been largely responsible for the present search for fundamental data on plastic-Fiberglas combinations," Dr. Preston said. "Plastics are wanted for both structural elements, which may be highly stressed in flight or in landing, and for relatively un-stressed non-structural parts. The data accumulated will certainly be used for other industries than aviation, and for other purposes than war.

"In plastics reinforced with glass fibers we have a material having very high strengths, which are apt to go much higher as we learn more about it. This great strength is combined with a very low weight, much below alumi-

(Continued on page 128)

BLUEPRINT NOW!

◆ There is something fascinating about a blueprint, something almost mystical and thrilling to a layman. It has an air of finality and decision. It marks the end of one stage of a project and the beginning of the next. It is the mark of something accomplished! The period of determining needs, relationships with city and neighborhood growth, of choosing ways and means, is over.

◆ A blueprint denotes the end of trying, changing—and its blue ground with white lines, dimensions and technical-sounding notes so nicely lettered, its abbreviation hieroglyphics and symbols, indicate the decisions finally made. This at last is the way the project is to be! These are the instructions that will be translated into brick and steel and timber, cement and plaster and plastics.

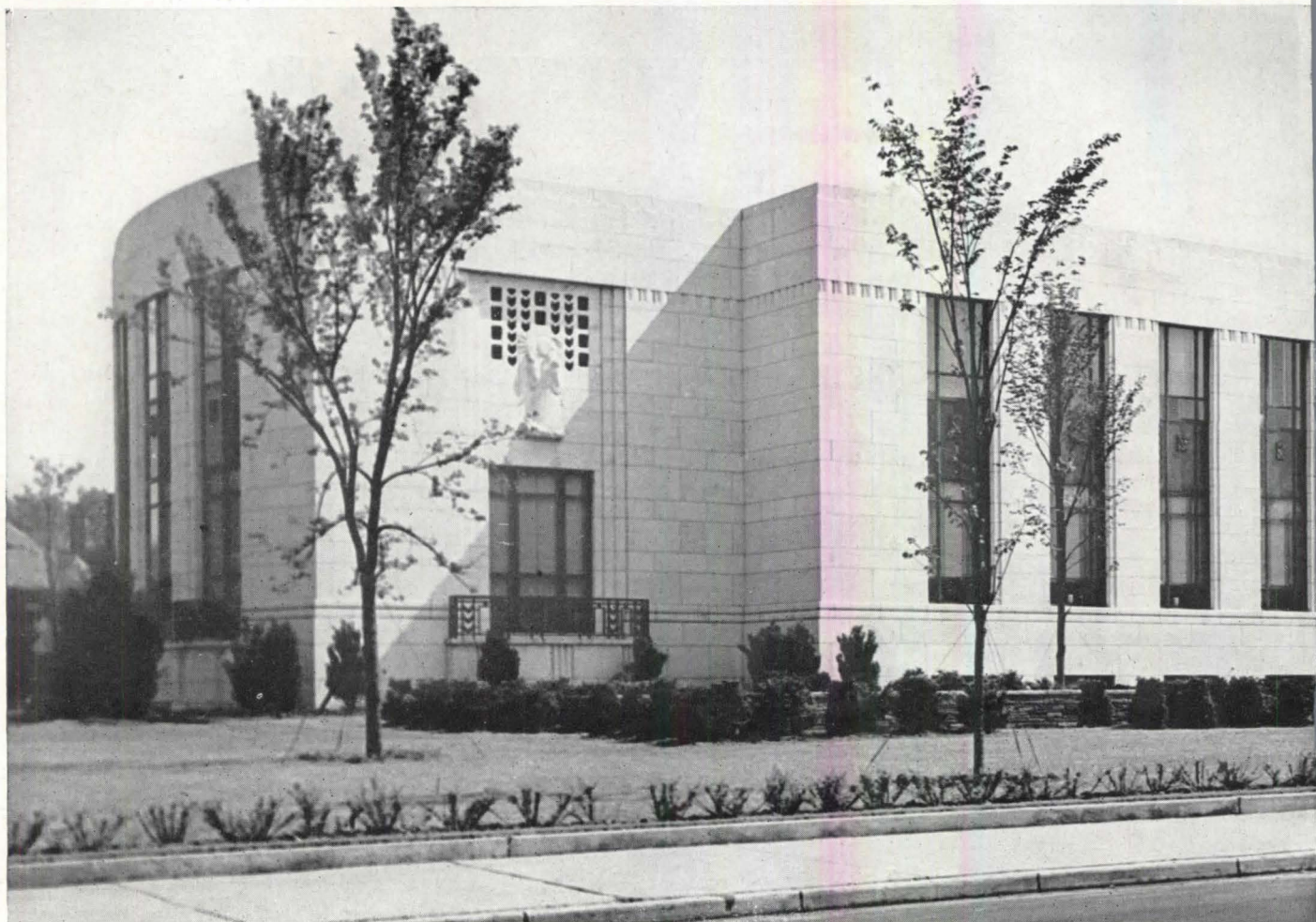
◆ A blueprint is the basis of the contract to build. It can't easily be altered without showing that it has been changed. It is definite and direct and binding. It is no longer a series of pencil lines that can be erased or modified or added to. To the layman, and sometimes to the architect, it is the end of the beginning, the start of actual building rather than the working out of the compromise between wishes and limitations. It is impressive, for the project has progressed from the realm of ideas to tangible materials. And this is as it should be—and should be now. Blueprint now! That is the only way to be really ready to start real building when materials are again made available and men return from destruction to construction.

◆ In reviewing recent statistics and reports of building contemplated for postwar construction, it has been all too evident that too much of the "postwar planning" has been mere listing of the projects that towns and states, and corporations, institutions and other owners would like to have "when, if, and as." Too few have the decisiveness that blueprints give. It is time that the appropriations for the making of plans—blueprint plans—were made. Architects and engineers recently released from designing the great war production plants and war housing should now be at work making "blueprints for V-Day," blueprints that will mean men at work sooner in building and in producing materials and equipment.

◆ Blueprints for building a better America can be made better now than later. There is time now for proper study, for consideration of all the pertinent factors, for reaching reasoned decisions, not snap judgments necessitated by the last minute rush. Blueprint now, and be ready, with confidence.

◆ Blueprints of course can be changed—can be modified to take advantage of new developments or conditions—and still the man (or corporation or town or state) who has blueprints now will be 90 per cent ahead of the man whose postwar planning is mostly wishful thinking. He will be most ready to take advantage of whatever is new or better, for the preliminary thinking will be done and the relation of the new to his project will be specific and definite. He'll still be best prepared and ready first who will Blueprint Now! Architects and engineers can, if they will, spread the word persistently and consistently—"Blueprint Now!"

Kenneth K. Stowell



HORACE H. RACKHAM EDUCATIONAL MEMORIAL

For Engineering Society of Detroit and University of Michigan

*Harley & Ellington, Architects and Engineers**

FORTUNATELY completed, after years of development work, just at the start of the war, this unusual educational building found a utility beyond original expectations. Designed to house in combination the organization headquarters of the Engineering Society of Detroit and the Extension Services of the University of Michigan, the building has proved "as vital to the war effort in this area as a manufacturing plant."

For some fifteen years various engineering and architectural groups had wanted a headquarters building for meetings, lectures, special study courses, and so on; the project was continually growing in concept and size with

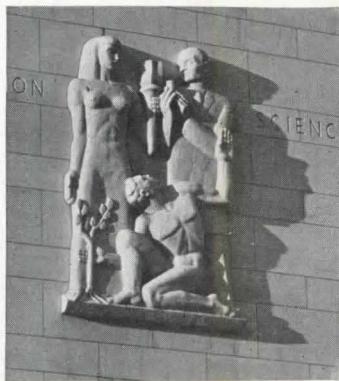
increasing memberships, and with the intensification of Detroit's characteristic production "know-how." Finally the scheme was coordinated with some special needs of the University's Extension Services until the building became the unusual combination it is, with the help of ever-increasing grants from the Rackham Engineering Foundation. Completed in January, 1942, the Rackham Memorial Building arrived on the scene just in time to house the scurrying exchange of technical information on the swing to war production of a great industrial area. There were new and good facilities for meetings and courses ranging from the most involved technical subjects to civilian defense, war housing, even strike mediation.

Though the building had no precedent as to plan re-

* Now the firm of Harley, Ellington and Day, Detroit, Michigan.



Elmer L. Astleford photos



Education and science form the theme for this sculptured group, one of many used for relief ornamentation. They are the work of Marshall Fredericks, of the Cranbrook Academy

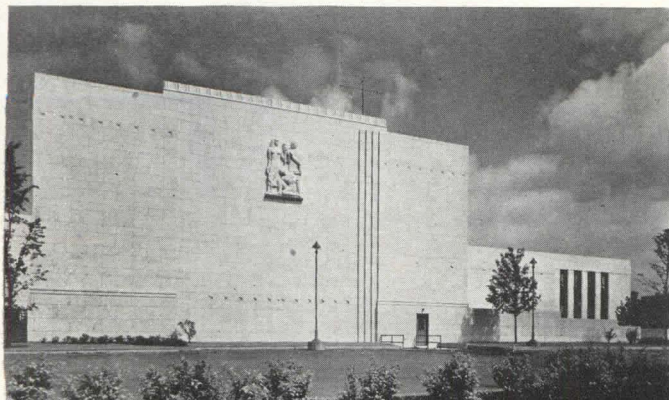
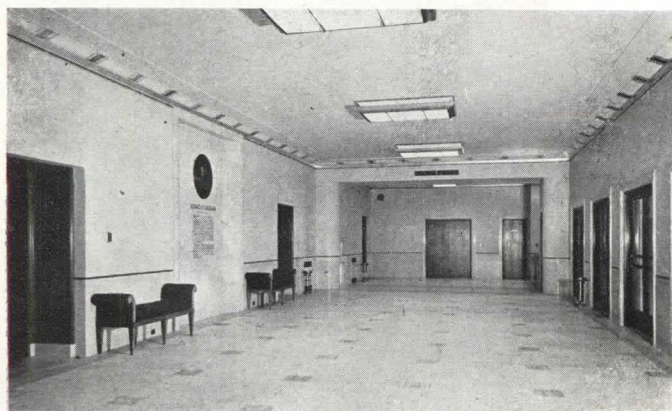
quirements, the design assignment did include integrating this building architecturally with a group of its neighbors in the Detroit Art Center, with its Library by Cass Gilbert, and the Institute of Arts by Paul Cret. In the interest of harmony, therefore, the architects chose a design of classic simplicity which still manages to reflect contemporary influences.

Structurally the building is of reinforced concrete, with an exterior of three basic materials, each of which contributes to the design in its own way. White marble was used for the facing and for ornamental sculpture. Dark granite in the spandrels provides a strong contrast and strengthens the bold effect of fenestration. Cast bronze in spandrel ornaments and windows and doors adds warmer

tones, which are found also in interior decorations.

The site is a full city block, the building measuring 404 ft. in length and ranging from 65 to 150 in depth. The patterned flagstone terraces extending down to street level from moderately elevated main entrances are combined with small formal planting areas. A continuous series of American elms around the perimeter of the property is used to frame the picture. T. Glenn Phillips was landscape architect.

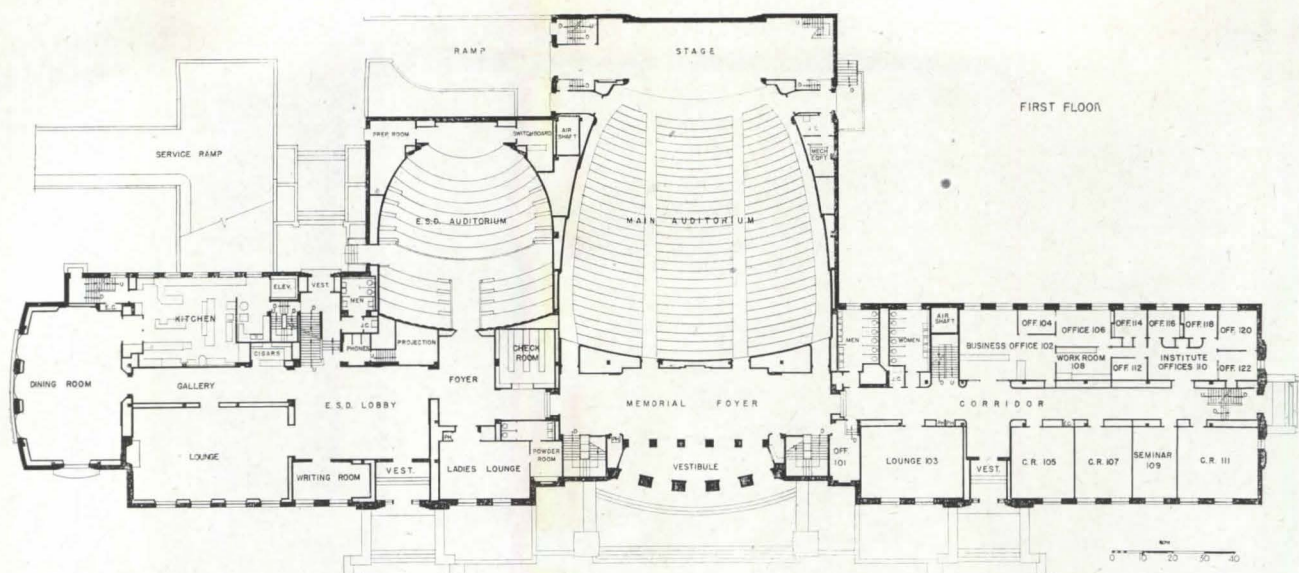
With two distinct ownerships and occupancies, having diversified use and facilities, the building represented an unusual assignment as to plan and arrangement. What it amounts to is a combination of two different buildings under the same roof and with certain common facilities.



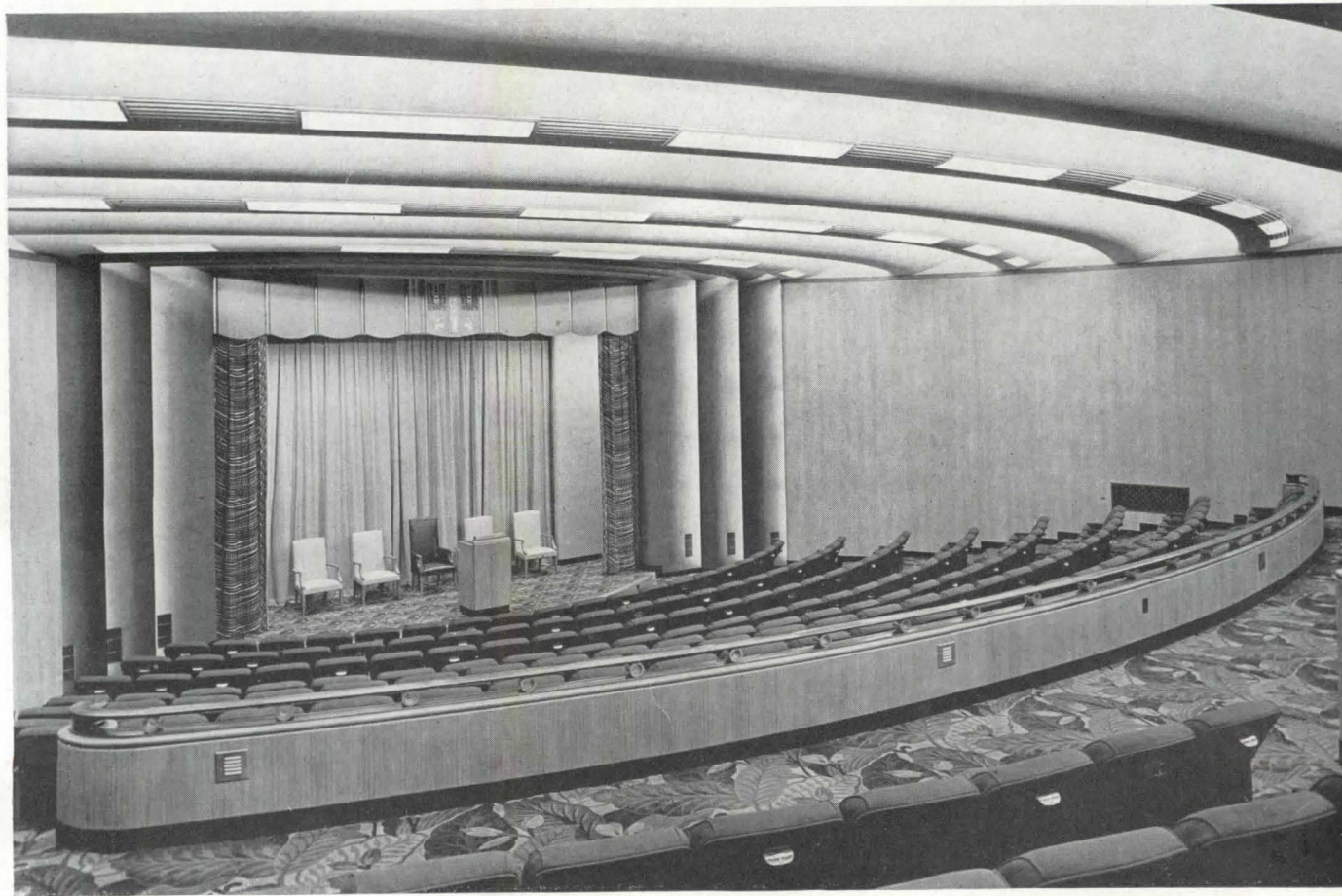
Main auditorium seats 1,000 people. For acoustical quality and full vision, side walls are a series of gently molded steps of predetermined angle converging toward the stage. View of auditorium foyer, left

The University unit combines classroom facilities, special science lecture rooms, broadcasting studio, library, administration offices, and service and rest rooms. The center section of the building, including the Main Auditorium and the banquet hall, was planned for use by either occupant. The engineering unit includes the small auditorium, assembly and lounge rooms, library and research room, secretarial and personnel offices, together with dining and modest recreational facilities.

The plans show the result of putting these two sections together and yet maintaining some separation, with an apparent duplication of certain facilities in order to permit separate control of the two sections. Three front entrances are one obvious example (first floor plan, page 61). There is a central main entrance serving the main auditorium, and this part of the building, intended



An unusual planning assignment for the architects, the building serves two distinct ownerships, different occupancies, which overlap in joint use of the main auditorium. Entrances and corridors are arranged for individual operation of its three sections as virtually separate buildings. Below: Engineering auditorium, for a wide range of uses, has widely spaced seats, strong lighting





Lobby of Engineering Society section is paneled with rift oak and decorated with carved wood symbols of the several engineering fields represented in the Society



Contrasting examples of the designers' art in the Engineering Society wing, as represented by the powder room, left, in ladies' lounge, and the writing room, right. All interiors, fabrics and furnishings, were the assignment of the architects and their decorating consultant

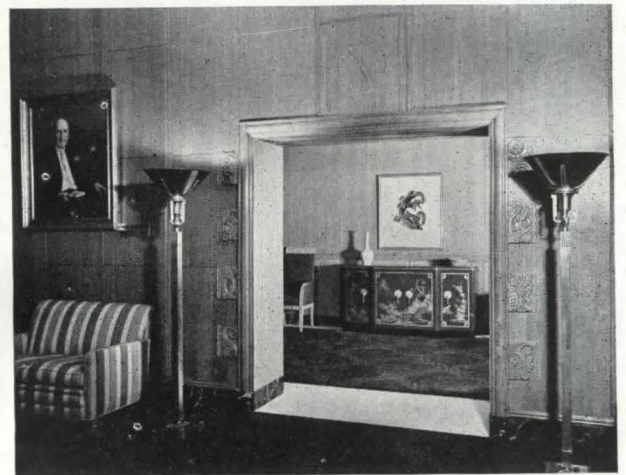
for use by either the University or the Engineering Society, or for outside functions, can be used by itself while keeping other portions closed. The other two front entrances serve the Engineering Society wing (the left) and the University wing (right).

Notice also corridor arrangements, to maintain separation between certain portions.

The main auditorium seats 1,000 people. For good acoustics and full vision, the side walls form a series of molded steps converging toward the stage. The theater is fully equipped for all manner of projection; although it is not designed for theatrical productions the stage is equipped for any conceivable scientific demonstration, even to the extent that an automobile or truck can be driven onto the platform.

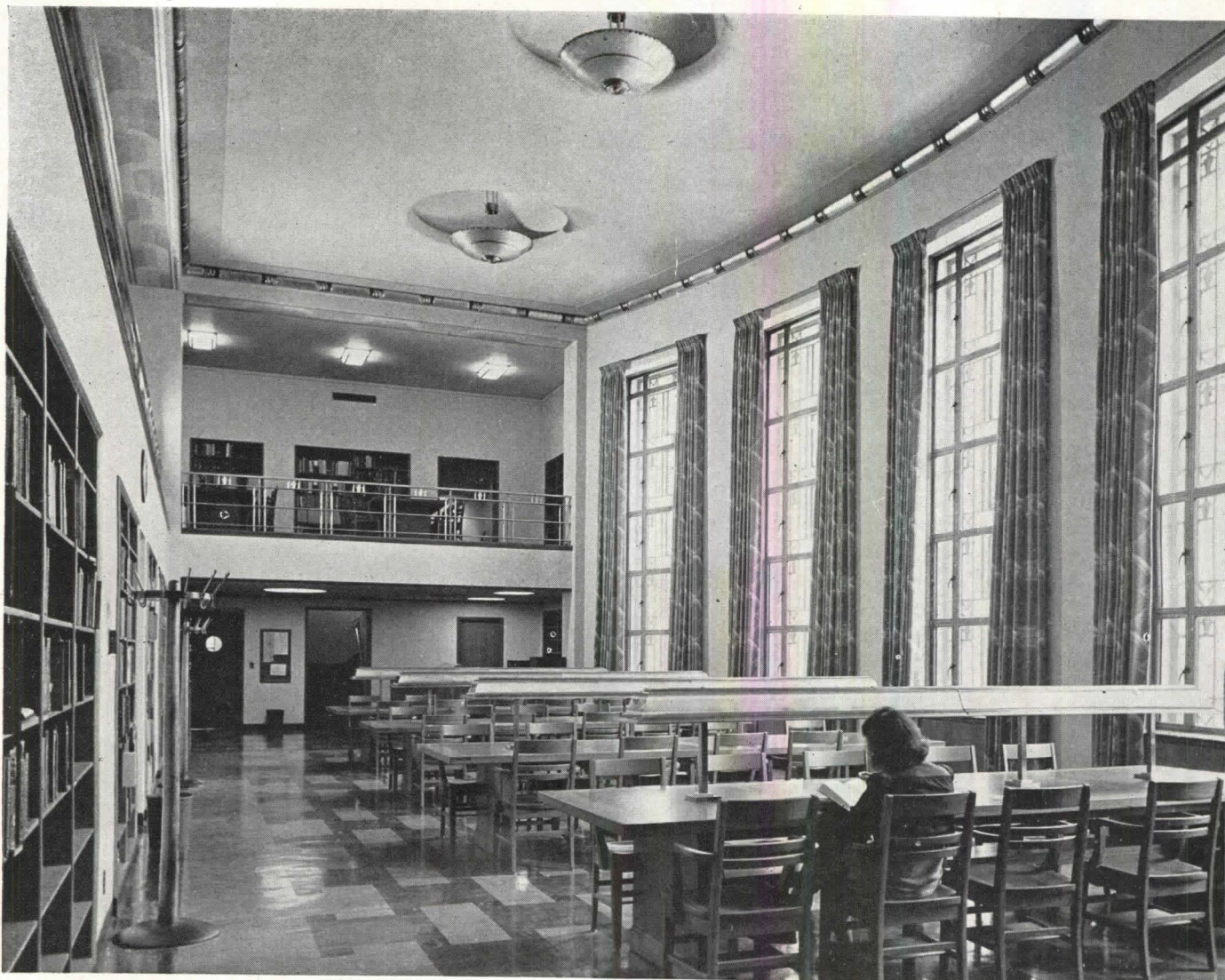
The use of color in the auditorium is typical of the building. It is bold, in this case with case blue walls relieved by gold and red molded bands contrasting with the red of seats and carpets.

The banquet hall below, the second portion for joint use, has a serving capacity of 650, and has its own kitchens separate from other dining facilities. Because of its size and its uniform lighting the banquet hall can also serve as exhibition



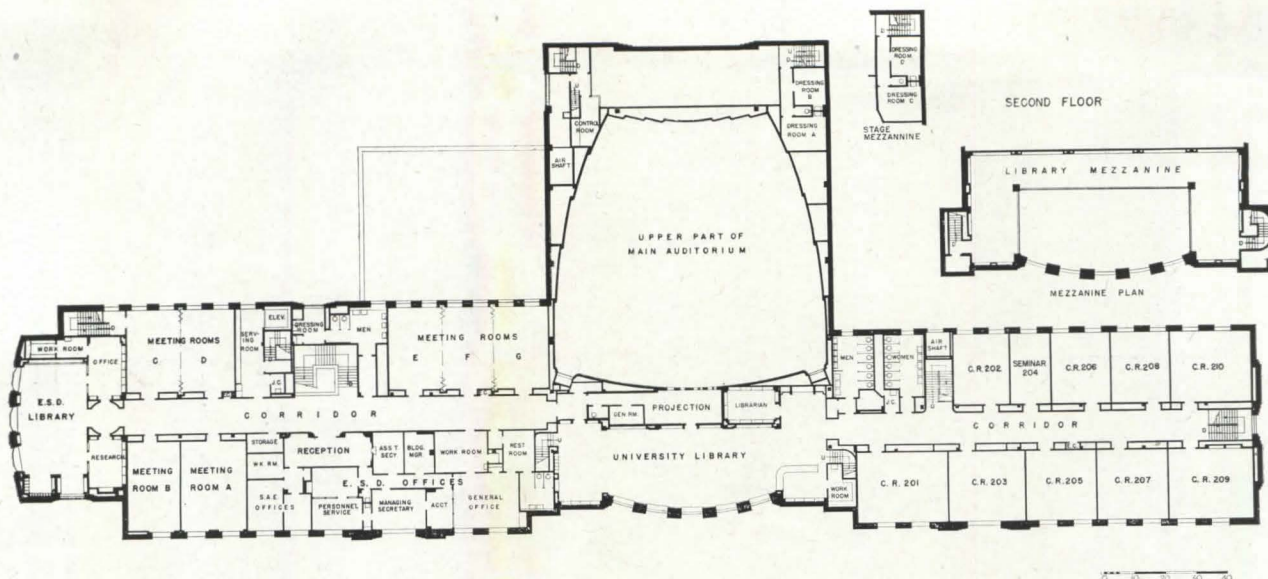
Top, right: Engineers' lounge; mural over the fireplace by Zoltan Sepeshy, Cranbrook Academy of Art. Right: Detail of doorway leading from Engineers' lounge to main gallery; natural walnut paneling. Below: Engineers' dining room; mural on end wall by Clifford West, also of the Cranbrook Academy





Above: University of Michigan Library, with its mezzanine story, occupies the central front of the second floor, with high windows along the slightly curved wall over main entrance. Below: Engineers' Library also has one curving wall, this one at the end of left-hand wing





space, or as supplementary auditorium capacity.

In the University wing most of the floor space has been devoted to classrooms, certain of them special types. On the ground floor the science lecture room has steeply tiered seats, thus the preparation room is considerably below the corridor level. Across the corridor there is a sound-isolated broadcasting studio for student work.

Plans for the other wing, for the Engineering Society, show entirely different uses. Here are a separate, smaller auditorium, for technical and scientific lectures and demonstrations, and other diversified facilities ranging from recreational to research. The engineering auditorium has 300

Among the most appreciated facilities of the Engineering Society portion are the several committee rooms, especially useful for the hurried exchange of technical "know-how" of the early days of war production. Above, a single-unit room; below, a triple combination





When the atmosphere gets too conservative, the junior engineers may gather in their own room

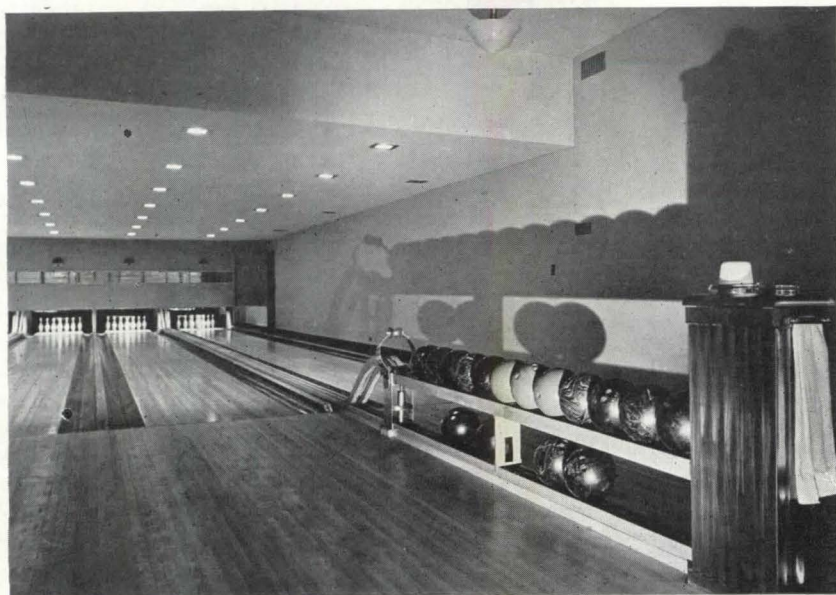
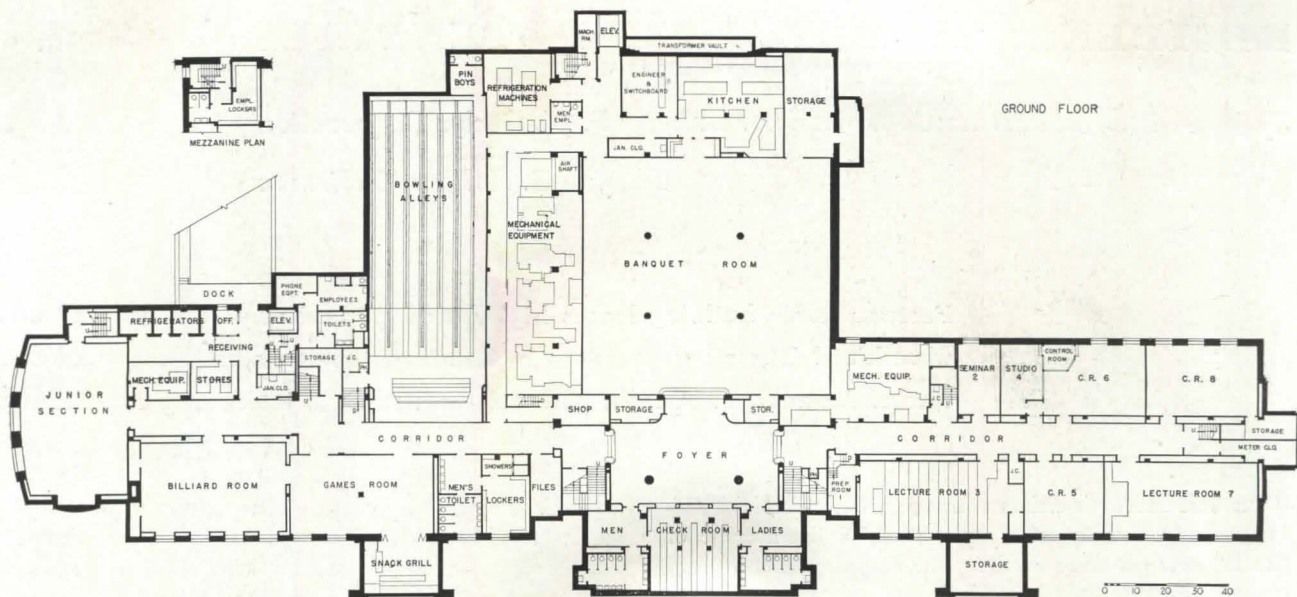


tiered seats, spaced for easy passage in front of an occupied seat. It is designed for informal or forum type meetings, and equipped with projection equipment. Here again color is generously used, with graduated red tones on the proscenium frame, blue carpet and seats, and full height bleached walnut surfaced walls.

In the engineering unit, and largely throughout the building, the design of all furnishings—furniture, drapes, upholstery fabrics, carpets, lamps and accessories—were included in the architects' assignment. All were specially done for their rooms and purposes. Miss Helen F. Stafford was decorating consultant.

Main banquet room seats 650 for dining, is also useful for exhibits. Banquet foyer above, left





On the ground floor the building continues its three-unit arrangement, the University wing still for classrooms, the Engineering section for recreation

Recreation facilities include club room for junior members, bowling alleys, billiard room, general games room with snack bar, also lockers and showers



RESIDENTIAL BUILDING POTENTIALS

By Committee on Postwar Construction Markets, F. W. Dodge Corporation

Thomas S. Holden, Chairman

Postwar home building looms big! How big? and why? and where? and what kind? These are questions in minds of architects, builders, manufacturers. An analysis of most potent factors leads to interesting conclusions.

THIS CORPORATION's estimate for postwar residential building volume, already widely published,* is an average of 820,000 new non-farm dwelling units a year in Continental United States for ten years following the war. This is three times the average annual volume of the decade 1930-1939 and 16 per cent greater than the average annual volume for the 1920-1929 period. It is an overall figure intended to include single-family houses plus dwelling units in two-family houses and multiple dwellings, flats over stores and other commercial buildings, and new or additional units created by alteration or conversion of existing buildings.

While no exact measure of housing shortage exists, it is probably greater than the shortage at the end of World War I. During the 1930-1939 decade, only 10 new non-farm dwelling units were built to every 16 new non-farm families founded. Surplus at the beginning of the decade may have taken care of some of the new families, but certainly not all. Shortages have accumulated greatly since wartime restrictions curtailed all house-building except war housing.

Relative prosperity, as measured in anticipated national income is also an important factor. American consumers in the aggregate spend, customarily and almost uniformly, about 13 per cent of their total outlays for rent (or the

equivalent of rent in carrying charges on owner-occupied houses). Consequently, a large increase in national income increases the total fund available for rent, for house-improvement, for moving into better houses, for purchase of new houses.

TRANSITION—The first postwar year will be characterized by shortages of materials and by the general confusion of readjustment, possibly by hesitation as to price trends.

Most urgent demand, and the one most readily satisfied, will be for deferred maintenance, repairs and modernization of existing buildings. It is quite possible that relaxation of restrictions in favor of this class of work will be made before new building projects are permitted to go ahead. Furthermore, such expenditures are relatively small, they are urgent, they are made to protect existing investments without necessitating the careful appraisal required for major investment decisions.

FHA officials have been quoted as estimating residential repair work throughout the United States during the first 12 months after restrictions are lifted at \$3,000,000,000. FHA is prepared to issue loans up to \$2,500 for essential repairs and modernization; doubtless, a large proportion of house-owners will be able to pay cash for necessary work.

It seems obvious that the kinds of houses definitely banned by war restrictions will be among those most urgently needed. First new-house demand likely to become

* See also—"How Many Postwar Houses?" ARCHITECTURAL RECORD, September 1943 and "Construction Potentials"—Chapter II, ARCHITECTURAL RECORD, December 1943.

NUMBER OF NEW DWELLING UNITS CREATED IN 37 EASTERN STATES IN NON-FARM AREAS, 1937-1940, BY TYPE

Source: F. W. Dodge Corporation

Type	1937		1938		1939		1940	
	Units	%	Units	%	Units	%	Units	%
Apartment Buildings	42,277	27	48,485	27	87,813	32	76,037	24
One-Family—Owner's Order	46,424	30	51,990	30	69,295	26	85,979	27
One-Family—Sale or Rent	53,797	34	59,007	33	92,505	34	124,960	40
Two-Family Houses	6,645	4	7,770	4	9,817	4	14,740	5
Conversions and Combination Projects	7,045	5	9,777	6	11,956	4	12,653	4
TOTALS	156,182	100	177,029	100	271,386	100	314,369	100

Note: The Dodge figures, tabulations of specific building projects reported currently by the corporation's field staff, do not include all houses built singly in the lowest price classes and are lower in the aggregate than government estimates; they do not include coverage of the 11 western states.

Note the preponderance of single-family houses, and the relative importance of houses built on owner's order for owner's occupancy. During the 4-year period of the table houses built on owner's order cost on the average (without land) about \$6,400 compared with an average of \$4,800 for houses built for sale or rent.

effective is for houses built on owner's order for owner's occupancy, largely in the price-class above the maximum-priced war-housing—\$6,000 with land, or very roughly \$5,000 without land, since a very large proportion of war housing was built at prices below the permitted maximum. Many prospective owners already own lots, many have earmarked savings for down payments, some have accumulated cash. Furthermore, owners' decisions to build do not have to wait upon lifting of rent ceilings. Many savings institutions are effectively promoting home-planning among their depositors, the larger proportion of whom would demand houses in middle price ranges (\$5,000 up).

Houses to be built for sale by operative builders are apt to follow the building of houses on owner's order, although it is impossible to estimate whether the interval will be a matter of weeks or months. It is likely that most of earlier development projects will be moderate in size. Really large-scale developments are apt to consist of houses in the lower price ranges, the market for which will be uncertain while postwar migrations to new jobs are going on, temporary government housing still exists, and postwar construction costs are unsettled. There is a question whether really large-scale developments will be seen in numbers for some months after single-house and moderate-sized projects have revived in large volume. In the year 1938, only 16 per cent of all the one- and two-family houses built were produced by builders erecting 31 or more houses during the year; more than two-thirds of the total houses were built by builders whose year's operations ranged from 2 houses to 30 houses per builder.

Rental housing (which includes practically all apartment building) is likely to revive after rent ceilings have been lifted and after postwar construction cost trends have been clearly established.

Owing to numerous transition problems, it is likely that in the first 12 months after restrictions on house-building are lifted, there will be built in Continental United States some 350,000 to 400,000 new non-farm dwelling units, of

which 80 per cent or more will be produced in the 37 eastern states.

HOME OWNERSHIP—Home ownership should increase substantially in the postwar decade. Favoring conditions are:

1. Anticipated prosperity, with widespread purchasing power, sizeable amounts of which are already earmarked for home-purchases or down-payments.
2. Favorable mortgage market and purchase terms.
3. Probable continuation of population trends toward suburbs and outlying areas.

Here are some census figures on owned and rented homes:

	Owner-occupied	Tenant-occupied
1920	10,866,960	12,943,598
1930	14,002,074	15,319,817
1940	15,195,763	19,658,769

NET INCREASES BY DECADES:

	Owner-occupied	Tenant-occupied
Prosperity Decade 1920-1930	3,135,114	2,376,219
Depression Decade 1930-1940	1,193,689	4,338,952

Note—These figures cover occupancy status of housing existing on census dates; they do not measure house-building volumes.

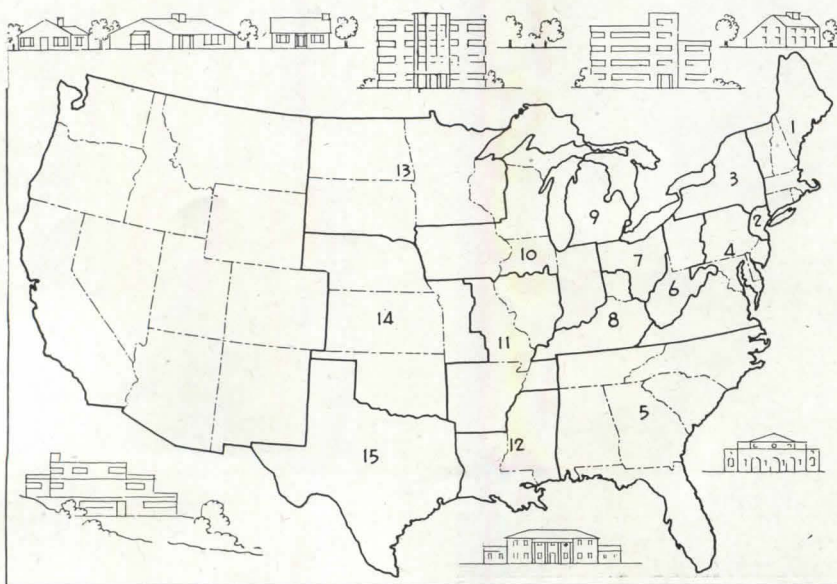
In the postwar prosperity era of the 1920's, the net increase in owned homes was much greater than the net increase in rented homes; the reverse trend occurred in the 1930's, a period marked by deflation of property values, wholesale foreclosures and distress sales of home properties.

