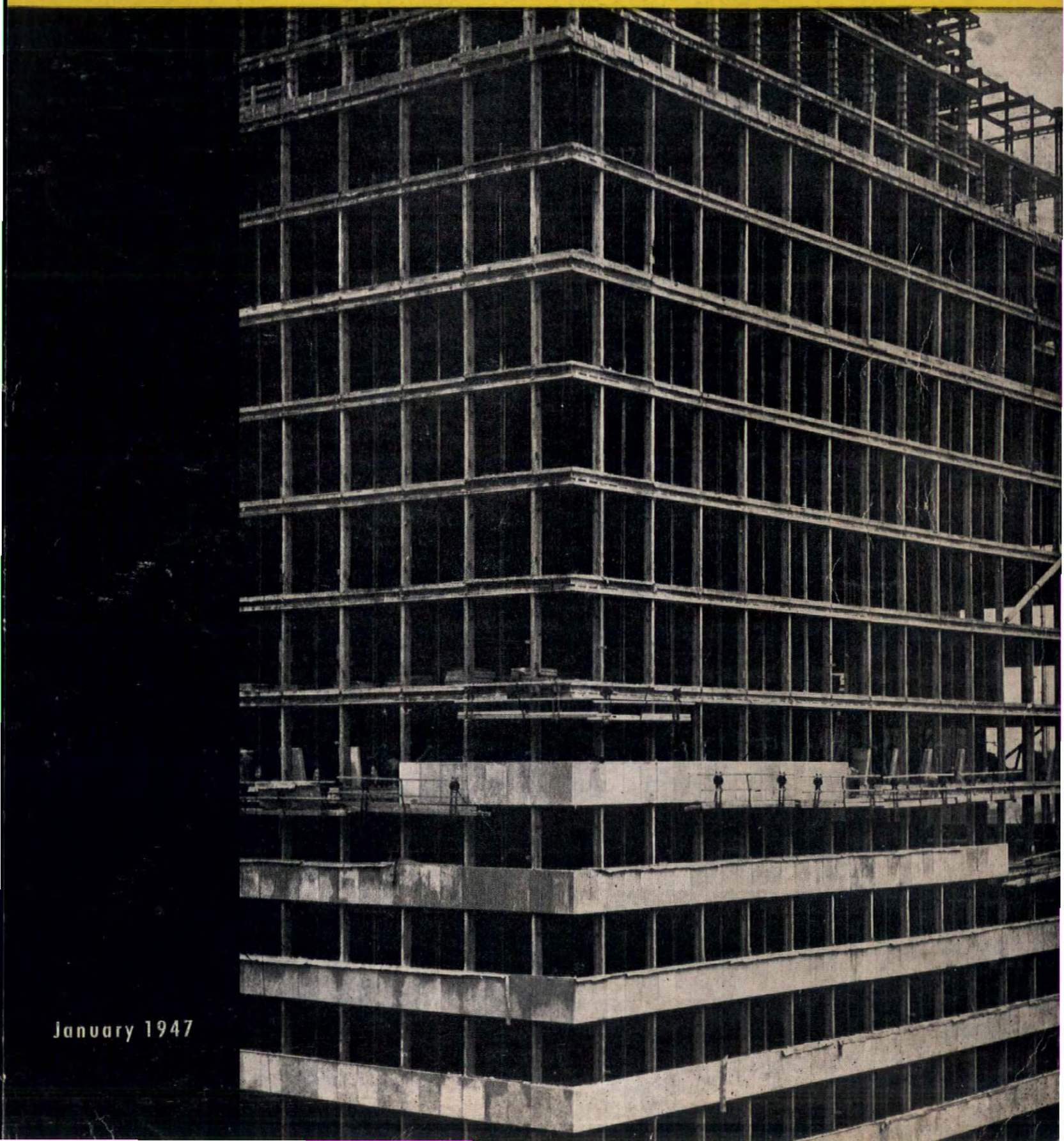
The Architectural

# FORUM

Magazine of Building



January 1947

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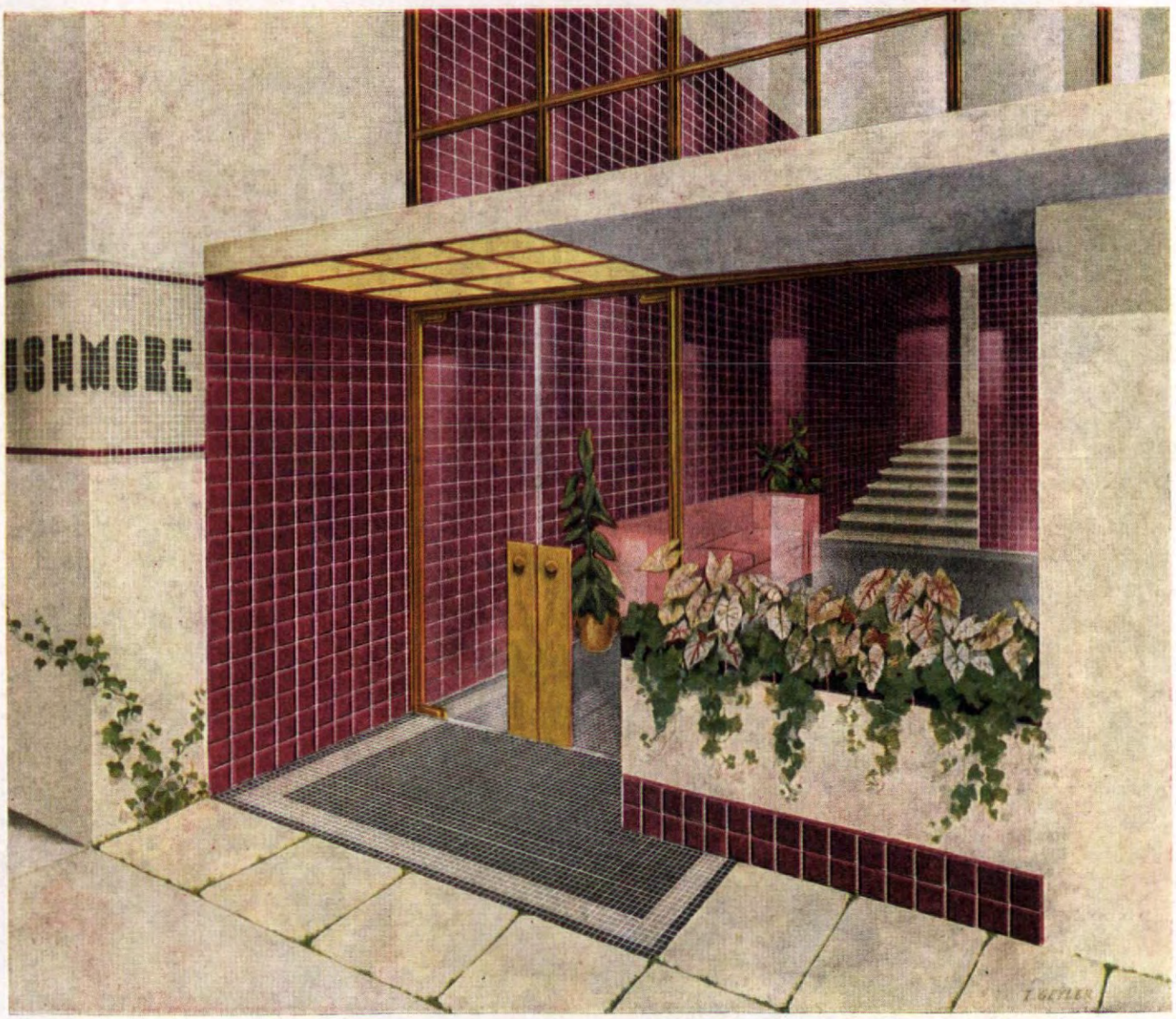

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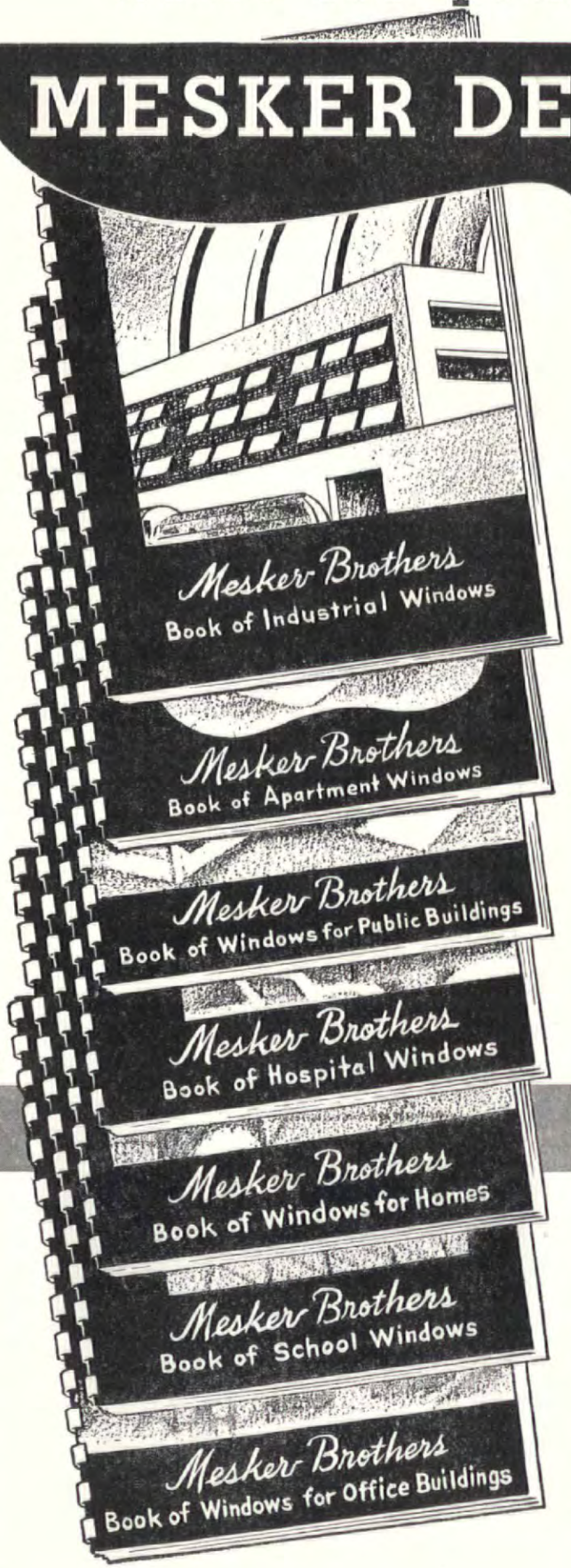


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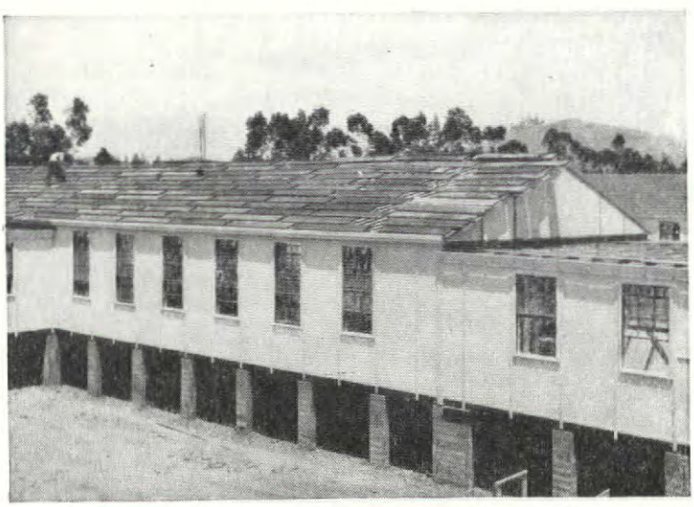
*Architect: Richard J. Neutra, A.I.A., Los Angeles*



Cemesto walls on one of the sections of the large Naval Hospital at Corona, Calif.

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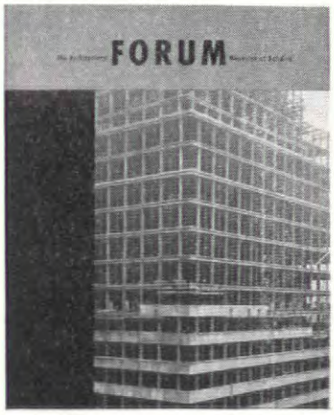


U. S. BUILDS AGAIN. New York's first postwar skyscraper, the Tishman Realty Company office building at Park Ave. and 57th St., is scheduled for occupancy May 1, 1947. Fully air conditioned space will rent for an average of $5.00 a sq. ft. To give the effect of practically continuous fenestration, Architects Kahn and Jacobs are using a system of small, T-shaped wall columns, 9 ft. 8 in. on centers, alternating with vertical pipe spaces of equal size. Photo: Myron Ehrenberg.

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The Architectural FORUM is published monthly by TIME Inc., 350 Fifth Ave., N. Y. 1, N. Y. Subscription may be sent to publisher's office or to 540 North Michigan Avenue, Chicago 11, Ill. Address all editorial correspondence to 350 Fifth Ave., N. Y. 1, N. Y. Yearly subscription payable in advance. To Firms and Government, their supervisory employes and design staffs, engaged in building design, construction, management, finance, materials manufacture or distribution: U.S.A., Possessions and Canada, $4.00; Pan American Union, $6.50; Overseas Countries, $10.00. To all others: U.S.A. Possessions and Canada, $8.50; Pan American Union, $9.50; Overseas countries, $10.00. When available, single issues, including Reference Numbers, $1.00. All copies mailed flat.  Entered as Second Class Matter July 17, 1944 at the Post Office at New York, N. Y., under the act of March 3, 1879. 

TIME Inc., Time and Life Bldg., Rockefeller Center, New York 20, N. Y., also publishes TIME, LIFE and FORTUNE, Chairman, Maurice T. Moore; President, Roy E. Larsen; Vice President & Treasurer, Charles L. Stillman; Vice President & Secretary, D. W. Brumbaugh; Vice President & Sales Director, Howard Black; Vice Presidents, Allen Grover, C. D. Jackson, P. I. Prentice; Comptroller & Assistant Secretary, Arnold W. Carlson; Production Manager, N. L. Wallace; Circulation Director, F. DeW. Pratt. Producer, THE MARCH OF TIME, Richard de Rochemont.

VOLUME 86, NUMBER 1

# The Architectural FORUM
## MAGAZINE OF BUILDING

## JANUARY 1947

★

# THERE'S A *Four Letter*

**AMERICA** has the highest standard of living in the world . . . but something is happening to it. There is talk of a recession . . . even a depression. We at Ceco *do not believe a depression has to come* in the building industry.

We know nothing about nylons, breakfast foods, or radios. But thirty-five years in the construction industry have taught us something about building and its problems. We believe the construction industry can and should lead the way back to an even higher standard of living.

We admit the complexities of today's situation. But we feel that these complexities can be circumvented. So why *think* a depression? Why not do in peace as we did in war—expect prosperity—plan prosperity—work for prosperity?

●

Let's look at the facts a minute. Today our needs for *everything* are the greatest in our history. There is accumulated purchasing power to keep industry humming for years to satisfy those needs—particularly the building industry. Then what is the fly in the ointment—why the fear that we are headed for collapse?