The influences favoring increased home-ownership also tend to favor a preponderance of single-family houses in the program of new building operations, both new houses planned and built on owner's order for owner's occupancy and houses produced by operative builders for sale.

Rental housing should also be in strong demand. Ex-

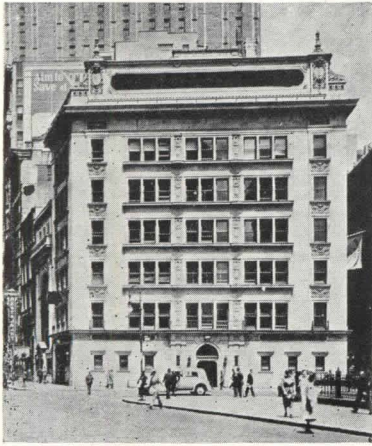
(Continued from page 134)

GEOGRAPHICAL DISTRIBUTION—The following table gives a very rough approximation of the distribution of new non-farm dwelling units (produced by buildings plus conversion of existing buildings) estimated to be built in the first ten years following the war:

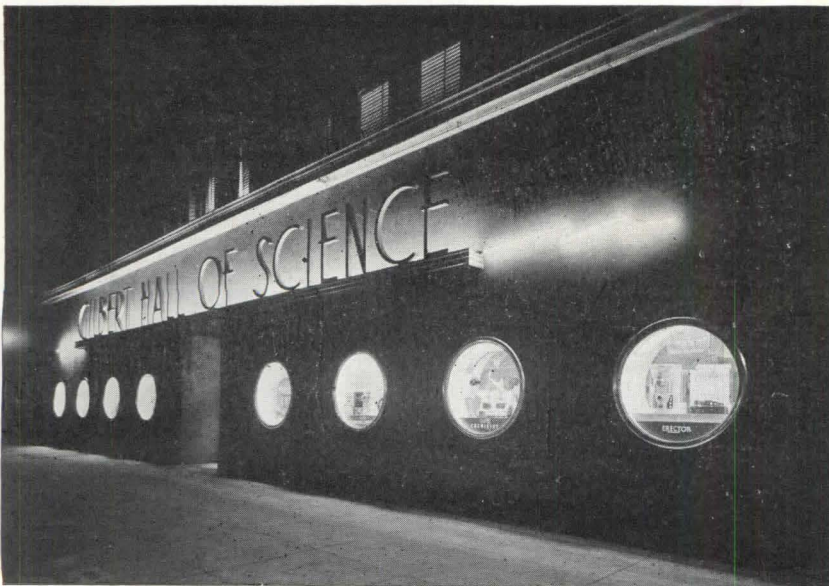


Territory (see map)	Estimated Number of Units in 10 Yrs.
1. New England	372,000
2. Upstate New York	90,000
3. Metropolitan New York and Northern New Jersey	976,000
4. Philadelphia District	740,000
5. Southeastern Territory	947,000
6. Pittsburgh District	267,000
7. Cleveland District	214,000
8. Cincinnati District	233,000
9. Southern Michigan	340,000
10. Chicago Territory	809,000
11. Minneapolis District	250,000
12. St. Louis District	397,000
13. Kansas City District	175,000
14. New Orleans District	264,000
15. Texas	515,000
11 Western States	6,589,000
UNITED STATES	8,200,000

© American Map Company



MODERNIZED FOR SCIENTIFIC TOY DISPLAY



Harry Preble, Jr., Designer

Night view of the modernized display front. In place of the old narrow first floor windows, deep portholes were used to show merchandise. The displays are mechanical toys in operation, are also featured inside

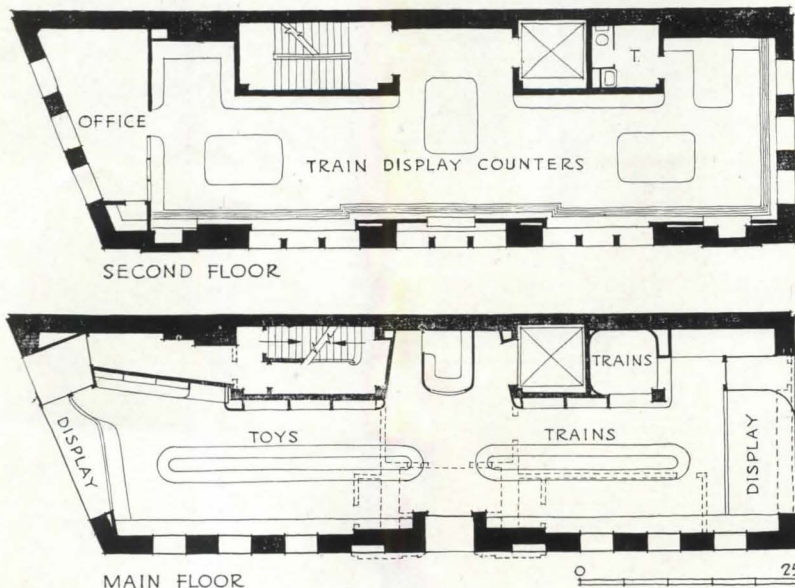


ECONOMY was one of the governing factors in modernizing this building for a manufacturer of toys and electrical appliances. The main facade of the Gilbert Hall of Science, New York, overlooks a park and the other two fronts are on Fifth Avenue and Broadway, respectively. Such an extended perimeter naturally called for a frugal approach to the exterior face-lifting.

A fine-grained acid-washed stucco was used as a facing material, slate blue at the first floor and buff above to match the existing terra cotta. A tier of windows on each side of the front as well as the building parapet were enclosed with this material to provide larger flush surfaces.

The spandrels, formerly polychrome tile ornament, were faced with corrugated roofing material painted maroon to provide a background for the signs. The narrow windows at the street front were changed to form deep porthole openings housing animated displays which are a part of the interior design as well.

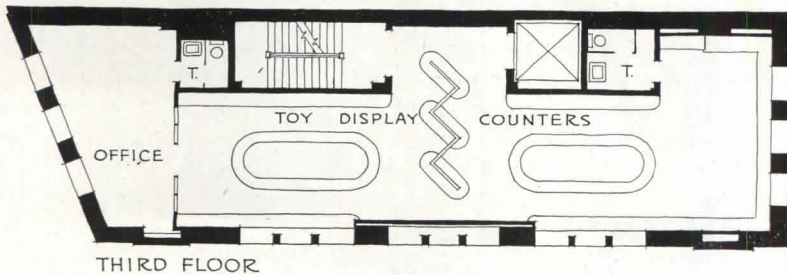
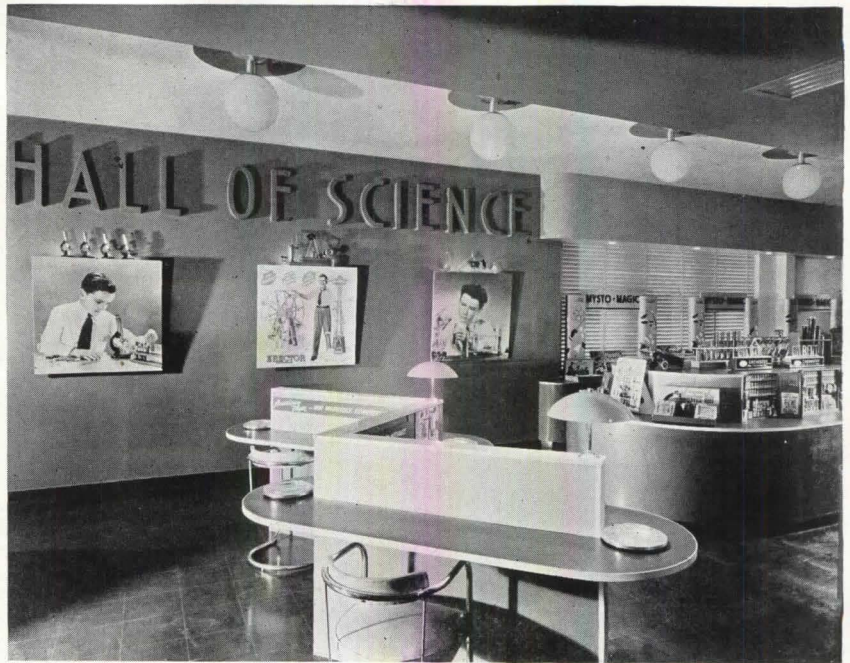
The main interior is a miniature World's Fair of displays and models designed to hold juvenile interest. The color scheme here is red, white, gray and slate blue. General lighting is cold cathode tubing combined with pin-hole spotlights for display accents. The upper floors are used for the manufacturer's private showrooms and offices.



First floor plan showing old partitions removed, new, effectively lighted display counters and booths (photo above). Second floor plan showing office and display areas



Show rooms are clean-cut and colorful, attuned to and centering attention on the mechanical and scientific toys. Above, indirectly lighted photomurals of engines enhance the railroad atmosphere. Right, the third floor display of microscopes and chemical sets. Third floor plan below



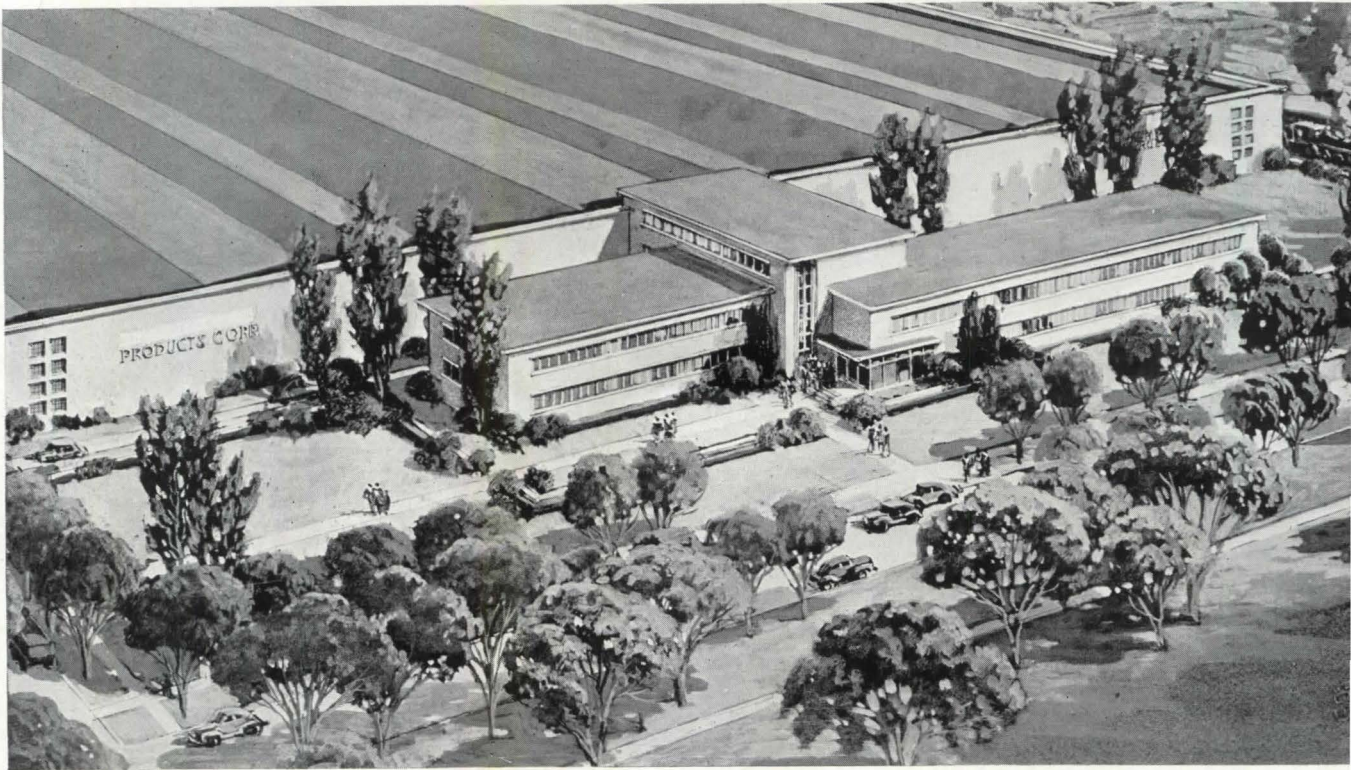
DESIGN FOR TODAY AND TOMORROW

Seven projects with war and postwar significance developed by the office of

SMITH, HINCHMAN & GRYLLS, INC. *Architects and Engineers*

WHETHER IN WAR or in peace, the American way of life is always issuing new challenges to designers. Our way of waging a war is to equip our fighting men with the best and the most of every form of weapon, of transportation, of food, of medical service, with every gadget or garment that will increase their effectiveness or help them survive. Our objective for peacetime is to utilize American ingenuity and productive capacity in a similar way for a nobler purpose. It all calls for ever more initiative, more daring, more ability on the part of every designer, no matter in what particular field he may specialize.

Smith, Hinchman & Grylls, Inc., Detroit architects and engineers, represent an interesting if not exactly typical example of a firm of designers accepting the challenges of the times. A large organization before the war, with specialists in dozens of categories, the firm designed war production facilities, notably ordnance plants, and constantly accepted new responsibilities and added new personnel until at one time there were 1,100 on its



1.

payroll. Like others in the war program, it was forced to find ways to get plans out faster, to expedite and coordinate as never before.

Now that the tide of war work is running out, the firm's pool of design talent is being shifted increasingly to postwar studies and blueprints. While there are still large groups working to improve machine parts and processes, the architectural and structural departments have their big war jobs largely behind them. But postwar production is already posing its own kind of problems.

Assembled in succeeding pages is a group of buildings, some prewar, some postwar, of the type expected to appear in increasing numbers when peacetime building can begin. Above is a more or less typical manufacturing plant for small airplane parts, its design fresh and stimulating, its roof flat just in case the helicopter predictions do come true. There are four other small (compared to war plants) industrial buildings—one for medicine capsules, one for building and automobile hardware, one for automotive parts, another for the fabulous powdered-metal processes. Just to broaden the picture, there are also a postwar slum clearance project and a scheme for a large and progressive high school.

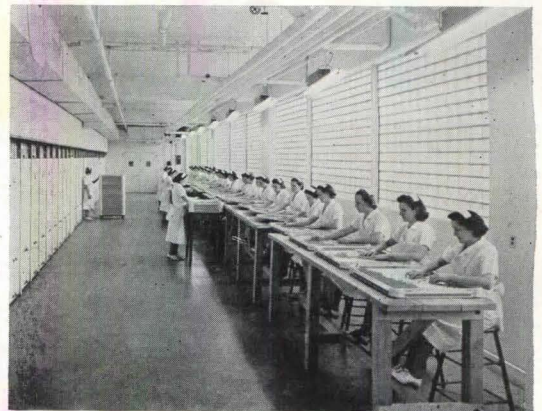
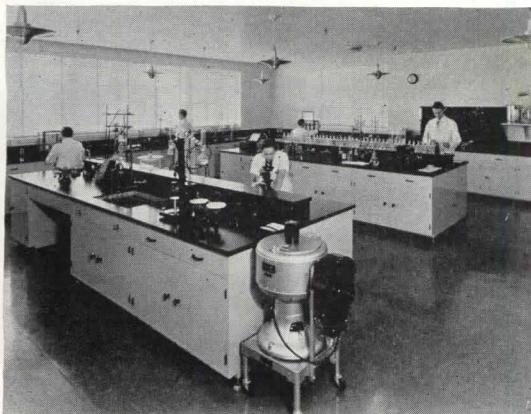
2. PLANT FOR MAKING MEDICINE CAPSULES

*Factory for Gelatin Products Co., Detroit, Michigan
Smith, Hinchman & Grylls, Inc., Architects and Engineers*



ARCHITECTURAL photographers, like magazine editors, always give first attention to photogenic portions of a building. In the case of an industrial building like this one they might thus fail to do justice to the overall design effort. For here the plans grew around a special machine which forms and fills medicine capsules, and the design study revolved around the manufacturing process. From there on the task involved providing a plant complete with power and heating facilities, machine shops, experimental laboratories, air conditioned drying rooms and storage units, employees' cafeteria, service rooms and administrative and sales quarters.

The manufacturing process required a two-story building. It is built of cream-colored brick, with stone trim, aluminum sash and mouldings. Heavy asbestos-cement board, in 4 by 8 ft. sheets, was used for the exterior walls of the factory section. For its insulating qualities, glass block was used in areas requiring an abundance of light.

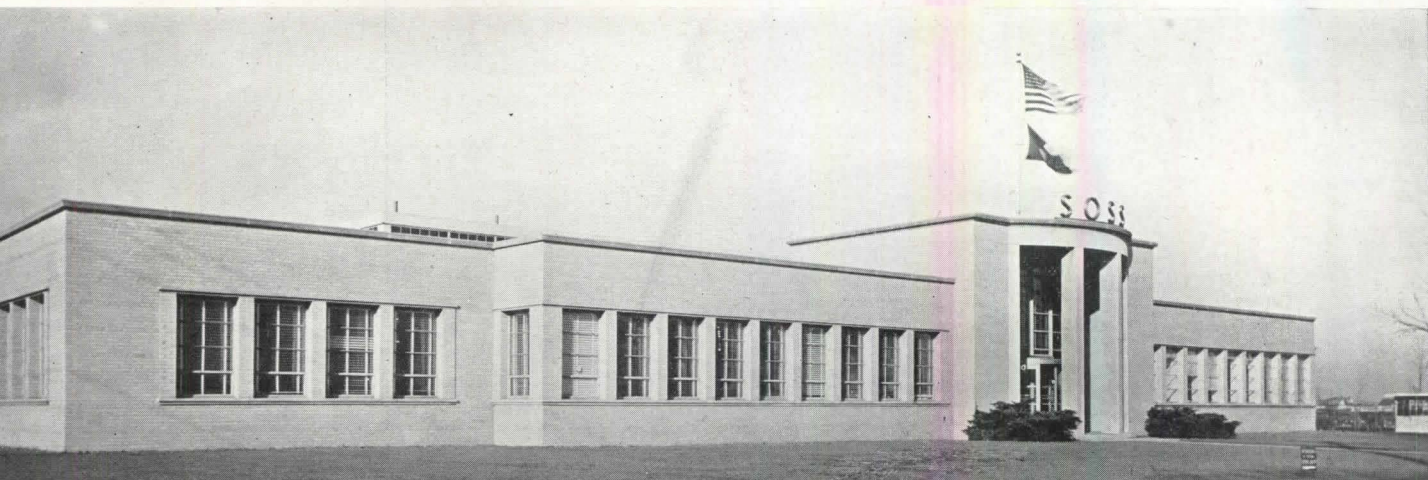




Daylight dominates the office interiors, with light surfaces for reflection



For all the engineering study that must go into the manufacturing plant, the assignment of the designers does not end there. The architectural department has its own tasks—workable and efficient plans, an impressive exterior, and practical and attractive interiors, and what might be called prestige-building, for customers and management and employees alike



3. MANUFACTURING PLANT FOR HARDWARE

Factory and Showrooms for Soss Manufacturing Co., Detroit, Michigan

Smith, Hinchman & Grylls, Inc., Architects and Engineers



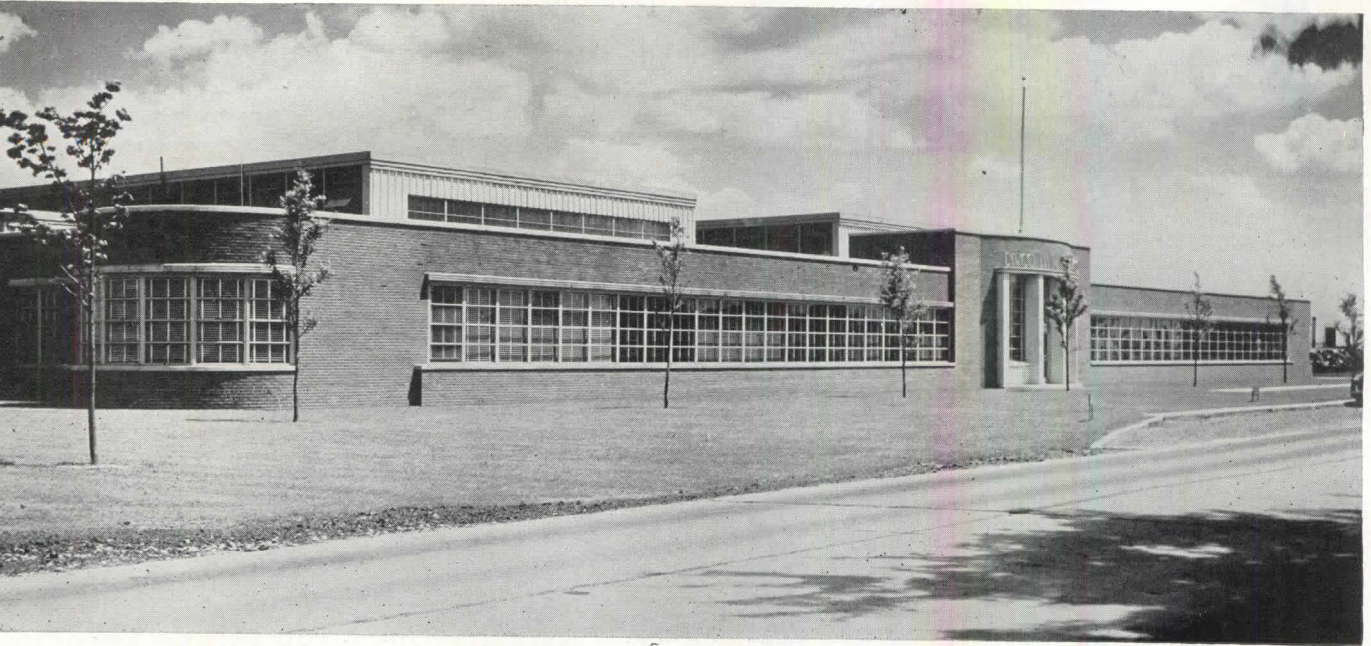


Elmer L. Astleford photos

WHILE THE MARKET for building hardware is widespread, that for automobile hardware is concentrated in the general area around this plant. The building is, therefore, both a manufacturing plant and a sales room and distributing center, and this consideration was an important design factor.

The lobby, with its high ceiling, is open and spacious. The effect was enhanced by making the front wall a screen of glass in an aluminum frame. Display cases are built into the lobby walls. The office portion, in this case incorporated with the factory building, is of red brick.

Existing machinery was a primary consideration in the design of the manufacturing section. A one-story structure proved the best for layout purposes, with a mezzanine story for lockers, lunch and service rooms. Overall dimensions for the building are 217 by 460 ft. The factory section is of concrete block, with continuous windows in side walls, and monitor sections to light the interior.

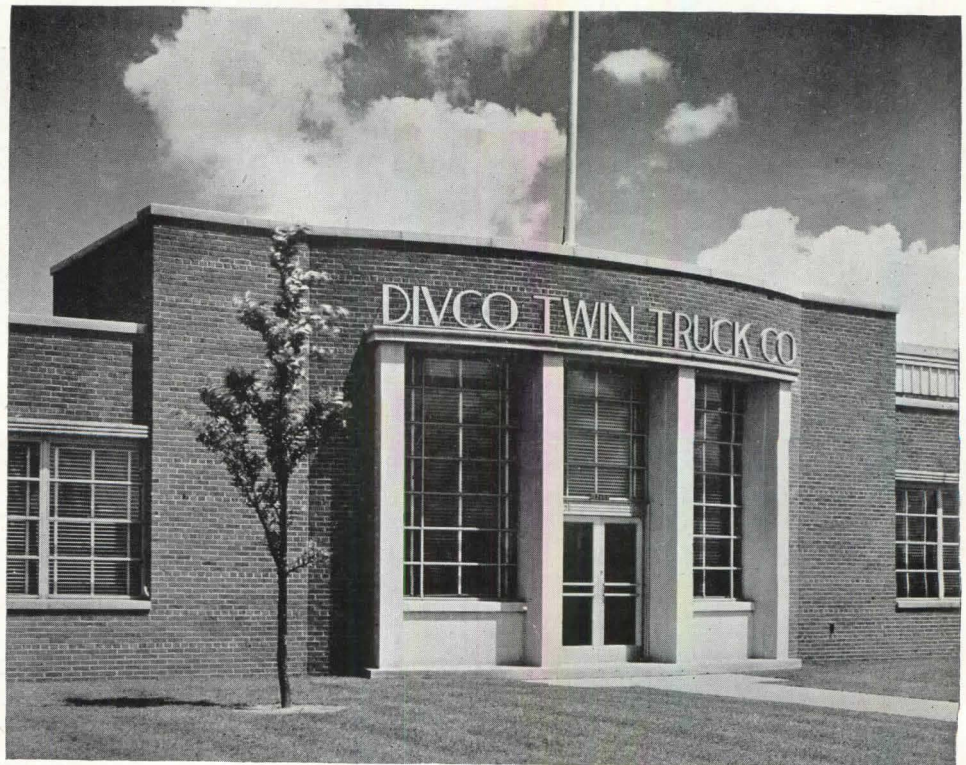


4. FACTORY FOR AUTOMOTIVE SPECIALTIES

Plant and Offices for Divco Twin Truck Company, Detroit, Michigan

Smith, Hinchman & Grylls, Inc., Architects and Engineers

BUILT with exceptional economy, this industrial plant is of steel frame construction with 50 by 40 ft. bays. With the cantilever system of framing it was possible to span 50 ft. with beams rather than trusses. The cantilever method also permitted the use of continuous sash in the front elevation, with no interfering columns to a depth of 14 ft. from the windows. Factory walls are of concrete block; administration building of red brick and stone. Roof is wood planking.



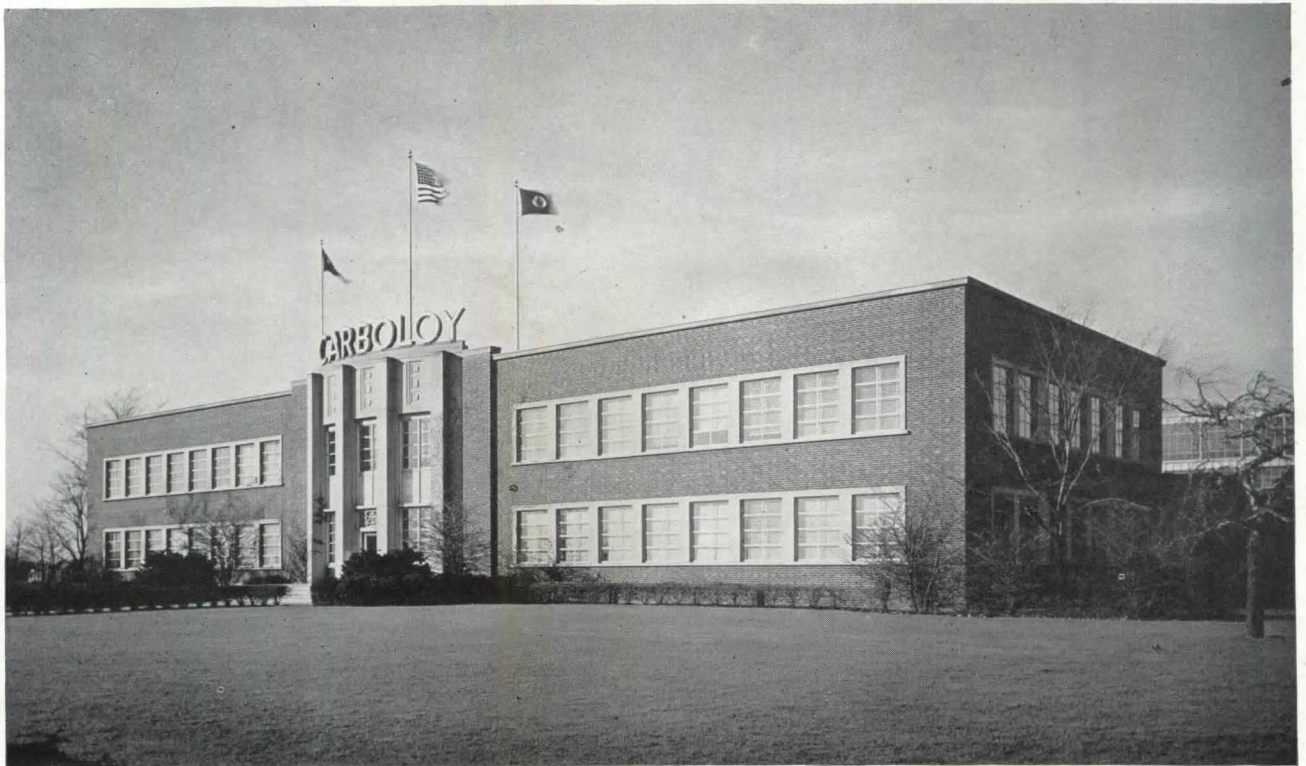
John S. Coburn photos

5. PLANT FOR POWDERED METAL PRODUCTS

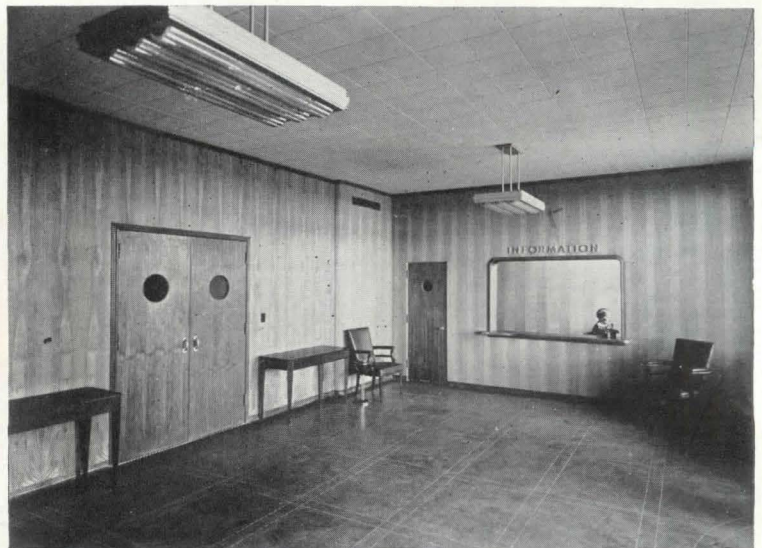
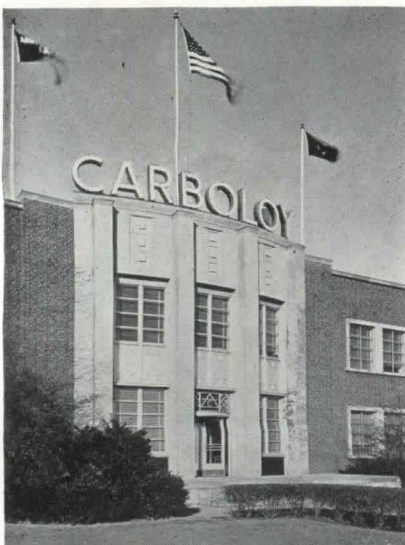
Factory and Administration Buildings for Carboloy Company, Inc., Detroit

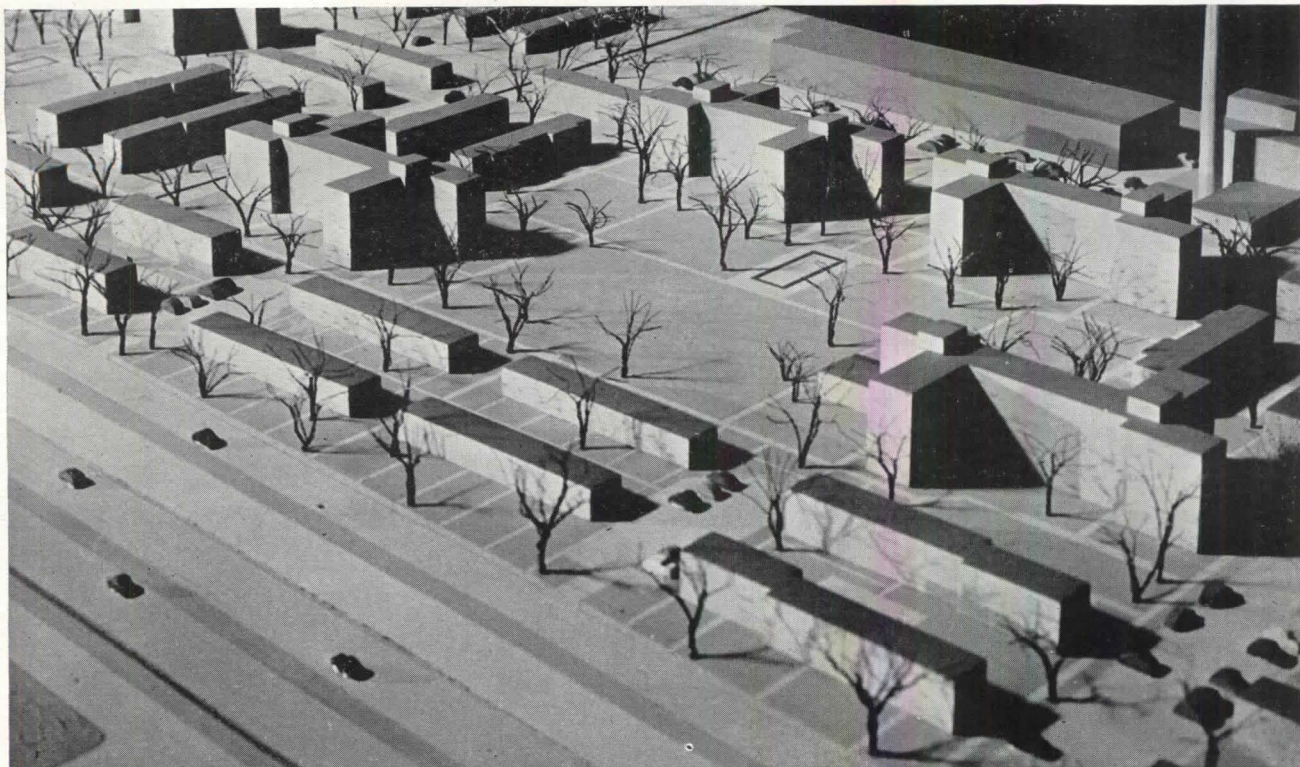
Smith, Hinchman & Grylls, Inc., Architects and Engineers

FORTUNATELY completed in mid-1941, this plant, the largest producer of cemented carbides, was ready to supply war industries with the new, hard, cutting tools developed by the powdered metal process. The administration building, here a separate structure, has 33,500 sq. ft. for engineering, sales, and general offices. The factory is an all-welded steel frame and brick structure of 88,000 sq. ft. Offices and powdered-metal rooms are fully air conditioned. The factory is lighted by mercury lights, with polished aluminum reflectors, giving 50 ft.-candles at the working plane. Besides spacious locker and wash-rooms, employees' facilities include a cafeteria and a recreation room in a basement section.

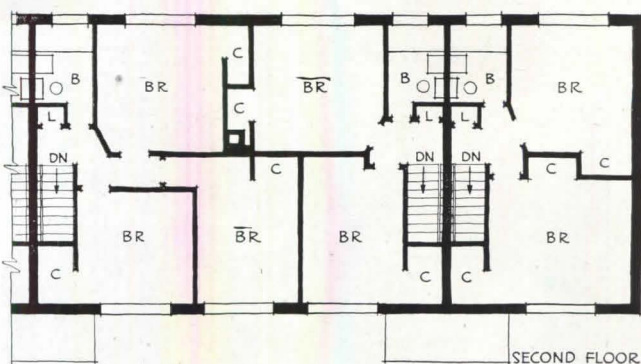
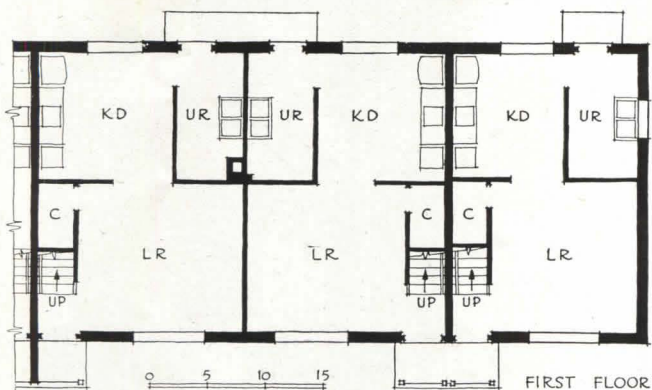


Elmer L. Astleford photos

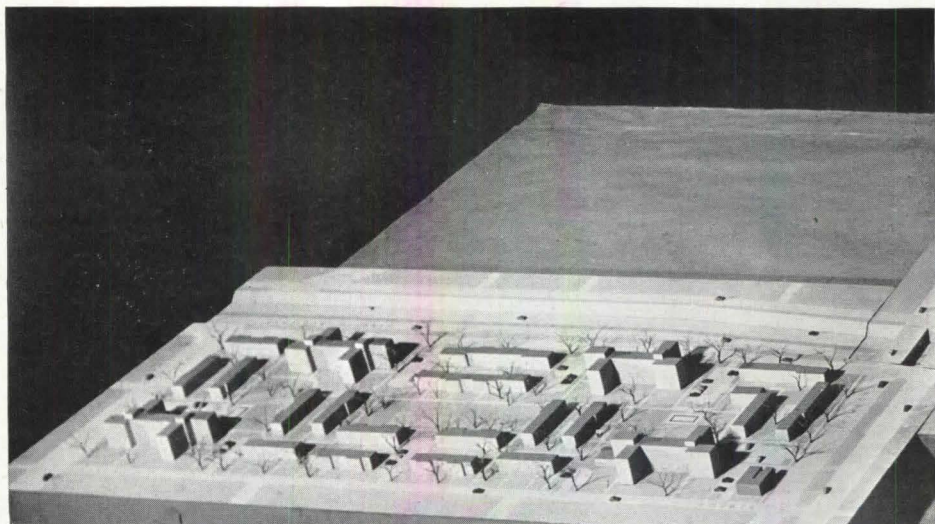




Elmer L. Astleford photos



Besides the two-story row-type buildings (plans of typical units above) there are also three-story buildings with units of two and three bedrooms, and six-story buildings with elevators





6. A POSTWAR SLUM CLEARANCE PROJECT

Amedeo Leone, Architect, Smith, Hinchman & Grylls, Inc. and

C. Howard Crane, architectural and engineering consultants.

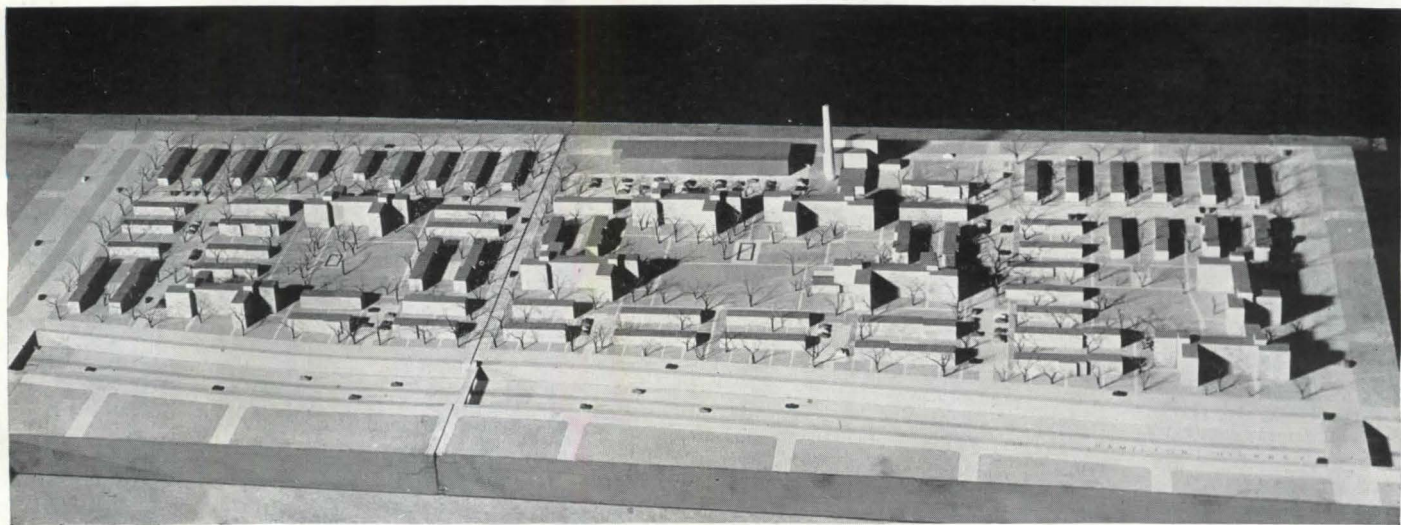
Raymond H. Wilcox and T. Glenn Phillips, landscape architects

SHOWN HERE in photographs of miniature models, the Edward J. Jeffries Homes was conceived as a slum clearance project for 1700 families in Detroit's downtown area. High cost of land was something of a problem in meeting density requirements while still keeping the development open to sunlight.

The plan divides the area into three super-blocks, to insure maximum freedom from the heavy traffic on, and to, the through highway running beside the site. The site plan was affected by the necessity of maintaining existing underground utility services, but it was possible to arrange buildings to form a considerable variety of courts for recreational and lawn areas.

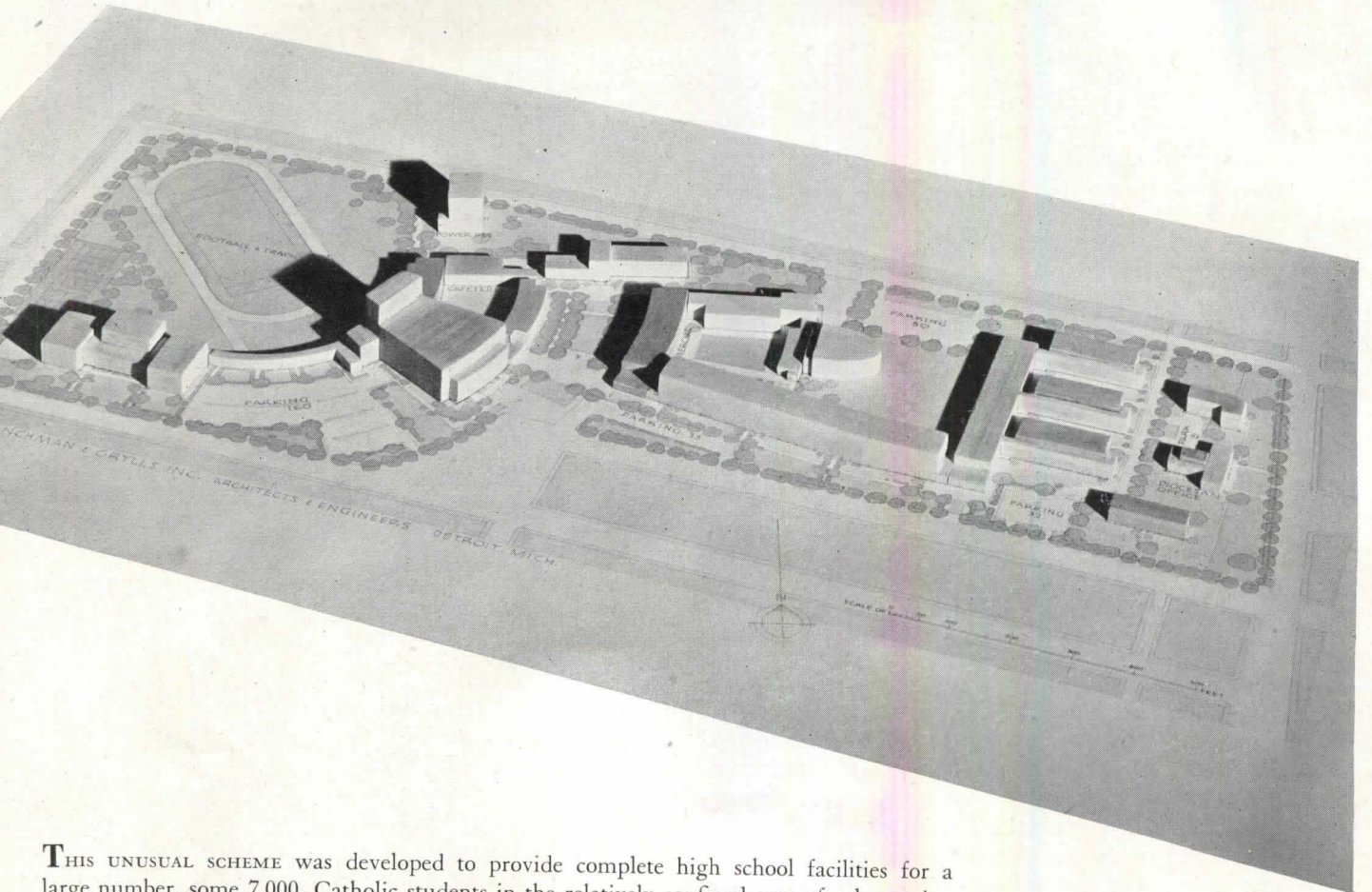
Buildings of three types are planned: 1. two-story row houses, for families of six to eight people; 2. three-story buildings of two- and three-bedroom units; and 3. six-story elevator buildings of smaller apartments. Laundries, recreation rooms and storage facilities are provided in the larger buildings. There are also nurseries and an administration building.

Buildings will be of fireproof construction, in brick, steel and concrete.

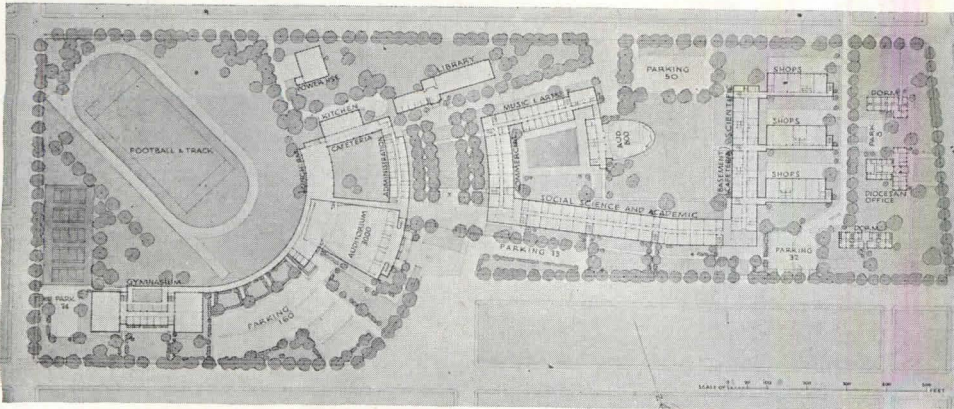


7. PAROCHIAL HIGH SCHOOL FOR POSTWAR

Smith, Hinchman & Grylls, Inc., Architects and Engineers



THIS UNUSUAL SCHEME was developed to provide complete high school facilities for a large number, some 7,000, Catholic students in the relatively confined area of a large city. The preliminary study involved determination of probable breakdown of student specialties as follows: 2200 in trade and technical work; 500 in social science; 500 domestic science; 500 academic; 500 science; 550 music; 150 art; 150 dramatics; and 1900 in commercial studies. This was the basis of the scheme here displayed in models. These activities are provided for in five separate buildings, grouped in the right center portion of the plot plan as shown. Various buildings for general student activities—auditorium, library, cafeteria, gymnasium, and so on, form another logical group, arranged in an interesting pattern around the athletic field. While naturally such a plan of dispersed, individually designed buildings would be somewhat easier to accomplish if the site could be chosen at will, even in city blocks it is highly desirable from the standpoint of function.



Architectural Record's
Building Types Study Number 90
Prepared in Collaboration with
MOTION PICTURE HERALD

To Americans, motion pictures are a supremely important form of recreation. The "movies" spring up everywhere behind the front. Picture theaters are being given encouragement and priorities by WPB in war production centers. Postwar plans are already reported on the boards in a volume of \$21,798,000. In keeping with the RECORD's program of relating architecture directly to owner problems, this study has been prepared in collaboration with a leading organ of the motion picture industry. It makes a new departure by dealing with the prospect of television. Whatever may be the commercial ramifications, the authors find that the physical problem of planning for the eventual inclusion of television is not difficult.

THE THEATER FOR MOTION PICTURES



By Film and Television Projection

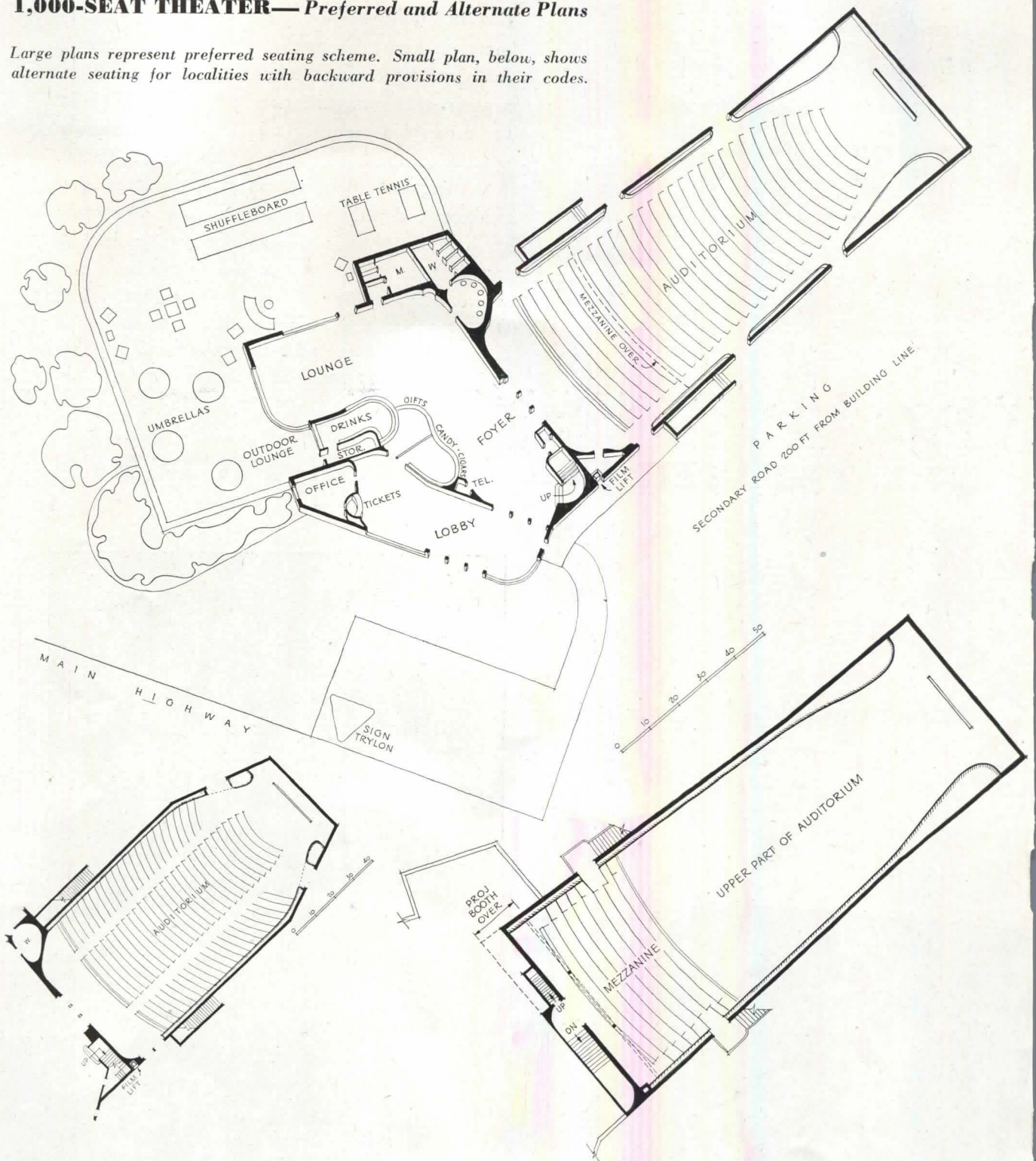


Cosmo-Sileo

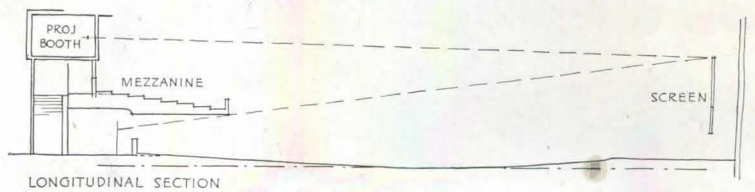


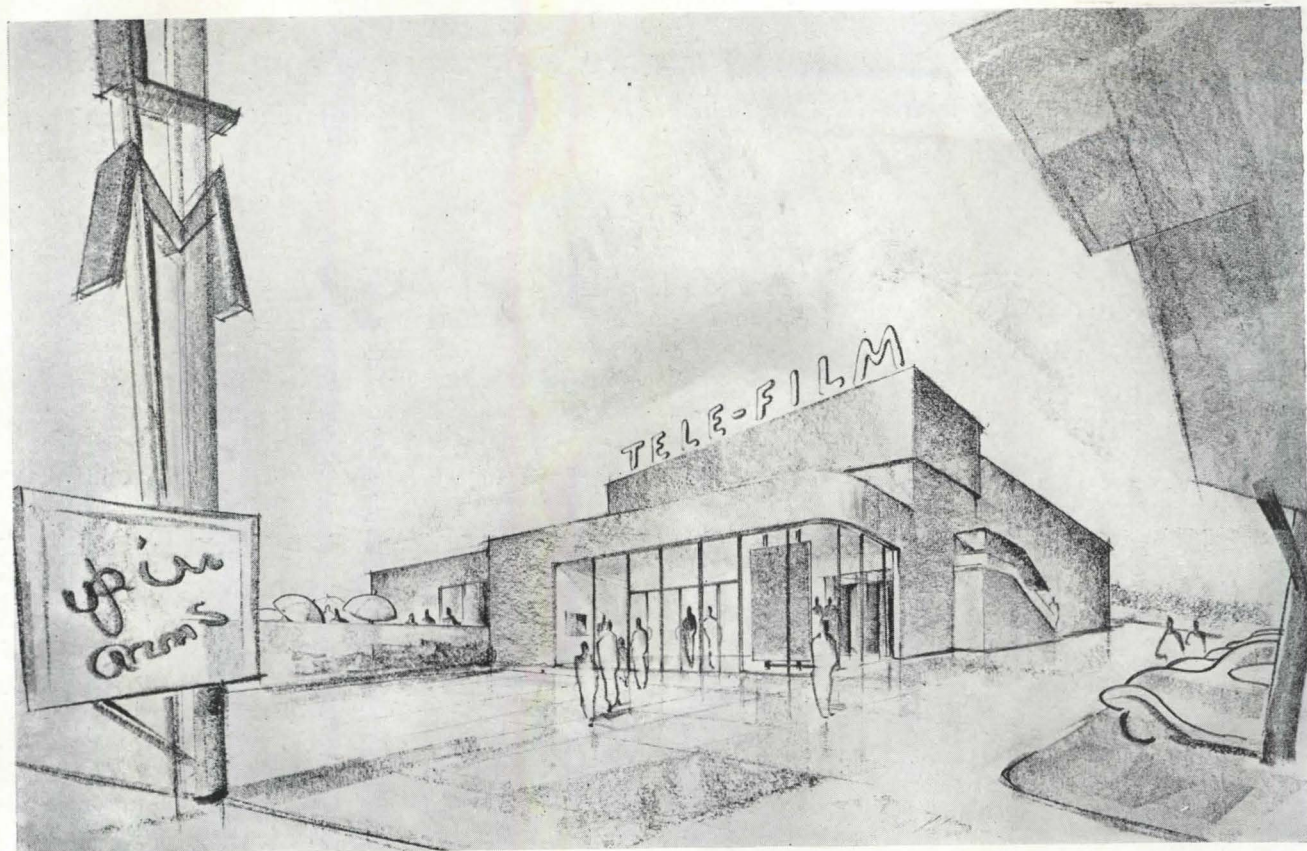
1,000-SEAT THEATER—Preferred and Alternate Plans

Large plans represent preferred seating scheme. Small plan, below, shows alternate seating for localities with backward provisions in their codes.



OUTSTANDING FEATURES of the forward-looking theater are: 1. Location off the "main stem," permitting parking from side-street. 2. Large weather vestibule with space for ticket line-ups. 3. No stores, but sales counters open both to vestibule and to a commodious lounge. 4. An outdoor lounge with additional facilities for recreation. 5. Auditorium with generous seat spacing and side-aisle circulation only. The alternate auditorium plan, lower left, meets code requirements that lag behind the newer higher standards





Free rendering, showing advertising pylon, car parking, architectural approach

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The plans and discussion on these and succeeding pages are a collaborative product. They represent the thought of a panel of distinguished theater specialists. In keeping with the ideas of the group, the architect, Mr. Schlanger, has drawn a preferred plan and an alternate plan for a 1,000 seat theater, and again for a 500-seater. It must be understood that the plans as drawn are schematic only. The same combination of facilities and standards could be embodied in a thousand different plan arrangements.

THE PANEL:

PLANS by Ben Schlanger, architect, theater specialist, contributing editor of *Better Theaters*.

PROJECTION SPECIFICATIONS by Charles E. Shultz, projection engineer, president of Heyer-Shultz, Inc., Montclair, N. J.

EQUIPMENT SPECIFICATIONS by John J. Seffing, mechanical engineer, motion picture equipment specialist.

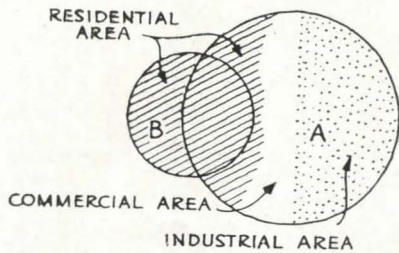
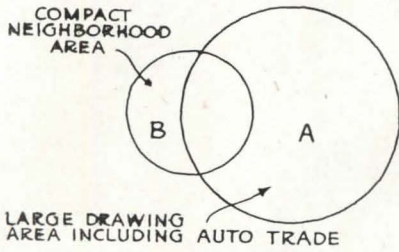
LIGHTING by C. M. Cutler, illuminating engineering, Nela Park Division, General Electric Corp., theater lighting specialist (Article to follow in a later issue).

AIR CONDITIONING by A. C. Buensod, member of firm of Buensod, Stacey, Inc., specialists in theater installations.

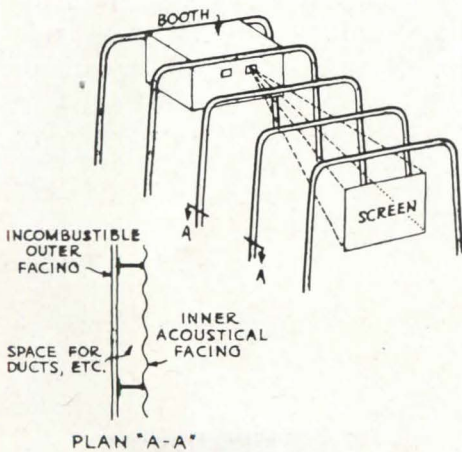
Collaborating Publications:
ARCHITECTURAL RECORD
MOTION PICTURE HERALD
 —*Better Theaters*

Renderings by Beckwith

THE THEATER PLAN *by Ben Schlanger, Architect*



DRAWING RADIUS: Our 1,000-seat theater might be built in area A or B above, or in area B below. The 500-seater would most likely be built at B above but could be at A above if the region were rural, or again at B below. Downtown theaters (A below) will be built less frequently. Note that areas overlap



VILLAGE THEATERS vary in size within a range between 500 and 700. For a village our small plan might be prefabricated in large part as sketched above. Auditorium seating, framing, projection booth could be supplied as ready-made units, as also toilets and ticket booths. The product would be inexpensive and far safer than the usual jerry-built type unblest by either architectural service or by building inspection

MOTION pictures are show business. Both the recording and the projection of the show require some of the most intricate, precise instruments of the modern scientific world. A great many theaters have been designed with all the swank that the American public likes in a "good time" place. Not nearly so many have been designed with full awareness that the building itself is an integral part of the elaborate and exact projection equipment. The picture has not really been "projected" unless it has been effectively put across to a well placed, relaxed, and comfortable audience.

What the industry lives by is the picture. The picture costs vast sums of money and a great deal of trouble both in production and in reproduction. It would be silly to lose the benefit of all this through indifferent or downright inept theater building design. For this reason we shall leave all questions of style or decoration to local custom and individual preference, while we concentrate entirely on the strictly technical and functional elements.

The primary object is to set up comfortable viewing positions for a theater-sized screen on which are projected sight and sound pictures by means of film and television. The second object is to make the theater safe, and the third to make it inviting and attractive.

TYPES AND SIZES OF THEATERS

The size of the theater is determined by the particular combination of (a) film "run" and (b) population density.

"Runs" of film correspond to the newness of the product to a particular region. In tabulated form, the relation between runs and population densities may be expressed approximately as follows:

a. Metropolitan

First run	Maximum capacity
First neighborhood run	1,200-2,000
Second and third runs	500-1,200

b. Medium-sized cities (New Haven or Hartford)

First run	1,500-3,000
Second run	900-1,500
Third run	500-1,000

c. Towns

In a relatively small community, there may be "split booking." Two theaters near together may divide the available product, and, therefore, capacities may be about the same. The size will depend on surrounding population densities.

The upper limit of size is set by projection requirements. Theaters have been built with capacities running up to 6,000 seats, but when the audience is 2,000 or more the projection problem runs into an entirely new phase. Equipment costs rise steeply and there has to be impeccable technique of operation. There is a temptation to design the auditorium too wide in order to avoid the large screen and the extremely intense illumination that would otherwise be needed at the correct length for the large audience capacity.

The lower limit of size is set by the economical margin of operation. Motion pictures can play profitably to smaller audiences than the legitimate stage can. Film rentals are low enough so that the stage minimum of 1,000 may be cut in half; nevertheless the total cost of operation usually prohibits capacities of less than 500.

GENERAL PLAN RELATIONSHIPS

- A. Street front, exterior auxiliary spaces.
- B. Interior auxiliary spaces.
- C. Auditorium.

A. Street and Surroundings

In the past the habit has been to erect theaters at the heart of the business center, regardless of the size of the town. The desire for accessibility is causing a shift in theater placement. Except in the case of the metropolitan theater, sites can be chosen away from the most expensive real estate of the "main stem." Where possible, building should be done at some distance behind the building line, to allow for a garden setting or an architectural approach including high pylons for advertising. A projecting marquee was once considered obligatory for advertising signs. This habit has become so ingrained that designers have generally overlooked the far larger and more effective space often available on vertical exterior wall planes and have neglected the opportunity of the free-standing pylon.

Plottage must always be big enough for car parking where sufficient patronage is not available within walking distance. For this reason, the plans shown herewith all include parking space. Parking area should accommodate a number of cars equal to one-fifth the number of seats.

B. Interior Auxiliary Spaces.

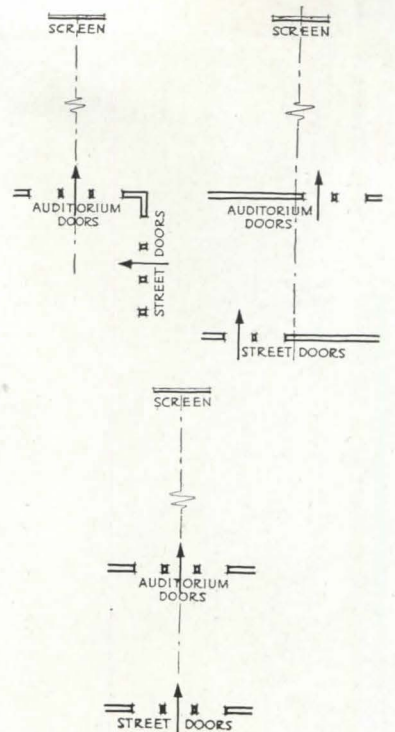
Box Office. Traditionally, the box office came to have a building-line position. Yet the building-line box office can actually attract only a negligible patronage. True, the whole city sidewalk is used as free line-up space when a big hit is playing; but in cold weather the prospective patron is left to freeze. When the ticket counter is placed in the weather vestibule its position must be out of the way of drafts. Blast heaters should be used to counteract the effect of the perpetual opening of doors.

The open counter type of box office is more intimate.

Size: The counter should be 16 in. deep to include a built-in flush-top ticket machine; the work space must be at least 3 ft. 6 in. deep and 4 ft. wide.

The manager's office should be directly connected to this work space, with a short line of travel to the safe.

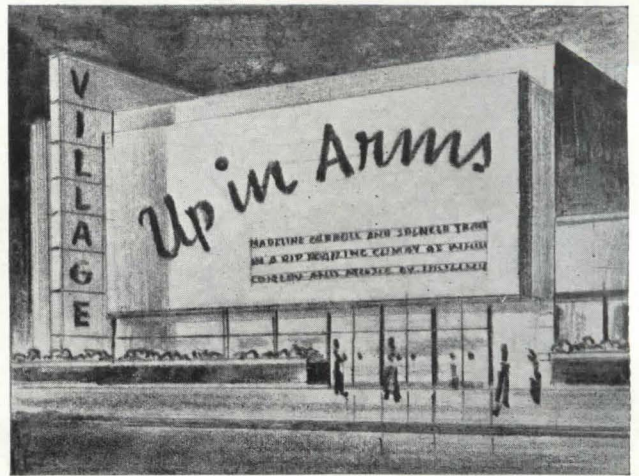
Weather Vestibule: If for any reason the box office is still designed to open to the street, then the weather vestibule can be held to minimum size; if tickets are to be sold inside, the vestibule must be large enough to accommodate waiting ticket lines. It may also serve for access to little shops and gift counters for those who may not wish to enter the

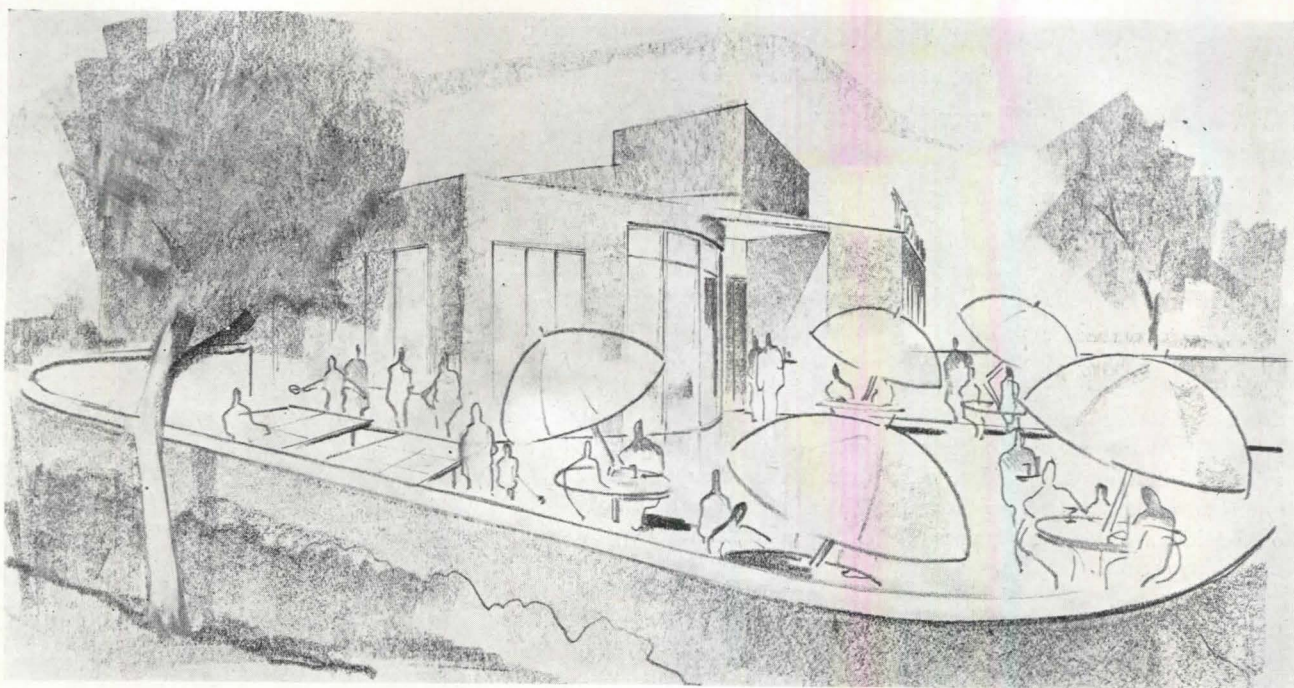


DOOR ARRANGEMENTS: two right and one wrong. Light from street doors should be shielded from the screen, either by right-angle turns between the outside doors and the auditorium doors (left, above) or by staggering (right). Never should the series of doors be on axis to the screen as shown in the lower drawing

MARQUEE vs. FULL FRONT ADVERTISING: Although a well-designed marquee is effective, the possibilities are limited as compared with the use of the whole theater front for advertising use, and the expense is greater. Pylons and free-standing signs are other available media visible from a distance. Left, River Oaks Theater, Houston, Texas, Pettigrew and Worley, Architects

Elwood M. Payne





theater. There must be wall space between the outside doors and the ticket counter for the maximum ticket line-up. Where counter shops are important, the ticket-buying patron should be guided toward them on the way to surrendering his admission ticket.

Counter Shops. Shops and services naturally associated with the theater could include:

Candy in packages selling from 5 cents to 25 cents; soft drinks; Greeting cards; lending libraries; novelties; gift shops.

Heretofore the provision for such sales and services has habitually been made in regular rental street stores built as part of the theater project. These stores often detract from the dignity of the theater itself and in many instances have not yielded an income warranting the separate space. It is now found that more and more counter shops can be placed effectively in conjunction with vestibules and foyers leading to the auditorium. Here the income they bring more than warrants their presence, and they occupy much less total space.

Doors and wall spaces. Never place the whole series of entrance doors on a straight line leading to the screen. This is a simple rule with the obvious purpose of shielding the screen from street light, yet the violations are countless. Shielding can easily be achieved by staggering successive sets of doors, or by right-angle turns from one bank of doors to the next.

Outside doors could well be all-glass, or of maximum glass area. Between the vestibule and the foyer there should be opaque doors. Between foyer and auditorium, doors should be opaque.

The Foyer. This is the circulation area leading to the main-floor seating space and to the stairway which leads to upper-level seating. The counter shops and the lounge in our design open from the foyer; in a smaller theater the lounge would contain the candy counter. There should also be provision for some "coming attraction" advertising.

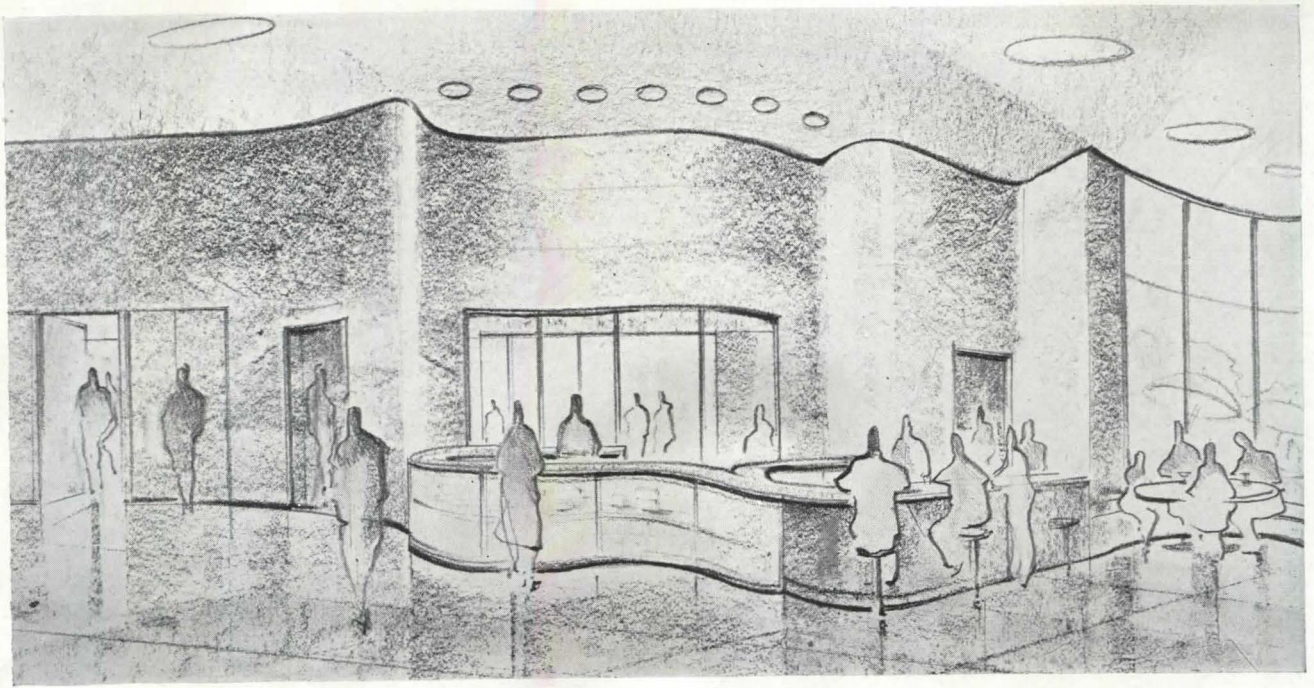
Lounge. This should be well open to view from the foyer; but it should never serve as a traffic-way either to the auditorium or to rest rooms. As large a proportion as possible of the lounge area should be usable for furniture placement. The size is optional; a good size is obtained, however, by allowing one-half to one-third square foot of lounge space per auditorium seat.

OUTDOOR LOUNGE can be used before or after seeing the picture, to round out an evening's recreation (see plan). Soft drinks are served from the fountain indoors

WEATHER VESTIBULE is sometimes supplied with posts and ropes for line-ups. Ken Theater, Chicago, Roy Blass, architect

Hedrich-Blessing

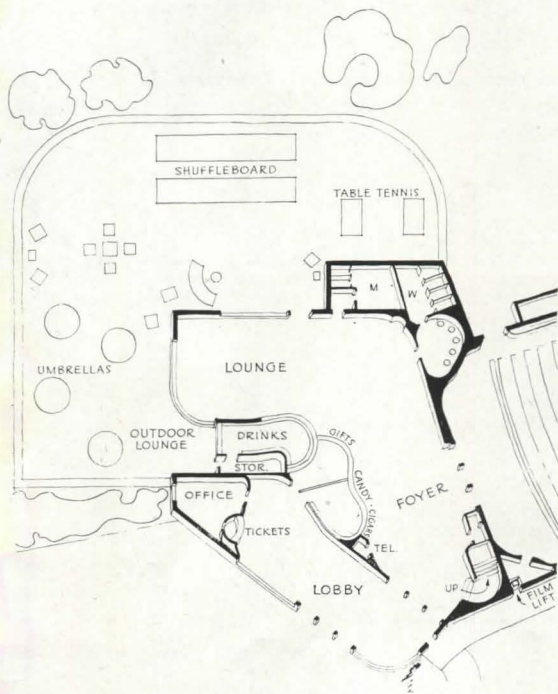




INDOOR LOUNGE: The doors at the left lead to the vestibule; at extreme right is the outdoor lounge. Profitable candy and gift counters serve vestibule and lounge

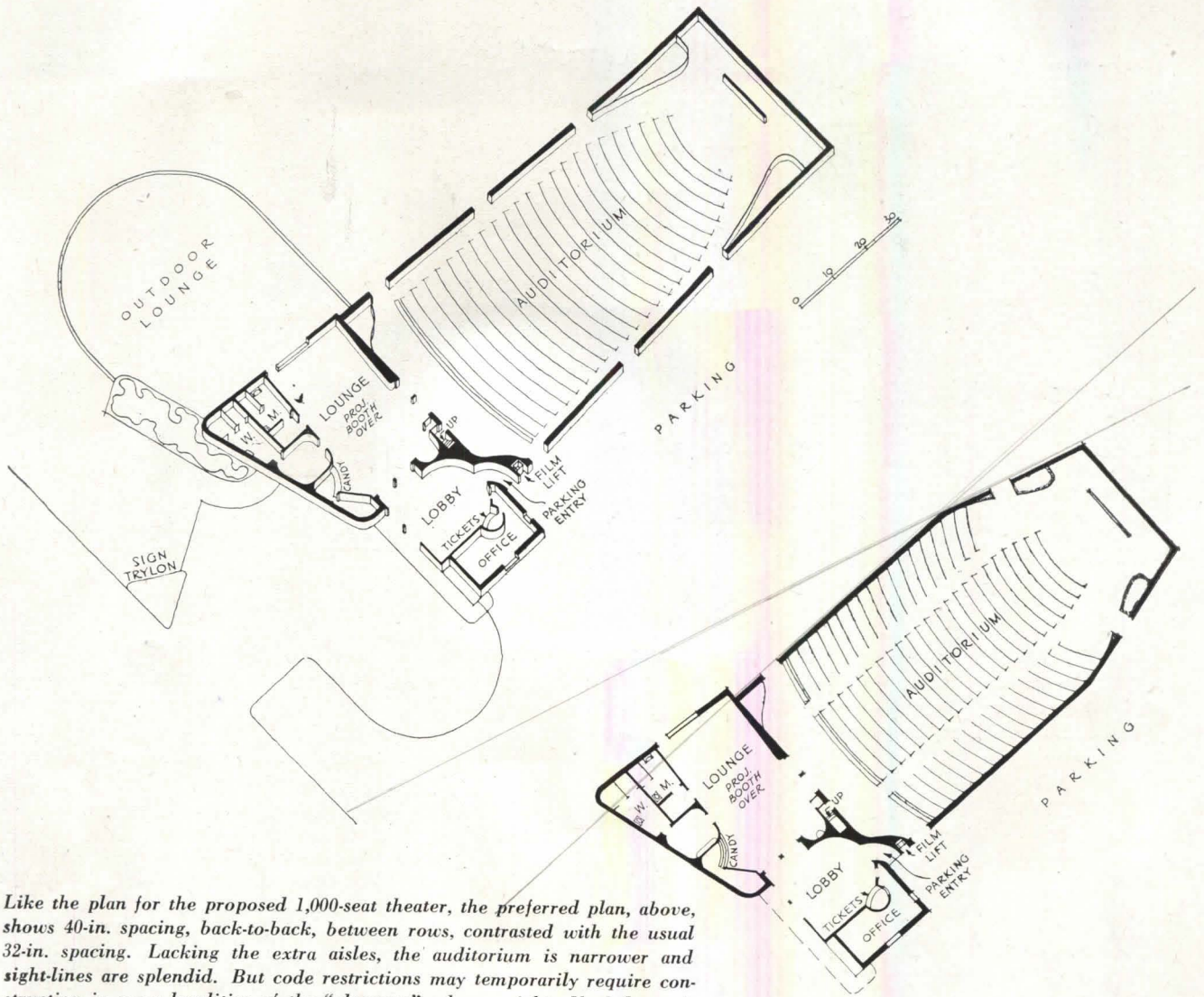
Rest Rooms. These should be located off the foyer or off the lounge, always at the travelled end. Rest rooms for men should *not* be supplied with "smoking room" adjuncts, which merely encourage loiterers. Ante-rooms should be kept as small as possible and act only as a transition to screen the rest room from direct view. By contrast, ladies' rest rooms should be placed behind ample powder rooms with 3 to 10 seats at make-up tables and an occasional lounging chair.