We at Ceco believe it's something the economists haven't analysed. We believe that prosperity depends on a different kind of straight thinking—on whether we, as individual Americans, are willing to WORK to make prosperity WORK. It's as simple as that.

●

It won't be easy. We said "work!" and we mean "work!" We of management must really work at managing. We must junk the too-frequent "wait it out" idea.

And labor must work—produce more instead of less—reduce overall costs per unit—justify high wages. Wages must not spiral after prices and prices after wages. Labor and management *both* must have something left after they've made their investment of time and capital.

It can be done if we're intelligent enough, willing enough, fair and square enough.

Of course, we can't do it overnight. We can't provide a new home or plant for everyone who wants one next week, or next month, or even next year. But we can start—and keep on . . . and once the ball is rolling the results can astound even ourselves. When Roosevelt announced our production goals for the first year of the war, the world laughed. It was a different story when we exceeded them. Then, we were unprepared. Today, we have everything to work with if we're permitted to use it—and will use it.

Sure, during the war, costs were a secondary consideration. But today, in a freer economy, the same will-to-work can drive down costs and prices, and drive up the production which labor needs to stay prosperous.

●

We eased up after the shooting stopped—all of us. That's understandable. We needed to. But we've had our breathing spell. Now let's face the fact that there is no magic road to prosperity—that we cannot get something for nothing indefinitely. Always, eternally and inevitably, we of management and labor are going to have to WORK for prosperity.

Here at Ceco we have faith—faith that horse sense is finally taking hold. The productivity of labor is increasing. Absenteeism and turnover are decreasing. Output per man hour is on the upgrade. Controls are no longer the bug-a-boo they were. Many critical material shortages are leveling off. Some cities have modernized their building codes, and a general revision is in progress.

★

★

# *Word* FOR IT!

In the past year "unfavorable factors" plagued us and at times we were not pleased with the service we gave. Shortages of steel and manpower, coupled with many delays, held down our production levels. We are apologetic to all of our good customers, who for the most part have been understanding and tolerant.

●

Yet as we look back over 1946 we're really surprised to see how much we did accomplish. We performed the following things in preparation for greater prosperity:

1. We doubled manufacturing capacity in our Plant No. 1. Also, expansion plans went forward in our 14 other plants and warehouses coast to coast.
2. We facilitated management operations by centering our general offices at Plant No. 1.
3. Company-wide, we increased our plant and erection organization by 40 per cent, our office personnel by 30 per cent.
4. With additions to our research facilities and personnel, we developed 16 new major products. More than 100 others still are under study. War experience is reflected in expanded use of diversified metals.
5. We—management and labor—increased production. Shipments of several principal lines, including screens and windows, were and now are greater than ever before.
6. We—management and labor—reduced absenteeism in our plants by 50 per cent.
7. We consistently modernized our equipment and machinery for maximum production.
8. We improved our agent-dealer structure and our service to agents-dealers.

What we did, many others did. In the days ahead we all can do even better.

●

Just a few fundamental virtues are necessary. Hard work, intelligence, and sympathetic understanding of labor's problems upon the part of management. Hard work—ever-increasing production—understanding of management's problems upon the part of labor.

We can say that here at Ceco we have the finest working conditions, the finest safety record, and the greatest opportunity in the history of our company.

We believe that *production* will maintain these high standards and even better them.

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. . . . production sufficiently great for the costs involved, to make the selling price within the reach of the widest possible markets.

America has never yet admitted defeat. Why start now? High living standards can be cushioned against depression. Let's all quit *doodling* and get to *doing*. Yes, there's a four letter word for it—*W-O-R-K*.

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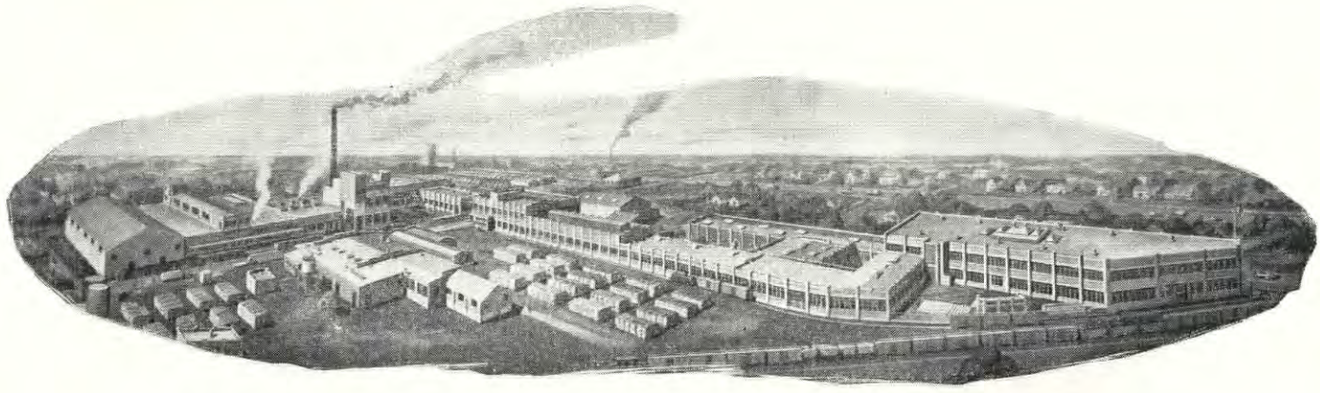
**The Upson Company, Lockport, New York**



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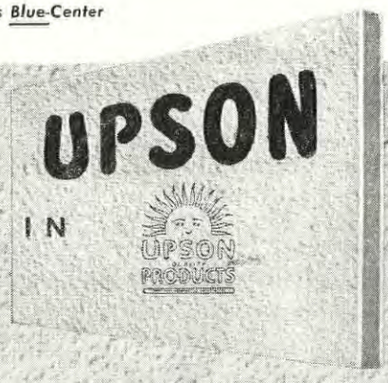



PACEMAKER IN CRACKPROOF PANELS

# NEWS



**BUILDING MONTH.** One defeated Democratic Congressman decided to go into the real estate business, which in Washington was getting even better as the newly elected collided with the Great Housing Shortage. His slogan: "Now is the time for all Democrats to sell, now is the time for all Republicans to buy." The President himself seemed to have a similar point of view. Last month he dropped most of the last government building controls. From now on, whether the homeless veteran gets a house will be a question—not up to the government—but squarely up to Building.

Most Building men said that was exactly where it should be. And if a few murmured that smart money was waiting for a drop in still-rising construction prices, most confidently predicted that 1947 would be a building year to beat any building year before (see the FORUM's detailed forecast enclosed with this issue). The Department of Commerce was unreservedly optimistic. Commerce analysts expect a record-smashing $22 billion total for the year, with housebuilding accounting for about 40 per cent of this figure.

The best news of the New Year was that there would soon be plenty of almost all kinds of building material and equipment. A Building Products Institute survey pointed to a substantial surplus in some only recently critical items (mason materials and radiation), found that only bathtubs and lavatories would be short in 1947. Industry readjustment would be aided by the gradual let-out in control of nonresidential construction volume, with complete decontrol in prospect by July or sooner.

Plentiful materials supply and the end of the black market would do much to cure Building's price headaches, too. The Associated General Contractors spoke for many: "It is cheaper to build when you get the materials you need at the time you want them. Any increases in building costs from now on should not be more than relative to the increase in the general cost of living."

The thousand nagging construction delays, the costly search for the soil pipe, the hardwood flooring, or the bathtubs to finish the job, the time-consuming paper work demanded by government regulations—all these would soon be a memory as remote as priorities. In the New Year, Building would be free to do its own job in its own way.

## WASHINGTON

### PRIORITIES END

**Remaining building controls will disappear over next six months.**

Last month builders finally saw the end of priorities, a word that had told the building story for nearly five years. With priorities went most of the other building curbs; the last small island of wartime economic control had been swallowed up by the irresistible tide of a free market. A few rules remained, but these—with the possible exception of rent control—were slated for gradual discard early in the year.

From now on anybody can build a house for his own occupancy. Any builder can build a house for sale or lease, provided he gives veterans a first chance before he puts it on the general market. There is no longer any limit on how much houses may cost. In order to prevent luxury building, some construction restrictions have been set. To obtain a permit to build under the new plan, the builder must agree to:

- Limit floor area to not more than 1,500 sq. ft. (measured to outside of exterior walls, but not counting basements, garages, open porches, terraces and unfinished attics. In most cities, this floor area would put a house in the $15,000 price class.)
- Install only one bathroom. (Plumbing may be roughed in for two bathrooms, but fixtures may be installed in only one. Builders said this requirement made little sense, since fixtures are easier to get than piping. Moreover, finishing the second bathroom later will cost the home buyer twice as much).
- Keep rents down to an average of $80 for any multi-family structure and to not more than $80 for any single-family house placed on the rental market. (Expectation was that this ceiling would soon be raised).

Other building controls will disappear in this order:

**No more priorities** will be issued, but outstanding HH priorities will be honored if presented to distributors by March 31. Hope is that distributors can fill all these orders before July 1. Any builder who has started housing with the benefit of HH priorities is required to make no change in the selling price or rent named in his priority application.

**Set-aside orders,** which have earmarked certain percentages of critical materials for veterans' housebuilding, will continue only long enough to take care of outstanding priorities. By mid-month set-aside percentages will be sharply reduced, eliminated entirely for some materials.

**Premium payments** on hardwood flooring stopped January 1; premium payments on convector radiators were scheduled to stop by the month's end. Congress is expected to wind up other premium plans soon.

**Non-residential construction** must still seek a CPA permit to build, but the present limit of $35 million a week will sometime this month be raised to $50 million. An additional boost to $75 million is likely by April 1, with end of this control scheduled for July 1. Many expected Congress to insist on even earlier decontrol.

Much would depend on how well Building could do its job. Many veterans' groups had already sharply criticized the relaxation of building controls, and even the conservative American Legion was predicting a veterans' march on Washington to force the construction of subsidized housing. New

Acme

**LAST FEW BUILDING CONTROLS** are in the hands of these men, shown leaving the White House after a conference with President Truman: National Housing Administrator Raymond M. Foley; Presidential Assistant John R. Steelman; Maj. Gen. Philip B. Fleming, head of the new Office of Temporary Controls; Housing Expediter Frank R. Creedon.

legislation to help private building enterprise produce rental housing for lower-income groups was already under study. Expected relaxation of FHA Title VI regulations and extension of the time limit for this Title would help out, too.

## BLACK-RIBBON JOB

### Wyatt exits like other housing bosses but leaves good record.

Irascible old Harold Ickes, continuing his own vendetta with the Truman Administration, put it stronger than anybody: "There can be no doubt that Mr. Wyatt was pretty nearly the last outstanding man in an administration the deck of which is awash with hungry water." But Wilson Wyatt's departure as Housing Expediter, while marking the almost complete rout of the New Deal philosophy of government, also underlined the continuing failure of the U. S. to make up its mind what, if anything, it wants to do about government-in-housebuilding.

Wyatt, praised even by his enemies as an earnest and able fellow, was only the last addition to the long list of those who have been obliged to retire after a more or less disastrous tilt with the housebuilding windmills. Nobody yet has lasted very long as the No. 1 government housing boss (see cuts). One reason is the considerable confusion about just what the government housing job shall be.

Even among those who agree that roughly half the nation cannot afford a decent house, there is no general agreement as to whether the government shall 1) ignore the whole problem or 2) assist private enterprise through various kinds of subsidies to build for an ever-widening market or 3) supplement the efforts of private enterprise by direct building of low-rent housing.

The confusion resulting from the nation's failure to adopt any of these alternatives (or a workable combination of them) was enormously multiplied by the accumulated housing shortage that confronted returning veterans. Thus Wyatt had been handed an assignment which many a seasoned Building man had called unworkable and unrealistic (see FORUM, March, '46). In a period when federal price controls were crumbling and the black market in building materials was booming, Wyatt was required to find a way to assist private building enterprise to build a house that would cost a veteran not more than $10,000 or rent for not more than $80.

The fact that most veterans were in no position to buy a $10,000 house seemed not to have occurred to the gentlemen in Washington, who feared to give any real backing to a program (such as the W-E-T bill promised) which would at once clear urban slums and provide low-rent housing for veterans. Nor, on the other hand, as the *Chicago Tribune* sourly put it, "had it occurred to the great brains in Washington that if a man builds himself a new house (at any price) he will vacate an old one, thus providing accommodation for some one else." As it had on almost every other urgent domestic issue this year, the Truman Administration, in trying to sit on two stools at once, fell flat in the middle.

When the shouting at the abandonment of the Veteran's Emergency Housing Program died down last month, one interesting fact remained. Although Wyatt had been a target for almost every business group concerned with housebuilding, although his year in Washington had been an unremitting struggle with CPA, RFC, and the WAA for any kind of backing, he had made impressive progress in discharging his almost impossible assignment.

In spite of everything, the U. S. was building more houses than it ever had before. While it took much longer to finish a house (seven to eight months, most builders said) than it ever had, close to 1,000,000 houses had been started over the year. In most cities, housebuilding starts had topped the peak of the 1920's.

Production of some building materials had reached an all-time high. Production of almost all building materials showed spectacular increases over the rate last January (nails were up 184 per cent; cast iron radiation, 114 per cent; warm air furnaces, 111 per cent; hardwood lumber, 108 per cent; brick, 89 per cent). Although some producers argued that these increases would have occurred without any help from premium payments, none could deny the effect of such payments as the premiums which had opened five high-cost blast furnaces and had paid for access roads to untouched timber lands.

Wyatt's most spectacular achievement was the launching of a dozen or so new industrialized housing ventures (see page 89). The program had fallen down most on rental housing, had, in fact, never included any workable provisions for accelerating private enterprise in this vital area. This never-yet solved problem—how to build enough rental housing to supply the market in all price classes—last month moved up to first place on housebuilding's docket of work ahead.

*Photos: Harris & Ewing, Associated Press, Underwood & Underwood, Otto Hagel, World Wide, Reni, Fide Gueldre Walter Lane.*

Kohn | Hackett | Clas | Gray | Straus | Carmody | Palmer | Emmerich | Klutznick

Blandford | Potter | Wyatt

**LONG LINE OF HOUSING BOSSES** who have left government service shows that nobody lasts long in this hot seat. First government housing director, architect Robert Kohn, lasted one year, resigned after much trouble with PWAdministrator Harold Ickes. Col. Horatio Hackett and Angelo Clas, who followed in rapid succession, also fought constantly with Ickes. Next boss was Ickes' protege, Howard Gray, who bowed out of the picture when PWA ceased housing operations upon passage of the United States Housing Act (1937). USHAdministrator Nathan Straus was forced out in 1942 by Congressional disapproval. First part of the war housing job was split between FWAdministrator John Carmody and Defense Housing Coordinator Charles Palmer, who fell out with each other and precipitated the creation of the National Housing Agency headed by John Blandford. Two Federal Public Housing Authority bosses Herbert Emmerich and Philip Klutznick resigned after brief but relatively untroubled terms. Builder Hugh Potter made a four-month appearance as reconversion building boss. John Blandford, whose charts Congress had found increasingly tedious, resigned in 1945 to make way for Wilson Wyatt.

# . N. TAKES MANHATTAN

## eneral Assembly will meet in one f world's most sought-for spots.

ne of Manhattan's first citizens had arrived t the nick of time with the check that osed out Philadelphia. Like every other ainstream of Western civilization, the . N. had come to New York—and New ork, where a hundred national groups ave lived side by side for generations, had ome up to destiny again.