Outdoor lounge. Where the size of the theater permits, an outdoor lounge may be added, two or three times as large as the indoor lounge from which it opens. Soft-drink and candy counters should, if possible, open directly to the outdoor lounge. One corner may well be devoted to one or two ping-pong tables and, if additional space is available, a shuffle board or other pastime (especially in warmer climates). Planting may well be used to screen the outdoor lounge from the street.



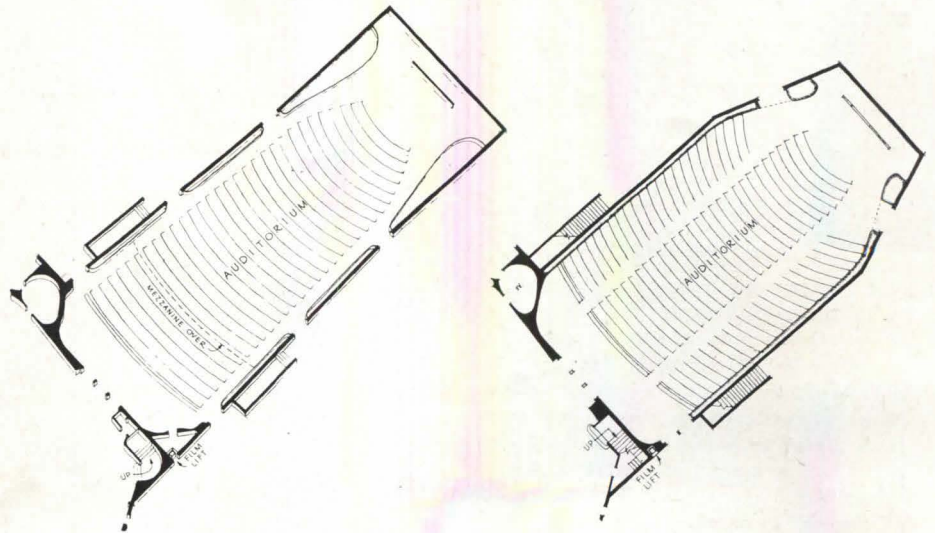
PLAN shows the general relationship between the two lounges that are pictured above. Outdoor lounge is screened from the street by means of a 5-ft. high wall and shrubbery. It is screened from other sides by trees. Access from indoor lounge is so placed as not to convert the interior room into a mere traffic way. Men's and women's rest rooms are conveniently placed on the way in or out

500-SEAT THEATER— *Preferred and Alternate Plans*



Like the plan for the proposed 1,000-seat theater, the preferred plan, above, shows 40-in. spacing, back-to-back, between rows, contrasted with the usual 32-in. spacing. Lacking the extra aisles, the auditorium is narrower and sight-lines are splendid. But code restrictions may temporarily require construction in some localities of the "alternate" scheme, right. No balcony is required in either case. The theater is set back from the main highway and a secondary street makes parking easy. Less elaborate provisions are made for lounge and booth for candy

Below are repeated at small scale the preferred and alternate first-level plans for the larger 1,000-seat theater, for ready reference in relation to the code discussion on opposite page



THE THEATER AUDITORIUM—Seating Plans Freshly Considered

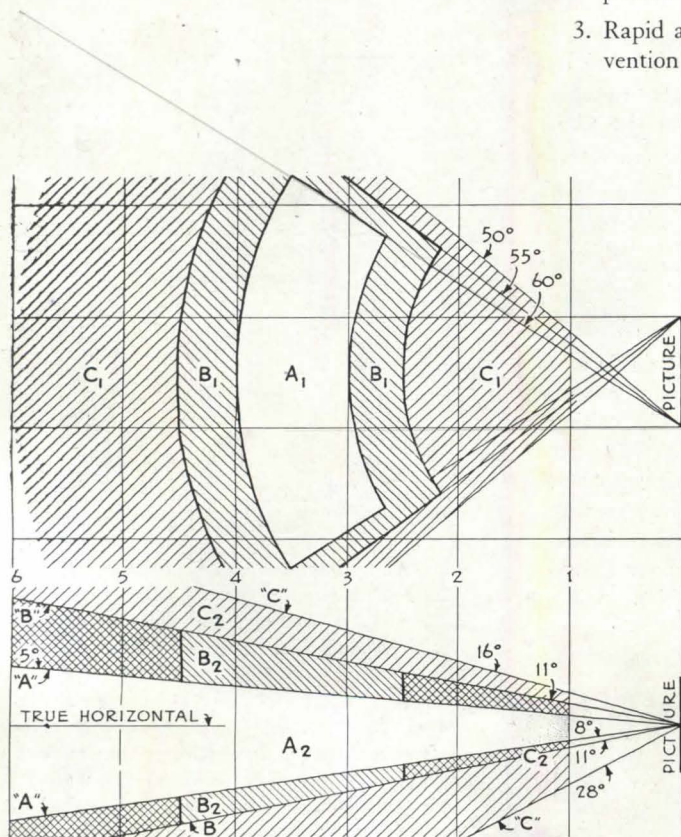
The "preferred" plans advanced in this study for both sizes of theater depart sharply from standard practices. The changes are not revolutionary, and involve nothing which has not been tried many times. Full reasons for advocating the changes will be given. Yet it must be said at the outset that in many cities the preferred plans would fall under code interdictions. In such cities, the plans marked "alternate" would be the best, in our opinions, that could be built for immediate use under present regulations.

Despite code obstacles it would be shameful if the lull in building were allowed to go by without basic reevaluation of what we have been doing in auditorium design. The codes can be changed to meet progress. Indeed, they were formulated not to prevent progress but to guard against violations of the most advanced practise at the time of formulation. We believe that the plans marked "preferred" are not only the equal of the best allowed today for safety, but superior. These plans are therefore submitted herewith to code authorities as well as to theater owners and architects for their careful scrutiny.

Code Requirements as to Seating. Laws are assumed to be written for the purpose of assuring quick emergency exit; but *the same pattern must serve to provide comfortable ingress under normal conditions* with the least obstruction to seeing. Most codes require a minimum back-to-back dimension of 32 in. and provide further that there shall be no more than 14 seats in a row, from one aisle to the next. In addition to these stipulations there are others governing width of aisles and positions of exit doors. The question is raised whether the seat spacing and aisle arrangement dictated by laws for emergency use will also permit proper normal access to seats and full use of valuable seating areas, and even whether the original intent of the law is really adequately provided for. First let us list other needs.

Functional Requirements as to Seating. The guiding considerations are:

1. Maximum possible number of seats having an unobstructed view of the screen at favorable distances and favorable viewing angles.
2. Comfortable seating, with the least possible annoyance from other patrons entering or leaving.
3. Rapid access and egress, both for convenience and for safety; prevention of panic and minimizing its effects.



POSSIBLE SEATING ZONES, good, bad, indifferent, are shown in the plan and section in their relation to the screen. The "A" zones are best, "B" zones second choice, "C" zones poorest.

Note that the horizontal areas in plan, and the vertical zones in section, do not fully coincide. The same spot might rate "A" in the horizontal plane but "C" in the vertical. This is because the vertical and horizontal are ruled by different considerations. In plan, areas are judged mainly by the angle of vision to the far side of the screen, extreme angles introducing serious distortion. In section, the zones are judged by the amount of neck-bending or craning that they would entail. In both instances, distance from the screen is an added factor.

The proposed preferred plans are arranged to have the smallest possible number of seats in "C" or "B" zones and the largest possible number in "A" zones. The front row, incidentally, is always a virtual loss. Squares are based on the width of the projected picture. A full survey of existing theaters will be found in the Report of the Projection Practice Committee, obtainable from the Journal of the Society of Motion Picture Engineers (June, 1938, issue)



Photos, Welin

Deficiencies of Current Practice. The legal limit of 14 seats from aisle to aisle virtually dictates the shape of the seating arrangement in what we call our "alternate" plans. The disadvantages are:

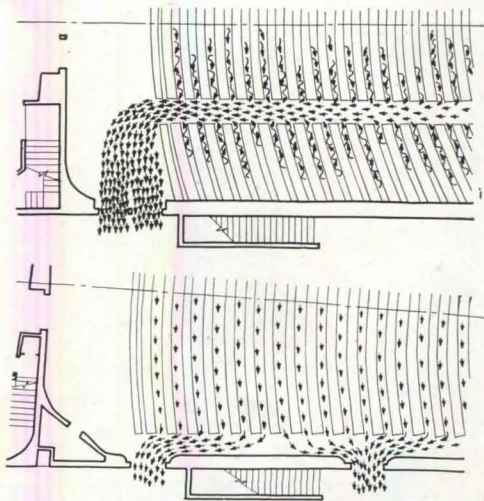
1. Persons seated in side sections have their view of the screen badly blocked by persons walking down the aisles.
2. The aisles force the seating arrangement out sidewise so that an appreciable number of seating positions are found in an area to either side of the screen. This results at best in an uncomfortable position and at worst in a badly distorted image of the two-dimensional screen.
3. Aisles occupy an important proportion of the best space that would otherwise be available for viewing the screen.
4. The 32-in. minimum back-to-back seat spacing is actually not nearly so safe for emergency egress, nor so comfortable for regular traffic ingress, as the 40-in. spacing in the preferred schemes.

What actually happens when an approach is made to a middle seat under 32-in. spacing is known to every theater goer. As a new patron approaches, those already seated cause disturbances by (1) taking minds off the picture and sizing up the hazard; (2) deciding whether to try to move knees sideward or whether to rise; (3) picking up hat, coat, and bundles from lap preparatory to rising; (4) rising, so that there are now at least *two* people full-height, plus impedimenta, blocking the view for those behind; (5) bobbing around getting readjusted upon sitting down again. There are many further possibilities.

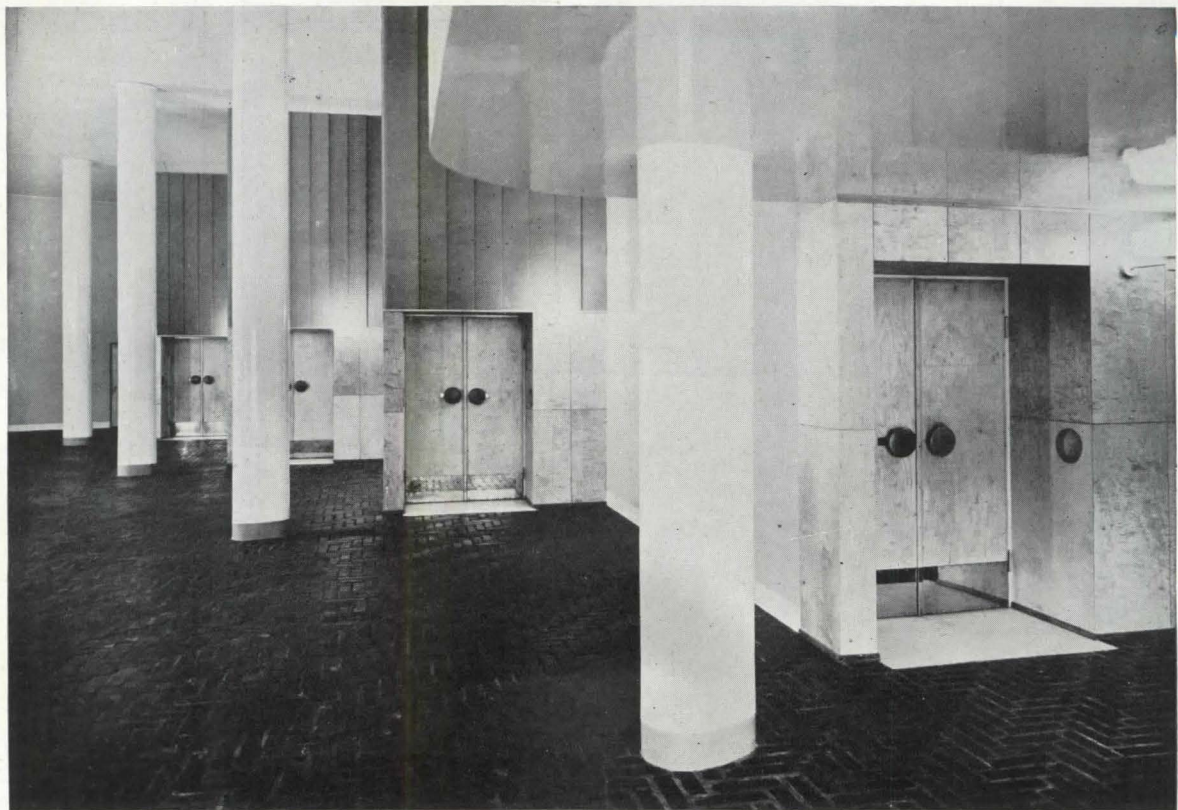
Courtesy N. Y. Board of Transportation



Above, and on right-hand page, a European auditorium with features similar to those of our own preferred plans. Note ample passage space between seats increasing comfort



ESCAPE: difficult or easy. In the conventional plan (upper sketch) the wiggly arrows suggest jostling and delay between closely packed seat rows; also there can be pile-ups in the long aisles. In the preferred plan (lower sketch) "the rows themselves act as lateral aisles" and numerous side exits are possible, shortening distances and spreading traffic. New York subways (left) have consistently multiplied side doors, recognizing the efficiency of lateral exits

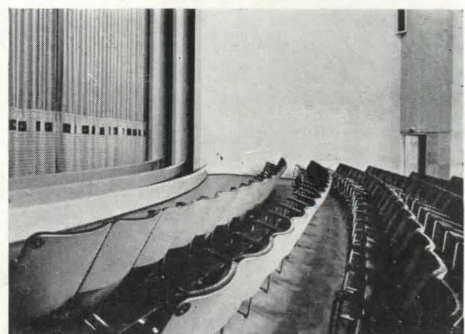
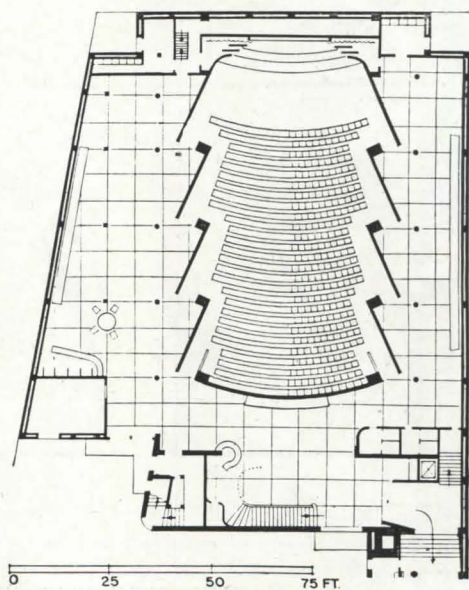


American custom would rarely surround a theater auditorium with so much interior space. Yet this theater at Turku by Eric Bryggman is instructive in its decorative use of pure functional forms. The floor (lower photo) has "reverse curve"

Preferred Practice. In the preferred scheme, there are only two longitudinal aisles, one along each side-wall, so that there is *no obstruction of the view for any seated patron by those walking down the aisles*. In addition, every space between two rows is converted into an effective lateral aisle, highly useful both under normal conditions and in emergency. This is due to the 40-in. spacing between rows in place of 32-in. spacing. The pictures on the next page make the difference clearer than it can be made in words.

The arithmetic of the revision has some interest. The seating section is wider than before. Under the least favorable condition it is therefore necessary to pass as many as 12 seats to reach an aisle from a seat along the center line. Yet the rapidity of crossing any point is greatly accelerated because virtually all interference with seated persons is eliminated. The total number of seconds of obstruction for any one seated patron will therefore be *less* than in the prewar 14-seat section. On the other hand, the number of people feeding into any one aisle is not increased but stays at a maximum of 13, the same as in the "alternate" schemes. Under panic conditions, the revised scheme compares even more favorably. No longer is the patron jostled in the tight space between rows on the way *to* the aisle, and then crowded *in* the aisle by all the audience trying to reach exit terminals at either end. Instead, there is quick and free movement *to* the aisle, and movement *in* the aisle is very short, because exit doors can be placed *numerously* along the sidewalls (see sketch, p. 92).

The real test of theater safety would be a scientific determination of the number of minutes required to empty the auditorium of all persons. Of course the only conclusive test would be one made under panic con-





Chairs, courtesy American Seating Co.

Comparing the Effect of Present-Day and Proposed Seat Spacing

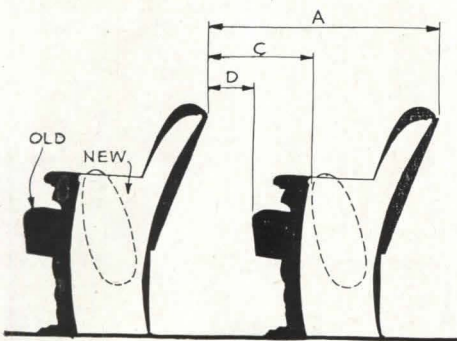
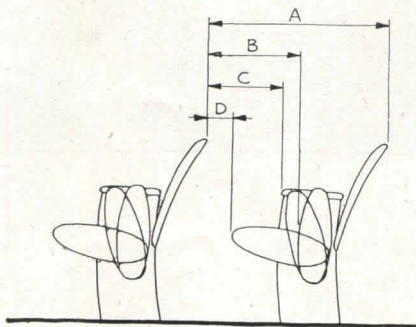
The first two pictures give some idea of what happens today. The second pair of pictures gives a glimpse of future seating comfort, achieved with no loss of theater capacity

Picture 1. It is really the next seat that Betty is trying for. Susie has decided to sit tight and hold that bag. She will soon lose the bag. It all takes time, and wears tempers

Picture 2. Susie has decided to get up, and so there are now two people (at least) blocking the view of the screen for the poor patrons in the seats behind. Susie has retained her grip on her package but her bag has fallen to the floor

Picture 3. Here the seats are spaced 40 in. apart. Susie can pass with ease, if Betty will slightly move her knees

Picture 4. This picture was intended to portray emergency conditions, when everyone in the theater is on his or her feet at once. At any rate, it does show that there would be room for both girls to get out side by side



SEAT SPACING FACTORS. When dimension A (upper diagram) equals 32 in., then dimension B equals $17\frac{1}{4}$ in. (seat cushion drawn up or back); dimension C equals $14\frac{1}{2}$ in. (position of seat when empty); dimension D equals $6\frac{1}{2}$ in.

However, if dimension B is increased by only one-fourth, or 8 in., making the back-to-back dimension 40 in. instead of 32 in., the effect on dimension D is that it is more than doubled. This narrowest and most crucial distance is increased from $6\frac{1}{2}$ in. to $14\frac{1}{2}$ in., giving vastly better knee space

The lower diagram shows old-fashioned chairs where dimension D was fixed as the maximum clearance between rows of seats

ditions, when scientific observers are mighty scarce. But tests have been made establishing a far higher efficiency for our preferred lateral emptying system.

It is important to add that the proposed use of the preferred scheme is limited to examples where there is only one bank of seats, with not more than approx. 26 seats to a row, and no other bank of seats placed against either side wall. Also, there must be a free area alongside the theater. Larger seating capacities than those illustrated would, therefore, have to be designed in the familiar way. However, in the proposed 1,000-seat scheme with 750 seats on the main floor and 200 on an upper level, it would be possible to add 200 more to the audience by extending the upper level to overlap the main first floor.

It must be very clearly understood that the proposals in these studies are not intended to be applied in any situation where use would run counter to existing laws or codes unless local authorities have been consulted and have given specific approval to the particular project.

Effect of Seating on Cubage and Operation. For any given size of audience the cubical content of the building does not vary appreciably no matter which of the seating schemes is used. The preferred scheme in each instance calls for slightly more. In theater construction, however, cubage is a relatively minor cost factor. Equipment bulks large, and depends mainly on number of people served. This is true of the cost of electrical work, plumbing, heating, seating, projection apparatus, doors, hardware; also of air-conditioning load in operation. Maintenance cost for seats will be greatly diminished in a plan in which the audience is uncrowded.

Floor Pitch and Seat Staggering. This all-important factor is not dealt with in this study, having been thoroughly covered by this author in a series of articles in *Better Theaters*, October 17, 1942 to March 4, 1944, and summarized in *ARCHITECTURAL RECORD*, May, 1938.

PLANNING FOR THE THEATER EQUIPMENT

By John J. Sefing

EQUIPMENT is even more important in planning the motion picture theater than in most types of public building. Unless equipment specifications are complete before final plans are drawn, changes and omissions are sure to occur and are likely to be costly.

Effect of Television on Projection Room. Dependable information is not yet to be had concerning the exact form that television projectors will assume, but *it is possible to design a projection room now suited to introduction of television equipment later.* The assumption can be made that the television projector will be placed between two film projectors. Spacing of units can be assumed to be 5 ft. center to center, a total of 10 ft. Adding 5 ft. at each end we have a total distance of 20 ft. as the approximate clear frontage required by the three machines. If, then, a 20-ft. panel is constructed in removable form in the projection-room front wall, suitable changes in portholes and fire shutters can be made later without undue expense when television is introduced.

Projection Room Standards. These have been set up and are obtainable from the Society of Motion Picture Engineers. Latest revisions appear in the Sept., 1942, issue of the *Journal* of the society, and are abstracted as Time-Saver Standards in *ARCHITECTURAL RECORD*, Feb., 1943, pp. 83, 84. Detailed drawings of exemplary projection rooms, large and small, are in Time-Saver Standards, May, 1938.

Structural Support. In a theater of the dimensions shown in Mr. Schlanger's larger plans, vibration in the projection room floor equal to 1.5/1,000 in. would produce a jiggle of fully 1/2 in. in the picture on the screen. This underlines the importance of solid support. In this in-

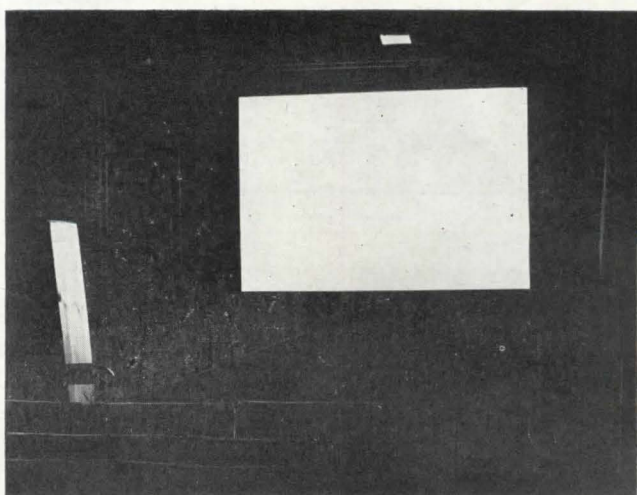
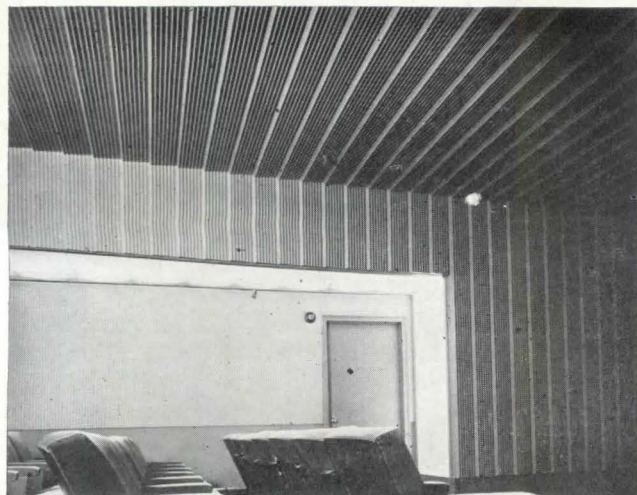
stance, Mr. Schlanger has obtained it by moving the room far enough back to obtain brick-wall bearing close to the base of the projection machines. To carry the projection room on steel beams adequate for the load but inadequate to prevent vibration would be the worst form of false economy.

Projection Requirements. Operating equipment, apart from possible television, can include projectors, spots, effect machines, and possible stereopticon dissolvers. As power equipment, the smaller, 500-seat, theater would use rectifiers and the 1,000-seat theater would use motor generators. All require careful wiring and venting.

Sound systems require correct conduit locations and sufficient wires to the sound and power amplifiers, sound horns at screen, monitor, and faders or volume controls.

Rectifiers and Motor Generators. As a rule rectifiers of the oxide element types, and even tungar bulb rectification, are generally installed in theaters up to 500 seats. Over 500 seats, the proper direct current is supplied by motor generators with ratings from 50 to 140 amperes D. C., and where stage presentations or special lighting effects by spotlight are planned, the larger "C-P" motor generator sets are installed, of 100 to 250 amperes D. C.

Most of the present-day theater rectifiers require two separate A. C. supply lines: a 3-phase power supply to the oxide elements and a 1-phase lighting supply to feed the exhaust fan inside the rectifier housing. *These supply lines must be fused, and the switch controlled, separately for the sake of a proper job.* Failure to do this has resulted in many rectifying element and fan troubles in the past. It is of great importance that rectifiers be installed in a *separate, reasonably spacious room*—not a closet or a



Corrugated asbestos cement as light-directional surfacing. In view at right (same room) light comes only from projector. When "spilled" from screen, light is reflected by corrugated wall laterally, so that, from forward position, the wall looks black. The bright rectangle and square are ordinary wall material. Lateral light aids patrons seeking seats

small nook—with sufficient forced-draft ventilation to carry off the heat from the elements. The false idea that, as long as the rectifier had a fan inside the housing, forced-draft ventilation was not absolutely necessary in the room, has caused many burnouts. There should be a switch at each projector, with wiring over to the rectifiers, so that the projection can control the on-and-off sequence of operation with ease, adding efficiency and long life for the equipment.

Motor generators absolutely require a dust-free room, well ventilated, with plenty of space for access and servicing. A substantial base is required, to prevent easy pickup of dust, dirt and grit from the floor, and to help dampen noise. Conduits and outlets haphazardly located cause disconnections and shorts. The average motion-picture generator does not have to be bolted to the base; in fact the absence of bolts helps dissipate vibrations and mechanical noises; but the large "CP" generators weighing a ton or so are bolted to avoid creepage. Ballast rheostats must be firmly supported and correctly wired.

Projection Room Ventilating Systems. Two separate ventilating systems are required in the projection room: one for the general room exhaust and the other for exhausting carbons, ashes and gas from the projection equipment. The main duct in the arc exhaust system should be at least 79 sq. in. in cross-section area and should run to a small blower and motor controlled by switch in the projection room proper. The velocity of the air in this duct should not exceed 700 ft. per min. so as not to disturb the stability of the arc flame. Duct taps to projectors and projection equipment should be laid out with care in ad-

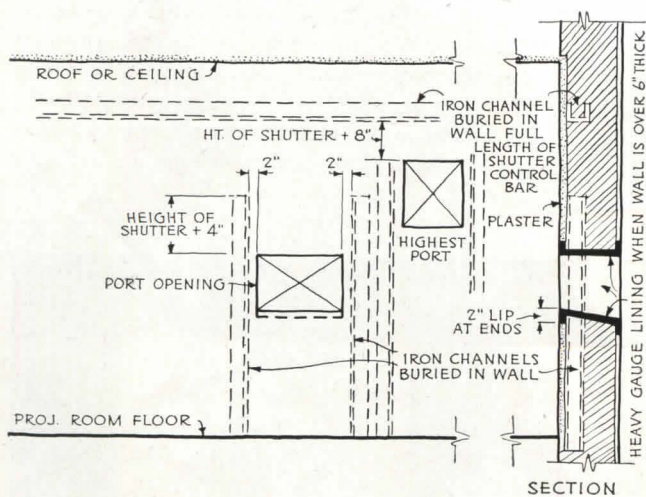
air change in each room. A 2-speed motor at the blower will provide slow speed for normal exhaust and high speed in case of fire. Two separate controls should be supplied including an arc switch manually operated, located at the exit door of the projection room, and a special automatic type normally held open by the fusible-link chain system of the fire-shutter apparatus over the port openings. Fresh air to the projection room can be supplied by gravity intake directly from above the roof, or can be tapped from the auditorium ventilating system. In the latter case an automatic emergency damper is required, operated from the fire-shutter tripping device, to prevent any back-flare in case of a fire in the projection room.

Fire Shutter Release. Fire shutters are of ¼-in. metal; they overlap the porthole openings, running in metal channel guides. The object is to prevent fires from spreading to the auditorium. Shutters are attached to a trip-bar up above, by means of sash-chain with one fusible link. When the bar is turned, by means of arms or the trip-line attached to the arms, chains holding shutters slide off the metal pins by which they are held to the bar. The important consideration is that there shall be structural preparation, as shown in the drawing, for the secure attachment to the wall of the heavy shutters and the bar.

Seating. A solid, accurate floor surface is important for secure attachment of the chairs without recourse to shims. The bearing must be solid ground or well-tamped soil, covered with 4 in. of even cinder fill. Concrete may be 4 in. of either stone-aggregate or cinder concrete. The former is covered with 1 in., the latter with 2 in. of integral cement, to which seats are attached. Extreme care must be exercised to make sure that expansion joints do not run in line with the legs of any row of chairs. In the balcony, the same accuracy must be observed. In laying out balcony risers, there is a *common error* to be avoided, which is to neglect the slope of the back of the chair in figuring clearances. (Refer to diagram, page 94.) The higher the riser, the farther forward the chair must be set to clear it. Dimension "C", from the back of the chair in front to the upraised seat of the chair behind, must be at least 14½ in. Especially if the balcony layout adheres to the legal minimum in clearances, there will be trouble if the effect of the riser is neglected.

Carpeting, drapes, curtains. These are all expensive items of theater equipment, and all will last longer and give better service if secure attachment is provided for in the initial plan. Carpets, draperies, and acoustic mats are all best held by wooden strips set flush in the floor or, respectively, the wall, during construction, with a bevel to serve as anchor. Standard carpet strips are 27 in. wide, acoustic mats 4 by 8 ft. Floors should be recessed where carpeting ends, to a depth equal to the thickness of the lining plus approx. two-thirds the thickness of the carpet. At doors there should be saddles to save carpet edges, and heavily traveled lanes should be rubber, set off from the carpet by a dividing strip.

Eye-bolts should be set in the ceiling during construction for cables to help support the screen; and in the floor for the motor operating a close-in curtain where this is used. None of these purposes can be served adequately by make-shift expansion bolts or lag screws put in later.



Details of structural provision for fire shutters

vance, so that a straight connection can be made to the arc housing. It should be remembered that the exact location will depend on the angle or tilt of the projector toward the screen. The average distance from the inner surface of the projection room front wall to the center of the duct tap is about 48 in. Light-fitting damper should be provided in the lamp-house connections for controlling the flow of air.

The room exhaust system should effect at least a 3-min.

AIR CONDITIONING FOR THE THEATER

By A. C. Buensod

VERY NICE WORK in the cooling of theaters was done in the early twenties, especially by the Balaban & Katz chain in Chicago. Yet the real impetus to large-scale air-conditioning was the invention of Dr. Willis H. Carrier of a suitable refrigerating machine. It was safe, semi-automatic, and of sufficient capacity to handle rather large capacity. One of the first theaters equipped with this centrifugal machine was the Palace Theater in Dallas, 1924; another was the Rivoli in New York, 1925. These old machines are still in operation.

Since then refrigerants have changed and become safer, and equipment has been improved, but the fundamentals remain the same, and there is small prospect that the war will cause major changes.

Theater Requirements

The one part of air conditioning that is an active requirement all the year around is ventilation. Perhaps the air conditioning industry has not sufficiently emphasized this fundamental. In most regions of the United States there are three or four months of spring and fall weather when the natural outside air is quite satisfactory. Often theater systems have been so laid out that not enough of this natural fresh air could be brought in. The slightly larger installation cost of an adequate fan and ducts is more than offset by a lower cost of operation.

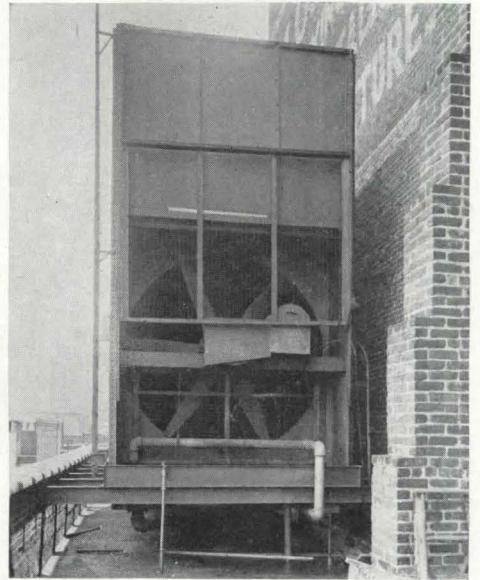
In winter, smaller quantities of outside air are brought in and are tempered by means of some heat source. It is often sufficient to utilize the body heat and humidity given off by patrons. It should not be forgotten, however, that ventilation is required at all times, for the sake of healthful conditions. The end of the war should bring an end to excessive, and sometimes deleterious, "conservation."

Summer brings on the full problem of cooling, dehumidifying, and cleaning outside air and dispersing it along with recirculated inside air.

The first step is, of course, to bring outdoor air from an uncontaminated source. In the early days, before the introduction of dry filters, cleansing was done by means of the spray water used for cooling. The only major change has been the introduction of dry filters and of efficient refrigerating machines.

Types of Machine

For large houses, the *large centrifugal machine* has proven, by its many years of service, to have been the best investment ever made by the theater operator. Many other kinds of machines have been employed, of the reciprocating type using Freon-12, and have given good service. These *reciprocating machines* have naturally been operated in the smaller houses because tonnage requirements were lower than the centrifugal refrigerating machine range. However, six years ago there came into being a *low-pressure centrifugal type of water-chilling machine* which has proven practical in the lower ranges from 50 tons up to 200 tons capacity, well below the capacity range of the large centrifugal compressors. Both the centrifugal



Cooling towers should be structurally and architecturally prepared for. Tower on Loew's Lexington Theater, New York, capacity 2,500; 30 tons refrigeration; air circulated at the rate of 50,000 c.f.m.

compressor and the new type of low-pressure, hermetically sealed, water chilling machine, use an indirect method of conditioning the air. In other words, you chill water and the water is circulated either to a spray dehumidifier through which the air passes, or through a cooling coil in the path of the air to be cooled and dehumidified.

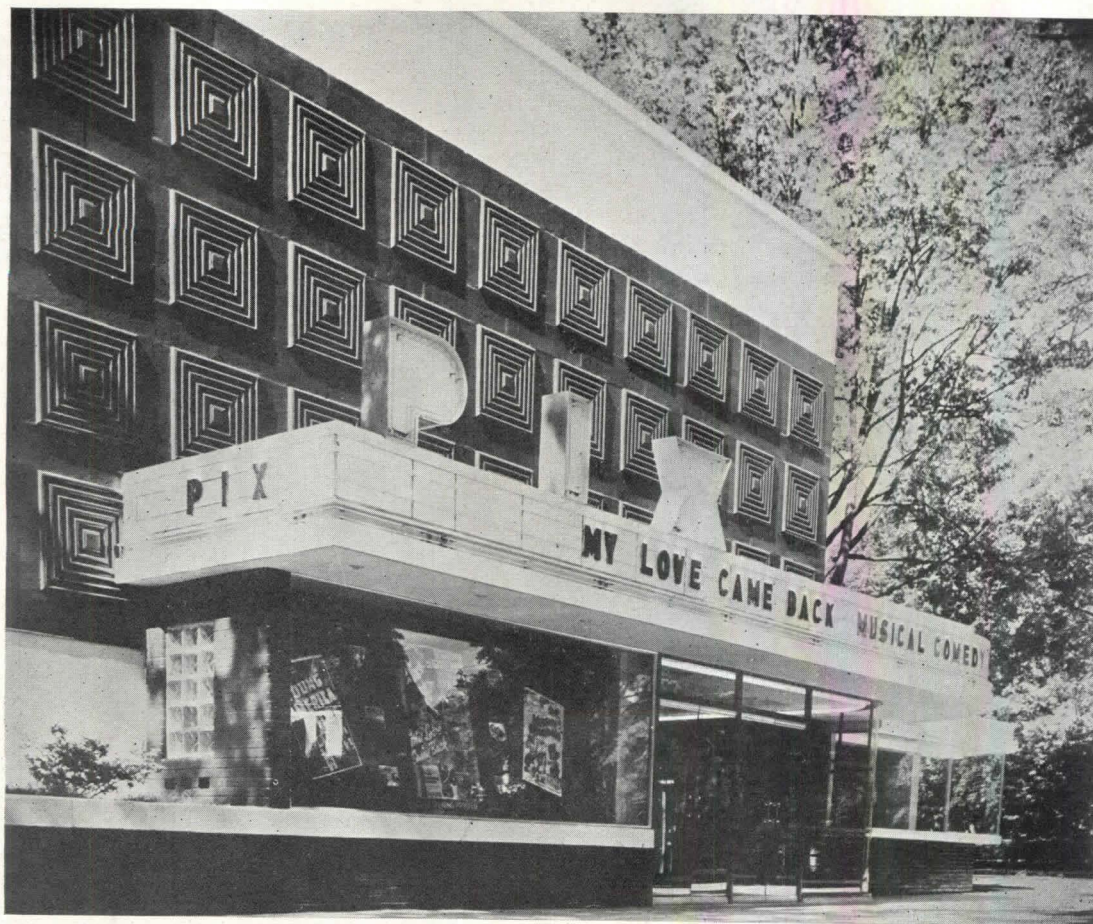
This is in contrast to the direct expansion of a refrigerant in a coil over which the air is also cooled and dehumidified. Naturally, when direct expansion is used the refrigerant is circulated through the coil. This has its hazard, the hazard of the refrigerant. Carbon dioxide, of course, was absolutely safe. Freon 12 has also proven itself quite safe. There are, however, other refrigerants that are not.

The Safety Code for Mechanical Refrigeration, sponsored by the American Society of Refrigerating Engineers and adopted under the rules of the American Standards Association, limits very seriously the use of the direct method in places of public assembly, and permits only Group I refrigerants, including carbon dioxide, Freon 12, Carrene No. 1 and No. 2; it bans all other well known refrigerants such as ammonia, methyl chloride, and sulphur dioxide.

It is always well for the theater designer and operator to adhere at least to the ASA Code, regardless of whether there are local codes or not, and to study these local codes, some of which go still further.

It is presumed, of course, that the designer will first ascertain whether cold well water is available in the locality in quantities sufficient to cool and dehumidify the

(Continued on page 102)



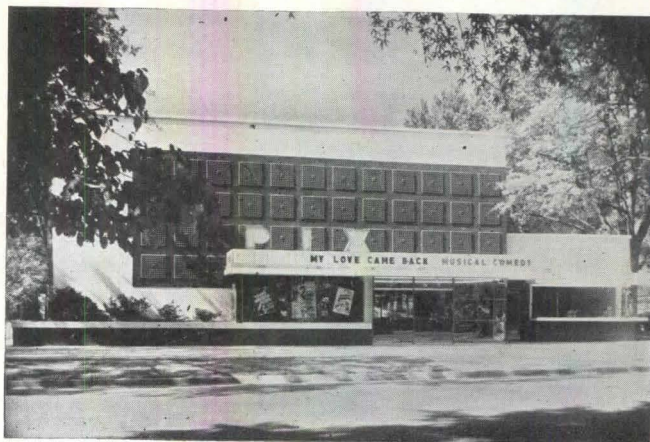
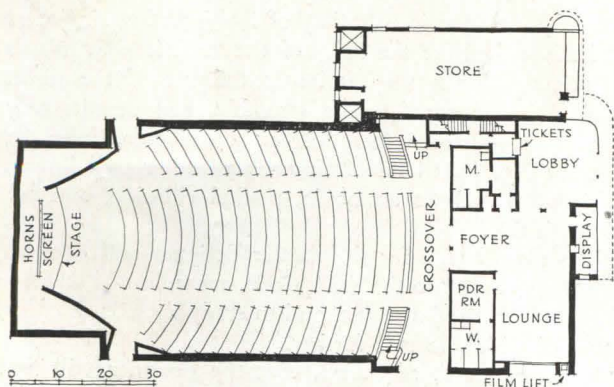
A "STADIUM" PLAN WITH TREATED SURFACES

Pix Theater at Rock Hill, S. C.