The skyscraper proposal had pleased verybody. The smaller nations, fascinated y the glittering mass of the great city, had onsistently opposed any move to locate ie U. N. in rural surroundings—of which hey had plenty at home. As a French dele- ate, the great architect Le Courbusier, lways enamoured of skyscrapers, had iven influential support (although the rench delegation, still hoping for a uropean location, had finally voted against he site.) Even those who said glumly that he Manhattan site meant passing up the hance to establish a real world capital ad to admit that the centralization possible nly to a skyscraper group would be the host workable plan for an organization as ast and complex as the U. N.

The only hitch in the fast deal which ecured for U. N. six midtown blocks along he East River was when realtor William eckendorf's pen ran out of ink just as he tarted to sign the option made out to John . Rockefeller, Jr. But Architect Wallace arrison, who was Rockefeller's representa- ive, handed Zeckendorf his pen, and the nomentous deal was closed only five min- ites after Zeckendorf had named his price f $8½ million and without either party eaving the table at Zeckendorf's Monte arlo nightclub.

Everything else had moved just as fast. t was less than seven months since Webb & napp's Zeckendorf had started assembling he 100 parcels comprising the East River ite. He had planned a riverside city of arc- haped skyscraper offices and apartments, lready laid out by Architect Harrison. But hen the U. N. failed to make up its mind bout where it would live, Zeckendorf, like ny good real estate broker, couldn't esist offering the best listing he had. When the Rockefellers began casting about for a way to help and considered offering their family estates in Tarrytown, Harrison, who had helped plan Rockefeller Center, told them about the possibilities of the East River site. Within 24 hours, John D. Rocke- feller, Jr. had offered to put up the money and the U. N. had voted to accept the site.

Zeckendorf said he paid about $20 a sq. ft. for the land and is selling it "for less than other property in the same area is now being sold to us." He estimates that the U. N. location has increased the value of

*(Continued on page 12)*

John D. Rockefeller, Jr.: the check

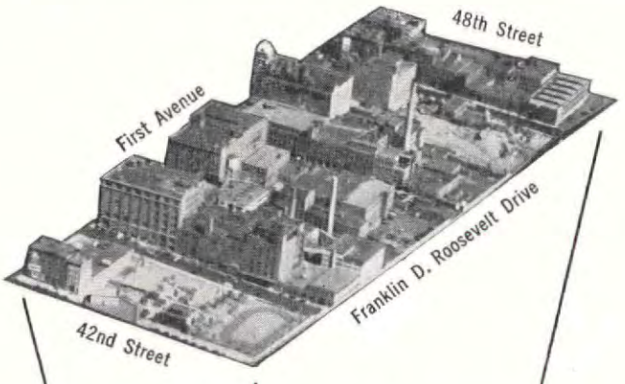
Nelson Rockefeller: the initiative

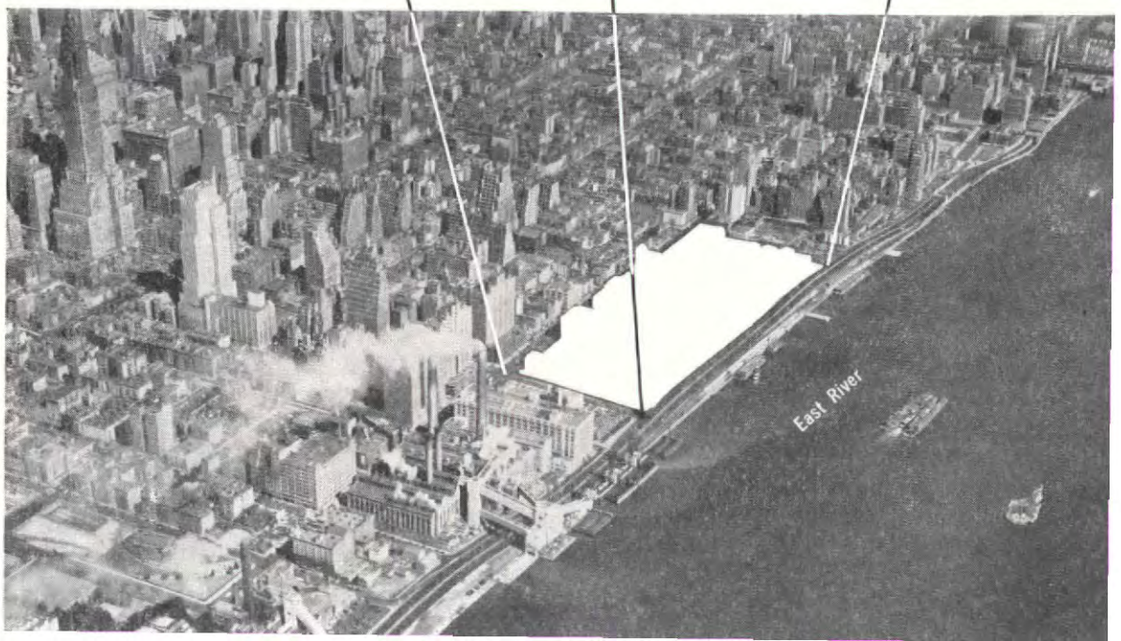
William Zeckendorf: the land

Wallace Harrison: the idea

Mayor O'Dwyer: the hospitality

Robert Moses: the job



surrounding property by at least 100 per cent. Webb & Knapp already own a large part of the west side of First Avenue adjoining the site, which Zeckendorf thinks may be a logical place for the members of the Assembly to build legations. He is still busy buying land in the area, and his ambitious plans include location of an airlines terminal, a Music Center which will provide a home for the Metropolitan Opera and the N. Y. Philharmonic Orchestra, and a "great hotel of international character."

Up to Secretary-General Trygve Lie is the job of preparing the U. N.'s building requirements for submission to the General Assembly next July. A tentative estimate was that the structures needed could be built for around $54 million dollars. Practically every architect in the world wondered last month who would design them. Almost everybody had expected an international competition to select the U. N. architects. But this obvious solution now seemed to have many drawbacks. In the first place, U. N. hoped to hold its 1948 session in New York, and the United States delegation said that every effort must be made to finish the headquarters by then. A competition would take time urgently needed for planning and building. Even more important, a competition, while it would undoubtedly turn up some brilliant new structural solutions, would offer no assurance that the winners could deal with the technical problems peculiar to skyscraper construction. Only a few firms in the world had demonstrated ability to handle the kind of steelwork, the elevators, the air-conditioning and heating demanded by a giant structure.

In forming his recommendations, Trygve Lie would be assisted by an advisory committee of 16 nations. He would also be assisted by New York's Park Commissioner Robert Moses whose well-known ability to get things done had already been tapped to head the city's job of helping U. N. get settled in its Manhattan home. One thing that will require immediate municipal attention: provision of adequate cross-town transportation to the site, which may mean a loop subway extension, and at least one East-West boulevard.

## CONSTRUCTION INDICTMENT

**Atlanta fire says last word on so-called fire-proof structures.**

Two spectacular building disasters wrote a block-letter moral: U. S. building regulation has failed to keep pace with modern standards of urban safety. In Atlanta the worst hotel fire in U. S. history was proof —six months after Chicago's Lasalle fire had caused the same kind of tragedy—that even a steel-and-brick structure can be a certain death-trap if fire hazards are tolerated in its interior plan. In New York, fire in an abandoned ice-house caused the blitz-like collapse of an adjoining tenement, arguing for policing or demolition of unused structures in crowded residential areas.

The 15-story "fireproof" Winecoff Hotel had burned like a stove full of straw. When the flames had been quenched the brown brick facade appeared almost untouched yet the interior was a blackened hollow. Familiar reason: inflammable paint and wallfinishing had burned into the flue provided by the single unenclosed stairway. Flames, wrapped in toxic gases, had geysered upwards toward the ventless roof, shot into pipe-like hallways.

While Atlanta's building code, revised in 1924 and 1944, clearly condemned the design of the Winecoff, no attempt had been made to make retroactive corrections of the hotel's glaring violations of safety standards. The 4,386 sq. ft. building had been planned with greater regard for income than for safety under the city's 1911 code which sanctioned the omission of fire escapes and auxiliary stairways in structures covering an area under 5,000 sq. feet. With 15 rooms on each floor, the hotel contained no fire exits of any kind. Fatally narrow (five ft.) corridors led to the single open staircase which wound about the elevator shaft to make a perfect chimney for the vertical spread of fire.

# PEOPLE

## JOB'S END

**Two great craftsmen are dead.**

Death came in one week to two men whose work in the field of design and architecture stood as far apart as their lives. Timothy L. Pflueger, 54, died in San Francisco—a man of many buildings, few theories. Laszlo Moholy-Nagy, 51, died in Chicago—a man who had planned few buildings but whose theory and teaching had influenced almost every phase of contemporary design. Yet both had shared a versatility, ebullience and personal charm that crowded their lives with activity and friendships.

Pflueger

Tim Pflueger was born in San Francisco and to that city's skyline he was to add many a bold structure. Most famous: the 28-story Sutter Building, the California Medical School Hospital, the Pacific Telephone Building, I. Magnin stores and the Stock Exchange. He collaborated on the design of the Oakland Bay Bridge and planned San Francisco's famous underground Union Square garage.

Moholy-Nagy

A self-made architect who got his schooling in offices, Pflueger was vastly popular in the West Coast's bubbling artistic sodality. As president of the San Francisc Art Association, he staged, from 1934 t 1937, the biggest, most exotic costume ball in that city's history. As a designe of festive interiors, he expressed his ow gaiety and conviviality in the brilliance of the Fairmont Hotel Cirque Room, th Bal Tabarin, the Top of the Mark and th Stage Door Canteen.

Perhaps most typical of Pflueger's per sonality was his design for the most im permanent of his works, the Federal Build ing at the Golden Gate Exposition of 1939 Impressive, yet sparkling with invention, i was the best thing at the fair.

To Moholy-Nagy the U. S. owes its Chi cago Institute of Design, transplant of th famous German Bauhaus which ha flourished in Weimar before the Nazis Moholy, closest collaborator of Walte Gropius, gained international fame as a photographer, set-designer, non-objectiv painter. He experimented with composi tions in new materials, explored the unsur veyed esthetics of plastics, metals, machine made objects. In the U. S., he applied hi studies to the field of industrial design, and his Chicago school was created to provide young designers with broad preparation in the uses of materials. Moholy set his students to primary studies of tactile quali ties (they worked at sculpture blindfolded) and introduced them to studies of light and shadow through the construction of non utilitarian "machines". The Chicago school was underwritten by such no nonsense backers as United Air Lines, Con tainer Corp. of America, Marshall Field & Co. and Sears, Roebuck.

# CITIES

## HELP YOURSELF

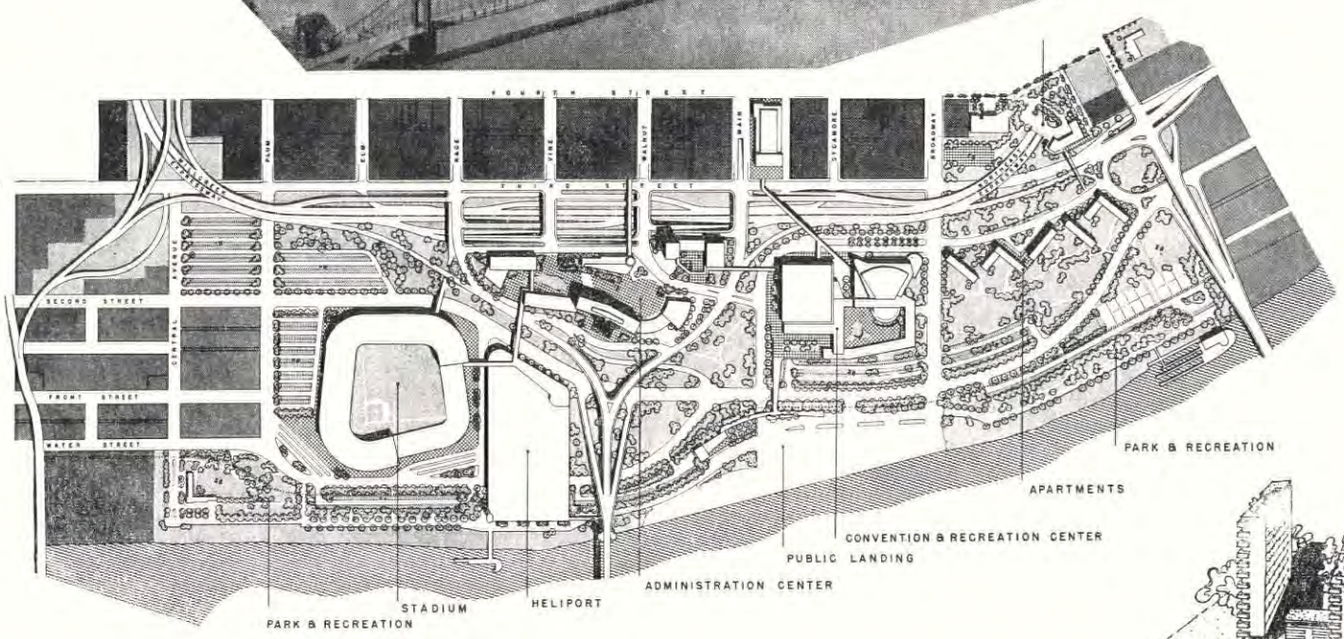
**Three cities consider ways to hurry the housebuilding job.**

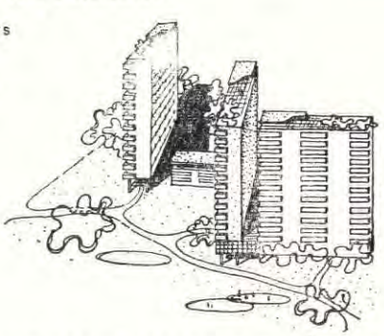
As the federal veterans' housing program creaked to a near-stop, eyes that had been turned toward Washington for nearly two decades began to focus dimly on their own backyards. More and more cities confronted the reality: the way to get houses built is to help yourself. Three cities considered these ways to hurry the job:

▸ In Chicago Mayor Ed Kelly ordered all municipal construction not essential to public health and safety held up. Among other things, this means postponement of the city's cherished super-highway program. Lifting an eyebrow at New York, the Mayor said Chicago will go on acquiring rights of way but, that there was "no sense in tearing down the present residential buildings" until housing shortage is eased.

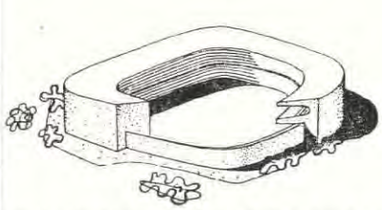
▸ In Milwaukee the Building Trades Employers Association hastily asked its members to drop any incentive plans intended to lure labor into commercial construction and away from housebuilding. Housebuilders had complained that the higher pay offered for weekend work by commer-

*(Continued on page 14)*

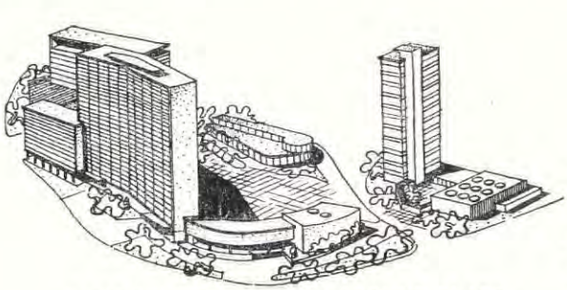


WALK-UP, ELEVATOR APARTMENTS ALTERNATE



DIUM IS PART OF RECREATION CENTER

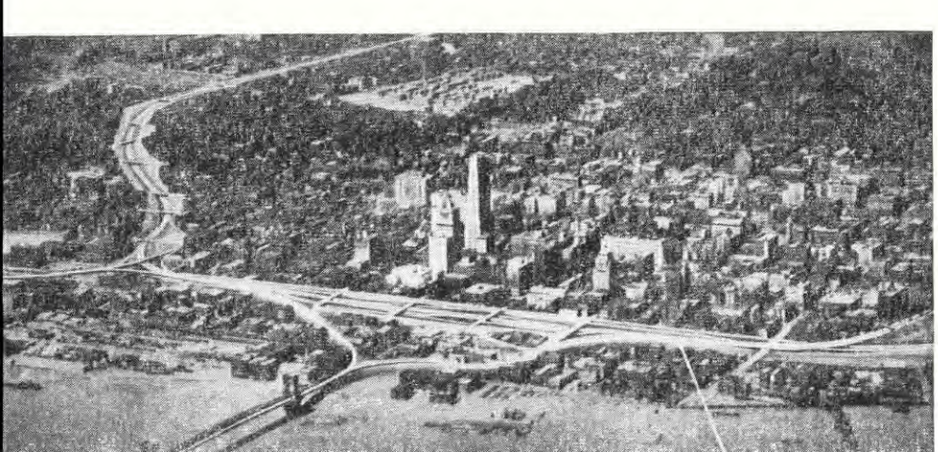


CIVIC CENTER GROUPED AROUND PLAZA

## RIVERFRONT DEVELOPMENT

Cincinnati's central business district jostles some of the worst slums in the U. S. along a riverfront periodically inundated by the great floods of the Ohio river. Last month Cincinnatians were talking about a plan which would replace riverside slums with modern housing and recreation facilities, reclaim unused land for parking space and expressways, and at the same time protect the area against flood hazard.

Carefully organized for development by units in any desired sequence the plan is the work of the city's Master Planning Division directed by Sherwood L. Reeder. Tracy B. Augur and Ladislas Segoe served as consultants.



Burton Holmes from Ewing Galloway

**ESSEX HOUSE SIGN** will no longer shine at night in middle of New York's swank Central Park South. New owners of this skyscraper apartment hotel generously decided to take down eight-foot high letters because it spoiled what connoisseurs consider one of world's ten most beautiful views.

cial contractors was draining off the city's scant labor supply. Urged the Association: "The publicity the residence builders are proposing will not do your industry any good . . ."

Frank Blaisdell, executive secretary of the Milwaukee Builders Association, told just how things were going: "The commercial contractors generally can operate on a cost-plus basis. As a result, added labor costs can be absorbed. Home builders, however, have ceiling prices to contend with and can't afford the overtime work and its attractive extra pay."

▶ In Detroit the American Veterans Committee demanded a city ordinance to outlaw all commercial building. Only way nonresidential construction could go ahead would be with the approval of a board of representatives of veterans' organizations.

### SKYSCRAPERS IN THE AIR?

**Inventor says aluminum cities could float on helium.**

Cities may take to the air, if Chicago inventor Leonard Z. Plebanek has his way. Plebanek, who has hitherto devoted himself to cookie making and juke box machinery, last month told United Press his newest idea. All-aluminum, helium-filled, jet-propelled cities could, he said, be built in a few years at a cost much lower than the old-fashioned, earthbound kind.

Engineer Plebanek plans a modest start. He wants to build dirigible-shaped houses with a cruising speed of 150 miles and a gas tank for the back porch. Later Plebanek would hitch houses, add aluminum gas-filled streets, stores and office buildings. The air-borne cities could go south in the winter, hover over cool parts of the earth in summer. If they don't like what their national government is doing, they could secede by flying away. Whether the flying cities could also dodge atom bombs, inventor Plebanek did not say.

## HOUSES

### CENTENNIAL

**Rich U. S. has traded its fake palaces for functional apartments.**

"Arbiter of elegance in literature and living", *Town & Country* magazine last month celebrated its centennial and viewed its 100-year-old file of editorial pages with all the detachment of a grande dame who, having secured her place in Society, can afford to joke about a gauche girlhood.

Chronicling its excellent portraiture of how rich America lived over the last century, *Town and Country* observed: "The breakdown of taste during these dismal decades (1870-1900) was nowhere more evident than in architecture." With pride *T. & C.* was able to recall that it "had a glimmering of the confusion that jumbled national styles and periods into monumental horrors", that it had "asked for a purified eclecticism", and had found "the root of the trouble . . . in the exclusion of the public from 'intelligent and homely interest in the art of building.'"

Although *T. & C.*'s view of a suitable U. S. house may not have been exactly what the public in general would have called "homely", it did try to remedy the situation by publishing a series "Homes on the Hudson" by Barry Gray followed by "Tasteful Homes of New York City." *T. & C.* believed that this and other material "inspired numerous magazines devoted exclusively to houses and decoration."

For the anniversary issue's fascinating portfolio of the homes U. S. millionaires have for some reason felt obliged to live in over the last century, *T. & C.* was able to put its finger on many an architectural landmark as epochal in the elegant world as Irene Castle's hobble skirt. All culled from back issues, the *T. & C.* houses range from a McKim, Mead & White Louis XIII limestone palace (there was an ermine spread on one of the sitting room daybeds) to Philip Goodwin's New York apartment. Pegging the appearance of "functionalism" in U. S. domestic architecture with the "functional" octagon house designed by phrenologist Orse Fowler in 1848 and widely copied, the portfolio concludes with Richard Neutra house for John Nicholas Brown at Fishe Island, N. Y. The *T. & C.* catalog of th architecture of the rich points to at lea one happy conclusion: the showy exteri luxury of the museum-like building of th earlier part of the century has finally bee supplanted by an interior "physical lu ury" which provides for all kinds of speci living needs with an ease and precisio undreamed of a generation ago.

**PREFABERS** met in Washington: (l. to r.) Edmund H. Harding, Washington, N. Car.; John Pease Cincinnati; real estate economist James C. Downs, Chicago; Dawson Winn, Laurel, Miss.; Harry Steidle, Washington; Austin Drewry, New Albany; Walter Ahrens, Tulsa; James Pease, Cincinnati

## PREFABRICATION

### PREFAB PROMISE

**Houses will sell well under $10,000.**

While the glue leaked out of the Wyat housing program and the Truman Admin istration tried to stick something togethe again, 100 prefabers met in Washing ton. Few of them were sorry to see th Wyatt program go. Not many had bee pleased by Wyatt's well-meant efforts t get the prefab industry on its feet. The were all men who had gotten their ow foothold during the war and they regarde the recent bonanza of government produc tion loans, guaranteed market contracts etc., as merely a damfool way of putting i business a lot of new fellows whose ex periments would eat up the scant material supply (other Building men disagreed, se page 89).

In a loud firm voice they reiterated thei stand: "We believe the productive capacit of established and experienced prefabri cators should be used before attempts ar made to introduce new production of in experienced operators at government ex pense." They reminded anybody intereste that there were plenty of established plant all over the U. S. ready to produce thou sands of houses and that these companie boast established distribution facilities buyer acceptance and FHA mortgage approval.

Thus flexing their muscles for any show down that might be ahead with the new fellows reported to have an industrialized house, the prefabers also showed they knew exactly where the fight will be. They would, they said, continue to produce homes "in the field well under $10,000."

## NEWCOMERS

**General Panel is first to benefit from everything government has to give.**

Anybody who wants to be sure he can sell all the prefab houses he makes can still ask the government to give him a guaranteed market contract. Anybody who needs some money to start producing a prefab house can still touch RFC for a loan. That much President Truman had promised when he lopped off many of the other emergency provisions which had been intended to speed veterans' housing (see page 9).

But RFC's reluctance (demonstrated spectacularly in the Lustron case) to advance funds except to producers who could conceivably qualify as a reasonable private banking risk made it seem likely that these special helps to prefabers will also soon follow priorities and price controls into the federal wastebasket.

RFC has made loans to only three producers: Knox Corp., General Panel Corp., Continental Basic Materials. Total government funds advanced amount to slightly less than $4 million. Five producers have signed guaranteed market contracts: Homebilt, 19,400 units; Harman Homes, 10,000; American Fabricators, 7,400; Knox Corp., 5,000; General Panel, 8,500.

So far, General Panel Corp. is the only producers to tap all three lodes of the government bonanza for prefabs. Already the possessor of an RFC production loan, General Panel last month signed a guaranteed market contract covering 8,500 houses and started installing its assembly line in a surplus war plant (Lockheed used it for Constellation engines) at Burbank, Calif. Another big boost: FHA has indicated its willingness to accept General Panel for mortgage insurance.

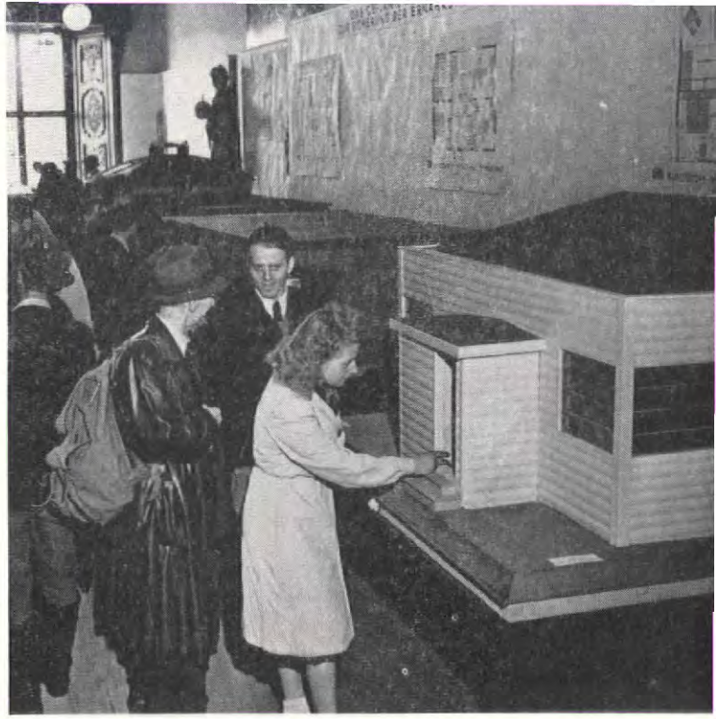
Wachsmann

General Panel's product, designed by Konrad Wachsmann who heads the Corp. and by Harvard's Walter Gropius, vice-president, is a stressed-skin plywood panel which can serve as the basic structural unit in any building designed to a 3 ft. 4 in. module. To qualify for a government guaranteed market contract, General Panel worked out a distribution set-up with Celotex Corp. and a two-bedroom house to sell for $5,875 (including an allowance of $900 for the lot). Celotex dealers will stock the house as a package complete with plumbing, heating and wiring equipment. They will sell to any contractor who wants to use the system, will also organize their own erection crews and sell the General Panel house directly to the home buyer.

No Celotex products are now used in the General Panel house, but Wachsmann is at work on a metal house which may in-

*(Continued on page 16)*

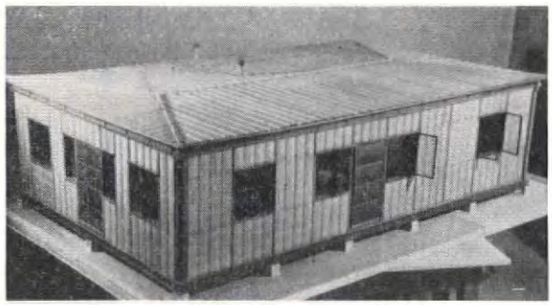
# BERLIN EXHIBITS PLASTIC PREFABS DESIGNED FOR EXPORT

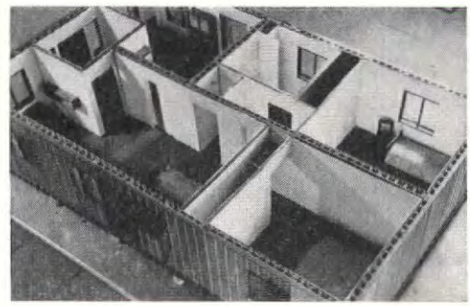


FOR THE U. S. A.

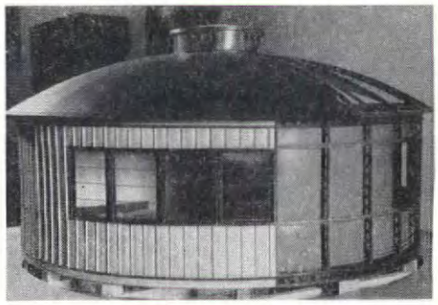
**BERLIN'S FIRST POSTWAR HOUSE EXHIBIT** was held in the bomb-scarred royal Schloss of the Lustgarten. Amid blackened paintings and plaster statues of the kings of Prussia, AMG officials displayed models of nearly-all-plastic houses aimed at the export market, designed by allied experts to meet foreign housing needs. Basic constituent was polyvinyl chloride, factory-molded into wall, roof and floor sections, even into kitchen and bathroom fixtures. Steel frames with metal clips provided chief structural support. Panels were insulated with synthetic resin and full-sized house (700 sq. ft.) was estimated to require three tons of plastic powder. Inventive designs attacked problems of plastic construction; American house (foreground above) used ribbed panels aimed to accommodate high expansion coefficient of material. Officials hope to assign designs to Reich plants but still hesitate to revive war-nourishing plastics industry.

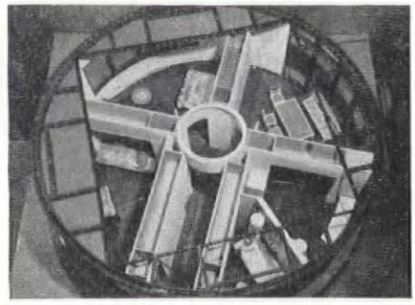
FOR ENGLAND



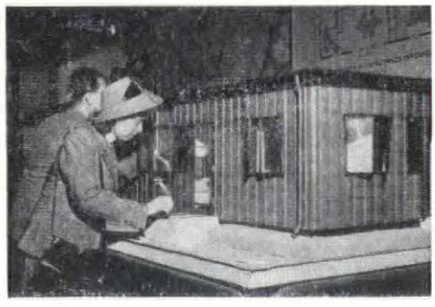


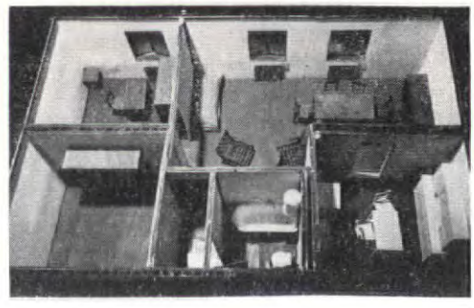
FOR FRANCE





FOR RUSSIA





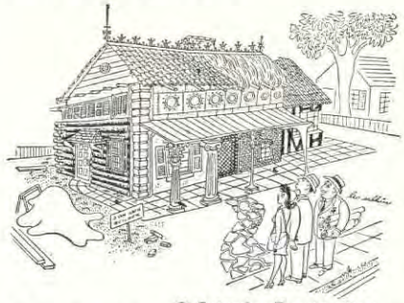
## BUILDING SNICKERS

© The New Yorker

*Psst, Jack! Want to buy a prefabricated house?*

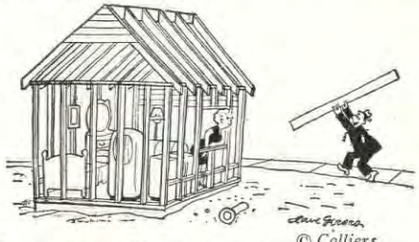

© Saturday Evening Post

*Now, for heaven's sake don't appear too anxious to buy, Ralph!*



© Saturday Evening Post

*We had to do the best we could with whatever was available.*



© Colliers

*Great news, Winnie! Today they let me have another board!*

© Colliers

corporate some Celotex materials. General Panel is also looking for plant locations in the East and in the South, while an ambitious program for future expansion includes production in Australia, Canada, Sweden and England.