Ben Schlanger, architect

This example displays the architect's application of principles he sets forth on pages 86 to 94. In addition, it exemplifies the "stadium" type of theater plan. This is often used where lots are short, to gain additional seating above front auxiliary areas (see vertical cross-section).

The theater face is of cast concrete blocks painted blue. The marquee projection is cleverly put to use for a display box. Street light is shielded from the screen by a right-angle turn between entrances. The lounge is off traffic lines.



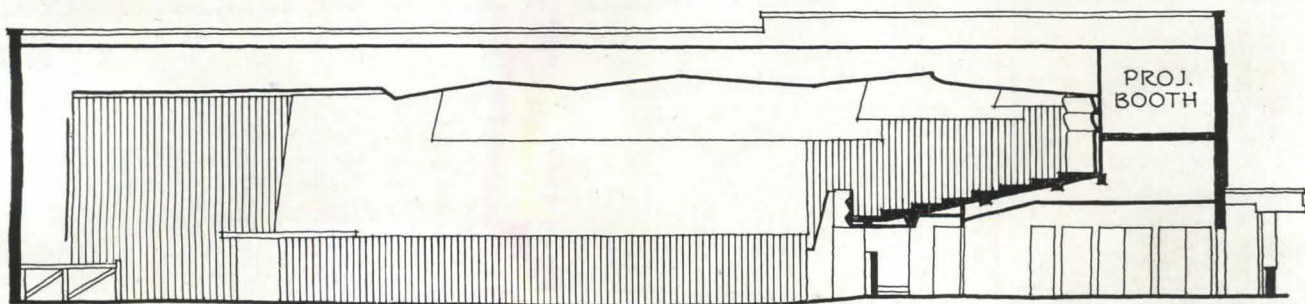
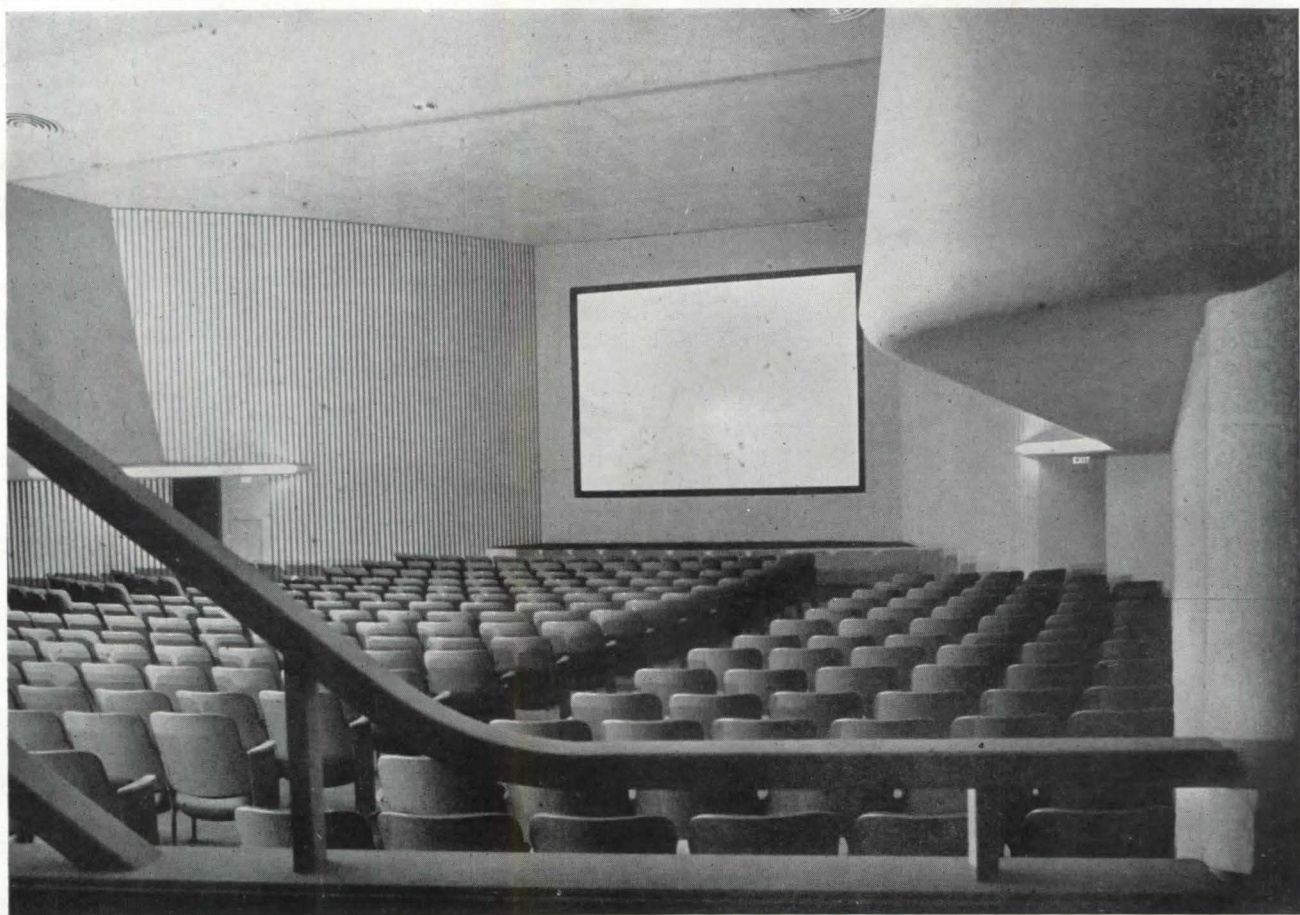


Pictures on this page show an interior closely calculated for sight-lines and acoustics. The textures and forms which serve these aims are converted into very expressive features of the room.

Steps to the stadium (upper view) are unusual in taking a side approach. This arrangement is less space-consuming.

The corrugated surfaces, in the large view below, serve a dual purpose. They aid acoustics without the use of "soft" materials that are difficult and expensive to maintain. They also spill light from the screen *sideward* upon the audience, making it easy for newcomers to find their way and yet producing no visual interference with the light from the picture.

The view above, looking toward the projection booth, shows the acoustic ceiling. In the section, below, note height-saving "reverse-curve" floor profile.

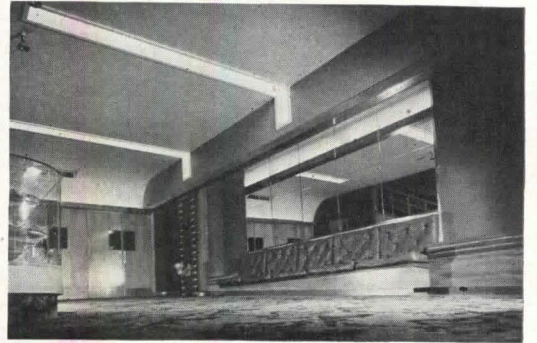


LONGITUDINAL SECTION

GOOD SIGHT-LINES IN A 960-SEAT THEATER

Village Theater, Houston

McKie and Kamrath, Architects

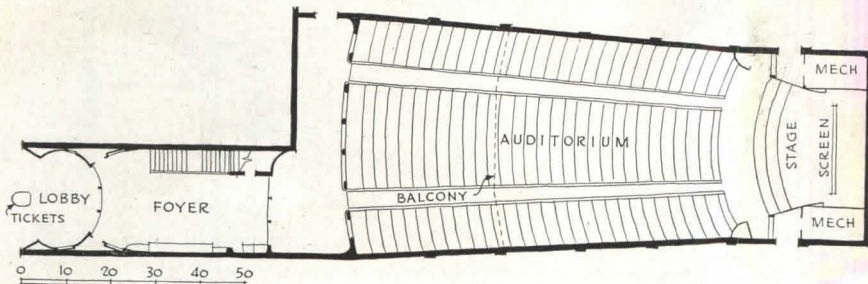


The two large views show the exterior and auditorium, and the two smaller views details of the lobby. Simplicity is easy to maintain

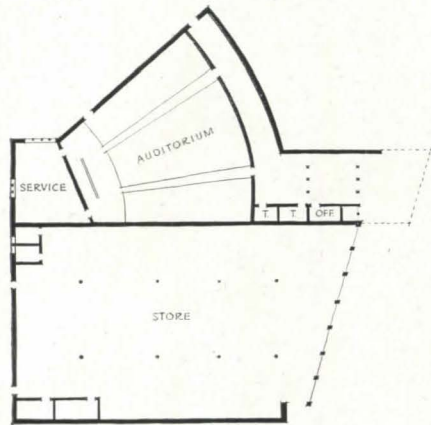
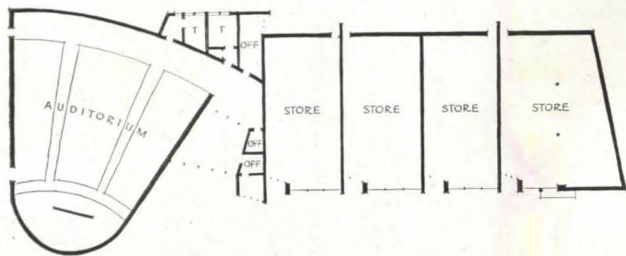
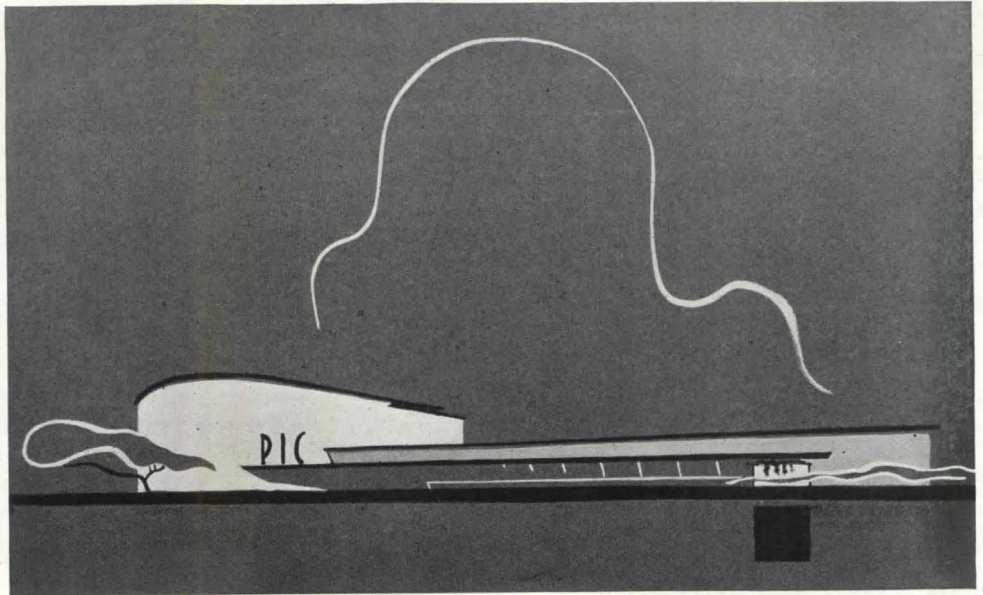


In its narrow auditorium shape, this house carries out principles of good design under existing code conditions, as set forth in the articles on preceding pages. A high proportion of the seats is found in the better plan areas, and a reverse-curve floor pitch makes possible a lower balcony. These facts no doubt influenced the committee of the industry which gave this design the latest top award in the group running from 700 to 1100 seats.

The lobby, part of which is shown in the top righthand picture, is very simple in its appointments, but includes a long leather settee and the attractive glass candy counter at the extreme left of the photograph.



For a high-class residential area with shop tenants carefully selected. Plan includes a good light trap

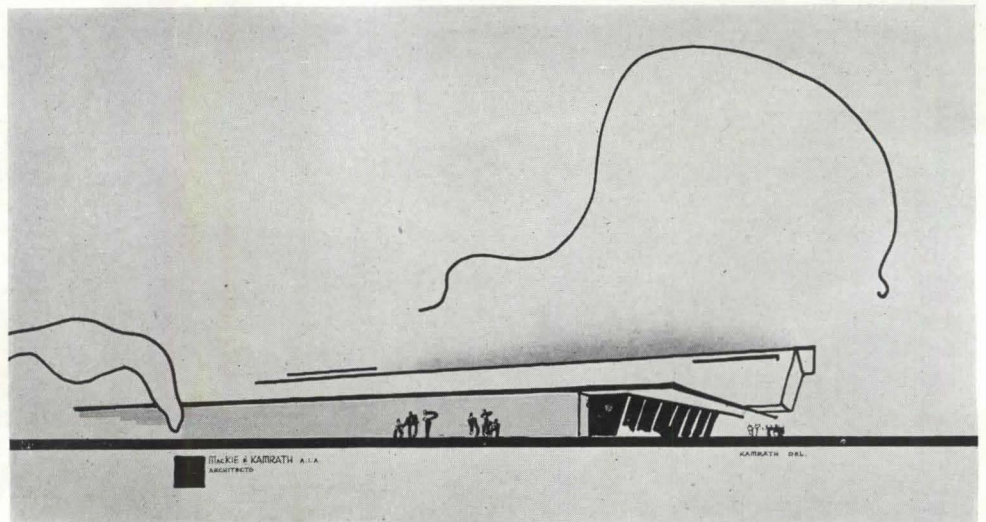


TWO POSTWAR THEATERS TO USE NEW DISPLAY METHODS

McKie and Kamrath, Architects

In both of these projected theater plans for Houston, provision is made for large flat or curved wall areas upon which may be projected, by methods not yet divulged, "featured pictures, likenesses of actors, and other pertinent material, in a manner not used heretofore. This will eliminate costly canopies and marquees and should have greater customer appeal." In the top example, the manner in which the auditorium is turned with its back to the street creates an exceptionally good arrangement for trapping street light. Auditorium interiors are somewhat wide unless new projection methods are envisaged. In both projects, a central plant is to do heating and cooling for stores as well as theater.

For another suburban area, also above average, and involving a large store with heating plant combined



theater. If not, a refrigerant must be chosen and also there is the question whether condensing water must be conserved by means of a cooling tower or evaporative condenser.

Economic Factors

The time has come when even a smaller theater cannot compete effectively without something better than simple "evaporative cooling systems" which merely pass large volumes of untreated air at high velocity over the audience. Office buildings, stores, and even within a few years, cars, will offer comfort in the postwar years. Fortunately, in the case of most small theaters there is sufficient time in the early morning, when the audience is light, to dissipate the heat of the previous evening; this permits a smaller plant. Also, some designs have already been effected in which cooling capacity is stored either by means of a chilled water tank or a submerged ice-making coil operated continuously throughout the night, at cheaper electrical rates.

Tonnage for the Proposed Designs

The range in tonnage for our 500-seat theater will vary considerably under conditions of climate, exposure, insulation, but will be within a span from 30 to 45 tons. A 1000-seat theater will run anywhere between 50 and 75 to 80 tons, because the larger house has more public space and higher peak loads when hundreds may use the lounge. A first-run house in a big city may hold thousands of people in its lobbies and public areas.

Design Factors

Although some new machines are light enough in weight to be carried on upper stories without undue increase in framing, yet in a theater there will rarely be an excuse for

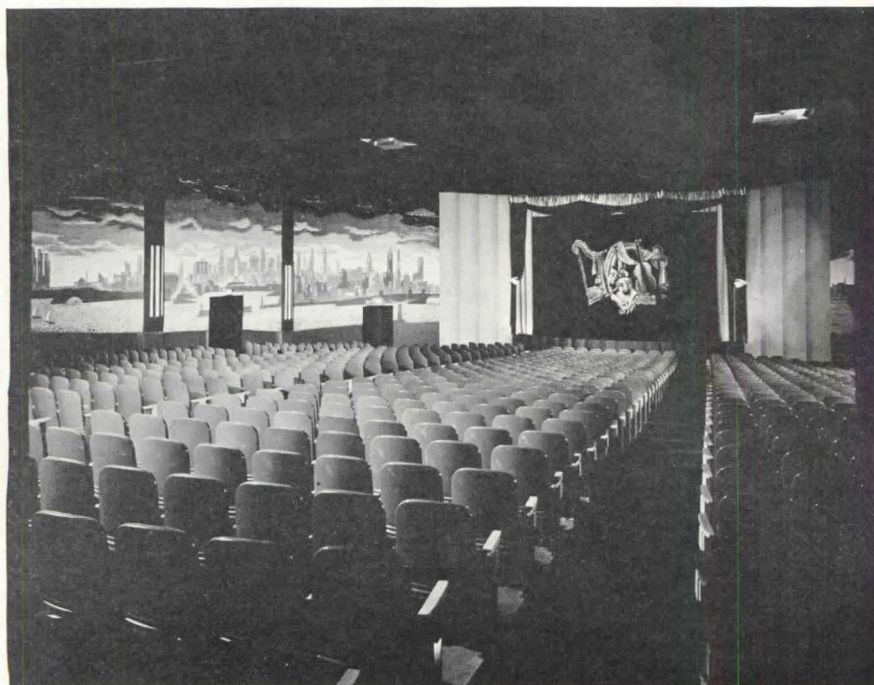
not supplying adequate space in the basement. Elements such as cooling towers or evaporative water coolers, placed on the roof, should be adequately supported in the initial structural plan, not forgetting the weight of the water. They should also be provided for architecturally in advance. Vibration of condensers should be absorbed in the base, and rooms containing the refrigerating machines should be thoroughly isolated in all cases from all public areas.

Losses in duct runs are a great factor in efficiency. Entrance air temperatures are often too high in winter and too low in summer because of faulty systems of distribution. If air could be delivered closer to zones of usage there would be greater efficiency in a smaller plant. Two separate systems may sometimes be installed both as a method of caring for peak load and as a form of breakdown insurance.

A good many incidental improvements are in prospect, such as sterilizing lamps in the air stream. These will, of course, have a quicker chance of adoption if their presence can be displayed.

Standards for comfort cooling set up by such authorities as the ASHVE and others are admirably collected and presented in a new publication by the Heating, Piping and Air Conditioning Contractors' National Association, as *Engineering Standards of Comfort Air Conditioning*.

There will undoubtedly be many new theater projects in the postwar era, not only because of accumulated obsolescence but because of the growth of new industrial centers, where war communities become permanent. In all such construction, air conditioning should be not an afterthought but an integral part of the design. One word of caution is indicated, "The sweetness of low price is never to be overcome by the bitterness of poor service."



The "atmospheric" auditorium, exemplified in the Ken Theater, Chicago, Illinois, Roy Blass, architect. By murals and lighting its is possible to create the illusion of outdoor space. The type of lighting required for such effects will be described in a succeeding article by C. M. Cutler of the General Electric Co.

PLASTICS: Characteristics and Applications

Tables and Charts of Essential Information, adapted for the use of architects, engineers and designers by J. Gordon Carr, A.I.A.

ARCHITECTURAL RECORD
TIME-SAVER
STANDARDS

JUNE 1944

PURPOSE. The lists and charts presented here have a three-fold purpose to aid designers in their preliminary study of plastics and their uses: (1) to make possible a preliminary choice of a group of plastics which have the characteristics necessary for particular purposes; (2) to show at a glance the types of applications and manufacturing processes to which groups of plastics are particularly suited; (3) to indicate where additional information regarding plastics can be obtained (the lists of plastic groups, trade names, and the names and addresses of the manufacturers of the basic materials).

It should be clearly understood that the final choice of any plastic, or any plastic group, should only be made after consultation with the technicians at the producers. The use of the charts and tables should be limited to the time-saving process of making preliminary choices or analyses and they should not be considered final. The characteristics of plastics in these charts relate to the basic plastic materials themselves. The characteristics are changed both by the addition of other ingredients with the plastic and by

various processes of manufacture and fabrication. The development of plastics is rapid and constantly changing. Research is modifying the characteristics of plastics and new plastics are being developed for particular applications.

The numbered classifications on the charts are merely for the convenient grouping of plastic groups alphabetically by their basic chemical composition.

In the charts the grading of "Good," "Fair," or "Poor" was arrived at through tests which are not in all cases equivalent nor complete. Thus the gradings in these simplified charts are not scientific but are indications to aid in a preliminary study and choice of plastics. The charts and lists are indicative rather than complete or exhaustive. Many more plastics, manufacturers, properties and applications exist. The material presented here is, however, a fairly comprehensive sampling of typical and representative items, arranged to save the time of designers. The charts here were derived and simplified from the comprehensive and well-documented "Plastics Property Chart 1944" published in the PLASTICS CATALOG (published

by Plastics Catalog Corporation, 122 E. 42d Street, New York).

HOW TO USE THE CHARTS AND LISTS. In determining which groups of plastics are most adaptable for a certain definite use or application, the Properties Chart (pages 104-5) will indicate various physical and chemical properties. By choosing a group which has the "A" rating in most of the characteristics or properties needed for the particular application, one can determine in general the groups to be further studied. The group chosen may then be looked up by number in List A which tells briefly what the plastic is and gives the trade name or names of some plastics within the group. From List B the name of the manufacturer may be found and from List C the manufacturer's address as well as other trade-name plastics produced by the same manufacturer.

If the name of a plastic is known, the characteristics and the applications of that plastic may be found on either of the two charts. The trade name of the plastic is found in List A and the number of its group classification is then easily found on the chart.

LIST A: Groups of Plastics, by chemical composition, with trade names

1. Alkyd resins

Acids, alcohols with or without oils. Quick-drying paint, printing ink, textile coatings.

Amberlac, Aquaplex, Arochem, Aroclor, Aroplaz, Bakelite, C-9, Beckosol, Dulux, Duraplex, Dyal, Dymal, Esterol, Falkaloid, Falkyd, Glyptal, Mirasol, Makalot, Paraplex, Rezyl, Syntex.

2. Aniline-formaldehyde resin

Amines, aldehydes from coal. Resins with hard rubber qualities. Cibanite, Dilectene.

3. Casein

Proteins from milk. Sheets and rods with wide color range, luster. Ameroid, Galorn.

4-6. Cellulose compounds

Organic acid esters from cotton, wood. Strong, tough, colorful.

Cellulose acetate: Bakelite, Fibestos, Herculoid, Lumarith, Nixonite, Plastacele, Tenite I. Cellulose acetate butyrate: Tenite II.

Cellulose nitrate: Celluloid, Hercules CN, Nitron, Nixonoid, Pyralin.

Ethylcellulose: Ethocel, Hercules EC.

7. Cold molded

Asbestos, bitumen, oil, asphalt, resin, cement for electric insulation.

Bituminous: Aico, Amerine, Cetec, Ebrok, Gummon, Okon, Thermoplax.

Ceramic: Aico 5, Alphide, Cetec, Coltstone, Hemit.

8. Lignin

Organic aromatic from wood. Adhesive for laminating plates, insulators.

Benalite, Lignolite.

9. Melamine-formaldehyde

Resin with cellulose filler. Heat and arc resistant. Laminating bond.

Catalin-Melamine, Melmac, Plaskon-Melamine.

10. Methyl methacrylate

Acrylic resin from oil. Optical, Electric uses, Light and tough.

Acryloid, Crystalite, Lucite, Plexiglas.

11. Nylon

Polymeric materials. Best known applications in filaments, fabrics.

Nylon.

12-17. Phenol-formaldehyde

Resins from coal tar. Wide application. Hard, strong, resistant.

Cast, with asbestos filler: Haveg.

Cast, no filler: Bakelite, Baker Resin, Catalin, Gemstone, Marblette, Opalon.

Laminated: Aqualite, Celoron, Dilecto, Duraloy, Farlite, Formica, Insurok, Lamicoide, Mica, Ohmoid, Panelyte, Phenolite, Spauldite, Synthane, Taylor, Textolite, Ucinite.

Molded: Bakelite, Co-Ro-Lite, Durez, Durite, Heresite, Indur, Insurok, Makalot, Neillite, Resinox, Textolite.

18. Phenol-furfural resin

Resin, hulls. Moldable, heat and chemical resistant.

Durite.

PLASTICS: Physical and Chemical Properties

Read "Purpose" and "How to Use Charts and Lists," page 103, before using Charts in making preliminary choice of particular plastics

A—Good
 B—Fair
 C—Poor

PROPERTIES	Alkyd resins	Aniline formaldehyde	Casein	Cellulose Acetate	Cellulose Acetate butyrate	Ethyl cellulose	Cold Moulded	Lignin	Melamine formaldehyde	Methyl methacrylate	Nylon	Cast	Phenol formaldehyde Laminated (paper, cotton)	Moulded (woodflour)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Moulding Qualities	-	B	C	A	A	A	B	C	A	A	B	-	-	A
Extruding Qualities	-	-	A	A	A	A	-	-	C	A	A	-	-	-
Machining Qualities	-	A	A	A	A	A	C	A	B	A	A	-	B-A	B-A
Time Stability	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sunlight Stability	A	A	B	A	A	A	A	A	B	A	A	B	B	B
Acid Resistance	-	B	B	B	B	B	B	B	B	A	B	B	B	B
Alkali Resistance	-	A	C	B	B	B	A	B	A	A	A	C	C	C
Solvent Resistance	-	B	A	B	B	C	A	B	A	B	A	A	A	A
Moisture Resistance	-	A	B	A	A	A	A	A	A	A	B	A	A	A
Heat Resistance	-	B	B	B	B	B	A	-	A	B	A	A	A	A
Non-Inflammability	-	B	A	B	B	B	A	B	A	B	A	A	A	A
Abrasion Resistance	-	B	C	C	C	C	A	B	A	B	C	B	B	B
Flexural Strength	-	A	C	A	A	A	C	B	B-A	A	A	B	A	B
Compressive Strength	-	A	A	A	A	B	A	A	A	A	A	B	A	A
Impact Strength	-	B	A	B	B	A	C	B	B-A	B	A	B	A	B
Tensile Strength	-	A	A	A	B	B	C	B	A	A	A	B	A	B
Color Range	B	C	A	A	A	A	C	C	B	A	A	A	C	C
Transparency	A	C	B	A	A	A	C	C	C	A	B	A	C	C
Thermoplastic (P) Thermosetting (S)	-	S	-	P	P	P	-	S	S	P	P	S	S	S

19. Polystyrene

Ethyl benzene less hydrogen. Strong, transparent, wide color range.

Bakelite, Loalin, Lustron, Styramic, Styron.

20. Rubber compounds

Ethylene derivatives with various rubber qualities.

Chlorinated: Marbon, Parlon. Modified isomerized: Plioform, Pliolite.

Hard: Ace, Luzerne, Rub-tex.

21. Shellac compounds

Insect-secretion resin. Adhesive, protective coating.

Complac, Compo-Site, Harvite, Lacanite.

22. Urea-formaldehyde compounds

Urea, formalin resins. Unlimited color, light diffuser. Hard, light.

Bakelite-Urea, Beetle, Plaskon, Uformite.

23. Vinyl alcohol resin

Polyvinyl acetate polymerized. Ten-

sile, adhesive, rubber-like.

PVA, Resistoflex.

24. Vinyl butyral resin

Polyvinyl acetal resin. Safety glass interlayer, waterproof, flexible.

Butacite, Butvar, Saflex, Saflex TS, Vinylite X.

25. Vinyl chloride acetate resin

Polyvinyl acetal resin. Clear, tough, adhesive, waterproof, heatproof.

Alvar, Gelva, Formvar, Vinylite, Vinylseal.

PLASTICS: Physical and Chemical Properties

ARCHITECTURAL RECORD
TIME-SAVER
STANDARDS
JUNE 1944

Read "Purpose" and "How to Use Charts and Lists", page 103,
before using Charts in making preliminary choice of particular plastics

Phenol formaldehyde

Data for this chart derived from comprehensive information published in "Plastics Catalog" 1944.

Moulded (chopped fabric)	Moulded (sisal)	Moulded laminated (glass)	Phenol furfural	Polystyrene	Rubber compounds	Shellac compounds	Urea-formaldehyde	Vinyl alcohol	Vinyl butyral	Vinyl chloride acetate	Vinyl chloride	Vinylidene chloride	Vulcanized fiber	PROPERTIES
15	16	17	18	19	20	21	22	23	24	25	26	27	28	
A-B	B-A	-	A	A	A	A	A	A-C	A	A	A	A	B	Moulding Qualities
-	-	-	A	A	A	-	C	A-B	A	A	B	A	C	Extruding Qualities
B-A	B-A	A	A	A	B	A-C	B	C	A-C	A-C	B	A	A	Machining Qualities
A	A	A	A	A	A	A	B	A	A	A	A	A	B	Time Stability
B	B	B	B	B	B	A	A	A	A	B	A	A	A	Sunlight Stability
B	B	B	B	A	A	C	B	C	C	A	A	A	B	Acid Resistance
C	C	C	B	A	A	C	B	C	A	A	A	A	B	Alkali Resistance
A	A	A	B	B	B	B	A	A	B	B	B	A	B	Solvent Resistance
A	A	A	A	A	A	-	B	C	A	A	A	A	C	Moisture Resistance
A	A	A	A	B	A	B	A	B	B	B	A	A	A	Heat Resistance
A	A	A	A	B	B	C	A	B	B	A	A	A	B	Non-Inflammability
B	B	B	B	C	A-C	B	B	B	B	B	B	B	A	Abrasion Resistance
A	A	A	A	A	A	-	A	B	A	A	A	A	A	Flexural Strength
A	A	A	A	A	C	-	A	B	B	B	B	B	A	Compressive Strength
A	A	A	A	B	A	A	A	B	A	A	A	A	A	Impact Strength
A	A	A	A	A	A	B	A	B	B	A	A	A	A	Tensile Strength
C	C	C	C	A	B	B	A	A	A	A	A	A	C	Color Range
C	C	C	C	A	B	C	C	A	A	A	A	A	B	Transparency
S	S	S	S	P	P	-	P	P	P	P	P	P	S	Thermoplastic (P) Thermosetting (S)

26. Vinyl chloride resin

Polyvinyl acetal resin. Flexible, resistant to solvents, gases.

Korogel, Koron, Koroseal, Vinylite, Vinyon.

27. Vinylidene chloride resin

Ethylene, chlorine from oil, brine. Tough, chemical-resistant, colorable.

Saran.

28. Vulcanized fiber

Diamond Fiber, National, Taylor, Vulcoid.

LIST B: Plastics by trade names, alphabetically arranged

Ace 20 American Hard Rubber Co.

Acryloid 8 Rohm & Haas Co.

Aico 7 American Insulator Corp.

Alphide 7 Standard Plastic Corp.

Alvar 22 Shawinigan Products Corp.

Amberlac 1 Resinous Products & Chemicals Co.

Amerine 7 American Insulator Corp.

Ameroid 3 American Plastics Corp.

Aqualite 13 National Vulcanized Fiber Co.

Aquaplex 1 Resinous Products & Chemicals Co.

Arochem 1 Stroock & Wittenberg Corp.

Aroclor 1 Monsanto Chemical Co.

PLASTICS: Applications, by Types

Read "Purpose" and "How to Use Charts and Lists", page 103,
 before using Charts in making preliminary choice of particular plastics

Star=Maximum
 Suitability

MANUFACTURING APPLICATIONS

		Alkyd resins	Aniline formaldehyde	Casein	Cellulose Acetate	Cellulose Acetate butyrate	Ethyl cellulose	Cold Moulded	Lignin	Melamine formaldehyde	Methyl methacrylate	Nylon	Cast	Phenol formaldehyde Laminated (paper, cotton)	Moulded (wood, flour)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
MOULDED	Small, light wear		★	★	★	★	★	★	★	★	★	★	★	★	★
	Small, heavy wear		★		★	★	★	★	★	★			★	★	★
	Casings, light				★	★	★				★	★	★	★	★
	Structural parts													★	
EXTRUDED	Filaments				★							★			
	Tubes, rods			★	★	★	★				★		★	★	★
	Light wear			★	★	★	★				★		★	★	★
	Heavy wear												★	★	★
SHEET	Rigid		★		★	★	★		★		★		★	★	★
	Flexible					★	★								
	Transparent				★	★	★				★		★		
LIQUID	Coatings	★			★	★	★		★		★				
	Impregnators				★										
	Adhesives			★				★	★		★				
	Components														

Aröplaz 1 Stroock & Wittenberg Corp.
 Bakelite 4, 12, 14, 19, 22 Bakelite Corp.
 Bakelite C-9 1 Bakelite Corp.
 Baker Cast Resin 12 Baker Oil Tool Co.
 Beckosol 1 Reichold Chemicals Inc.
 Beetle 22 American Cyanamid Co.
 Benalite 8 Masonite Corp.
 Butacite 24 E. I. du Pont de Nemours & Co.
 Butvar 24 Monsanto Chemical Co.
 Catalin 9, 12 Catalin Corp.
 Celluloid 4 Celanese Celluloid Corp.
 Celoron 13 Continental-Diamond Fiber Co.
 Cetec 7, 8 General Electric Co.
 Cibanite 2 Ciba Co. Inc.
 Coltstone 7 Colt's Patent Fire Arms Mfg. Co.
 Complac 21 Poinsettia Inc.
 Compo-Site 21 Compo-Site Inc.
 Co-Ro-Lite 15 Columbian Rope Co.

Diamond Fiber 28 Continental-Diamond Fiber Co.
 Dilectene 2 Continental-Diamond Fiber Co.
 Dilecto 13 Continental-Diamond Fiber Co.
 Dulux 1 E. I. du Pont de Nemours & Co.
 Duraloy 13 Detroit Paper Products Corp.
 Duraplex 1 Resinous Products & Chemicals Co.
 Durez 12 Durez Plastics & Chemicals, Inc.
 Durite 18 Behr-Manning Corp.
 Ebrok 7 Richardson Co.
 Esterol 1 Paramet Chemicals Co.
 Ethocel 6 Dow Chemical Co.
 Falkaloid 1 Falk Co.
 Falkyd 1 Falk Co.
 Farlite 13 Farley & Loetscher Mfg. Co.
 Fibestos 4 Monsanto Chemical Co.
 Formica 13 Formica Insulation Co.

Galorn 3 George Morrell Corp.
 Garit 7 Garfield Mfg. Co.
 Gelva 22 Shawinigan Products Corp.
 Gemstone 12 A. Knoedler Co.
 Glyptal 1 General Electric Co.
 Gummon 7 Garfield Mfg. Co.
 Harvite 21 Siemon Co.
 Haveg 15 Continental-Diamond Fiber Co.
 Hemit 7 Garfield Mfg. Co.
 Hercules CN, EC 6 Hercules Powder Co.
 Herculoid 4 Hercules Powder Co.
 Heresite 14 Heresite & Chemical Co.
 Indur 14 Reilly Tar & Chemical Corp.
 Insurok 13 Richardson Co.
 Korogel 23 B. F. Goodrich Co.
 Koron 23 B. F. Goodrich Co.
 Koroseal 23, 26 B. F. Goodrich Co.
 Lacanite 21 Consolidated Molded Products Corp.

PLASTICS: Applications, by Types

Read "Purpose" and "How to Use Charts and Lists," page 103, before using Charts in making preliminary choice of particular plastics

ARCHITECTURAL RECORD
**TIME-SAVER
 STANDARDS**
 JUNE 1944

Phenol formaldehyde

Data for this chart derived from comprehensive information published in "Plastics Catalog" 1944

Moulded (chopped fabric)	Moulded (sisal)	Moulded laminated (glass)	Phenol furfural	Polystyrene	Rubber compounds	Shellac compounds	Urea-formaldehyde	Vinyl alcohol	Vinyl butyral	Vinyl chloride acetate	Vinyl chloride	Vinylidene chloride	Vulcanized fiber	SPECIFIC APPLICATIONS
15	16	17	18	19	20	21	22	23	24	25	26	27	28	
★	★	★	★	★	★	★	★	★		★		★		Buttons, discs, novelties
★	★	★	★	★	★					★		★		Mech. & Elect. parts
★	★	★	★	★			★	★		★	★	★	★	Housings, cabinets
	★	★	★											Plates, castings
				★					★	★	★	★		Thread, bristles
★	★	★		★					★	★	★	★		Hose, bars
★	★	★	★	★					★	★		★		Decorative bands
★	★	★	★											Mouldings, bars
★	★	★	★	★	★								★	Wallboard, table tops
				★	★					★				Curved surfaces
				★			★			★	★			Shields, windows
			★	★	★	★	★	★	★	★	★	★		Paint, sealer
			★	★			★	★						Treated wood, paper
			★			★	★	★	★	★				Lamination
														Ingredients, extenders

- Lamicoid 13 Mica Insulator Co.
- Lignolite 8 Marathon Chemical Co.
- Loalin 19 Catalin Corp.
- Lucite 10 E. I. du Pont de Nemours & Co.
- Lumarith 4 Celanese Celluloid Corp.
- Lustron 19 Monsanto Chemical Co.
- Luzerne 20 Luzerne Rubber Co.
- Makalot 1, 14 Makalot Corp.
- Marblette 12 Marblette Corp.
- Marbon B 20 Marbo Products Corp.
- Melmac 9 American Cyanamid Co.
- Micarta 13 Westinghouse Electric & Mfg. Co.
- Mirasol 1 Carbogen Chemical Co.
- National 28 National Vulcanized Fiber Co.
- Neillite 12 Watertown Mfg. Co.
- Nitron 4 Monsanto Chemical Co.
- Nixonite 4 Nixon Nitration Works
- Nixonoid 4 Nixon Nitration Works
- Nylon 11 E. I. du Pont de Nemours & Co.
- Ohmoid 13 Wilmington Fiber Co.
- Okon 7 American Hard Rubber Co.

- Opalon 12 Monsanto Chemical Co.
- PVA 23 E. I. du Pont de Nemours & Co.
- Panelyte 13 Panelyte Division, St. Regis Paper Co.
- Paraplex 1 Resinous Products & Chemicals Co.
- Parlon 20 Hercules Powder Co.
- Phenolite 13 National Vulcanized Fiber Co.
- Plaskon 9, 22 Plaskon Division, Libbey-Owens-Ford Glass Co.
- Plastacele 4 E. I. du Pont de Nemours & Co.
- Plexiglas 10 Rohm & Haas Co.
- Plioform 20 Goodyear Tire & Rubber Co.
- Pliolite 20 Goodyear Tire & Rubber Co.
- Pyralin 4 E. I. du Pont de Nemours & Co.
- Resinox 12 Monsanto Chemical Co.
- Resistoflex 23 Resistoflex Corp.
- Rezyl 1 American Cyanamid Co.

- Rub-Tex 20 Richardson Co.
- Saflex 24 Monsanto Chemical Co.
- Saran 27 Dow Chemical Co.
- Spauldite 13 Spaulding Fiber Co.
- Stryamic 12 Monsanto Chemical Co.
- Styron 19 Dow Chemical Co.
- Syntax 1 Jones-Dabney Co.
- Synthane 13 Synthane Corp.
- Taylor 13, 28 Taylor Fiber Co.
- Tenite I and II, 4, 5 Tennessee Eastman Corp.
- Textolite 13 General Electric Co.
- Thermoplox 7 Cutler-Hammer Inc.
- Ucinite 13 Ucinite Co.
- Uformite 22 Resinous Products & Chemicals Co.
- Vinylite 21, 25, 26 Carbide & Carbon Chemicals Corp.
- Vinyseal 22 Carbide & Carbon Chemicals Corp.
- Vinyon 23 Carbide & Carbon Chemicals Corp.
- Vulcoid 28 Continental-Diamond Fiber Co.