General Panel got its surplus war plant (fortunately nobody wanted to make automobiles in it) for $800,000. Within its ample 240,000 sq. ft. of floor space, Wachsmann has laid out an assembly geared to turn out panels that almost literally merit the slogan "untouched by human hands."

# BUILDING MONEY

## LOAN JUMP

**Bankers warn each other to go slow extending inflated credit.**

Prominent among the lugubrious voices now calling the turn of the real estate market, the American Bankers Association noted that the average home mortgage loan now being made by its members is up 35 per cent over the average amount prudent bankers were lending in 1940. Even more significant is the fact that most of this jump occured within the first six months of 1946 (average 1945 loan was up only 11 per cent over 1940). Savings and loan mortgages show a 58 per cent boost in dollar value as compared to the average 1940 loan, following more closely the rise in construction costs (50 per cent is the estimated average for the nation as a whole).

In West Coast states where housebuilding has speeded up most over the last five years, bank mortgage loans show the biggest increases. Oregon leads with a 90 per cent boost in average dollar value. California shows 60 per cent, Washington 72 per cent. Only exceptions to the general rise are Vermont and New Mexico, with a 10 per cent drop, and Delaware, with a 6 per cent drop.

ABA says banks are now lending more mortgage funds than any other type of lender and are, therefore, "morally bound" to urge borrowers, "especially veterans," to go slow on acquiring inflated debts in the present high price period. "Cost of construction in normal times represents an upper limit of stable value," ABA told its members carefully, "but many families are now paying a premium above this limit for occupancy."

## BOLSTER

**Building backers think a pratt-fall may be ahead.**

With mortgage loan values steadily rising, a general uneasiness about current appraisals became more and more apparent among housebuilding's backers. This was reflected both in the Veterans Administration move to tighten up on appraisals of government-guaranteed home loans and in the push for a way to bypass the VA program completely by offering the veteran 100 per cent loan with benefit of FH insurance.

VA has decided that its present meth of accepting appraisals from anybody an approved list simply does not work. T many lending institutions, VA says, ha found obliging appraisers more interest in getting loans through at any price tha in protecting veterans. Every now and the VA has gone so far as to toss out a loa made at what it considered an excessi appraisal—even though the veteran bo rower had already moved into his hous From now on, regional offices will designa one appraiser and one alternate for eac loan application.

As small bumps continued to jolt th VA home loan program, private lende looked with mounting enthusiasm at th possibility of 100 per cent veterans' hom loans fully protected by FHA insuranc Big building backers, viewing mountin prices and uneasy appraisals, are not to happy about the partial guarantee V offers (half of the amount loaned up to maximum liability of $4,000). They would however, be glad to lend a veteran ever penny he needs to buy a house—if FH would provide a bolster against any po sible pratt-fall ahead.

# MATERIAL

## EARNINGS UP

**Most producers better off this year.**

Most building materials producers had rea son to beam cheerily as the year-end re ports came in. Earnings were generally u over last year, while all prospects were tha things would get even better. A partia listing:

| | First 9 Mos. 1945 | First 9 Mos 1946 |
|---|---|---|
| Atlas Plywood | $851,067* | $917,769 |
| Amer. Radiator | 3,748,149 | 3,221,471 |
| Amer. Seating | 252,857 | —521,725 |
| Celotex | 489,499* | 2,436,330 |
| Central Foundry | 169,575 | —10,635 |
| Certainteed | 694,364 | 2,759,528 |
| Chapman Valve | 536,449 | 286,422 |
| Dresser Industries | 2,167,735* | —1,049,973 |
| Flintkote | 1,608,464* | 2,625,738 |
| Holland Furnace | 952,048 | 1,200,206 |
| Johns-Manville | 3,897,481 | 3,251,694 |
| Kalamazoo Stove | 422,729 | —290,634 |
| Libbey-Owens-Ford | 3,524,878 | 2,616,681 |
| Long Bell Lumber Co. | 1,414,370 | 3,518,805 |
| Masonite | 1,474,632† | 2,360,939 |
| Minn. Honeywell | 2,404,991† | 2,912,195 |
| National Gypsum | 809,588 | 2,842,042 |
| Owens-Illinois Glass | 8,291,778† | 11,211,455 |
| Otis Elev. | 2,076,281 | 3,481,654 |
| Pitts. Plate Glass | 9,961,357 | 13,168,435 |
| Rubberoid Co. | 523,822 | 1,774,024 |
| Sherwin Williams | 5,065,213† | 6,919,600 |
| Tilo Roofing Co. | 407,118 | 782,938 |
| Trane Co. | 380,460 | 644,370 |
| U. S. Gypsum | 3,549,416 | 8,719,659 |
| Walworth | 735,723 | 986,769 |
| Yale & Towne Mfg. Co. | 774,237 | —524,450 |

* *Report for first nine months of last fiscal year.*
† *Report for last fiscal year.*

*permanent beauty at moderate cost*

# *Miraplas* PLASTIC WALL TILE

Miraplas, one of the miracles of war-time plastic development, has brought an entirely new conception of wall beauty, cleanliness and permanency to bathrooms, kitchens, hotels, offices, hospitals and other locations. Miraplas is individual solid plastic tiles — not a wallboard, not a coating, not an imitation.

It adds decisively to the value of new construction; it works wonders on old walls. Yet it is moderate in cost.

Weighing less than a half-pound per square foot, it requires no costly wall preparation. It is quickly installed by factory-trained experts. It is unaffected by common acids and alkalies, and cleans beautifully with a damp cloth. Because of its non-absorption it is highly sanitary.

More than 150 contrasting or harmonizing color combinations may be obtained with its 16 exquisite marbleized and solid through-and-through colors.

Miraplas is setting a new high standard of permanent tile beauty at a cost well within reach of the modest budget. National magazine advertising is telling your clients and customers about it. Use it for profit and client-customer satisfaction.

Send for folder showing the 16 Miraplas colors.

A YARDLEY PLASTIC PRODUCT

**S & W MOULDING CO.**

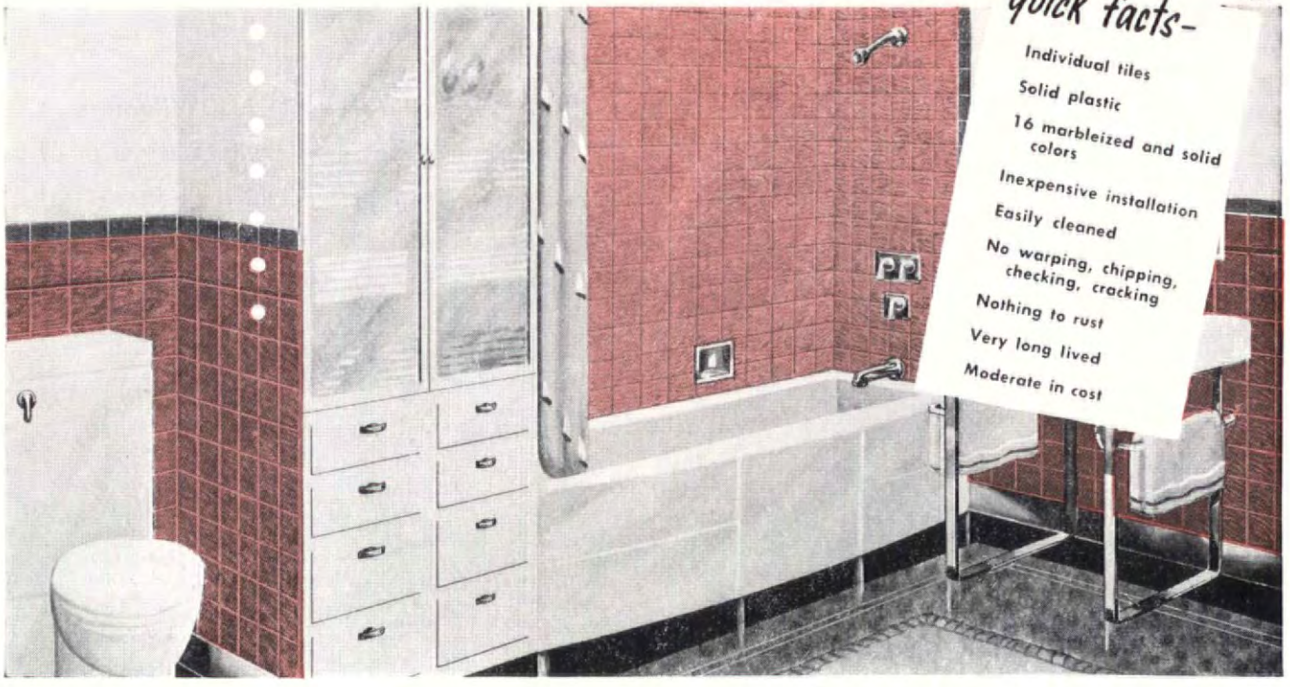
DEPT. G
COLUMBUS 6

980 PARSONS AVE.
OHIO

AA

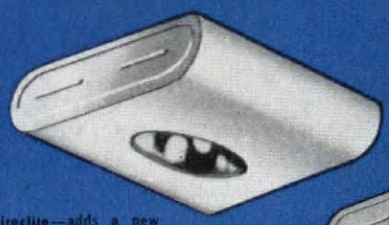
*quick facts—*

- Individual tiles
- Solid plastic
- 16 marbleized and solid colors
- Inexpensive installation
- Easily cleaned
- No warping, chipping, checking, cracking
- Nothing to rust
- Very long lived
- Moderate in cost

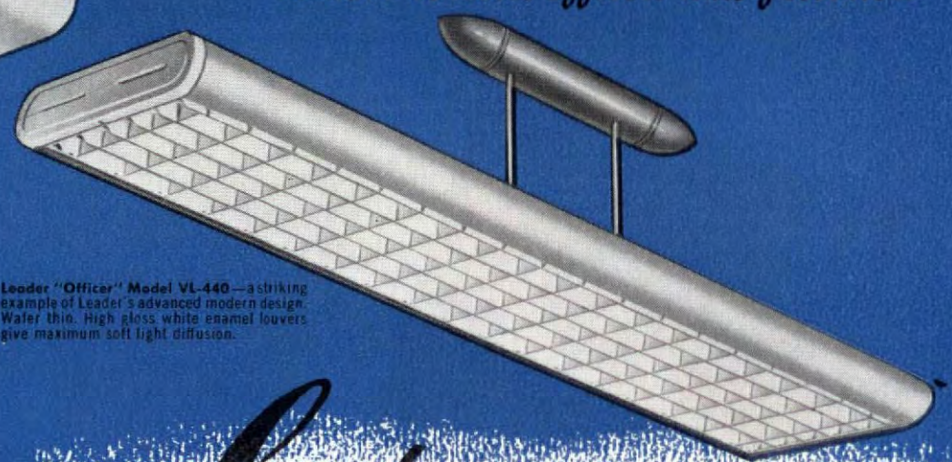


# A STEP AHEAD *in Modern* DESIGN...

*...to give the added beauty, smart styling and utility desired in today's modern schools, offices, and factories.*



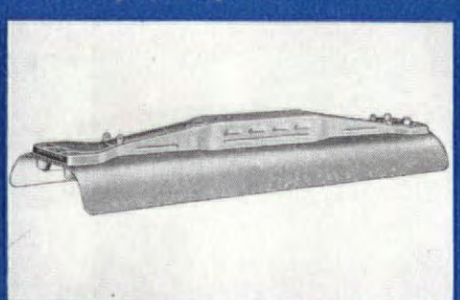
**Leader Adjustable Directite**—adds a new note to "spotlight" merchandising. Easily installed—simply remove end cap from any "Officer" fixture. For use in a continuous run, or with a single fixture.



**Leader "Officer" Model VL-440**—a striking example of Leader's advanced modern design. Wafer thin. High gloss white enamel louvers give maximum soft light diffusion.

**Leader Glass Enclosed Unit GL-440**—Brings luxury lighting within the reach of all! Ribbed glass construction for plenty of soft, cool light. An admirable unit for schools, stores, offices, hospitals.

**Leader Trofferlite TG-240**—An ideal fixture to use on remodeling jobs or where a streamlined, modern, effect is desired. Ceiling may be hung from unit.



**Leader Zephyrlite ZUO-L-240**—A light, easily installed industrial unit. Corrugated for unusual strength, will not warp, twist or sag. Built to eliminate the need for installation "extras."

## *Leader* Fluorescent Luminaires

Eye appeal . . . and lots of it . . . is one BIG reason why a constantly increasing number of architects, lighting and utility engineers, and electrical contractors now specify LEADER lighting equipment for school, institution, office and other installations.

Beautiful as they are, however, LEADER fluorescent luminaires achieve their good looks without sacrifice of lighting efficiency. Maximum "better light for better sight" is maintained by LEADER designers who combine modern styling with latest engineering and research findings.

Get acquainted with the LEADER line. There is a friendly LEADER representative in your area . . . or write for catalog direct to:


**LEADER ELECTRIC MANUFACTURING CORP., 6129 N. BROADWAY, CHICAGO 40, ILL.**

**WEST COAST FACTORY: 2040 LIVINGSTON ST., OAKLAND 6, CALIF.**

an important Step..

## taken without a second thought

You step into a modern elevator as unconcernedly as you step into your slippers. You take it for granted that you will be carried up or down swiftly and comfortably. Safety . . . or the lack of it . . . never enters your mind. That is as it should be. But you may be interested in knowing how "Otis Elevators" and "safety" have become practically synonymous.

It started 94 years ago with Elisha Otis, founder of this business.

At the Crystal Palace Exhibition in New York, he dramatically cut the ropes holding up the elevator platform on which he was standing. His crude "safety device" worked. The world had its first *safe* elevator.

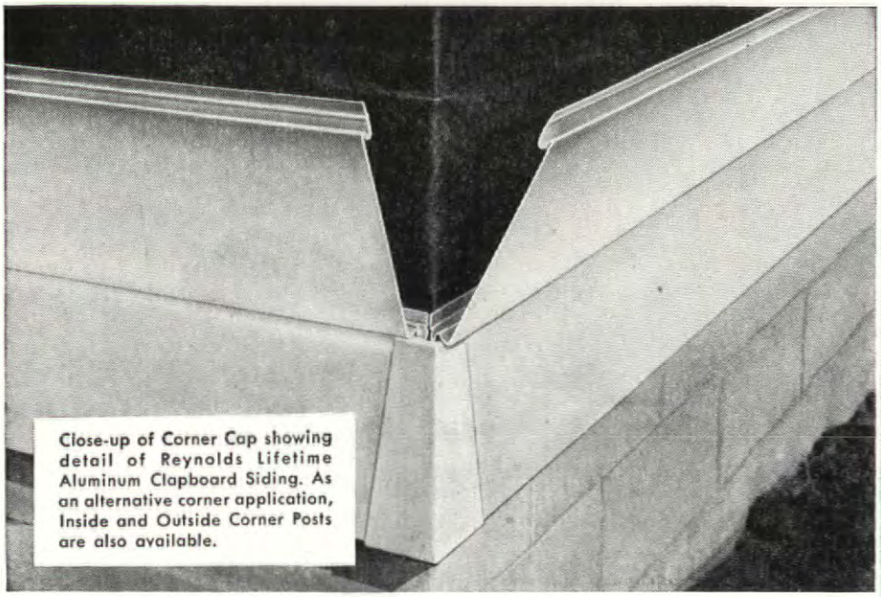
As car speeds increased, as buildings grew taller, safety devices were designed to meet changed conditions. Skyscrapers came of age when Otis was able to "elevator" them. Acceptance of "Otis Safety" has become deep-rooted with the years. And justly so . . . because Otis has promoted safety in every phase of elevator design, construction, installation, operation and maintenance since 1852.

For the finest in vertical transportation tomorrow, call Otis today. This, too, is an important step you can take . . . without a second thought.

Otis ELEVATOR COMPANY
OFFICES IN ALL PRINCIPAL CITIES

SPECIFY THE CLAPBOARD SIDING THAT

# LOOKS BETTER, LASTS LONGER AND INSULATES BY REFLECTING RADIANT HEAT!



Close-up of Corner Cap showing detail of Reynolds Lifetime Aluminum Clapboard Siding. As an alternative corner application, Inside and Outside Corner Posts are also available.

## REYNOLDS *Lifetime* ALUMINUM CLAPBOARD SIDING

WITH every clapboard line literally "straight as a die"...with corner finishes unmatched for precision, and butt joints practically invisible...there is new beauty in this siding. And architects are recognizing increasingly the design advantages of the aluminum surface...which weathers naturally to an attractive shade, or can readily be painted for any desired effect.

Besides these design features, the basic benefits are obvious. This siding is fire-proof, rust-proof, rot- and termite-proof. Even when the outside is painted the *inside* aluminum surface, facing an air space, insulates by radiant heat reflectivity—winter and summer. So the owner enjoys greater comfort as well as greater beauty. And the lifetime durability of aluminum means economy—a long-run saving for any budget.

If you're building for re-sale, consider the sales advantages of Reynolds Lifetime Aluminum Clapboard Siding. If you're building to order, suggest it to your client. You'll be proving your own leadership in modern housing progress

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM

REYNOLDS Lifetime BUILDING PRODUCTS

*Distribution through established trade channels. Detailed literature on request.*

**REYNOLDS METALS COMPANY**
Building Products Division Louisville 1, Ky.

**REYNOLDS**
**LIFETIME ALUMINUM**

**CLAPBOARD SIDING**

Individual clapboards fit together, covering all nails. 8" exposed surface, 12' lengths.

**SHINGLES**

Completely interlocking, covering nails. Coverage, 8" x 14½". Shadow line, ¼".

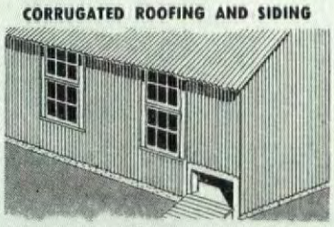
**"SNAP-SEAL" ROOFING**

Sheets interlock, all nails covered, weathertight. 6, 8, 10 and 12 feet, 24" coverage.

**WEATHERBOARD SIDING**

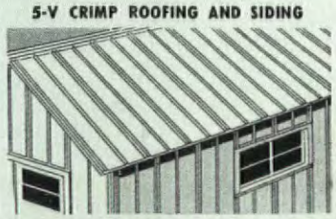
Sheet crimped in simulation of 4" clapboard. 8, 10 and 12 feet, 24" coverage.

**CORRUGATED ROOFING AND SIDING**



Extra thick (.027")—therefore sturdier, yet lighter. 6, 8, 10, 12 feet, 26" wide.

**5-V CRIMP ROOFING AND SIDING**

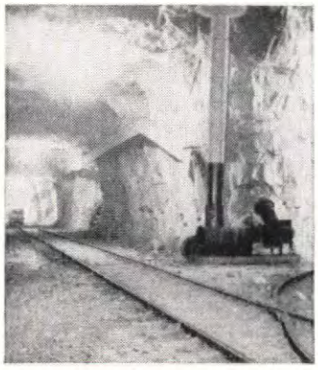


Same extra thickness means sturdier sheet yet lighter. 6, 8, 10, 12 feet, 24" coverage.

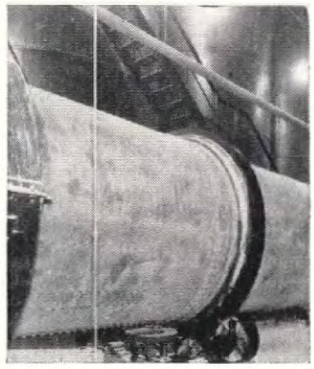
**Also Aluminum Studs, Trusses, Window Frames, Garage Doors, Reflective Insulation and complete Aluminum Houses.**

# THERE IS A DIFFERENCE IN PLASTER!

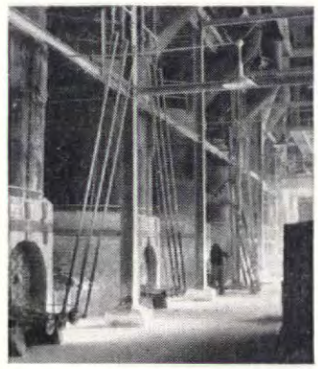
*This Quality Story tells you why you get Better Results with Gold Bond Plaster . . .*



**1 GYPSUM MINE.** One of 9 National Gypsum deposits which insure a constant supply of selected gypsum rock.



**2 ROTARY DRYER.** First step in the processing of gypsum is the removal of surface moisture from the rock.



**3 CALCINERS.** Next, the rock is pulverized and "cooked" in huge kettles which drives off the water of crystallization.

**4 TUBE MILL.** Thousands of tiny steel balls in this revolving cylinder grind the gypsum into minute particles.

**5 BAGGING.** After various ingredients are added to regulate the set and working qualities of the plaster, it is ready for bagging.

**6 QUALITY CHECKUP.** Uniform quality is so important that a research lab is maintained at each plant to insure constant control.

THE days of "plasters-are-all-alike" are out. New processing operations made possible with modern machinery have resulted in the finest plaster ever made . . . Gold Bond. Specifying Gold Bond is your assurance that you will be getting this high quality plaster on your jobs at no premium price. See our section in Sweet's for the full story on Gold Bond Plaster and over 150 other guaranteed Gold Bond Building Products sold by 10,000 building material dealers. National Gypsum Company, Buffalo 2, New York.

# LETTERS

**Slips and Slaps . . . Kirsche's Atomic Outcry . . . Design for a Space Ship . . . More on the Imperial Hotel . . . Roger Allen String Quartet . . . Veterans' Financing Attacked . . . Apologies to Gruen & Krummeck.**

### NOVEMBER REVISITED

Forum:

Many thanks for the swell presentation of the Dickinson place (FORUM, Nov. '46). It is a good piece of work.

But I'm downright sulking at being called thirty-six on page 70 (or was it seventy on page 36?). Anyway, I'm thirty-one, and was the youngest student at the school of design. I expect to do a lot of things in the five years between me and thirty-six . . .

JAMES C. ROSE, Landscape Architect
*New York, N. Y.*

Forum:

Your article about modern architecture in South America I found very interesting although your second picture down the line in the Venezuela section is *not* a

**Ecuador, Alias Venezuela**

Venezuelan provincial plaza, but my home town of Quito, Ecuador. You are right in saying that it is urbane and polished.

JUAN ELIZALDE
*Berkeley, Calif.*

Forum:

In your November issue you had a very good article on the heat pump. BUT! Does Mr. Boggs actually estimate his power costs to run at $1.66 per KWH on peak hours and $.83 on off-peak? My God, we in Toronto get it at $.035 per KWH and $.005 for commercial off-peak use . . .

BERNARD D. RIESLER
*Toronto, Ont.*

Forum:

Electricity at $.83 or $1.66 per KWH would be plenty expensive. Can this be blamed on the OPA or a sliding decimal point?

E. G. JOHNSON
*Wichita, Kan.*

FORUM's mobile decimal point slid two places. —ED.

Forum:

The November issue was a real triumph in interest and variety of content. Everything from houses and heat pumps to a survey of South American architecture . . . You must have quite a variety of experts on your staff.

HARVEY NESTER
*St. Louis, Mo.*

Quite.—ED.

### SCHIZOPHRENIC AMERICA

Forum:

A friend has shown me the letters from your readers protesting the attitude I expressed concerning the cultural lag fostered by your magazine. I am somewhat dismayed that, of the many self-professed advocates of "modern architecture" in the United States, none have shown any sympathy with my stand against fireplaces in the atomic age. This I find most surprising. But why?

During the last year, I have traveled much about your country. I have gone unannounced because I wished to visit your kitchen-yards as well as your parlors.

I have found the major enthusiasm of your country to be mass-production and the sale of products, coupled with a belief that these will solve all problems. Everywhere are salesmen and propagandists, technique-industrial managers and the great masses of the labor unions who tend the machines. This nature of your country, culminating in the atomic bomb, enabled you to win the last phase of the war.

What place does a sentimental attachment for the fireplace occupy in all this? We dare suggest that it indicates a degree of schizophrenia in your culture. But then, I have found many other indicative schisms: art museums without Art; churches without Worshippers; worshippers without Faith; philosophers but no Philosophy; educators but no Education . . .

All of this gives us, who had looked to you for leadership in the Atomic Age, much to fear. Your culture is the cupboard of an unloved maiden lady who, denying the nature of her life, seeks to create a romantic past with recently purchased mementos.

But all that I have observed cannot be recorded here. I am presently engaged in the preparation for publication of a work whose manuscript is provisionally entitled: *L'Homme et l'Atome* ou Le paradox Mecanique. The first half of this work is a historical-speculative survey; the second half, a philosophical-descriptive proposal.

When this work is completed and published, I am sure that its contents will elucidate my observations and conclusions sufficiently for all who are capable of recognizing and who dare to think about the problem of our age.

DR. RENFREUX KIRSCHE
*en transit*

We occasionally brood on the atomic age as we tuck the Cape Cod lighter into our non-atomic fireplace.—ED.

### ALLEN PULLS A CURTAIN

Forum:

I was sitting there minding my own business when this fellow veteran of what is loosely called World War I, although the way the veterans of World War II go on you would think it was just a scuffle in the corridor, came up and wore 3.5 volts by actual count off my earphone battery telling me that he had invented a new ceremonial for use at American Legion post meetings. He wishes to make them more Inspiring, with a capital. A little capital never hurt anybody, I always say. Suddenly it came to me like a lukewarm flash; why not have an Inspiring ceremonial for Chapter meetings? With me, to think is to act, after time out for the teams to change goals. In practically no time at all, or roughly a fortnight (three weeks) I had invented

PROPOSED CEREMONIAL OF AN INSPIRING AND DIGNIFIED NATURE FOR CHAPTER MEETINGS WITH OR WITHOUT REFRESHMENTS

FANFARE

MUSIC (The Bach House—a small hotel near the depot—String Quartet plays Op. 6, Movement 3, medium diet, ambulant after 3 days)

MUSIC DOWN: THE NARRATOR SPEAKS . . .

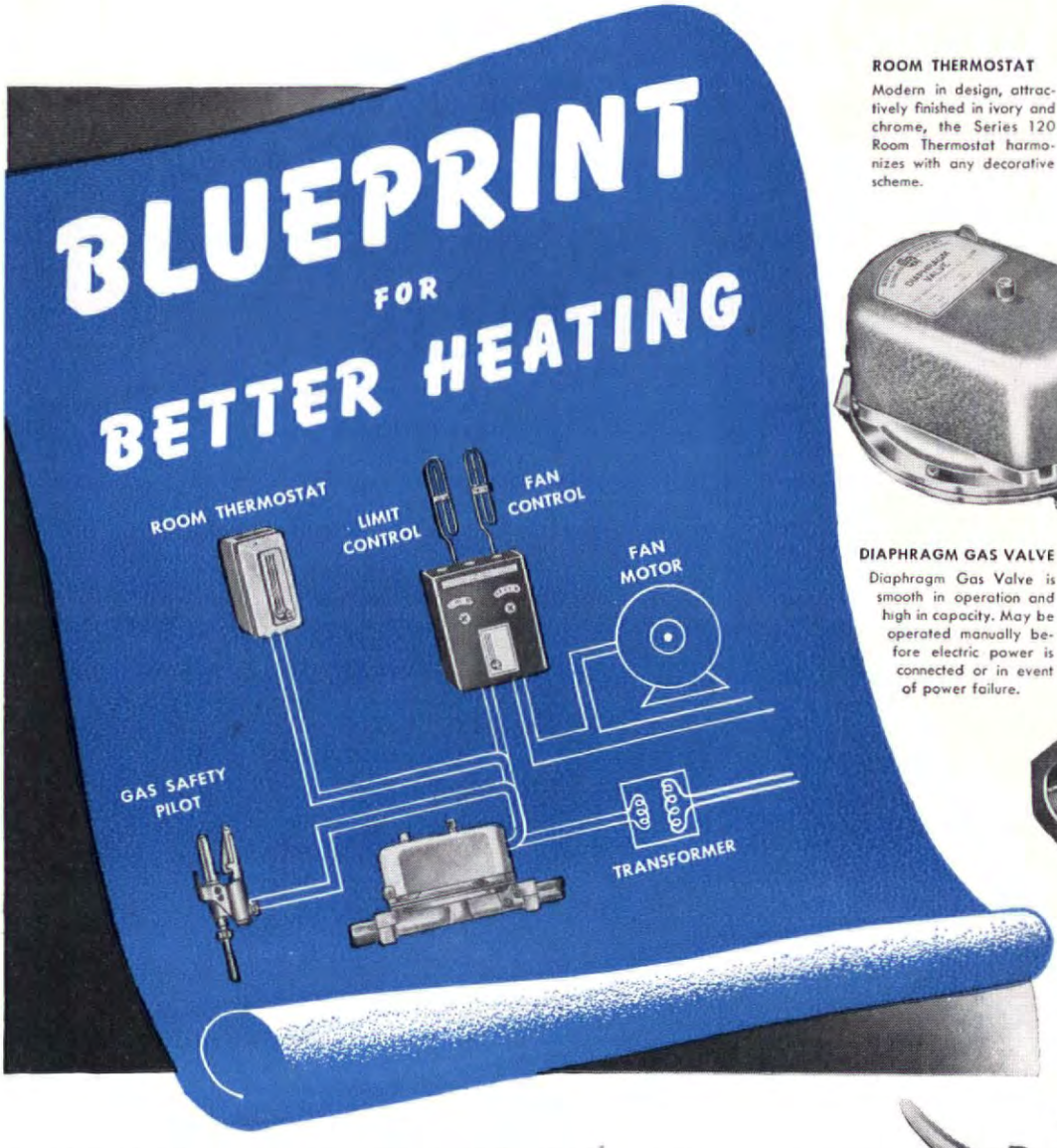
Roll back the curtain of History! Roll it back, I say! Out of the ooze comes Man, head erect, ever the Seeker. What does he seek? Food? NO. Warmth? NO. Coldth? NO. Women? No, but you're getting warm. He seeks . . .