PLASTICS: Manufacturers and Trade-names

- American Cyanamid Co., Rockefeller Plaza, N. Y. 20.
Beetle 22, Melmac 9, Rezyl 1.
- American Hard Rubber Co., 11 Mercer St., N. Y. 13.
Ace 20, Okon 7.
- American Insulator Corp., 1930 Main St., New Freedom, Pa.
Aico-5 7, Amerine 7.
- American Plastics Corp., 255 West 34 St., N. Y. 1.
Ameroid 3.
- Bakelite Corp., 30 East 42 St., N. Y. 17.
Bakelite C-9 1, Bakelite 4, 12, 14, 19, 22.
- Baker Oil Tool Co., Box 127, Vernon Sta., Los Angeles, Cal.
Baker Cast Resin 12.
- Behr-Manning Corp., Troy, N. Y.
Durite 18.
- Carbide & Carbon Chemicals Corp., 30 East 42 St., N. Y. 17.
Vinylite X 21, Vinylite 25, 26, Vinylseal 22, Vinyon 23.
- Carbogen Chemical Co., Garswood, N. J.
Mirasol 1.
- Catalin Co., 1 Park Ave., N. Y. 16.
Catalin 9, 12, Loalin 14.
- Celanese Celluloid Corp., 180 Madison Ave., N. Y. 16.
Amerith 4, Celluloid 4, Lumarith 4.
- Ciba Co., Inc., 77 River St., Hoboken, N. J.
Cibanite 2.
- Colt's Patent Fire Arms Mfg. Co., 17 Van Dyke Ave., Hartford, Conn.
Coltstone 7.
- Columbian Rope Co., Auburn, N. Y.
Co-Ro-Lite 15.
- Compo-Site Inc., 85 Fifth Ave., Paterson, N. J.
Compo-Site 21.
- Consolidated Molded Products Corp., 309 Cherry St., Scranton 2, Pa.
Lacanite 21.
- Continental-Diamond Fiber Co., Newark, Del.
Celoron 13, Diamond Fiber 28, 15, Vulcoid 28.
Dilectene 2, Dilecto 13, Haveg
- Cutler-Hammer Inc., 315 North 12 St. Milwaukee, Wis.
Thermoplax 7.
- Detroit Paper Products Co., Detroit, Mich.
Duraloy 13.
Ethocel 6, Saran 27, Styron 19.
- du Pont de Nemours & Co., E. I., 10th & Market St., Wilmington, Del.
Butacite 24, Dulux 1, Lucite 10, Nylon 11, Plastacele 4, PVA 19, Ppyralin 4.
- Durez Plastics & Chemicals Inc., N. Tonawanda, N. Y.
Durez 12.
- Falk Co., Pittsburgh, Pa.
Falkaloid 1, Falkyd 1.
- Farley & Loetscher Mfg. Co., Seventh & White Sts Dubuque, Ia.
Farlite 13.
- Formica Insulation Co., 4614 Spring Grove Ave., Cincinnati 32, Ohio.
Formica 13.
- Garfield Mfg. Co., 10 Midland Ave., Garfield, N. J.
Garit 7, Cummon 7, Hemit 7.
- General Electric Co., Bridgeport, Conn.
Glyptal 1.
- General Electric Co., 1 Plastics Ave., Pittsfield, Mass.
Cetec 7, 8, Textolite 13.
- Goodrich Co., B. F., Akron, Ohio.
Korogel 23, Koron 23, Koroseal 23, 26.
- Goodyear Tire & Rubber Co., 1400 Cartwright St., Akron, Ohio.
Pliofilm 20, Pliolite 20.
- Hercules Powder Co., Wilmington, Del.
Hercules CN 4, Hercules ES 4, Herculooid 4, Parlon 20.
- Heresite & Chemical Co., 822 South 14 St., Manitowoc, Wis.
Heresite 14.
- Jones-Dabney Co., Louisville, Ky.
Syntex 1.
- Knoedler Co., A., 717 N. Prince St., Lancaster, Pa.
Gemstone 12.
- Luzerne Rubber Co., Muirhead Ave., Trenton 9, N. J.
Luzerne 20.
- Makalot Corp., 262 Washington St., Boston 9, Mass.
Makalot 1, 14.
- Marathon Chemical Co., Rothschild, Wis.
Lignolite 8.
- Marblette Corp., 37-21 30 St., Long Island City 1, N. Y.
Marblette 12.
- Marbo Products Corp., Chicago, Ill.
Marbon B 20.
- Masonite Corp., Laurel, Miss.
Benalite 8.
- Mica Insulator Co., 200 Varick St., N. Y. 14.
Lamicoid 13.
- Monsanto Chemical Co., 1700 S. Second St., St. Louis, Mo.
Aroclor 1.
- Monsanto Chemical Co., Springfield 2, Mass.
Butvar 24, Fibestos 4, Lustron 19, Nitron 4, Opalon 12, Resinox 12, Saflex 24, Styramic 12.
- Morrell Corp., George, Sherman Blvd., Muskegan Heights, Mich.
Galorn 3.
- National Vulcanized Fiber Co., Maryland Ave., Wilmington, Del.
Aqualite 13, National 28, Phenolite 13.
- Nixon Nitration Works, Nixon, N. J.
Nixonite 4, Nixonoid 4.
- Panelyte Div., St. Regis Paper Co., 230 Park Ave., N. Y. 17.
Panelyte 13.
- Paramet Chemical Corp., Long Island City, N. Y.
Esterol 1.
- Plaskon Div., Libbey-Owens-Ford Glass Co., 2112 Sylvan Corp., Toledo, Ohio.
Plaskon 9, 22.
- Poinsett Inc., 98 Cedar Ave., Pittman, N. J.
Complac 21.
- Reichold Chemicals Inc., 601 Woodward Hts. Blvd., Ferndale, Mich.
Beckosol 1.
- Reilly Tar & Chemical Corp., 1615 Merchants Bank Bldg., Indianapolis 4, Ind.
Inur 14.
- Resinous Products & Chemical Co., 222 W. Washington Sq., Philadelphia 5, Pa.
Acryloid 8, Amberlac 1, Aquaplex 1, Duraplex 1, Paraplex 1, Uformite 22.
- Resistoflex Corp., 21 King St., E., Velleville, N. J.
Resistoflex 23, Resistoflex PVA 23.
- Rohm & Haas Co., 222 W. Washington Sq., Philadelphia 5, Pa.
Acryloid 8, Plexifilas 10.
- Richardson Co., Lockland, Ohio.
Insurok 13, Rub-Tex 20.
- Richardson Co., Melrose Park, Ill.
Ebrok 7.
- Siemon Co., State & Dewey Sts., Bridgeport, Conn.
Harvite 21.
- Shawinigan Products Corp., 350 Fifth Ave., N. Y. 1.
Alvar 22, Gelva 22.
- Spaulding Fiber Co., 310 Wheeler St., Tonawanda, N. Y.
Spauldite 13.
- Standard Plastic Corp., Jersey City, N. Y.
Alphide 7.
- Stroock & Wittenberg Corp., 60 East 42 St., N. Y. 17.
Aroplaz 1.
- Synthane Corp., Oaks, Pa.
Synthane 13.
- Taylor Fiber Co., Norristown, Pa.
Taylor 13, 28.
- Tennessee Eastman Corp., Kingsport, Tenn.
Tenite I, II, 4, 5.
- Ucinite Co., Watertown St., Newtonville, Mass.
Ucinite 12.
- Watertown Mfg. Co., 127 Echo Lake Rd., Watertown, Conn.
Neillite 13.
- Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.
Micarta 13.
- Wilmington Fiber Co., Box 1028, Wilmington, Del.
Ohmoid 13.

PLASTICS IN THEATRES

The General Electric Company offers to architects, designers and engineers the service of experienced technical advice and information on the use of plastic materials. In the following list are some of the places in the modern theatre building where G-E plastic materials can be used. Kindly write Section C-289 for information on your plastic problems.

DISPENSERS—CANDY, CIGARETTES DISPLAY FRAMES—POSTERS
FLOOR AND WALL MATERIALS INTERCOMMUNICATING
HOUSE PHONES SIGNS—ELECTRIC, DIRECTIONAL, CHANGEABLE
LETTERS LIGHTING—EXTERIOR, INTERIOR, SPOT, FLOOD, FOOT-
LIGHTS PARTITIONS SEATING HARDWARE

Hear the General Electric radio programs: "The G-E All Girl Orchestra" Sunday 10 P.M. EWT, NBC. "The World Today" news every weekday 6:45 P.M. EWT, CBS.

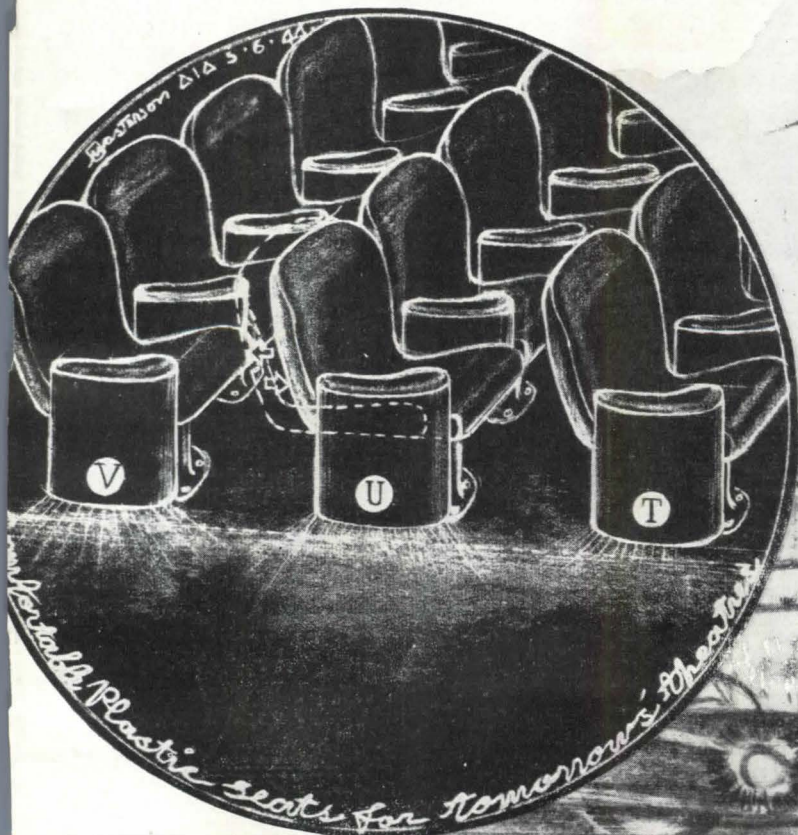
INSURE YOUR FUTURE

BY BUYING MORE WAR BONDS AND SAVING THEM

FIFTY YEARS IN THE PLASTICS INDUSTRY

GENERAL  ELECTRIC

PD-289



somebody they know. You can get in if you stay there long enough; in some countries, that is long indeed.

Building Style Changes

Outside the building line there are developments suggestive of changed building styles after the war. For instance, an OPA official who watches over laundry service tells about some promotions of the hotel linen supply houses. They are going into the business of supplying homes as well as

institutions with freshly laundered sheets, pillow cases and towels. The more ambitious even wonder whether they might not include men's white shirts. When demobilized soldiers and their wives set up households, they may decide that it is not worth while to stock up on linens, since the XYZ linen company adds little more onto weekly service than the regular laundry bill. If they do, they will not need linen closets. This is one development among others.



Myron Ehrenberg
Simon Breines, A.I.A.

A.I.A. AWARD TO BREINES

The New York Chapter of the American Institute of Architects has announced the award of its Arnold W. Brunner Scholarship for 1944 to Simon Breines, A.I.A., New York City architect, for his proposed project, "City Living."

Announcement of the award was made at a recent dinner meeting of the New York Chapter, by Ralph Walker of Voorhees, Walker, Foley and Smith, acting as chairman of the Chapter's Education Committee.

The proposal, as outlined for the membership by Mr. Walker and Mr. Breines, is to acquaint the largest number of people with the concrete gains to be realized through planning and to make the processes and objectives of planning more intelligible to the general public.

In announcing the award, Mr. Walker said that throughout the world the words "city planning" have come to have a hopeful meaning, and men everywhere are being trained in the techniques of research and analysis. But the many attempts to exhibit the results and so influence the public (who, while showing a great interest, come away with but little understanding) have clearly indicated the need for new types of exposition methods to meet a larger audience than the technicians themselves.

WPB NOTES

There has been an increasing tendency on the part of WPB in recent weeks to issue orders apparently easing up on wartime restrictions. But the easements thus far have been more theoretical than actual.

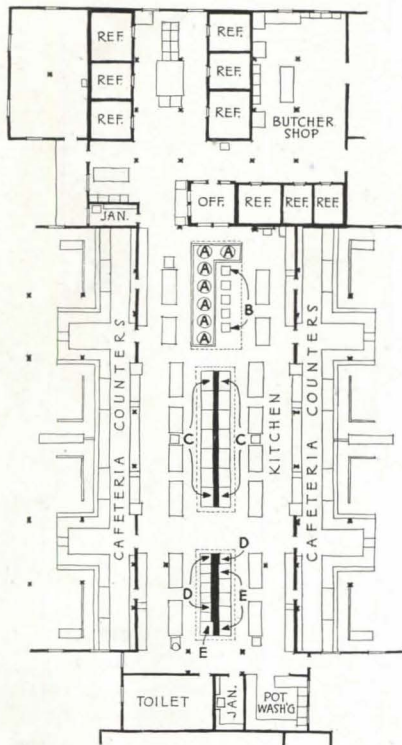
Resumption of Production

Take, for instance, the newly announced policy for the resumption or increase of production with respect to labor areas. This is in substance a restatement of the established WPB

(Continued on page 112)

KITCHEN PLAN NO. 12: Twelfth of a series of successful mass-feeding kitchen plans.

This is the plan of a fast-operating, highly efficient, 6000-man Army Mess.



**KEEP FOR
HANDY
REFERENCE!**

COOKING EQUIPMENT USED:

- (a) 7 Stock Kettles
- (b) 5 Vegetable Steamers
- (c) 14 Army Ranges
- (d) 8 Fryers
- (e) 6 No. 147 BLODGETT COAL-FIRED OVENS

Designed by U. S. Engineers.



The dishwashing rooms—not shown because of space limitation—are located at the exit of each mess hall, and add greatly to efficiency. The six coal-fired BLODGETT OVENS have five shelves each, and are used for all roasting, pudding and pastry work. For details and specifications of Blodgett Ovens, consult your equipment house or write

The G. S. BLODGETT CO., Inc.

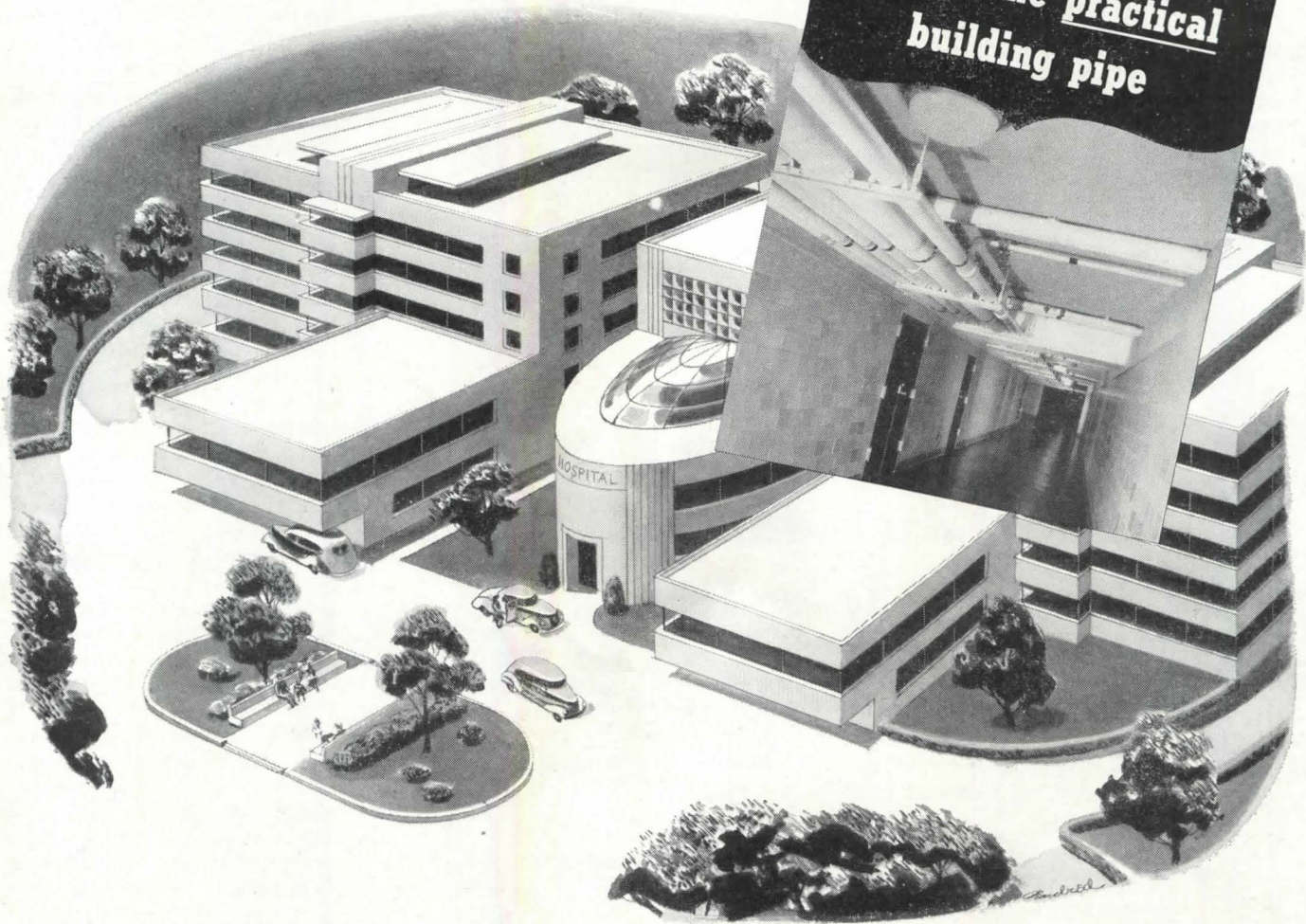
53 Maple Street

Burlington, Vermont

Reprints of this series now available to architects on request.

Styles change...

but
NATIONAL PIPE
 is still the practical
 building pipe



HOSPITALS, schools and other public buildings planned for construction during the postwar period may present a new, modern appearance to the owner, decorator or casual observer. But no matter how these buildings will look from the outside, the plumbing and heating contractor will still be concerned with the problem of obtaining pipe which best combines smooth, easy installation features with long-lasting quality on the job. When choosing such a pipe, remember that steel pipe is a standard specification with architects and

builders who want to give the client the most for his money. No other tubular material has appeared for general use in plumbing and heating systems which can compare with steel pipe in all-round service per dollar of cost.

A substantial amount of the steel pipe now in service is the product of National Tube, the world's largest manufacturer of tubular products. On countless war jobs NATIONAL Pipe's uniform structure and ductility have meant speedy, economical installation; its proved strength and

durability promises long-term protection. In peace and in war, these qualities have made NATIONAL the most popular steel pipe in America.

In the important construction days to come, NATIONAL will again be the practical pipe for general use. Because it is strong, clean, ductile, easily threaded and long-lasting, it will continue to be the first choice of plumbing and heating contractors, architects, and engineers for use in large and small building projects, in central heating, individual radiant, or panel heating systems.



NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Columbia Steel Company, San Francisco, Pacific Coast Distributors · United States Steel Export Company, New York



UNITED STATES STEEL

policy permitting such resumptions or increases only when they will not interfere with military programs. But in an apparent effort to provide for increased production of the most essential civilian goods, the policy has been made more flexible. Although stating that as a general thing such resumptions and increases should be placed in areas designated by the War Manpower Commission as Group 3 and Group 4 areas, it now provides that available facilities and manpower in

the tight labor areas may be thus used provided there is no interference with military production. Furthermore, small manufacturing plants are exempted from all of the restrictions set up for programs in Group 1 and Group 2 labor areas.

Assistance in Rehabilitation

Somewhat similar in effect is the WPB announcement that the Office of Civilian Requirements now may give "special assistance" in the rehabilita-

tion of hotels, apartment houses and office buildings released by the War and Navy Departments for private civilian operation.

The procedure is complicated:

1. The prospective purchaser of the equipment needed for such rehabilitation must obtain from the authorized officer of the Army Corps of Engineers, or the Navy Bureau of Yards and Docks, a certification that the list of materials and services that he proposes to procure correctly sets forth the quantities and kinds of items and services required.

2. The Office of Civilian Requirements must then be satisfied that the buildings to be restored are in areas where such additional facilities are required for uses essential in the war effort and that the proposed total procurement for rehabilitation purposes is within reasonable limits as to types and quantities of items and as to delivery schedules.

Once these requirements have been met, the OCR is authorized to assign preference ratings of AA-2X for the procurement of particular items of equipment, supplies and minor construction. However, this rating may not be assigned to any item costing in excess of \$5,000 without prior consultation with the affected end-product division, nor can the total assignment of ratings for all projects thus authorized exceed \$2,000,000. The authority is extended for a period of 12 months.

Pending the establishment of a special application form, applications should be filed on PD-1A, certified to by the proper Army or Navy officer and marked "in accordance with Program Determination 401." All items requiring ratings or special authorization should be listed on the PD-1A form.

CONSTRUCTION CUT

WPB is congratulating itself on having cut back construction projects for 1944 to a larger degree than had been anticipated. Total volume of construction this year is not expected to exceed \$3.5 billion, as contrasted with the \$3.9 billion estimate made last fall.

In WPB's opinion the 10 per cent reduction in expected construction will materially help to conserve scarce lumber as well as supplies of steel and copper, which are becoming increasingly tight, and is regarded as a welcome relief to the war economy.

The total volume of construction activity in the United States in the first quarter was under \$900 million, which is less than 40 per cent of the volume of construction put in place in the corresponding quarter of 1943.

(Continued on page 114)

PORCELAIN ENAMEL

Will Play An Important Role In Post-War Construction --and Especially for Theatres

DAVIDSON PORCELAIN ENAMEL

will afford many new, and interesting advantages. Its beauty and originality will be a stimulating influence.

Here the making of porcelain enamel is an exact science. Only the best materials, which have been subjected to rigorous laboratory tests, are used. Everything is done with scientific precision and according to strictest specifications.

Davidson building units are made to be self-supporting, interlocking and mechanically perfect before being completely coated with porcelain enamel. Panels are formed to be blind-screwed in place. The finished product is given rigid tests for impact, reflection, weather and acid-resisting properties. Each panel is manufactured to fit a given condition on a specific job. This insures a perfect fit, greater strength and durability.

Boundless freedom in layout and design are possible with old as well as new buildings. The individual panel fastening and height of use are unlimited. Full expansion and contraction are provided for in each panel. Waterproof joints are assured. A wide range of uniform finishes, lustre, satin, ripple, etc. are available.

Your clients will be enthusiastic over the fact that the appearance of newness will be retained indefinitely; that it is easily cleaned, fireproof. Davidson's engineering staff will cooperate with you by way of suggestions, shop drawings and supervision of your job through the factory.

Write today for detailed literature. We will also then send to you the announcement of all new developments in porcelain enamel.

DAVIDSON ENAMEL PRODUCTS, INC.

LIMA, OHIO

Are you up-to-date on the best way to specify a built-up roof?

MANY a built-up roofing specification in the past has been solved simply by specifying "a bonded roof." But—is this the best way to take care of this important part of a building?

When you consider all the factors which can affect the performance of a roof—factors such as climate, roof pitch, thickness of walls, humidity and operating conditions inside the structure—it is clear that a roof must be "tailor-made" for the building it covers. Such a specification can only result in a more effective, longer lasting roof . . . one with far less upkeep.

A tailor-made roof, like a suit of clothes, must be made of quality materials if it is to endure. That's why Johns-Manville recommends *asbestos* roofing felts.

Asbestos Roofing can't dry out

Day after day the hot sun beats down on a roof. If it is composed of ordinary roofing felts, the waterproofing asphalt is soon drawn off, leaving a dried out, lifeless surface. If the roof is made of asbestos felts, however, this cannot happen because the fibers are mineral. They form a protective stone-like cover for the waterproofing asphalt underneath.

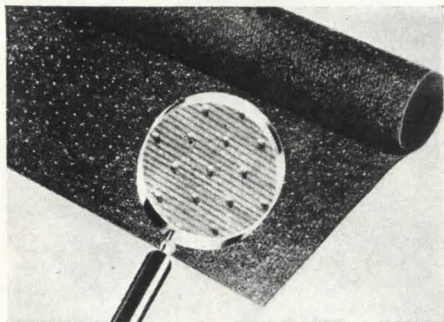
Also, because of these protective asbestos fibers, this roof needs no heavy surfacing of slag or gravel.

Besides being able to withstand the drying-out action of the sun, asbestos roofs have another important advantage. Asbestos cannot burn. This quality guards the building against the hazard of roof-communicated fires.

New development minimizes the hazard of blisters

When ordinary felts are laid, air sometimes becomes trapped underneath. This air then expands from the sun's heat, and a blister may result.

To overcome this, Johns-Manville developed the Perforated Asbestos Felt, a more flexible roofing felt, containing millions of tiny holes. When



Millions of tiny holes in the J-M Perforated Asbestos Felts practically eliminate the hazard of blisters.

this felt is laid in the hot asphalt, any air that is trapped underneath escapes through these holes. Thus, a blister has small chance of forming. The holes themselves are completely sealed by the asphalt so they are waterproof beyond any shadow of doubt.

Why not get the full story about these J-M Asbestos Roofing Felts and how Johns-Manville engineers them into the roof as a tailor-made job to fit the exact requirements of the building? Write for booklet BU-30A which contains complete information and specification details. Address Johns-Manville, 22 E. 40th St., New York 16, N. Y.



Johns-Manville ASBESTOS BUILT-UP ROOFS

NAREB SURVEY

The heavy wartime drain on building materials and labor is causing serious property depreciation in a great many sections of the country, according to the 42nd semi-annual real estate market survey by the National Association of Real Estate Boards.

High points of the survey, covering 376 representative cities, are:

1. Maintenance and repair handicaps are resulting in a seriously rapid

deterioration of structures in 33 per cent of the cities. Structural soundness of buildings was affected somewhat in 65 per cent of the cities, and in 4 per cent structural deterioration had become a serious problem.

2. A shortage of single-family dwellings was found in 92 per cent of the reporting cities, as compared to 88 per cent six months ago. Only 2 per cent reported over-supply. There is an undersupply of apartments in 83 per

cent of the reporting cities as against 75 per cent six months ago.

3. The family-size dwelling, with two or three bedrooms, at a price around \$5,000 is the kind of urban property that is in greatest demand. There is a marked preference for the close-in urban home with gardening land and good transportation.

4. Two-thirds of the reporting cities were found to have formed planning committees and 70 per cent of the strategic industrial centers had begun to plan for peacetime readjustments. The larger cities are leading in this movement. Of those over 200,000 population, 92 per cent have reconversion plans, while 48 per cent under 25,000 population have started such work.

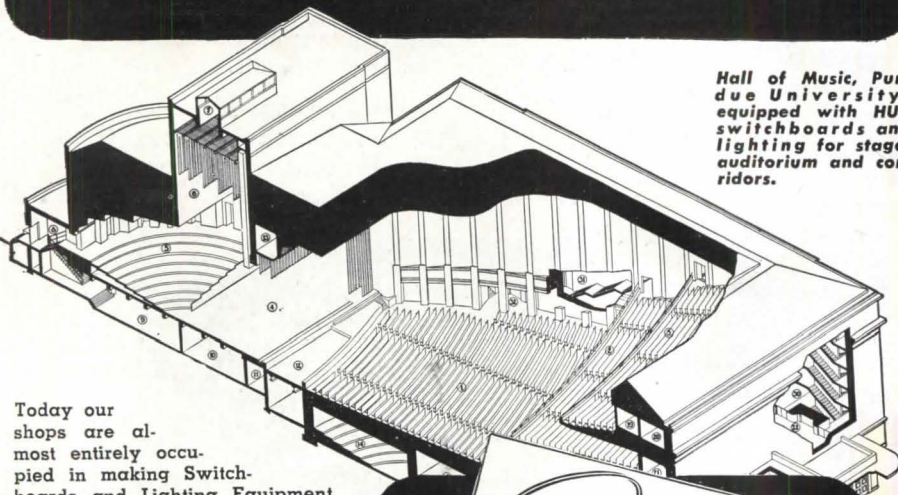
5. War has hastened the trend to streamlined one-story factory buildings. In one city out of every three, one-half or more of the present factory space is of the one-story type.

6. Residential rents are not sufficient to justify investment in rental housing at present construction cost in 77 per cent of the cities. In maximum rent areas, rates are insufficient to justify rental housing investment in 82 per cent of the cities. OPA rent levels are considered to be too low for fairness in 81 per cent of the cities.

7. The building of war plants has materially shifted the industrial area of some of our cities, but the movement is not as great as was expected.

What's new in
STAGE SWITCHBOARDS?

New, informative booklet sent on request

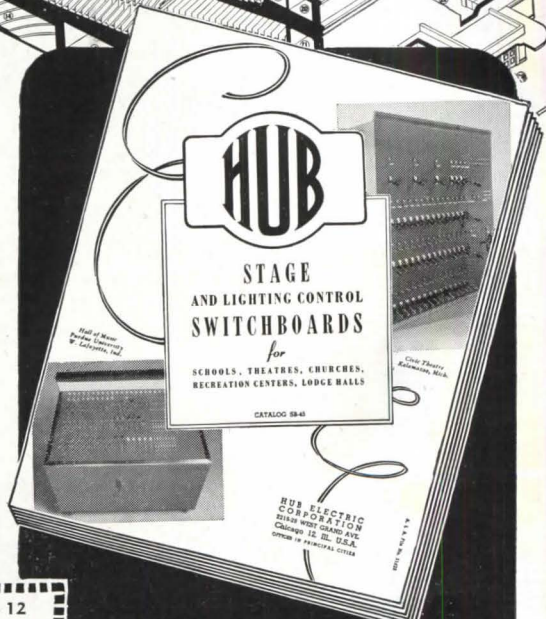


Hall of Music, Purdue University, equipped with HUB switchboards and lighting for stage, auditorium and corridors.

Today our shops are almost entirely occupied in making Switchboards and Lighting Equipment for Army, Navy and Air Corps projects. But while we are working for Victory, we are ready to plan with you for the peace to follow.

Please feel free to ask the aid of our engineering staff, or request a visit by our Resident Engineer nearest you, in connection with any post-war project. And let us send you now our new booklet which describes the latest developments in Stage Switchboard design; and presents, for the first time in print, the HUB "REGULITE" System for remote control, HUB'S "DIAL SELECTOR" type, dead-front, cross-connecting equipment, etc.

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Hub Electric, 2221 W. Grand, Chicago 12

- Send booklet on Stage Switchboards
- Send catalog on Lighting Equipment
- Have your Resident Engineer get in touch with us.

Name

Address

City State

CONFERENCE ON SCHOOL PLANNING

A conference on "Planning Postwar School Buildings" will be held at Indiana University July 10-11, 1944.

The conference will deal with such problems as (1) the determination of and location of school buildings; (2) the functional planning of the school plant; (3) the developments in the field of construction, materials and equipment; (4) the costs of financing the construction program and the possibilities of state and federal aid. Details of the program will be announced later. For further information address H. E. Moore, Director of the Bureau of Teacher Recommendations and Principal, University School, Bloomington, Indiana.

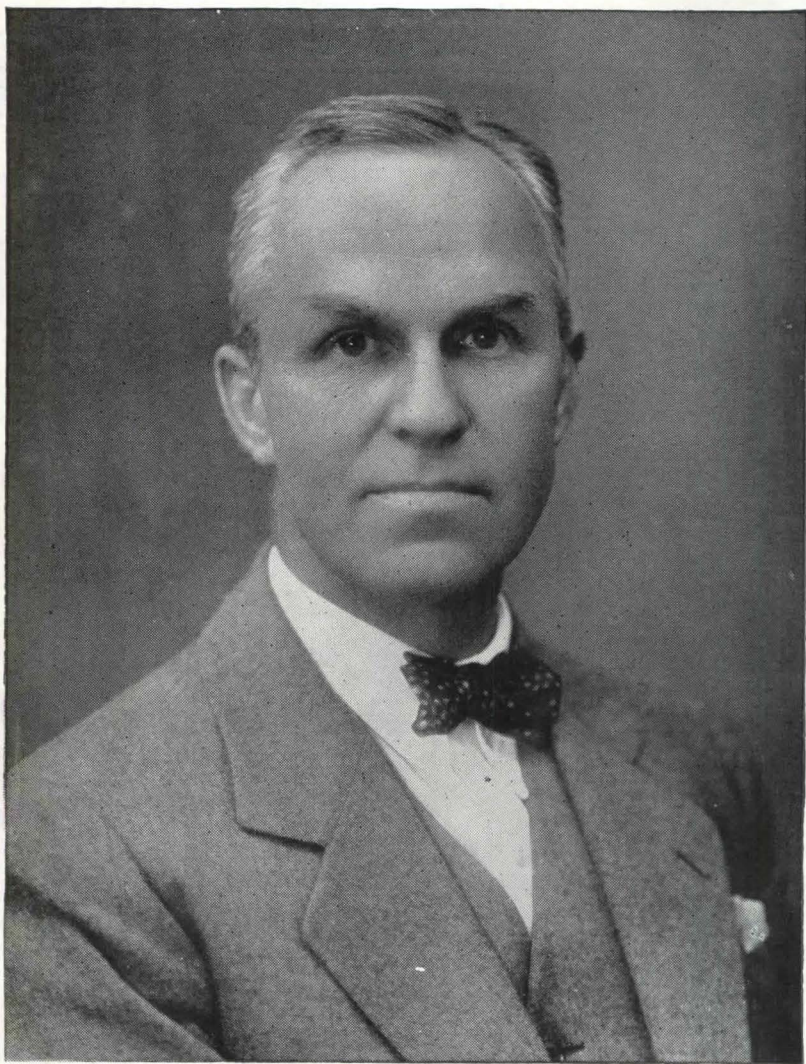
U. S. STEEL AND GUNNISON HOUSING

A substantial interest in the Gunnison Housing Corporation has been acquired by U. S. Steel Corporation, Benjamin F. Fairless, president of the latter company has announced.

The acquisition of this interest, Mr. Fairless said, will provide U. S. Steel with research facilities and the exper-

(Continued on page 116)

This is one of a series of advertisements telling what leading Consulting Engineers think of steam heating.



Walter J. Armstrong, M. E. Cornell University, M.E.I.C., M.A.S.H.V.E., M.P.E.Q., Lic. P.E.O., Consulting Engineer, with Offices in Montreal, Que., and Toronto, Ont.

Walter J. Armstrong writes, "Many Canadians sleep with their windows open, even when outside temperature is below 0°F. It is, therefore, important for hotels, apartment houses, and hospitals to have a heating system which, at 'getting-up time' and when desired, can immediately provide maximum heat . . . which, during sleeping hours, will provide the minimum heat required for safety and, thus, use the minimum amount of steam . . . and which at other times, provides only sufficient heat for comfort and to suit outside conditions of temperature and air movement. *Modern, centrally-controlled, steam heating systems with proper zoning and intelligent operation, meet these requirements.*

Walter J. Armstrong has specified the Webster Moderator System of Steam Heating for the following buildings: Royal York Hotel, Toronto; Montreal Convalescent Hospital, Montreal; C.I.L. House, Montreal; Robert Mitchell Munitions Plant, St. Laurent; Armoury for the 17th Duke of York's Royal Canadian Hussars, Montreal. He has also specified the Webster Hylo Systems for the following buildings: Men's Residence & Dining Hall of Trinity College, Toronto Univ., Toronto; Residence for St. Hilda's College of Toronto Univ., Toronto; Fulford Home for Aged Women, Brockville; Transportation Building, Montreal.

WARREN WEBSTER & COMPANY, Camden, New Jersey
Pioneers of the Vacuum System of Steam Heating
Est. 1888 :: Representatives in Principal U.S. and Canadian Cities
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STEAM Heats
America

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ience of an established organization serving prefabricated home buyers.

"One of the best means of meeting the large postwar demand for homes for people of modest means will be through the application of mass-production methods in the prefabricated housing field," he pointed out. "To this end U. S. Steel believes that steel will make an important contribution wherever it meets the requirement of design, utility and cost."

Foster Gunnison, founder and principal stockholder of Gunnison Housing Corporation, will continue in charge of the company's affairs.

PROPPER JOINS N.C.H.

Announcement has been made of the appointment of Henry M. Propper as Executive Vice Chairman of the National Committee on Housing. Long active in private and public agencies concerned with housing and city plan-

ning, Mr. Propper succeeds the late Gladys LaFetra in the executive direction of the Committee's program. He was associated with one of the early limited dividend housing enterprises, City Housing Corporation, which built the Sunnyside Gardens Community in Queens and Radburn, N. J. He has been connected also with other private developments such as the building of Munsey Park for the Metropolitan Museum of Art. Most recently he served as Administrative Assistant to the Commissioner in the New York State Division of Housing.

MOTT JOINS U.L.I.

The appointment of Seward H. Mott as director of the Urban Land Institute has been announced by Hugh Potter, Institute president. Mr. Mott has announced his resignation as director of Land Planning for the Federal Housing Administration, and will join the Institute June 1.

STANDARDS FOR BUILDING CODES

The American Standard, Administrative Requirements for Building Codes (A55.1-1944), which can be used by cities and towns all over the country, has just been approved by the American Standards Association.

The purpose of the standard is to provide for a suitable form of organization for building departments, and for efficient administration of building code work.

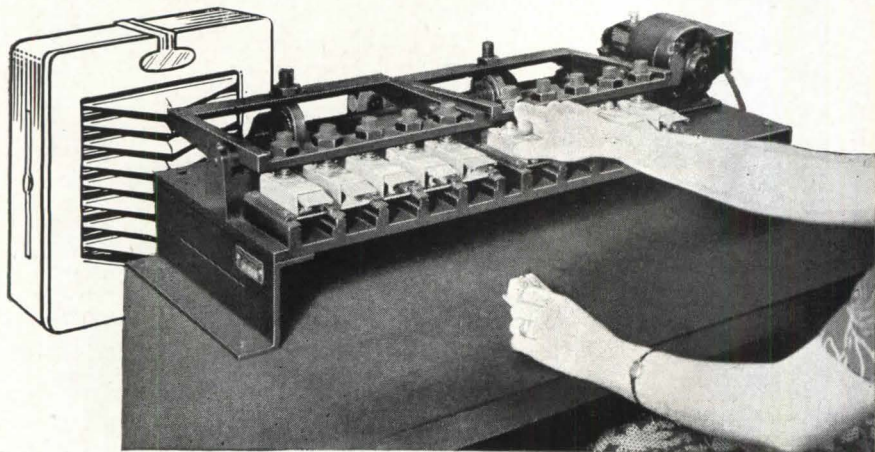
Developed under the technical leadership of the American Municipal Association and the Building Officials' Conference of America, Inc., the standard defines in broad terms the powers, duties and responsibilities of the enforcing official and covers construction, alteration, repair, equipment, use and occupancy, location, maintenance, removal and demolition of all kinds of structures.

POLITICAL PLANNING IN NEW YORK

The Museum of Modern Art, New York City, is currently holding a series of four lectures on the problems of postwar planning.

The first of these, a forum discussion on "Planning for New York City," was held on May 24, and proved to be quite a lively affair. Under the able chairmanship of George Howe, Supervising Architect, Public Buildings Administration, a group of six pleasantly disagreeing speakers gave their views on the subject.

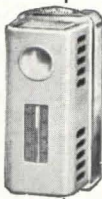
First came Cleveland Rodgers, member of the City Planning Commission, (Continued on page 118)



"RUN IN" LIKE A QUALITY MOTOR CAR . . .