FANFARE: STRING QUARTET PLAYS "STONE COLD DEAD IN THE MARKET"

MUSIC DOWN: He seeks SHELTER! Not Shelter only, but Beauty! Who will give it to him? The Doctor? NO. The Lawyer? NO. The embalmer? NO. Who but the ARCHITECT! And now our sponsor has a vital message for all keen, alert American business men:

*(Continued on page 26)*

# BLUEPRINT FOR BETTER HEATING



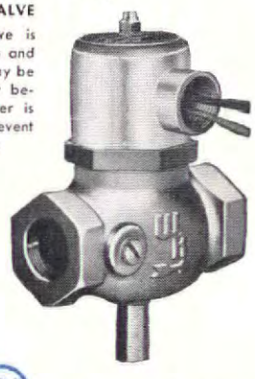

**ROOM THERMOSTAT**

Modern in design, attractively finished in ivory and chrome, the Series 120 Room Thermostat harmonizes with any decorative scheme.



**DIAPHRAGM GAS VALVE**

Diaphragm Gas Valve is smooth in operation and high in capacity. May be operated manually before electric power is connected or in event of power failure.



**SOLENOID GAS VALVE**

White-Rodgers Solenoid Gas Valves are specially designed to eliminate magnetic hum. Positive valve action because of high plunger force. Completely dependable.

White-Rodgers automatic controls should be on the heating plants of every house you build.

The beauty of the White-Rodgers Room Thermostat instantly appeals to women, fits in perfectly with any decorative scheme.

The accuracy and dependability of all White-Rodgers controls insure more satisfactory heating. Not only will this better satisfy your customers, but it will relieve you of service and adjustment problems.

Specify White-Rodgers controls on your future heating installations.

**GAS SAFETY PILOT**

Positive safety is assured with the White-Rodgers Gas Safety Pilot. Fast acting, it recycles automatically and may be put back in operation by relighting only.

**FAN and LIMIT CONTROL**

Protects warm air furnace against excessive temperature and provides accurate fan control. Direct reading dials permit quick, positive settings.

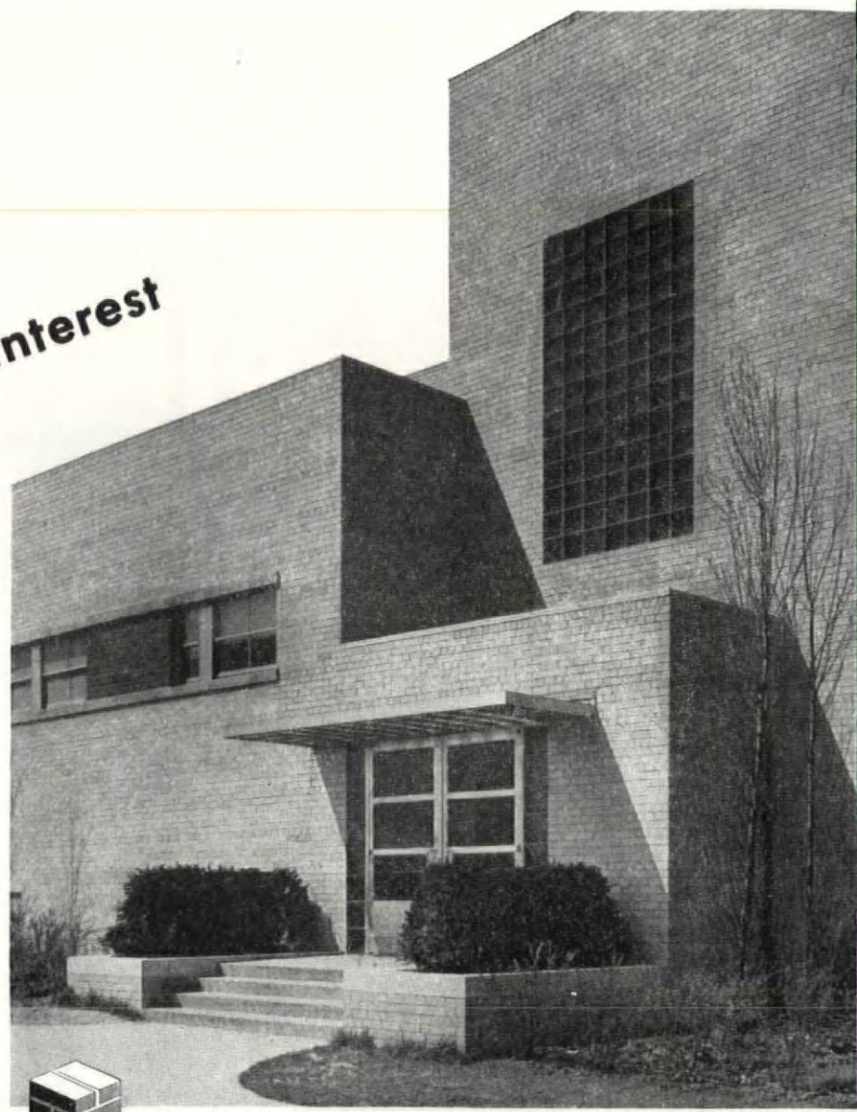
## WHITE-RODGERS ELECTRIC CO.

ST. LOUIS 6, MISSOURI

*Controls for Refrigeration • Heating • Air Conditioning*

# *Exciting*

## even greater architectural interest



ROBERT P. VIGNOLA, *Architect* GOTTSCHO-SCHLEISNER

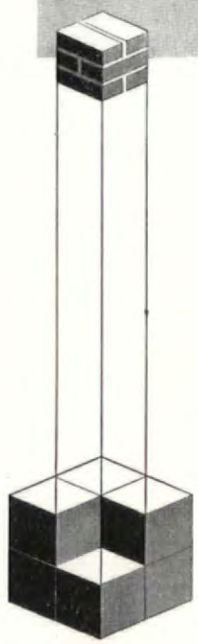
# MODULAR BRICK AND TILE

Through the years, brick and tile have been a predominant choice of architects. Today, modular brick and tile are exciting even greater architectural interest.

More and more architects are inquiring about the development and use of modular sizes of these traditional clay products.

There is a growing realization that modular sizes save endless hours of designing and estimating — promote uniform building practice—lower the cost of site erection—allow even more flexibility and variety in design.

These prime advantages — plus traditional beauty, fire safety and low cost of upkeep and maintenance — largely account for the increased architectural interest in modular brick and tile.



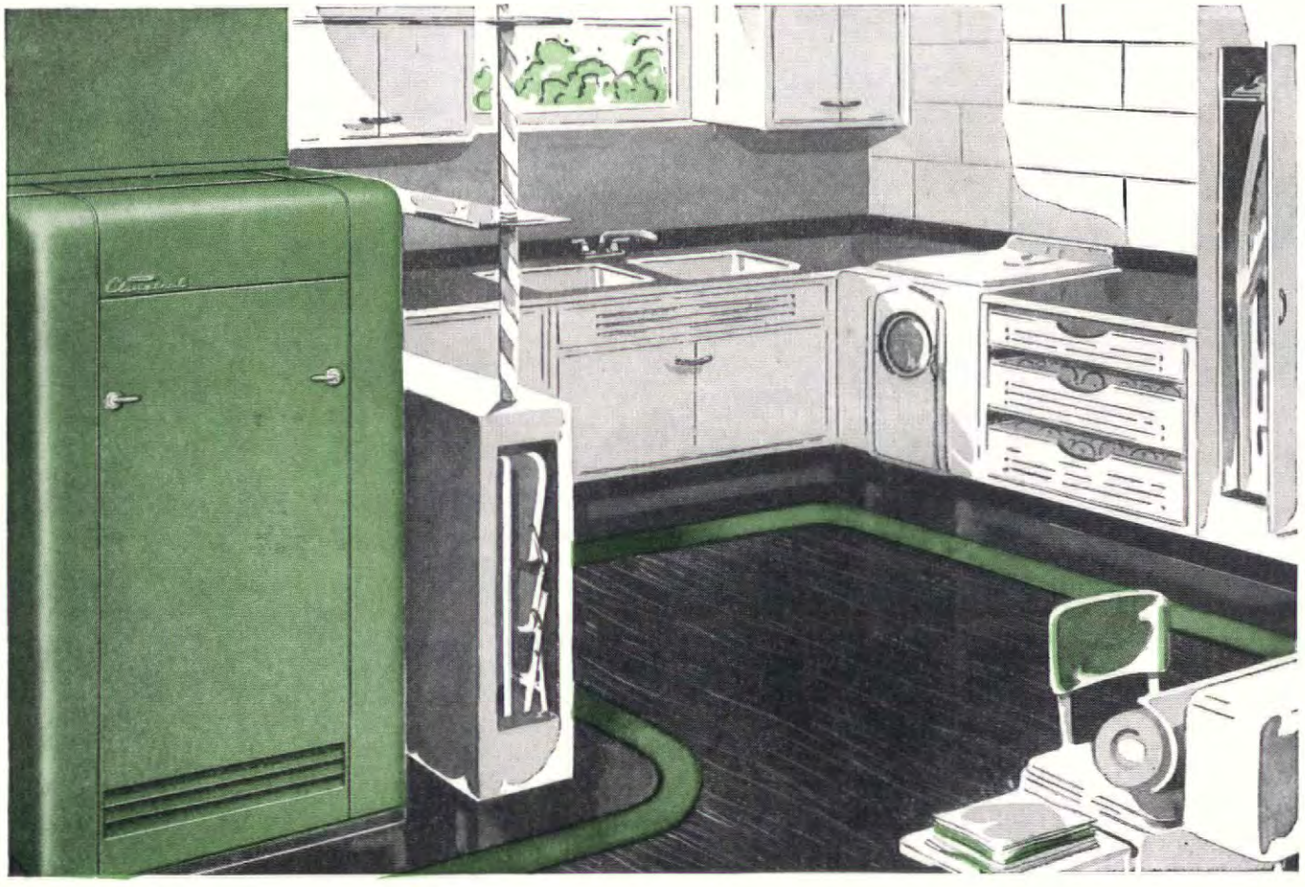
As new schools, apartment houses, hospitals, homes, industrial and commercial buildings take shape on your drawing boards, modular brick and tile will help you produce finer buildings than ever before.

Two FREE booklets are available: one, "The ABC of Modular Masonry," for those interested in the development of coordinated dimensions, and the other, "Modular Sizes of Brick and Tile," for those desiring to employ these sizes in current design. For either or both write the Structural Clay Products Institute, Dept. AF-1, 1756 K Street, N.W., Washington 6, D.C.

SCPI
STRUCTURAL · CLAY · PRODUCTS · INSTITUTE
WASHINGTON, D.C.

## NOW IT WILL BE BUILT WITH MODULAR-DESIGNED

# BRICK AND TILE



# Climatrol gives your clients "climate control" for the indoor comfort they demand today!

## Mueller Climatrol provides True Indoor Comfort by conditioning and handling air in the home . . .

Comfort is a basic quality all your clients expect in their homes. Climatrol is your assurance of providing home owners with True Indoor Comfort — and winning their lasting good will for a job well done.

Indoor Comfort depends on the condition of the air in the home. When you select a Mueller Climatrol system — basically designed to condition and handle air for "climate control" — you enable your clients to enjoy today's high standards of Indoor Comfort. And you provide a system designed to be adapted easily to future air-conditioning developments.

The Climatrol line is complete, enabling you to select the right equipment for each job. Each Climatrol unit is specially designed for efficient operation with a specific fuel — gas, oil, or coal; each is smart and modern in appearance — and engineered for the utmost comfort, convenience, and economy.

Recommend and specify Mueller Climatrol—a name backed by 90 years of specialization in home comfort.

*Write for Bulletins.*

MEMBER NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION INDOOR COMFORT

**L. J. Mueller Furnace Co., 2001 W. Oklahoma Ave., Milwaukee 7, Wis.**

MUELLER Climatrol

B-33

Reg. U. S. Pat. Off.

MEN, does your fountain pen measure up? Are you familiar with the Allen Writemaster? It will write under water, under gravy, under an umbrella. Due to some technical difficulties beyond our control it will not write on paper, but only a cad would ask it to.

NARRATOR: Roll back the curtain of History! Pardon me, we had that once. What have architects talked about through the years? Besides Women, that is? Listen . . . It is London in the 17th Century. The Architect speaks:

Moved by Sir Christopher Wren, that ye profession deplore ye Sadde State of ye profession and Viewe with Alarme ye Conflicte between Ye Organic and ye Classick . . .

NARRATOR: But today Architecture has marched on. What do architects discuss today? The meeting will come to order.

SECRETARY: . . . showing a slight deficit of $65.98 due to climatic conditions and indifferent jerks not paying their dues.

PRESIDENT: And now I am happy to introduce Morbid V. Mergenthaler, member of the faculty of East Dakota Merchants and Drovers Institute of Architecture, who will speak to you on the subject, "The Challenge of Today: The Architect and the World We Live In." Prof. Merganthaler.

PROF. MERGANTHALER: To what can the sad state of the profession be attributed? The conflict between eclecticism and the organic and functional . . .

MUSIC UP: QUARTET PLAYS "HE'S STILL LYING RIGHT THERE IN THE MARKET AND HE AIN'T MOVED YET." (Use of the phrase "The sad state of the profession" in this ceremonial is with the permission of the copyright owner, Mr. Clement Fairweather of the New Jersey Chapter. Gowns by Adrian, Technicolor supervision by Natalie Kalmus.)

ROGER ALLEN
*Grand Rapids, Mich.*

Forum:

Does Roger Allen work hard at being funny! What an architectural Claghorn! Can't he serve up the horsemeat of his reactionary opinions without "humorous sauce?"

ALAN MATHER
*Detroit, Mich.*

### TRIP TO THE MOON

Forum:

I send herewith a photograph of a model of the Space Ship now being shown in the "Future Section" of the "Britain Can Make It" Exhibition.

Here are a few of Mr. Warnett Kennedy's notes on the design:

"The design is neither complete fantasy nor is it immediately practicable. It is,

*(Continued on page 30)*


# You can't horse around with this fact!

● You can't afford to "horse around" with the demonstrated fact that unless new homes are wired for *ELECTRIC RANGES*, they're not modern now, and will be even farther behind the times a few years hence. Survey after survey proves that statement.

Protect your reputation by building houses that are truly modern. Avoid kick-backs by including wiring for an Electric Range.

An Electric Range requires only: 3-wire service from point of cut-in to the distribution panel; a minimum of two No. 6 wires and one No. 8 wire; a 60-amp. switch with overload protection and a 3-wire circuit from the distribution panel to the range outlet in the kitchen. Make this your minimum wiring specification.