8 EXCLUSIVE FEATURES OF WHITE-RODGERS HYDRAULIC-ACTION TEMPERATURE CONTROLS

1. May be mounted at any angle or position, above, below or on level with control point.
2. Hydraulic-Action Principle incorporating solid-liquid filled bulb and capillary provides expansion force comparable to that of a metal bar.
3. Diaphragm motion uniform per degree of temperature change.
4. Power of solid-liquid charge permits unusually sturdy switch construction resulting in positive contact closure.
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7. Controls with remote bulb and capillary are not sensitive to change in room temperature. Accuracy of control is not affected by temperature changes in surrounding area.
8. Not affected by atmospheric pressure. Works accurately at sea level or in the stratosphere without compensation or adjustment.



to assure accurate performance the moment it is installed

Hour after hour this specially designed cycling machine breaks in White-Rodgers control-switch mechanisms. Each is operated for not less than five hundred cycles to assure smooth, uniform contact action.

Just another reason why White-Rodgers Controls are accurate when you install them—need no recalibration due to flexing of moving parts or seating of bearing surfaces.

Specify White-Rodgers to assure dependability and freedom from trouble.



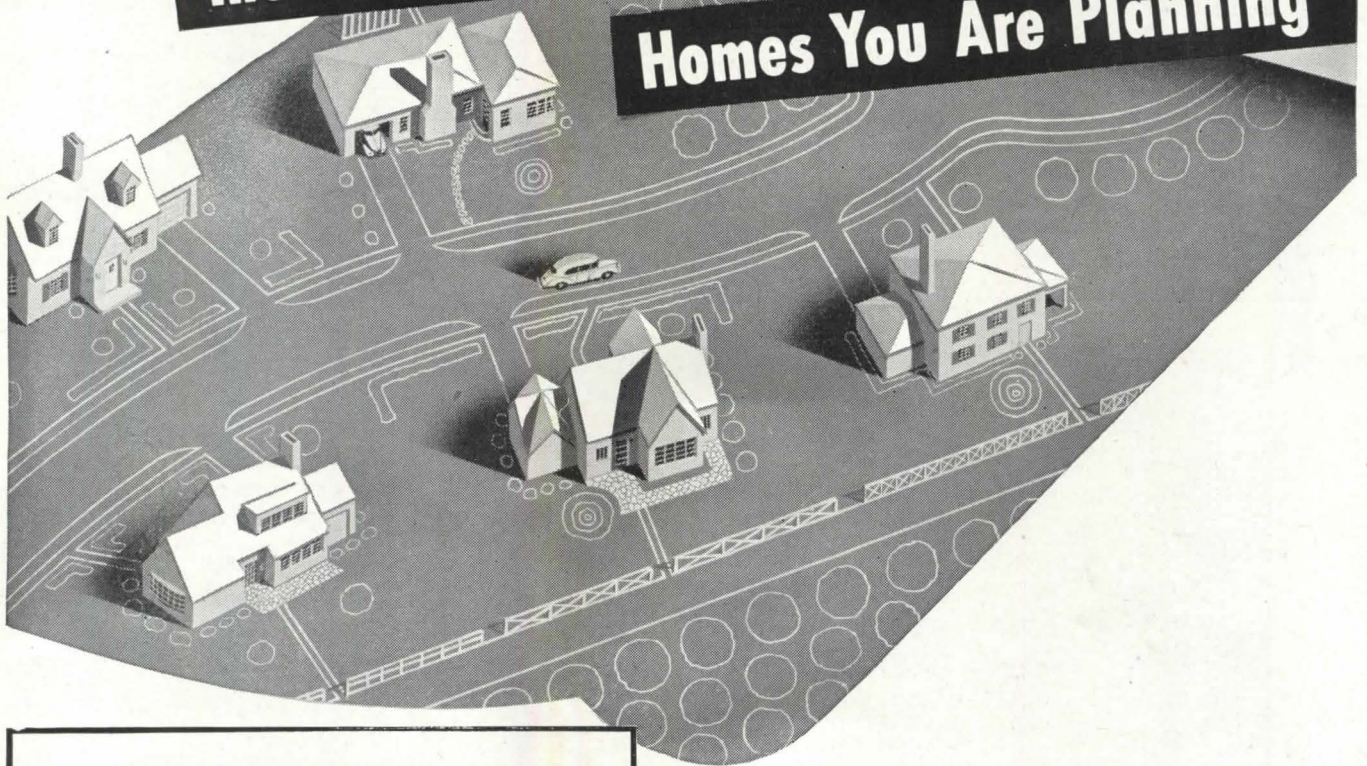
WHITE-RODGERS ELECTRIC CO.

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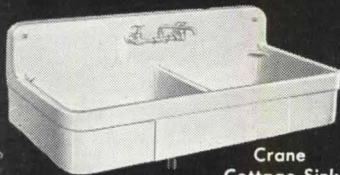


Quality Plumbing NOW AVAILABLE

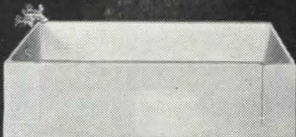
The bathroom and kitchen fixtures shown here are typical of the many non-critical plumbing items you may obtain now without priority for today's construction projects. Orders will be filled as rapidly as production facilities permit.



Crane
Hanover
Closet



Crane
Cottage Sink



Crane Conservor Bath



Crane
Norwich
Lavatory

EVERY indication points to a rapid expansion of home construction when conditions permit the release of men and materials.

Already on the drafting boards of architects are plans for these homes of tomorrow. Many are of the low-cost group. Others will cost much more. But no matter what type houses you are designing, you will find plumbing equipment exactly suited to the taste and desires of your clients in the complete Crane line of tomorrow.

Specifications on the homes you are planning should include Crane plumbing. To help you with your planning, we will gladly furnish you information on styles and dimensions of fixtures that will be available when war conditions permit their manufacture.

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NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

CRANE CO., GENERAL OFFICES:
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VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

who outlined the problems confronting the Commission in the development of their billion-dollar program, and gave a thumbnail sketch of the program itself.

As was to be expected, the remaining five speakers promptly took exception to what Mr. Rodgers had said. Mrs. Mary K. Simkhovitch, Vice-Chairman of the New York City Housing Authority and Director of Greenwich House, stated that greater

emphasis should be placed on the neighborhood, that that was the root of the whole matter.

Charles Abrams, author of "Revolution in Land," criticized the city's land policies, calling the proposed Stuyvesant Town a "seductive miscalculation," and claiming that had the city made an outright gift of the land for the project to the Metropolitan Life Insurance Company, it would have saved roughly \$11,000,000 in taxes.

Clarence Stein, architect and housing expert, compared the plans of London and New York, pointing out that London's is a complete plan for the redevelopment of the city, while New York's is just a series of blueprints of projected buildings. (Later Mr. Rodgers rebutted this by saying that London's plan is still only a dream, while New York really is going to have all the new buildings called for in her plan.) A billion dollars, Mr. Stein said, is planned by New York to perpetuate an obsolete plan.

Joseph Hudnut, Dean of the Graduate School of Design, Harvard University, congratulated New York on its good fortune in having its planning about to become a political issue, for planning, he said, is a political art. Three conditions must be brought about before you can have a democratic planning, Dean Hudnut declared: (1) discontent—the people must know their city is badly planned; (2) faith in the democratic process—you won't get democratic planning from Washington or from big industry, from bankers, or from the Metropolitan Life Insurance Company; (3) planning instruments—laws, institutions, boards—and men able to use them in the public interest.

The final speaker of the evening was Siegfried Giedion, author of "Space, Time and Architecture" and Secretary of the International Congress for New Building. He made two proposals: (1) that New York go on to develop a master plan; and (2) that New York prepare an exhibition with one fundamental rule, that planner and architect, sculptor and painter are forced to work together on the new problems.

John Merriman Gaus, Professor of Political Science, University of Wisconsin, and Consultant, NRPB and TVA, spoke on "The Planning Function in a Democracy" at the second lecture in the series on May 31. The last two meetings on June 7 and 14, will be addressed respectively by John Ihlder, of the National Capital Housing Authority, on "The Role of Government in Planning Housing," and by Dean Hudnut on "The Relation of Structures to the City Plan."

FINANCING POSTWAR HOMES

A new home financing plan, the U. S. Loan Plan, designed from the consumers' point of view, was presented by the Postwar Savings and Loan Program Committee of the United States Savings and Loan League to the 3500 member savings and loan institutions of the League on May 29. Among the 15 major features of the plan are:

1. Attractive interest rate with a
- (Continued on page 120)*



Saving Man Power

WITH SPENCER VACUUM

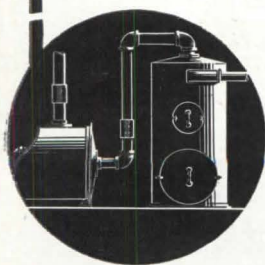
Thousands of schools are cleaned with Spencer Vacuum — many of them by women operators. Light weight swivel handle tools with high powered vacuum make cleaning easy, thorough, and fast.

Spencer not only gets under the desks easily — it cleans walls, chalk trays, projection equipment, air filters and even the boiler tubes.

POST-WAR PLANNING is including Spencer's also because most educators and architects say it is the best, the easiest, and the most economical in the long run.

Ask for the Spencer School plans and list of 2500 schools now using Spencer.

246B



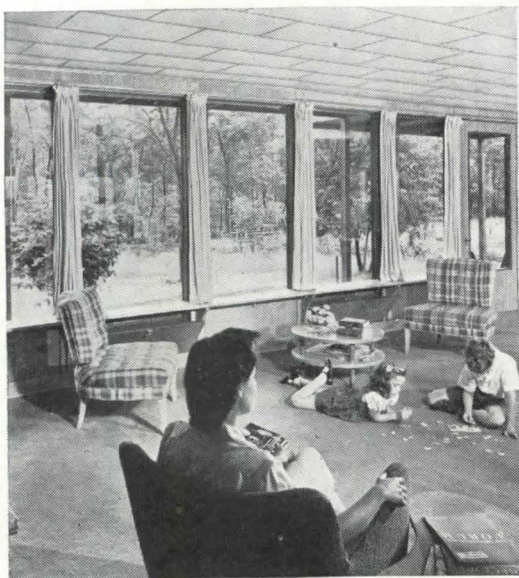
SPENCER VACUUM
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THE SPENCER TURBINE COMPANY, HARTFORD, CONN.

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**THE NEW GLASS UNIT
FOR WINDOW INSULATION**

Thermopane

with the
BONDERMETIC SEAL

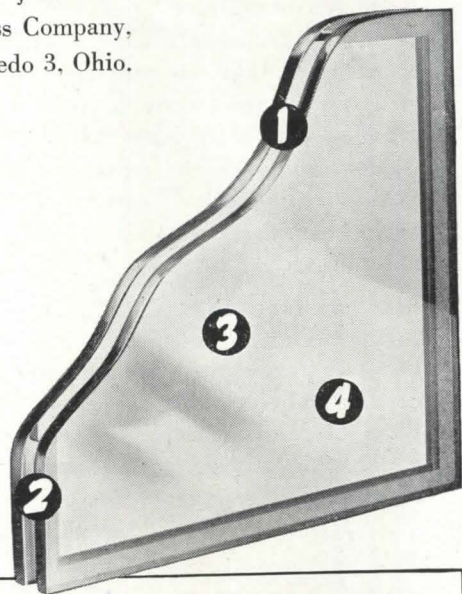


THERMOPANE is a revolutionary new and patented windowpane with permanent, built-in insulation. It is a factory-built transparent glass insulating unit for homes and other buildings . . . a development of Libbey-Owens-Ford Research that will accelerate the incorporation of larger windows and Daylight Engineering in the homes of tomorrow.

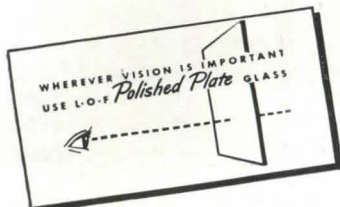
THERMOPANE is made of two panes of glass, separated by an insulating layer of air, and sealed around the edges at the factory with a patented metal-to-glass bond. It's installed in a modified single sash just like a single pane of glass, but it provides double-glass insulation. The homeowner has no extra glass to put up and take down, no extra glass to keep clean. The age-old cold weather problem of larger windows is now eliminated. For a descriptive booklet, just write to Libbey-Owens-Ford Glass Company, 1064 Nicholas Building, Toledo 3, Ohio.

4 IMPORTANT FEATURES OF THERMOPANE

- ① **INSULATING AIR SPACE.** The air inside the Thermopane units is scientifically cleaned, dried and hermetically sealed. This layer of air gives Thermopane its high insulating efficiency.
- ② **BONDERMETIC SEAL.** This metal-to-glass seal permanently bonds two panes of glass into a single unit. Strong and weather-proof, it seals the insulating air space from dirt and moisture.
- ③ **NO FOGGING UP.** Because of the patented *Bondermetic Seal*, and the insulation afforded by the sealed-in air, frosting up and condensation are eliminated on the two inner surfaces.
- ④ **ONLY TWO SURFACES TO CLEAN.** The inner glass surfaces are specially cleaned at the factory . . . always stay clean.



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minimum of three ½ per cent contractual reductions during life of loan; average rate, 5 per cent or lower.

2. Monthly payments with interest charged on unpaid balance only.

3. Right of borrower to defer up to six monthly payments after three years when needed and requested.

4. Right of borrower to repay any part or all of principal at any time without penalty.

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ments so long as loan is paid ahead of contract.

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8. Minimum title costs and service charges.

9. Promptness in loan commitment, loan closing and disbursement.

GLOBAL PREFABRICATION

William B. Stout, Detroit engineer and inventor, told the New York press at a conference last month that the prefabricators in this country expect a tremendous trade with all of Europe after the war. Thirty million people will have been bombed out of their homes, Mr. Stout said, and if we build only one per cent of the dwellings needed to rehouse those millions, the total will be greater than the total built in the entire war housing program.

Looking forward to this potential market, the Palace Corporation, with which Mr. Stout is associated, has developed the "Suitcase House," a compact little unit to ship, filling a space only 22 ft. long, 8½ ft. wide and 22 in. high. It is very quickly set up.

Germany did Britain a favor in bombing out her slum areas, and we are now doing Germany a similar favor, Mr. Stout said. Just because we are fortunate enough in this country to escape the bombing is no reason why we should keep ourselves generations behind in the cleaning up and redeveloping of our cities.

ART COURSES

Black Mountain College, Black Mountain, N. C., has announced its first Summer Art Institute, to be held from July 17 to September 16. The program offers courses, illustrated lectures, demonstrations, panel discussions and exhibitions. The staff will include Walter Gropius, Jose Luis Sert, Bernard Rudofsky, Amedee Ozenfant, Jose de Creeft and others. Josef Albers, head of the Art Department at the College, will conduct the Institute.

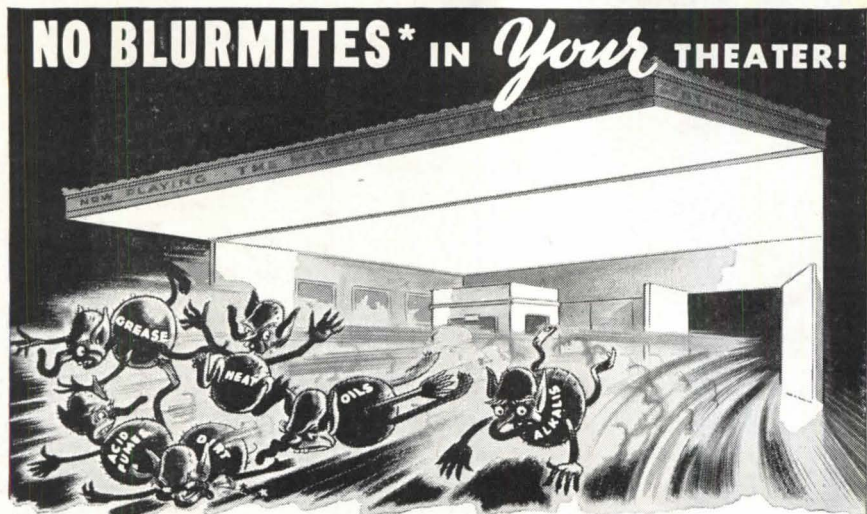
CORRECTIONS

Our apologies to Loring H. Provine for our inadvertent shortening of his term as Head of the Department of Architecture at the University of Illinois (April, p. 78). Mr. Provine has held that position since 1914, not, as we said, since 1941.

And our apologies also to the U. S. Navy for the typographical slip in the text of our story on the Roosevelt Naval Base (May, p. 59), which located the Base incorrectly in Long Island Harbor. The location was correctly given as Long Beach Harbor in the subhead on the previous page.

OMISSION

Douglas Orr has called our attention to the fact that full credit should not have been given him for the Southern New England Telephone Company building, a photograph of which was included in the biographical sketch of him in the April issue (p. 78). Mr. Orr was associated with Mr. R. W. Foote on that particular project.



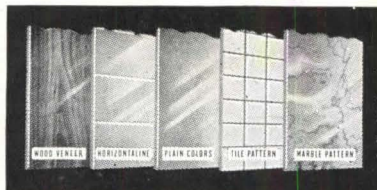
...WITH MARLITE Guarding Interiors!

It's the "bum's rush" for Blurmites when you install interior surfaces of plastic-finished Marlite. For this attractive and durable paneling—widely used in leading theaters from coast-to-coast—has an exclusive high-heat-bake finish that permanently seals the surface against harmful penetration of dirt and moisture.

MARLITE assures easy installation for new construction or remodeling; easy cleaning with a minimum of time and cleansing materials—walls of Marlite never need repainting or refinishing; retention of original beauty and luster for many years; ultra-modern appear-

ance; wide selection of colors and patterns that give full play to decorative ingenuity . . . all at moderate cost to you!

DON'T WAIT—plan post-war construction or modernization now! Send today for full color catalog and samples! Marsh Engineers are ready to help you with plans and specifications and Marlite itself is immediately available on suitable priorities.



* Blurmites—destructive agents, harmful to the finish of many interior wall and ceiling surfaces.



MARSH WALL PRODUCTS, Inc.
65 MAIN ST., DOVER, OHIO

PLASTIC-FINISHED WALL PANELS • FOR CREATING BEAUTIFUL INTERIORS

**SPEAKMAN
COMPANY
celebrates its
75th
ANNIVERSARY**

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\$2000⁰⁰

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**for the Best Answers (500 words or less)
to these statements**

★ **ARCHITECTS & ENGINEERS**

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★ **PLUMBERS**

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★ **WHOLESALE DISTRIBUTORS**

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**Speakman
Showers
& Fixtures**

★ **A \$500 WAR BOND for the Best Answer in each Group!**

RULES ARE SIMPLE:

1. Contest open to all architects and engineers, plumbers, wholesale distributors, and distributors' salesmen.
2. Write in your own words (not more than 500) on any type of paper your answer, depending upon your group, to the statement above.
3. An award of a \$500.00 WAR BOND will be made for the best answer, in the opinion of the judges, from each group.
4. Contest opens July 1, 1944—closes August 31, 1944.
5. The decisions of the judges (3 disinterested persons whose names will be announced later) will be final.
6. All entries become the property of the Speakman Company.
7. All entries should be addressed to SPEAKMAN COMPANY, WILMINGTON 99, DELAWARE, DEPT. 5.

Cooperative housing, in Mr. Pink's opinion, probably will not catch hold in this country despite its considerable success in Europe. What he would rather see is raising of the income ceilings permitted for tenants of subsidized housing, public housing provided for all income levels up to that at which private housing can profitably operate, and wholly unsubsidized model dwellings built by local housing authorities and rented by them at cost.

Government's future function in housing, he concludes, will increasingly be "to plan, loan and stimulate, rather than to aid one economic class at the expense of others."

As for what private enterprise can contribute to housing, Mr. Pink is all in favor of projects built by housing trusts, insurance companies, banks and the like. "About a fourth of our city population neither needs nor wants a subsidy, but cannot find acceptable

commercial housing within its means," he says. "Here is a field for our life insurance companies and savings banks, and for cooperation of government with private enterprise. Some progress has been made, but it is only a foretaste of great, untapped possibilities."

Mr. Pink does not side with either the public housers or the private. He wants more of everything. "The goal should not be the discouragement or disparagement of any type of housing," he says, "but the integration of all into a comprehensive and intelligent plan. We must achieve intelligent teamwork between government and private enterprise in housing and as everything else."

URBAN REDEVELOPMENT WITHOUT SUBSIDY

By Alfred Rheinstejn. New York 17 (101 Park Ave.), New York Building Congress, Inc., 1944. 6 by 9 in. 15 pp.

In this pamphlet Alfred Rheinstejn presents "a new way for private enterprise profitably to redevelop deteriorated areas in urban communities without government subsidies and with full taxes paid to the city." In the author's opinion, the system can be applied to any large city. Highlights include:

1. Each neighborhood should be planned as a whole.
2. More taxes would result for the city, lower cost and a higher rate of return for the developer.
3. Plans for the redevelopment would be selected in competition.
4. The city would acquire the land and sell it at auction under the condition that work be started before a set date.
5. The work would proceed according to a definite schedule, one section or series of sections being completed before work is started on others.
6. "Under this system the absence of subsidy affords to private enterprise an independence and leadership not possible under the controls inherent in government subsidy."

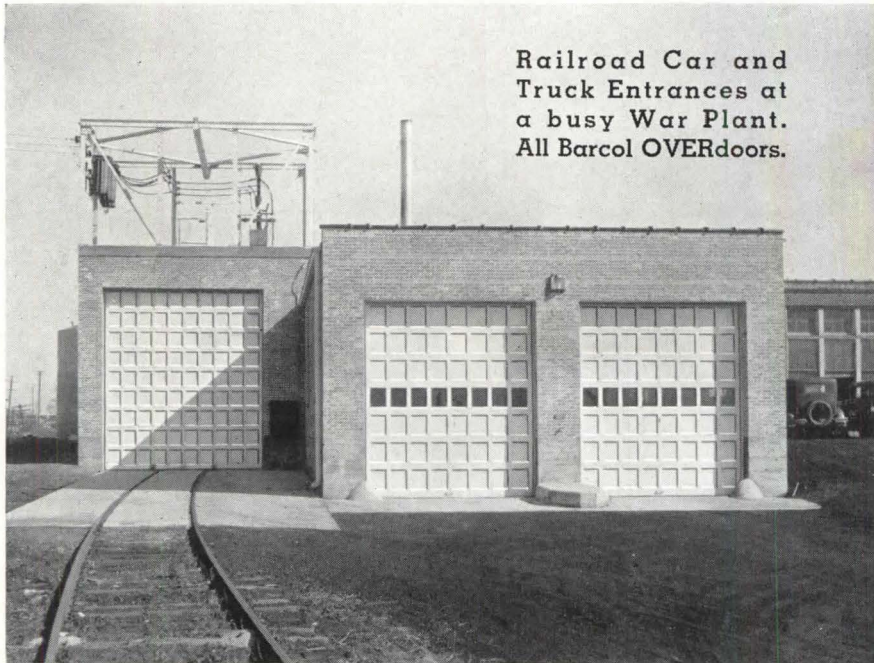
POST-WAR PLANNING

Hearings before the Committee on Public Buildings and Grounds, House of Representatives, Nov. 23, 1943-March 2, 1944. Washington, D. C., U. S. Gov't. Printing Office, 1944. 5 7/8 by 9 1/8 in. v + 754 pp. illus.

Here at last is the full report on the well publicized hearings before the Lanham Committee. It makes lively reading, too, because it is a verbatim report, complete with interruptions and misunderstandings, quips and digs.

Included among the witnesses called before the Committee were such men

(Continued on page 124)



The Barcol OVERDOOR

*... a Better Door
... for War... and Postwar*

This picture shows a recent installation at a moderate-sized plant making essential war products, where it became necessary to improve the freight-handling facilities. This plant has a simple conversion problem so, in installing these new doors, they were looking forward to benefits for peacetime as well as wartime production. The Barcol OVERdoor has proved its ability, in many important installations, to provide lasting, dependable service with minimum maintenance. This is due to construction and engineering features which are of outstanding value on large doors such as these. Be sure you have the data on Barcol OVERdoors and ELECTRIC DOOR OPERATORS... write us, or see your Barcol representative.



FACTORY-TRAINED SALES and SERVICE REPRESENTATIVES IN PRINCIPAL CITIES

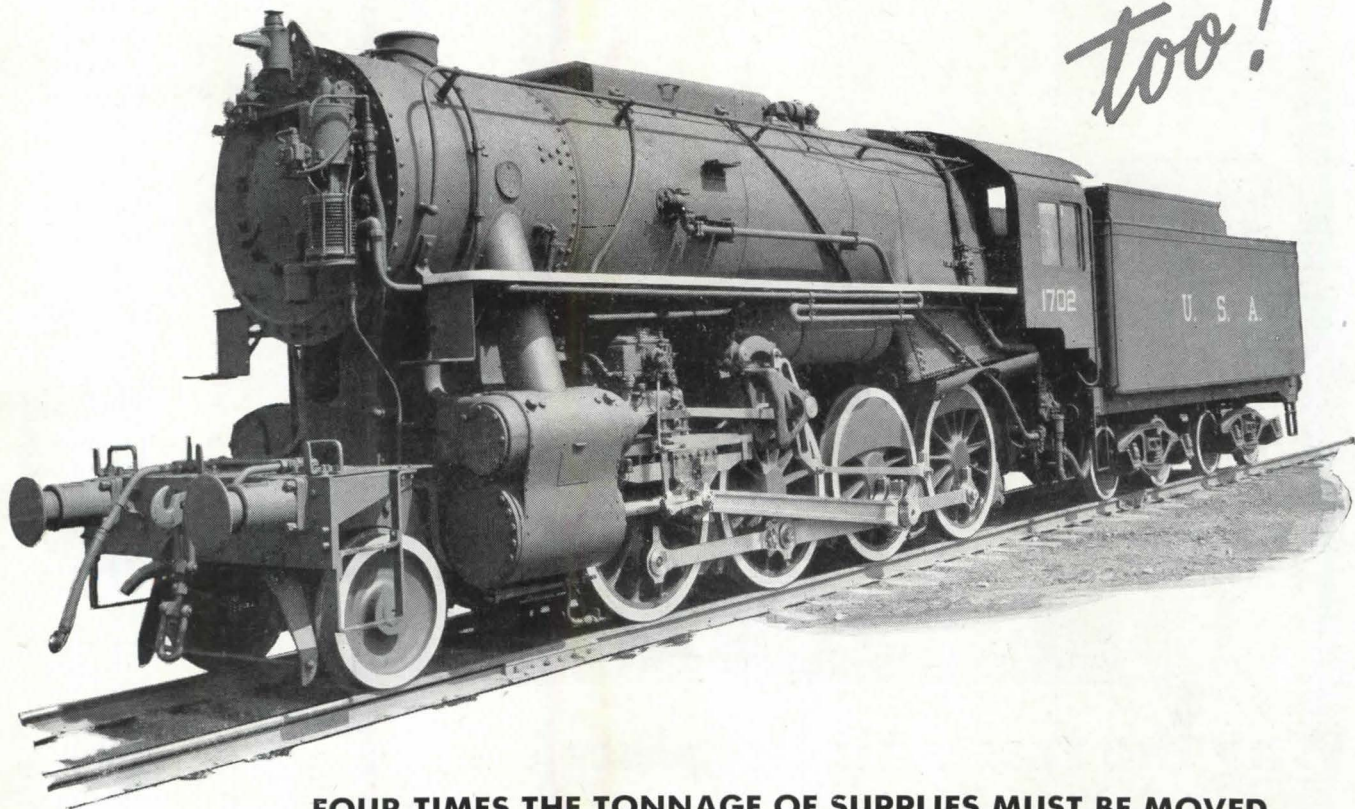
BARBER-COLMAN COMPANY

102 MILL ST. • ROCKFORD, ILL.

This has a

FITZGIBBONS BOILER

too!



FOUR TIMES THE TONNAGE OF SUPPLIES MUST BE MOVED

per Army unit, in this war, as in any previous war in history. So you can see how vital is transportation—and how essential the U. S. Army's development of its standard 2-8-0 locomotive. This locomotive is now serving on all fronts, and will serve on new fronts as they develop.

In the Fitzgibbons plant, boilers for these war-time locomotives are being fabricated as rapidly as trained boiler making specialists and a splendidly appointed, modernized shop can produce them.

Whether designed to fight the nation's enemies, or to protect your home directly against the natural enemies of cold and weather, if it's a Fitzgibbons, it's a good fighting boiler.

FITZGIBBONS BOILER COMPANY, INC. • 101 Park Ave., N. Y. 17, N. Y.

Works: OSWEGO, N. Y. • Branches in Principal Cities

A STAR HAS
BEEN ADDED

to Fitzgibbons' Army-
Navy "E" flag, evi-
dence of continued
excellence in wartime
production.



BUY
U. S. WAR BONDS
and STAMPS

FITZGIBBONS

MORE COMFORT WITH LESS FUEL SINCE 1886

REQUIRED READING (Continued from page 122)

as Maj. Gen. Philip B. Fleming, FWA Administrator; Eric A. Johnston, president of the U. S. Chamber of Commerce; Herbert U. Nelson, executive vice-president of the National Association of Real Estate Boards; John B. Blandford, Jr., NHA Administrator; Mayor LaGuardia of New York; Beardsley Ruml; Douglas Whitlock, president of the Producers' Council; and a host of others.

The total effect of the statements of all these eminent men is quite simple:

that construction activity will prove one of the most effective means of preventing unemployment at the end of the war; that the federal government should do what it can to stimulate immediate planning for the postwar period, and to insure that that planning will be so complete that there will be no delay in putting the plans to work when materials and labor again become available; but that it is up to the local communities—the cities and the counties—to decide what building they

need, what sort of structure they prefer, what architects they favor, and that the main financial burden for such building should be not upon the federal government, but upon the local. In other words, these men are not, taken as a group, in favor of using the expected public building boom as a means of strengthening the federal government's grip upon the public or upon the public's already well-stretched pursestrings. Cooperation between federal and local governments is the keynote.

NEW EDITIONS

AMERICAN PLANNING AND CIVIC ANNUAL: 1943

Edited by Harlean James. Washington, D. C. (901 Union Trust Bldg.), American Planning and Civic Assn., 1944. 6 $\frac{1}{8}$ by 9 $\frac{1}{4}$ in. xii + 195 pp. illus. \$3.00.

Once again Harlean James and the A.P.C.A. have given us a fine volume on planning, written by a group of authorities in various fields. The picture is complete, covering natural resources, housing, highways, public works, community planning, etc. Included are papers on "Postwar Financing of Private Housing," by Earle S. Draper, Deputy Commissioner, FHA; "What Wartime Housing Will Contribute to the Postwar Period," by Philip Klutznick, newly appointed FPHA commissioner; several on Washington, D. C., and a number on city planning.

HEATING, VENTILATING, AIR CONDITIONING GUIDE, 1944

New York 10 (51 Madison Ave.), American Society of Heating & Ventilating Engineers, 1944. 22nd ed. xxiv + 1168 + 104 pp. 6 by 9 in. illus. \$5.00.

This latest edition of the "Guide" contains much new material, including a whole new chapter on marine heating and ventilation, new data on mechanical stokers, oil burners and gas-fired heating equipment, the latest degree-day data compiled by the Weather Bureau, and new data on predicting residence heat loss. Several chapters have been substantially rewritten, and the whole book has been revised to conform with recent developments in the heating and ventilating field.

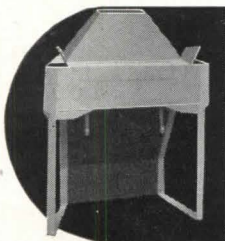
PERIODICAL LITERATURE

JOURNAL OF THE A.I.A.

Washington, D. C. (The Octagon) May, 1944.

Two excellent articles are included in the May Journal: "Post-War Expectations in New Materials and Methods of Construction" by Bernard A. Savage;

(Continued on page 126)



Bennett
"Fresh Air"
Fireplace Unit



Why the Fresh Air Fireplace?

When burning, a fireplace exhausts more than 200 cu. ft. of air per minute from the living quarters of a house. Especially in the tightly constructed "Home of Tomorrow," this creates a problem.

If tightly constructed, replacement air cannot enter around windows and door cracks from outdoors in sufficient quantities to supply the chimney draft. The result is a partial vacuum causing downdrafts and *smoke*.

If sufficient replacement air can enter, the average temperature of the entire house is lowered, cold drafts sweep the floor and automatic furnace controls are out of balance.

The Bennett Fresh Air Fireplace solves these problems completely. It draws replacement air from outdoors through heating chambers and distributes it into the living quarters warm instead of cold. Result: no smoke, no uneven temperatures, no interference with heat controls and a net *gain* in evenly distributed warmth.

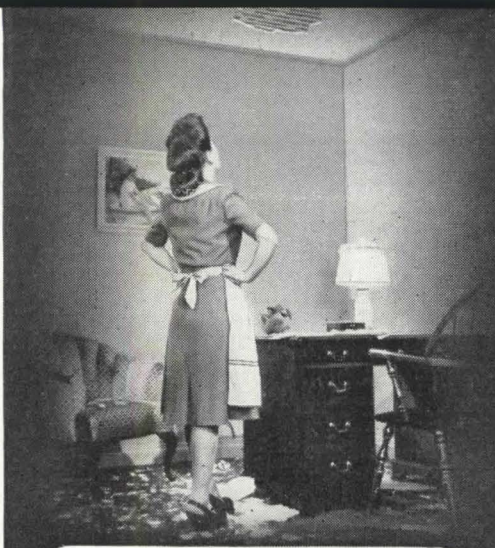
Bennett Fireplace Units are described in Sweet's. Bennett Catalog sent free on request. We shall be able to produce when you can build.

BENNETT-IRELAND, INC. • 644 MAPLE ST., NORWICH, N. Y.





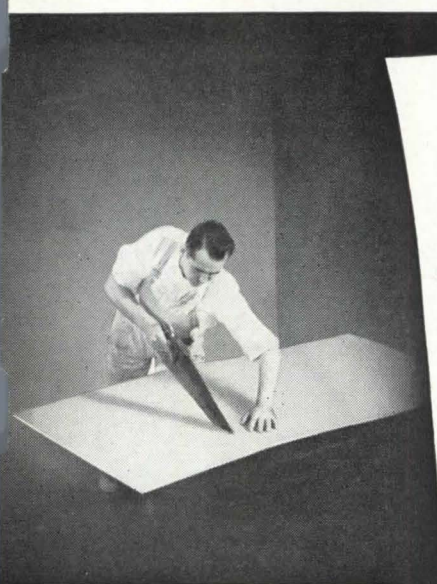
For the Walls and
Ceilings of the Home
the Johnsons Are
Waiting to Buy.



For Covering the
Cracked Ceilings That
Must Be Repaired in
Mrs. Smith's Home.



For Charming Tile
Effects Mrs. Thompson
Wants in Her Kitchen
and Bathroom.



For the 1001 Uses of
durable Upson Panels
in Homes, Farms, Stores
and Factories.

STRONG-BILT PANELS—approximately $\frac{3}{8}$ " thick— for new construction.
KUVER-KRAK PANELS— $\frac{1}{4}$ " thick— for covering cracked plaster. **UPSON PROCESSED BOARD**— $\frac{3}{16}$ " thick— for miscellaneous uses. **DUBL-THIK FIBRE TILE**— for kitchen and bath.

Upson Quality Products Are Easily Identified
By The Famous Blue-Center

No "blue sky" promises!

But this much can be said about what is coming in Upson Panels.

For peacetime requirements, the building industry can well look to Upson Panels for better fulfillment of many job requirements in new construction and repair.

As a result of heavy war demands involving many millions of feet, and the necessity for great speed in emergency construction, building techniques have advanced at an accelerated pace.

Upson research, responsible for many important developments in the past, has again stepped ahead.

Postwar plans, laid by the same management which has guided The Upson Company for 32 years, are based upon continuing high standards of quality, adherence to a 100% dealer policy and national advertising to maintain consumer acceptance.

Dealers, builders and architects who are analyzing and planning their own postwar future will find skilled assistance in the counsel of our representatives. The Upson Company, Lockport, New York.

UPSON

SPECIALISTS IN PANEL BOARDS

and "Engineering and Architecture," by Aymar Embury, II.

Lighting, heating and air conditioning, plastics, glass, etc., are ably discussed by Mr. Savage. The drilled-in caisson type of foundation column and the cavity wall are described in detail. And a much needed warning is sounded: "All new developments in materials and construction techniques . . . prior to their general use, will have to be adapted, tested and proved

with respect to the practical considerations of function, appearance, integrity, performance, maintenance, and public acceptance . . . Even the most promising of the new materials may develop some 'kinks' which only exhaustive observation, research and testing will disclose, with suggestions as to where corrections are necessary. It is entirely too much to hope that the war-time fever of invention will produce new developments in products fully conditioned for

a long-range peace-time use."

"The architect starts with a sketch," Mr. Embury says, "and the engineer with a slide rule. The slide rule will only prove that the design will carry an H-20 load, while the architect's sketch will show him immediately that the building which looked so well in one location looks like hell in another." Modern construction problems are so complicated, this common-sense engineer comments, "that very likely the ideal structural design is done by architects and engineers working together from the beginning of the problem in a true partnership of ideas. The architect habitually calls in an engineer to help him solve structural problems, and it might be to the best interests of engineering structures if an architect were called in by the engineer to help him solve problems of esthetics."

This issue of the *Journal* also offers a fine article on "Progress in Prefabrication" by Robert L. Davison, and another on "Slum Prevention" by Albert O. Larsen. Ralph Walker's "Housing for Britain" two-part article concludes.

GARDENS, PLEASE!

Urban Redevelopment Must Include Gardens. By Jerrold W. Loebel. *American Savings and Loan News, Cincinnati Ohio (22 E. 12th St.), April, 1944, pp. 136-137, 156. illus.*

People move away from cities, in Mr. Loebel's opinion, chiefly because they long to be out in the open, out where they can breathe pure air and have a garden. In redeveloping our urban areas, therefore, he would have a new street pattern evolved that would permit each family to have "a plot of ground of approximately 4,000 square feet to live on." Houses would be on byways, not highways, in Mr. Loebel's city; each would have its garden; and "continuous parks, combined with orchards and vegetable gardens, would enter our cities for healthy living."

POSTWAR PLANNING

Weekly Bulletin, Michigan Society of Architects. Detroit 26 (120 Madison Ave.), April 18, 1944.

For their 30th annual meeting, April 19th, the Michigan Society of Architects expanded their weekly bulletin to a 168-page "Post-War Planning Number."

In addition to the full text of William Stanley Parker's lecture on "Post War Problems," one of the highlights of the annual meeting, this special number of the *Bulletin* includes several addresses given before the Detroit Chapter, A.I.A., M.S.A., and a number of pertinent articles by such men as Louis Kahn, L. Morgan Yost and Robert Moses.

Lighting... by Kliegl
in conformance with your plans



When the RKO Midway Theatre, Forest Hills, N. Y., was on the boards—Kliegl Lighting Equipment was selected throughout.

IN the planning stage provisions can more readily be made for the kind of lighting equipment that assures desired effects and satisfactory performance. For almost fifty years we have pioneered in the field of illumination, and have handled successfully a very wide variety of lighting problems. We manufacture special designs to suit particular applications as well as a diversified line of standard lighting equipment.

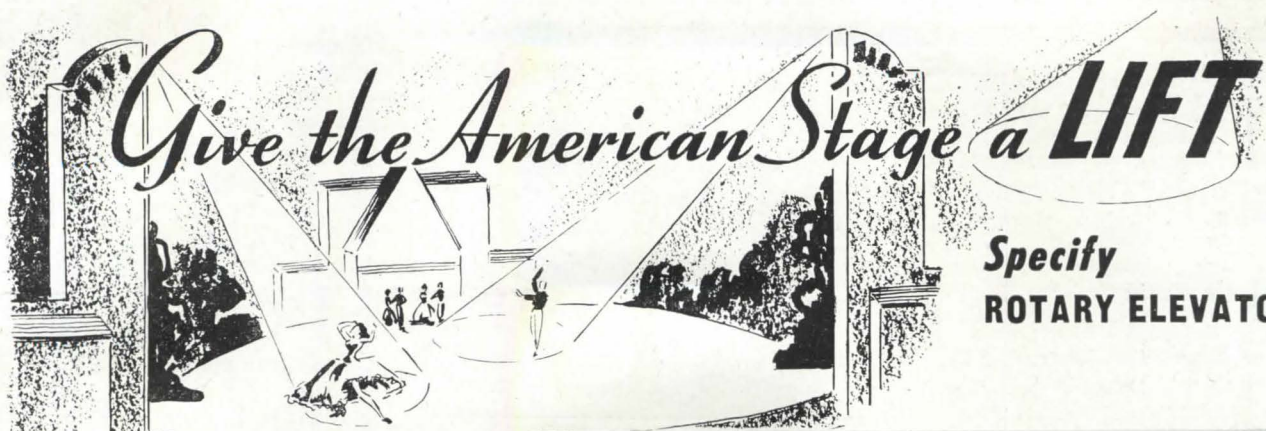
You can benefit from the extensive knowledge of our engineers in matters of lighting when planning new construction or remodeling. Their suggestions, based on experience, will be helpful in avoiding the errors of judgment that may lessen the effectiveness of your architectural creations.

We are ready and eager to assist you in the solution of your lighting problems. Simply advise us of your desires, or difficulties encountered, and specific information will be forthcoming.

You may specify Kliegl Lighting Equipment with complete confidence in satisfactory results.

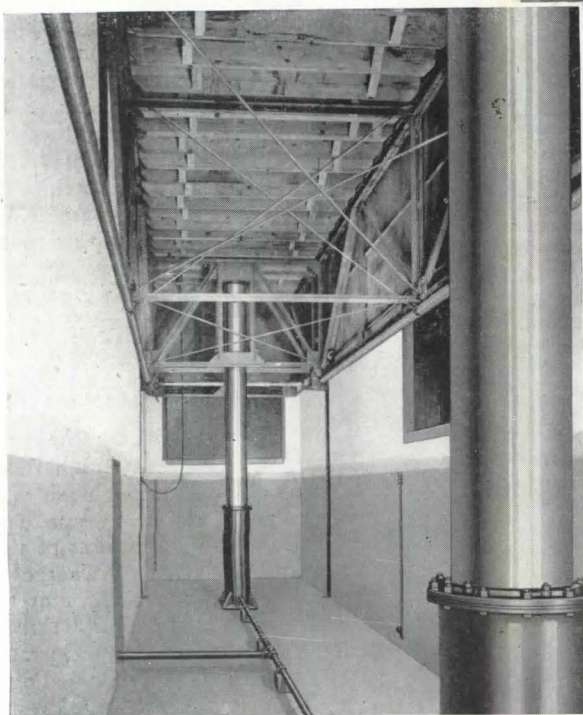
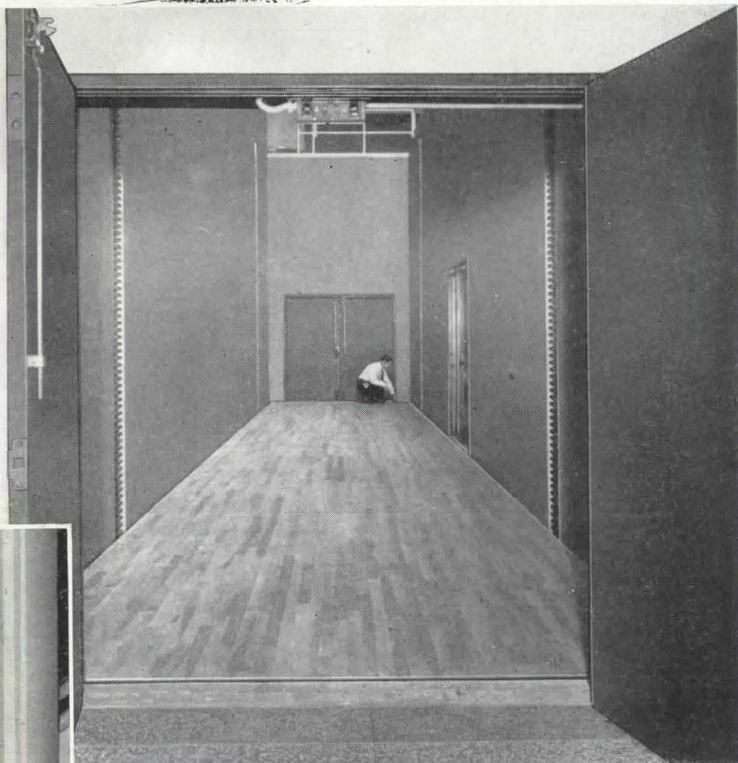
- Specialties**
 FOOTLIGHTS
 BORDERLIGHTS
 FRONT LIGHTS
 DOWNLIGHTS
 COVE LIGHTS
 RECESSED LIGHTS
 STRIP LIGHTS
 POSTER LIGHTS
 EXIT LIGHTS
 AISLE LIGHTS
 STEP LIGHTS
 SPOTLIGHTS
 FLOODLIGHTS
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 PICTURE LIGHTS
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 FLOOR POCKETS
 WALL POCKETS
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KLIEGL BROS
 UNIVERSAL ELECTRIC STAGE LIGHTING CO., INC.
ESTABLISHED 1896
 ARCHITECTURAL - THEATRICAL - DECORATIVE
Lighting
 321 WEST 50th STREET NEW YORK, 19, N.Y.



**Specify
ROTARY ELEVATORS**

Stage on right is at basement level.



This undercar view shows the powerful hydraulic jacks which lift the car. They are mechanically equalized to maintain a level platform at all times. The system operates with extreme smoothness and floor stops are very accurate.

**ROTARY PRODUCES
MODERN ELEVATORS FOR MODERN BUILDINGS**

The Oildraulic Stage Elevator, pictured above, has been faithfully serving in the Municipal Auditorium at Topeka, Kansas, since 1939. The 50 foot by 9 foot car will rise several feet above stage level. Three landings are served over a rise of 21 feet. Capacity is 33,000 lbs. at a speed of 12 feet per minute. Control is by Momentary Push-button with Automatic Floor Leveling.

We will be pleased to help you solve your lifting problems. Offices or Representatives in all principal cities.

ROTARY LIFT CO., Memphis, Tenn.

1025 KENTUCKY STREET

MANUFACTURERS OF **OILDRAULIC**
FREIGHT AND PASSENGER ELEVATORS,
LEVELATORS, AUTO AND TRUCK LIFTS

FOR BETTER BUILDING (Continued from page 44)

num, so that the strength to weight ratio is very favorable. Plastic-glass laminates lend themselves to slender forms, to light-weight construction, to rounded contours, sweeping and reversed curves, and to 'streamlining' generally."

New Basic Resin

Development has been announced by the U. S. Stoneware Company, Akron, Ohio, of a new basic resin called *Dura-*

lon, currently available for limited commercial and experimental use.

Made from waste agricultural products such as oat hulls and corn cobs, Duralon is a furane derivative. It is characterized by the lowest water absorption of any organic resin, insolubility (after activation) in any solvent or combination of solvents, high electrical resistivity, absolute stability in storage and handling, and by ease of workability.

Indicated uses for Duralon and its solutions, according to U. S. Stoneware, include:

1. As a protective coating for laboratory furniture, table tops, and any equipment exposed to hot solvent fumes or excessive moisture.

2. As a protective coating for armature wire, or for any wire where unusual flexibility is not required. As an electrical insulating material Duralon is said to show unusual resistance to arc flashover and to tracking.

3. As a surface bonding agent for wood, plywood, porous ceramics, glass fiber, cloth, paper or other fibrous materials.

4. As an impregnant for plywood, masonite, stone, asbestos, concrete, glass fiber, paper or other porous materials.

PLYWOOD STANDARDS

Postwar outlook for the hardwood plywood industry will be substantially improved when the industry adopts genuine standards and more complete grade rules, according to R. F. Kulmer, sales manager of the Plywood Division of The Mengel Company, and a member of the special committee of the Hardwood Plywood Institute created to develop such standard specifications.

"The industry has not had any real standards and adequate grade rules," Mr. Kulmer said, "and we feel that these are very necessary in order for hardwood plywood to take its proper place in postwar competition. . . ."

"Several of the military services have issued their own specifications to govern their war purchases, and these specifications must be consolidated.

"Then entirely new specifications and standards must be written to govern structural plywood. Development of new adhesives and new processes have broadened the field for plywood, and this must all be covered."

AIR CONTROLS

Power Ventilator

A power ventilator for industrial buildings, the new *Iron Lung*, is said to do a quick and thorough job of removing fumes, gases, steam, smoke and excessive heat, and, regardless of wind direction or velocity, to discharge impure air so high above the roof that it cannot re-enter buildings through open windows, doors, etc. Operating parts are easily accessible. Powermatic Ventilator Co., 4019 Prospect Ave., Cleveland 3, Ohio.

Air Purifier

Utilizing the principle of centrifugal force, the *New Turbo-Rotor Pur-O-fier* is said to make possible the positive purification of compressed air en-

(Continued on page 130)



From Coney Island Hot-cha to Hollywood glamour theaters; For all places of amusement spread across the country,

WOOD GIVES DISTINCTION
WOOD ASSURES COMFORT
WOOD ABSORBS NOISE

WOOD IS ADAPTABLE
WOOD HAS CHARACTER
WOOD IS ECONOMICAL

THE MOST EXPRESSIVE ARCHITECTURAL MEDIUM

WOOD is more intimately related to the physical and intellectual progress of the human race than any other building material. None other, either natural or synthetic, possesses such inherent desirable qualities.

It is a natural product, widely distributed, and usually easy to obtain.

The chief disadvantage which pertains to wood as a construction material when considering the life hazard, is its combustibility.

Perfection of a treatment process rendering wood both fire resistant, AND proof against decay, definitely proved on the basis of experience gained from 58 years of service, is favorably known to architects as

PRESSURE TREATED

PROTEXOL "PYRESOTE"

PROTECTS WOOD AGAINST

FIRE AND DECAY

This coupon brings you new C-107R, Specifications, Performance and Cost Data.

CUT OUT . . . FILL IN . . . MAIL TODAY!

PROTEXOL CORPORATION

61 Hartman Square, C107R
Kenilworth 6, New Jersey

My Firm

My Name

Street Address

City

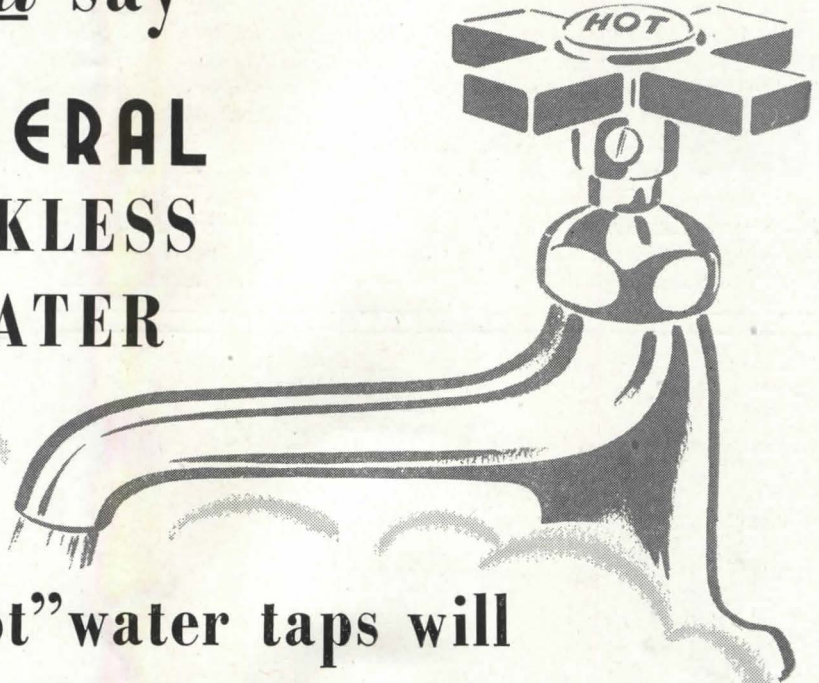
State

Use margin to write type of structure interested in.

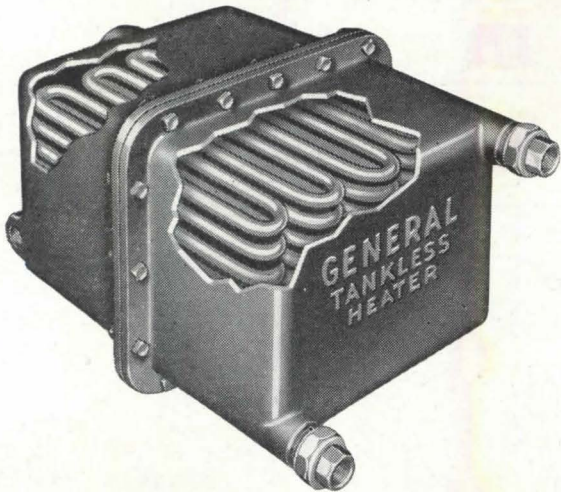


When you say—

GENERAL TANKLESS HEATER



...“Hot” water taps will
mean what they say!



(UNTIL VICTORY—a major part of our production)
is precision war work... torpedo and bomb parts,
fuse setters, special Navy water heaters.)

Constant hot water from morning tub to evening “dishes”... sparkling clear, sediment-free water from seamless copper tubing... that’s what you can offer your clients when you specify—or recommend—the new *GENERAL* Tankless Heater!

Compact, self-contained *GENERAL* Tankless Heaters hook up directly with any type of automatically fired boiler. They cost less to install and take less space than storage tank systems... yet supply 3½ to 35 gallons of piping hot water every minute!

Plan your “homes of tomorrow” to provide “unlimited” hot water the modern, money-saving way... with *GENERAL* Tankless Heaters. Write for complete Catalog 15. General Fittings Company, Department C, 123 Georgia Avenue, Providence 5, Rhode Island.

GENERAL

TANKLESS WATER HEATERS

Also Tank-Type Water Heaters • Thermostatic Mixing Valves
Water-hammer Silencers • Coil-heated Tanks
Live-Steam Heaters • Pipe Unions

gineered to any volume or pressure.

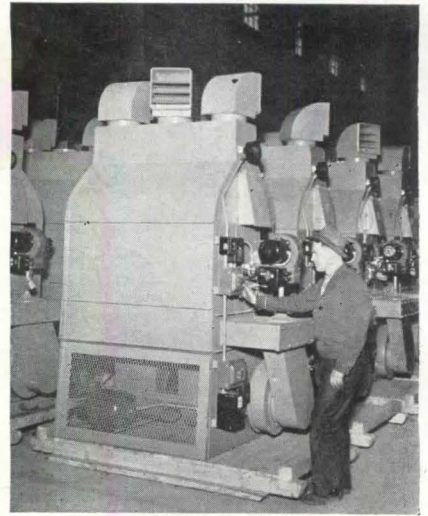
The air entering the Pur-O-fier from the intake pipe rotates a high speed rotor, which is sensitive to velocity. The rotor beats the atomized moisture and vaporized oil into larger particles which are driven outward and downward by a shroud. As they are cooled the entrainments are drained off by gravity into a reservoir designed for manual operation. Units provided with automatic draining are also available.

Two models are offered: Model A-2,

with a 2-in. turbo-rotor, can accommodate from 10 to 35 cu. ft.; and Model A-4, with a 4-in. turbo-rotor, can accommodate volumes from 35 to 100 cu. ft. For volumes above this range, multiple units are recommended. Bird-White Co., 3119 W. Lake St., Chicago.

Small Heater

To meet the problem of heating small structures and providing additional heat for limited areas, a small



Direct fired heater for small structures

model of the *Dravo Direct Fired Heater*, with capacities ranging from 300,000 to 850,000 Btu output per hour has been developed.

The new model is now being supplied to the armed forces, the company reports, to heat steel service igloos at advanced bases. It retains the principal characteristics of the regular line of Dravo heaters, but is on a scale in keeping with the smaller Btu output. Over-all size has been reduced in proportion so that floor space requirements are now 5¼ by 3 ft. The heater can also be suspended from the wall if floor space is not available. It can be equipped to burn either gas or oil, and is thermostatically controlled. Dravo Corp., 300 Penn Ave., Pittsburgh, Pa.

ELECTRICAL EQUIPMENT

Industrial X-Ray

A self-contained industrial x-ray unit, the *Norelco Searchray 150*, provides a quick, accurate means for nondestructive examination of specimens for internal flaws, cracks or foreign matter. It can be used in examination of aluminum, steel, copper, hard rubber parts, plastics, die castings, etc. Features are the oil-immersed, water-cooled tube; rayproof and shockproof safety features; fluoroscope for visual inspection and cassette for film exposures; storage cabinet for exposed and unexposed negatives; pushbutton control. North American Philips Co., Inc., 100 E. 42nd St., New York 17.

Voltage Tester

A voltage tester that tests without lamps, is said to give positive voltage identification and distinguish between A.C. and D.C.

A.C. voltage markings are 110, 220, 440 and 550. D.C. markings are 125, 250, and 600. Frequencies can be

(Continued on page 132)



GLUE NEWS

that is Good News!

Monsanto, major producer of chemicals and plastics . . . and Laucks, "America's glue headquarters" . . . now united.

What is the significance of this recently announced joining of interests between two organizations that have served the construction field so long?

It means that the Laucks organization will be better equipped than ever before to supply its specialized service, tailored to individual needs and problems. To the continuing and expanding Laucks research and manufacturing facilities, the broad research-and-raw-materials resources of Monsanto now are added, helping us help you all the more.

The same highly specialized

Laucks technical co-operation . . . the same thorough-going study of individual problems in Laucks laboratories . . . the same trained and experienced field, plant and laboratory personnel . . . all remain unchanged.

Replacing nothing but adding to everything involved in Laucks service . . . that's the glue news that is good news from America's Glue Headquarters!

I. F. LAUCKS, Inc.

LAUXITE RESINS—LAUXEIN GLUES—
LAUX REZ resin sealer and primer.

CHICAGO (2) 6 N. Michigan Ave.; LOS ANGELES (1) 859 E. 60th St.; SEATTLE (4) 911 Western Ave. Factories—Seattle, Los Angeles, Portsmouth, Va., Lockport, N. Y. In Canada—I. F. Laucks, Ltd., Granville Island, Vancouver, B. C.; Hercules-Laux-Merritt, Ltd., Stanbridge, Que.

LAUCKS CONSTRUCTION GLUES

CONSULT LAUCKS . . . AMERICA'S GLUE HEADQUARTERS



The Legion of Life...

An army within an army . . . the 75,000 doctors and nurses of the Army Medical Department have the job of *saving*, rather than taking life. The victory they are winning is magnificent beyond praise. Want facts?

In the last war, eight of every hundred wounded men died. Today, ninety-seven of every hundred wounded recover. And that is not the whole story, either . . . the tragic toll of men suffering amputation, prolonged hospitalization, recurrent operations and permanent disability is being drastically reduced.

The wartime products of *Connecticut Telephone & Electric Division* (field telephone equipment, electronic devices, and aircraft ignition components) are helping the Army Medical Department to practice its skill and devotion with greater promptness than ever before.

Here at home, *Connecticut Telephone & Electric* hospital communicating and signalling equipment (installed before the war) is also lending a helping hand. Civilian doctors, nurses, and volunteer aides in understaffed institutions are doing a job under trying conditions which too few of us appreciate. "Connecticut" equipment adds to their efficiency in hundreds of American hospitals.

After the war, needed hospital construction will be one of the most active and important elements of the nation's building program. "Connecticut" engineers are planning even now to return to the hospital field with new and better systems for communications, signalling, paging and "electronic supervision".



CONNECTICUT TELEPHONE & ELECTRIC DIVISION
GREAT AMERICAN INDUSTRIES, INC. • MERIDEN, CONNECTICUT



FOR BETTER BUILDING

(Continued from page 130)

terminated by the vibrations of the indicator. The device is housed in a cylindrical fiber case, with leads of 24-in. flexible wire. Sharp spear points on the ends of the leads permit piercing of wire insulation for testing without damaging it. Square D Co., 6060 Rivard St., Detroit 11.

Reflector

Rounding out the Curtis line of "X-Ray" Silver Mirror reflectors for use in airplane hangars, ordnance plants, armories and for general factory and high bay installations, is a new reflector for the 750-watt bi-post lamp. Finish is gray on all metal parts, and Golden Armor on the reflector. Lamp not included with unit. Supplied with a heavy gauge steel band which supports the reflector and absorbs shock of blow which might damage the reflector. It is also supported at the neck by spring clips forming part of the tripod holder arrangement. A duplex hanger may be used with this reflector whenever the unit is to be hung in pairs. Curtis Lighting, Inc., 6135 W. 65th St., Chicago.

Quick-Start Ballast

Another new instantly starting fluorescent lamp ballast which eliminates the need for starters and provides for instantaneous lamp light has been announced. This is the *Quick-Start*, available in dual 40 watt size for two 40 watt lamps, in either end-lead or bottom-lead designs. The Acme Electric & Mfg. Co., Cuba, N. Y.

TECHNICAL DIVISION REESTABLISHED

Metal Lath Manufacturers Association has re-established its Technical Division, Arthur J. Tuscany, Commissioner, has announced. This division gives attention to developing specifications and methods as well as assisting architects, designers, contractors and all who are seeking advice or assistance on engineering and design questions in connection with metal lath.

UNBREAKABLE PENCIL

A patented lead is said to make the *Templar DuroLead* pencil exceptionally strong, practically unbreakable. Under abnormal pressure the point will snap, the manufacturers admit, but such a break occurs only at the wood line. Made in a wide range of six degrees, from No. 1 to No. 4. Reliance Pencil Corp., 22 S. Sixth Ave., Mount Vernon, N. Y.

FLOORS that make LIGHT MORE EFFECTIVE

**Light-Reflecting Floors
made with Atlas White cement
make seeing easier.**

Light-colored floors, since they are close to work areas, may have even greater influence on the effectiveness of lighting systems than do light-colored walls and ceilings.

Dark floors absorb light and waste it. But light-reflecting floors made with Atlas White cement instead of gray cement, conserve light and reflect it back where it is needed. They reduce shadows and dark areas, and distribute light evenly throughout the whole working area. They reduce the contrast in brightness between the background and the task and thus make seeing easier and quicker.

Data on actual installations, lighting tests, costs and maintenance experience are found in the booklet "Light from Floors." For your copy write to: Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

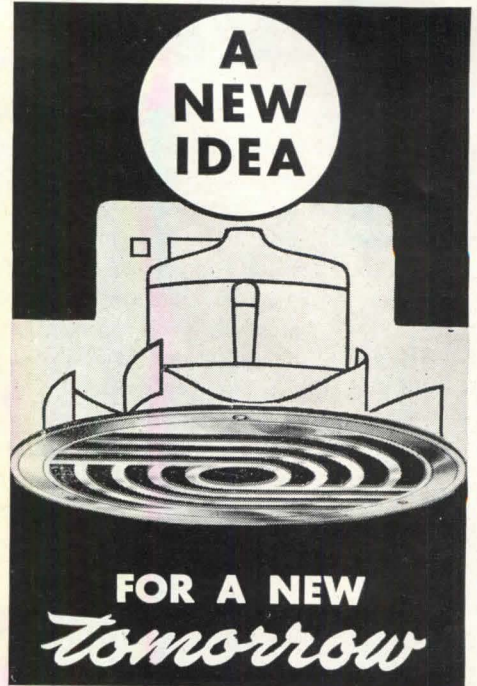
HOW ABOUT MAINTENANCE?

Experience shows white-cement floors are easy to clean, easy to keep clean, and retain their reflection advantage. Maintenance is simple—frequent sweeping, occasional damp mopping, periodic scrubbing.

AR-F-27



**ATLAS
WHITE CEMENT**
For Light-Reflecting Floors



"SPOT" VENTILATION

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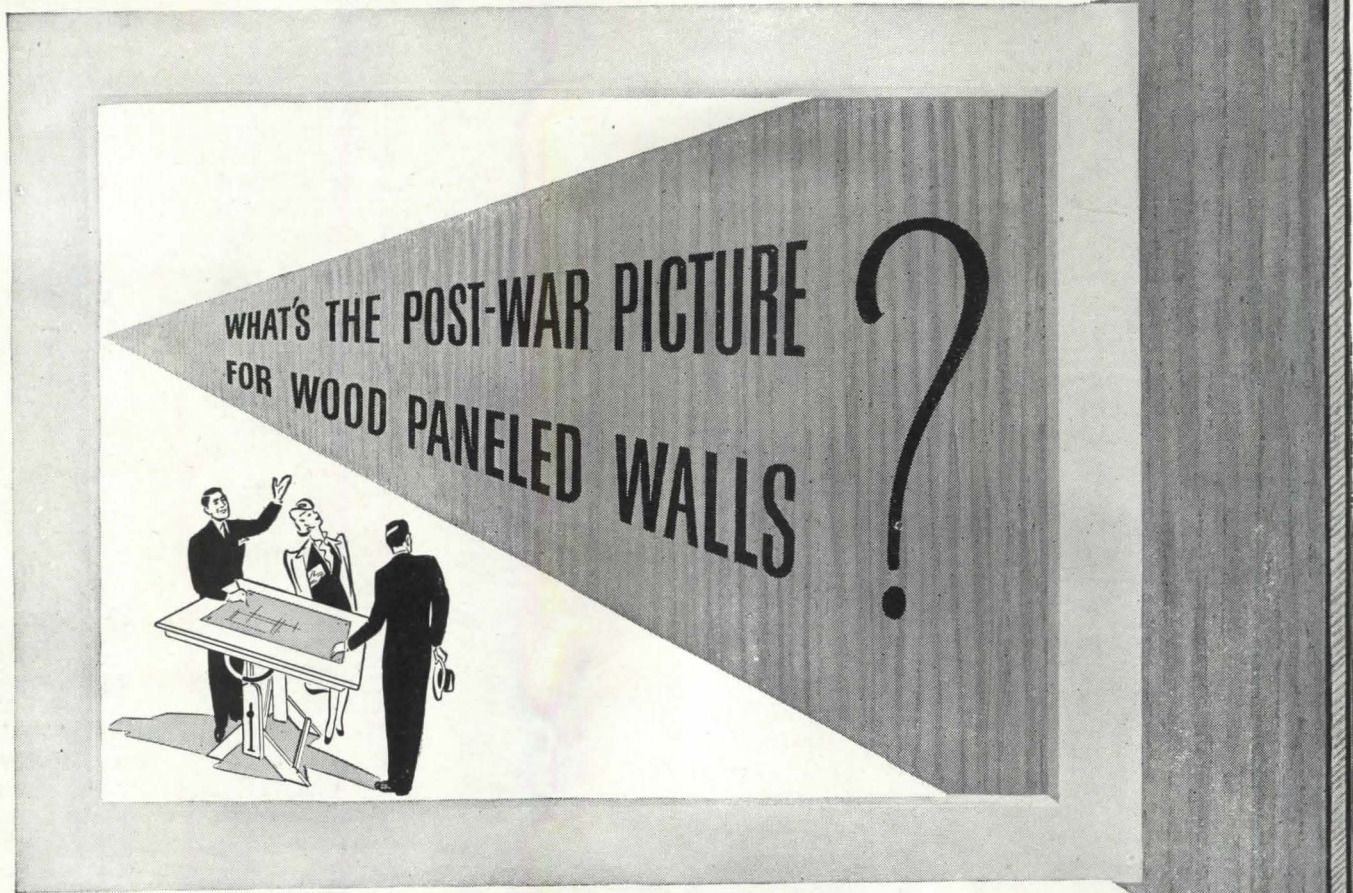
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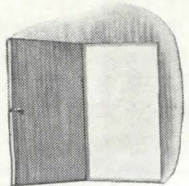
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tect is responsible for the proper coordination of these elements with the general design of the project.
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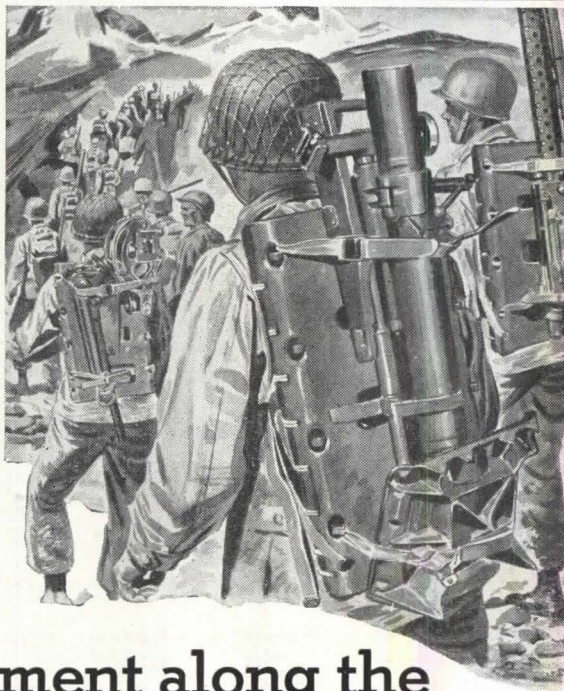
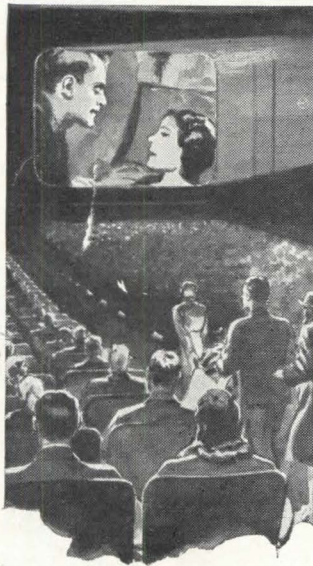
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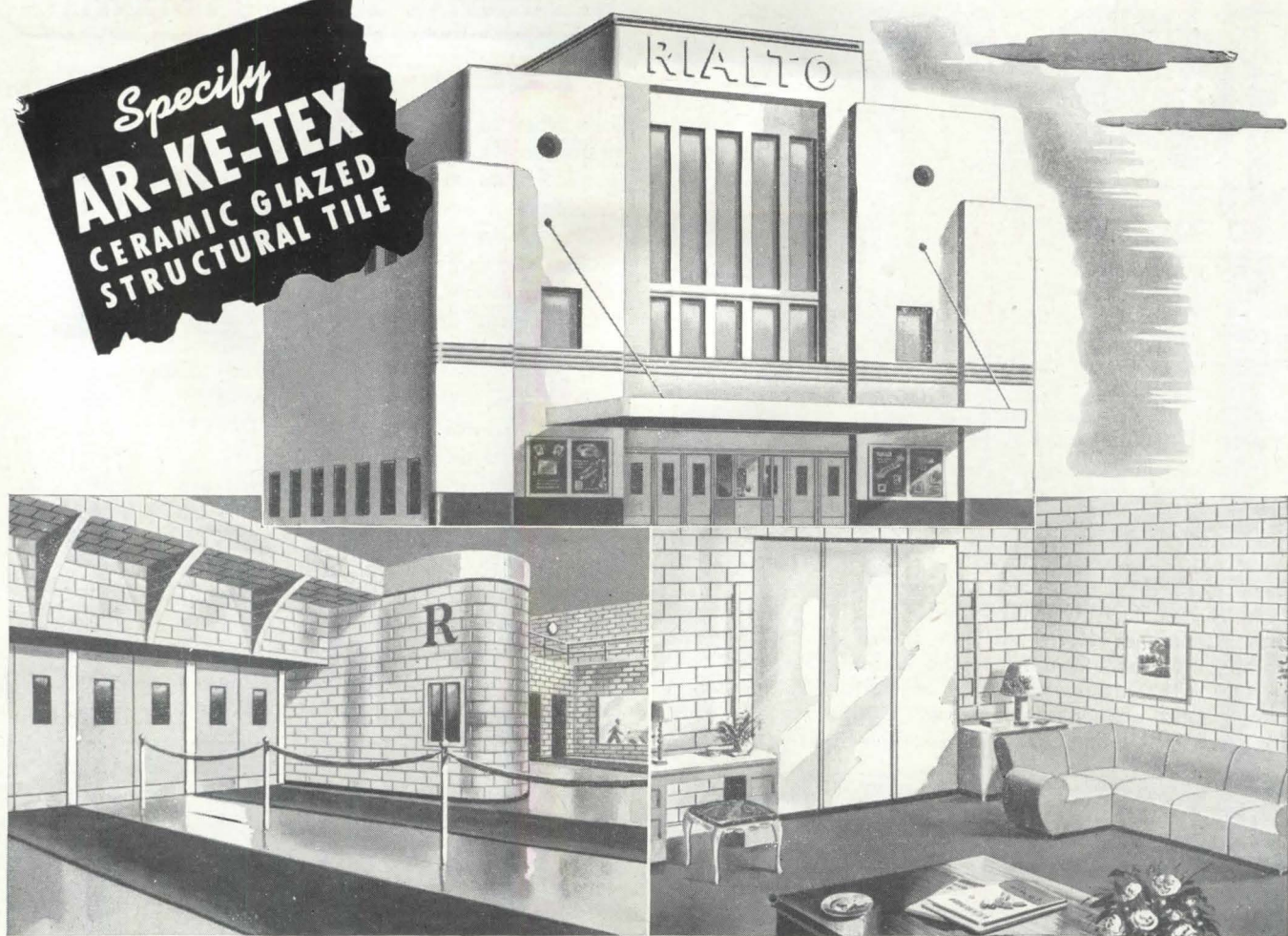
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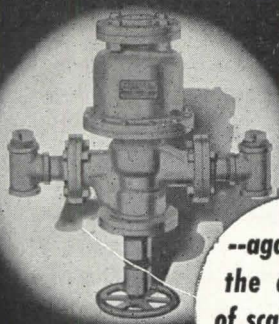


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RESIDENTIAL BUILDING POTENTIALS

(Continued from page 69)

cept when subsidized with public funds, it is always projected on the basis of investment considerations; i.e., favorable relationships between rents and land-plus-construction costs. Since these relationships are apt to be indeterminate in the early transition period, and since other conditions affecting housing demand in the larger cities may also be uncertain, revival of rental housing activity is likely to lag behind the revival of houses built for owner's occupancy.

DWELLING TYPES—It can be reasonably anticipated that about two-thirds of new postwar dwelling units actually built will be single-family houses. This is the proportion of single-family houses to all new non-farm dwelling units produced in the 20 peacetime years 1920-1939, according to the census. This also is the proportion shown in Dodge statistical records for the years 1937-1940.

U. S. Bureau of Labor Statistics records for 257 cities show a lower percentage for one-family houses and higher percentages for two-family houses and multiple dwellings. This record, however, is based on building in cities only, and is, therefore, not representative of all types and sizes of communities.

A survey made in 1943 by the National Association of Real Estate Boards apportioned the housing shortage (then estimated by N.A.R.E.B. at 925,000 units) as being 56 per cent in single-family houses, and 44 per cent in apartments. This also was based on a survey of cities (287 of them) and reflected 1943 wartime conditions.

Two-family houses constitute a dwelling-type that has dwindled in public favor for a long time, and likely to be of minor importance hereafter.

Three-family houses (included in all statistical tabulations under the heading of multiple dwellings) are also rarely built nowadays. Two-story walk-up apartment buildings of four suites and up are likely to be numerous in suburban and small-city rental projects, sometimes grouped in large planned developments. Large elevator apartments are apt to become numerous after rents and construction costs have stabilized in a relationship that favors housing investment, provided future improvement of neighborhood conditions in cities offsets the strong competition of outlying sites.

COST CLASSIFICATIONS—Rules and regulations governing war housing resulted in a definite demarcation as between houses to cost (with land) up to \$6,000, and houses to cost over \$6,000 with land. It may be roughly assumed that, if land costs be omitted, the dividing figure is \$5,000.

It is to be expected that in the postwar period houses to cost over \$5,000 (without land) will increase over pre-war volume by larger percentages than houses in the lower valuations. This statement is based upon two facts:

1. Present accumulated demand for houses is relatively greatest in the cost-class banned by war restrictions: i.e., for higher priced houses.
2. Anticipated higher national income would mean a larger proportion of total families in the United

(Continued on page 138)

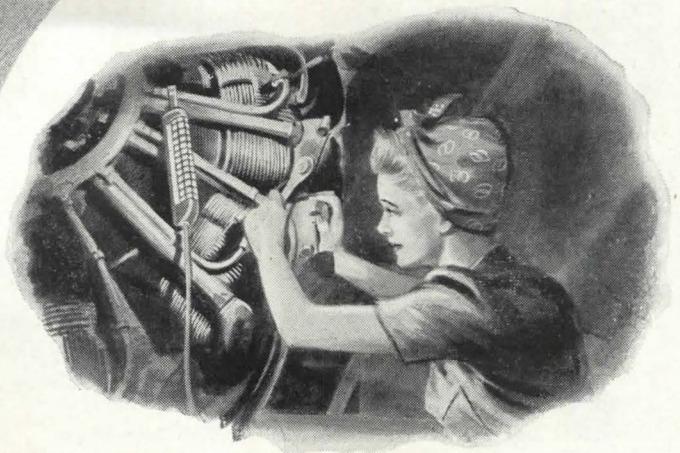
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OKONITE



INSULATED WIRES AND CABLES

3687

RESIDENTIAL BUILDING POTENTIALS

(Continued from page 136)

States in middle-income brackets, compared with the prewar era which was largely a depression. Middle-income families are much less apt to be deterred from house-building for income-tax reasons than are families in higher brackets; many have accumulated down-payments; all of them can deduct property taxes and mortgage-interest in figuring net income subject to tax; their investments in homes may very well constitute an inflation-hedge.

Therefore, if total dwelling units attain an annual average in the postwar period that will equal three times the average for the years 1930-1939, it is reasonable to expect that units to cost \$5,000 and up (on the basis of 1940 prices) will increase in a ratio ranging from three and a half to four times the prewar average volume.

This would mean that units in the upper price range would constitute somewhere near 33 per cent of the total number of houses built instead of the 27 per cent that prevailed in the prewar years (percentages based on Bureau of Labor Statistics figures).

Such a change in the general pattern would still make greatly increased volume of houses under \$5,000 necessary in order to attain the estimated total volume of 820,000 units. On these assumptions, units under \$5,000 would increase in a ratio between two and a half and three times the prewar average volume.

A larger proportion of houses in middle and upper cost ranges would tend to increase the number built from architects' plans and specifications.

IT IS TO BE NOTED that building costs have risen during the war and are likely to rise further in the postwar period. Consequently, postwar classification defined in dollars are apt to mean something different in house values than the same dollar classification of prewar houses. In other words, all statements made above in terms of dollars are subject to correction in terms of postwar levels of building costs.

Progressive economies which may be achieved with improved materials and improved construction methods are likely to continue as a gradual evolution, ultimately affecting cost-classification figures, but affecting them less rapidly than will the postwar rise in the general price level.

Farmhouse building, not included in these estimates, is highly problematical; it is not currently reported statistically, only estimated. Its volume depends upon agricultural prosperity, which is high at the present moment and likely to continue so for several years after cessation of hostilities in Europe. Will farm-production decrease sharply after America ceases feeding large sections of the rest of the world? That is what happened after World War I. If it should happen again, farm building might flourish for several postwar years and then taper off. We do not profess to know the answer, but believe farm building should be estimated conservatively.

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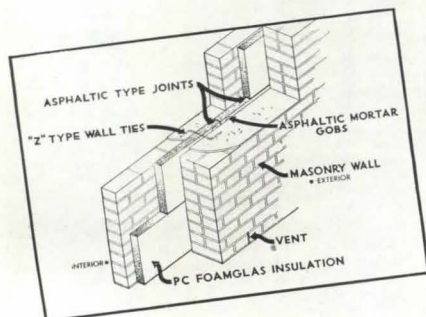
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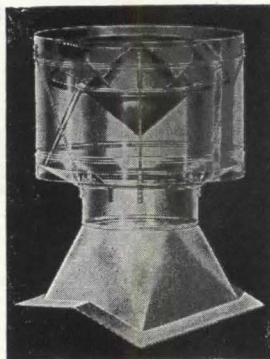
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