*Electric Range Section*
**NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION**
**155 East 44th Street**
**New York 17, N.Y.**

A-B STOVES
ADMIRAL
CROSLEY
ELECTROMASTER
ESTATE HEATROLA
FRIGIDAIRE
GENERAL ELECTRIC
GIBSON
HOTPOINT
KELVINATOR
LEDO
MONARCH
NORGE
QUALITY
UNIVERSAL
WESTINGHOUSE

***TO KEEP THEM MODERN . . .***

## wire your houses FOR ELECTRIC RANGES


# Quality and Uniformity are insured when you see these Grade Trade-Marks on Douglas Fir Plywood

THERE is a type and grade of Douglas fir plywood for every building need. Each kind of panel — quickly identified by the "grade trade marks" shown above — is manufactured especially for a specific construction application, and must meet rigid inspection—for quality, for uniformity, and for performance. Strong, durable, light in weight, Douglas fir plywood comes in large but easy-to-handle 4 x 8 standard panels—panels which are "engineered" for strength and constantly tested for conformance to industry-wide standards. Select the type and grade best suited for your particular needs. Use it with confidence!

## The Home-Building Program Now Demands a Substantial Proportion of Douglas Fir Plywood . . . on Allocation

ON government order, a substantial proportion of current Douglas fir plywood is allocated to the Reconversion Housing Program. Quite naturally, this means a tight supply situation for housing which does not come under the program and for all other construction and industrial uses.

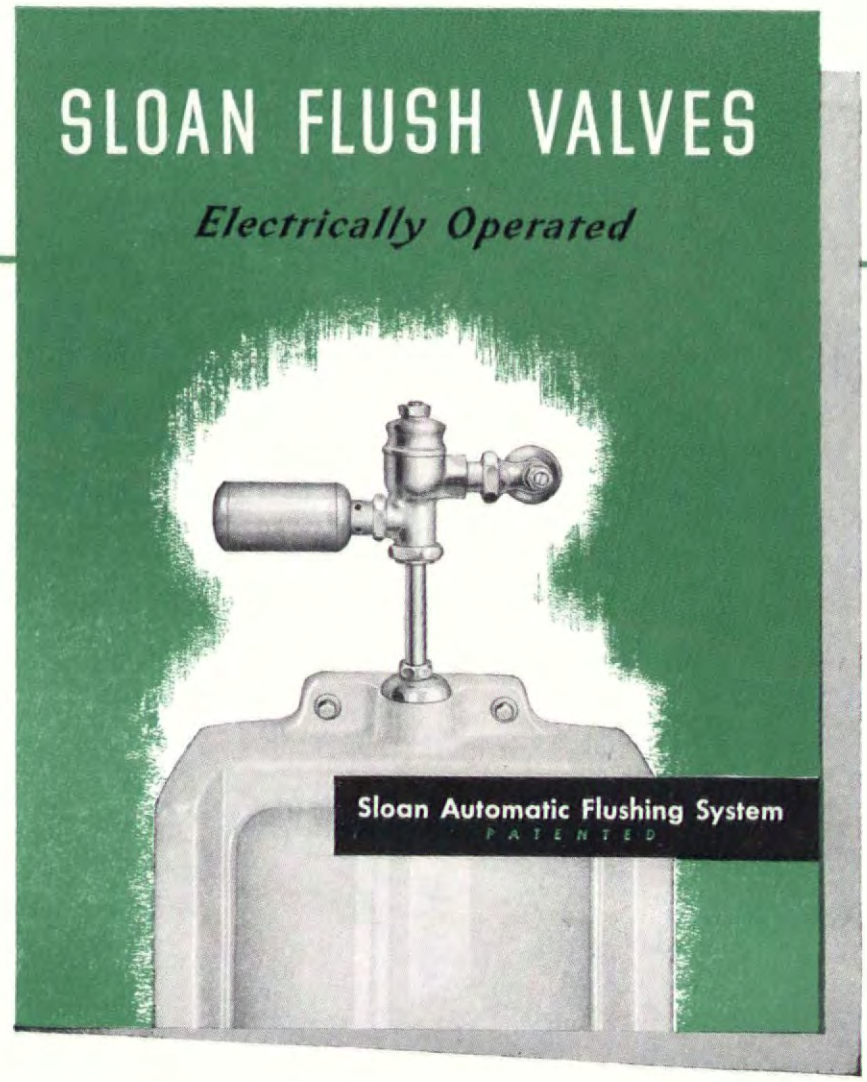
IT IS a fact, however, that **more** Douglas fir plywood is being produced today than in pre-war years. So when the present overwhelming demand has been met, more and more of this "engineered miracle wood" will be available. Anticipate your needs well in advance. Keep in touch with your regular source of supply!

DOUGLAS FIR PLYWOOD
LARGE. LIGHT. STRONG.
Real Wood PANELS

**DOUGLAS FIR PLYWOOD ASSOCIATION**
Tacoma 2, Washington

# SLOAN FLUSH VALVES

*Electrically Operated*




## another Sloan first

The Sloan Automatic Flushing System is designed principally for the *automatic* operation of Sloan *urinal* Flush Valves—and is adaptable to *old* as well as new installations.

With Automatic Flushing in public or semi-public toilet rooms, neglect to flush urinals is entirely eliminated —more hygienic conditions assured—and better housekeeping of the toilet room encouraged on the part of building tenants, company employees, customers and the public.

In special installations such as sanitariums, hospitals, institutions and prisons, the responsibility of the individual to operate the flush valve is entirely eliminated with Automatic Flushing.

For further information, or information on your specific installation, write to the Sloan Valve Company, or address the Sloan representative in your territory.

**Sloan Valve Company**

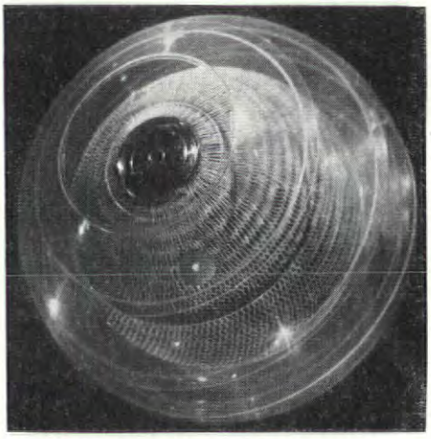
**chicago 24, illinois**

however, a "design fantasy" based on legitimate scientific assumptions. The missing link in the chain of reasoning is, of course, that atomic energy has not yet been harnessed and controlled in a form which could be used for space flight.

"My problem, as a designer, was to obtain an esthetically satisfying solution of a technical problem. Without this balancing factor, the Space Ship would be a Heath Robinson gadget.

"The spherical shape was the result of the following considerations:

(a) To find a shape designed to travel at low speed in air and at high speed in airless space. (The journey to the moon is 240,000 miles, only 200 of which is through the earth's atmosphere. Streamlining, therefore, becomes meaningless.)



**England's Space Ship**

(b) From the viewpoint of structural engineering, the sphere gives the greatest strength-weight ratio and resistance to shock.

(c) By analogy, all bodies traveling in airless space are spherical.

(d) The Ship must turn on its cross-axis when changing from the earth's gravitational pull to that of the moon, and must revolve slowly on its main axis during this transfer period to create artificial gravity.

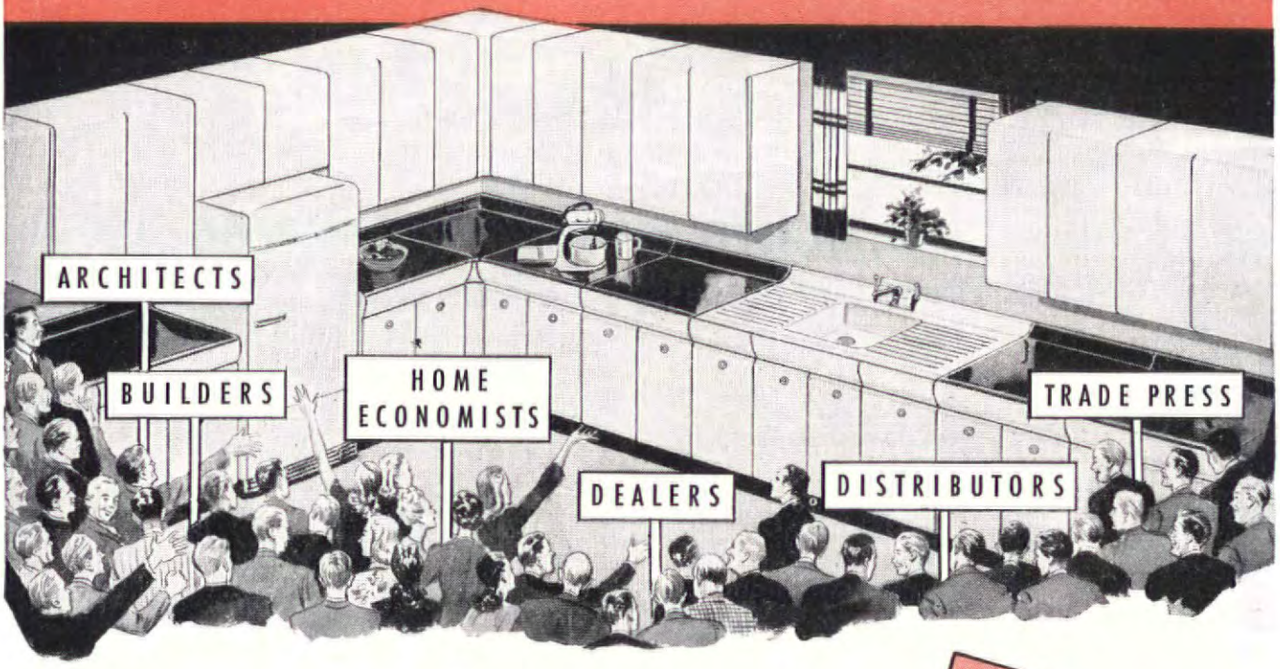
(e) The sphere is one of the basic sculptural elements and one which I find peculiarly satisfying; e.g., the perisphere and trylon were chosen as the theme for the New York World's Fair because of their sculptural fascination.

(f) The transparent outer shell can be likened to the invisible ceiling (Appleton layer, etc.) surrounding our planet and protecting it from cosmic radiations. Presumably, a ship traveling in space would be subjected to similar influences—at present largely unknown.

(g) The inner core shows a geodetic braced shell construction. A structural engineer would arrive at a somewhat similar

*(Continued on page 34)*

# THE SHOW VOTES American




## First Choice Goes Spontaneously to American Kitchens *Styled in Steel!*

The show vote goes spontaneously to American Kitchens, styled in steel.

This is unmistakable not only to factory officials and attendants at the American exhibit. It is evident to everyone who observes the crowds that flock to the American display, and notes their interest and attentiveness.

It is the subject of wholesale comment among representatives of the trade press, exhibitors and visitors.

Perhaps most notable of all is the fact that the American display proves *equally* appealing to everyone concerned with new kitchen equipment—distributors, dealers, salesmen, architects, builders, home economists, domestic science instructors, etc.

They are soundly impressed—as they were bound to be—by the beauty, high quality, features, ease of installation and economy of American Kitchens.

Just as the housewives of America will be impressed when the news of these superb new kitchens is taken to them by American Kitchens dealers —and by the powerful new campaign of American Kitchens advertising.

**First** for maximum convenience!

**First** for beauty in design!

**First** for assured durability!

* * *

Now watch American Kitchens lead again . . . at the great Western States Market, San Francisco—and the Home Builders' Show, Chicago.

AMERICAN CENTRAL DIVISION—
THE AVIATION CORP.
Connersville, Indiana

American KITCHENS
STYLED IN STEEL

★ Sinks
★ Cabinets
★ Dishwasher
★ Kitchen Disposer
★ Home Freezer

One Unit . . . or a Complete Kitchen

•

New Homes or Remodeling

# Why AQUELLA is a "must" on every concrete masonry unit job!

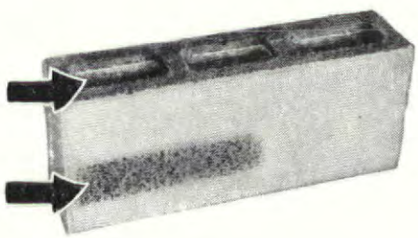
As everyone in the construction industry knows, the water permeability of light weight concrete masonry units leaves no room for argument! The only possible argument lies in the means and methods of applying an *effective* water barrier to this excellent construction material.

You are well acquainted with the claims made for the many materials designed to "waterproof" concrete masonry units.

But despite these many materials there must be a reason why Aquella is being so widely used throughout the nation today and acclaimed by home owners, architects, engineers, waterproofing contractors and builders! The answer lies in the simple fact that it works on an *entirely new principle!*

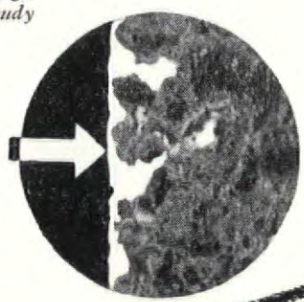
## To Illustrate:

1 *Here is an Aquellized concrete masonry unit filled with water. Naturally, there is no leakage.*



2 *But what happens if the Aquella surface coating is scraped off? To answer that, we scraped away this portion, and there's still no leakage. This may be slightly puzzling until you study the photograph of the third step...*

3 *The enlargement of a small, sawed-away section of the above block, which shows the way Aquella penetrates to fill and close the microscopic pores of the surface. It is the filling of the pores—not essentially the surface coating—which stops the penetration of water.*



SEE OUR CATALOG IN SWEET'S

Is it any wonder then, that in a cinder concrete block tower test, Aquella withstood the pressure exerted by an 8 ft. hydrostatic head of water, equivalent to approximately 500 lbs. pressure per sq. ft. at the base?

We would like to send you details of this test. It is contained in our booklet, "Aquella and Concrete Masonry Construction." This booklet also contains many illustrations of the uses of Aquella in concrete masonry construction throughout the United States, and should prove very interesting to all in the construction industry. It is yours for the asking.

**PRIMA PRODUCTS, INC.**
**Dept. D, 10 East 40th Street, New York 16, N. Y.**

# *The Whole Ceiling is* LIGHT

Strikingly modern, highly efficient, extremely practical—this ceiling of cool fluorescent light, extends from wall to wall. It is among the many interesting and novel applications of effective lighting exhibited at the General Electric Lighting Institute.

Shown, too, is an amazing array of new uses for G-E Lamps—providing techniques the architect has dreamed of—and today can employ.

40-watt G-E Fluorescent low brightness lamps, 4500° whites, provide up to 160 footcandles of diffused, shadow-free light on the desk top. They are above the deep, wall-to-wall oak louvers. Here is the latest in comfortable, easy-to-work-with office illumination.


**G-E Lamps belong in your specifications because G-E Lamps benefit from constant Research to make them**

## *Stay Brighter Longer!*

## AN INVITATION

You are cordially invited to visit the General Electric Lighting Institute in Cleveland. Recently reopened after complete remodeling, the Institute displays examples of postwar lighting for offices, schools, stores and homes. General Electric, Nela Park, Cleveland, Ohio.

# G·E LAMPS

**GENERAL ELECTRIC**

construction from consideration of pure function, although I confess I was fascinated by the geometrical rhythms."

WARNETT KENNEDY & ASSOCIATES
Industrial Designers
*London, England*

### DEFENSE OF THE IMPERIAL HOTEL

Forum:

Re the controversy in the November '46 FORUM—whether buildings did or did not tumble in the Japanese earthquake of 1923: A friend of mine was sitting in the grill of the Imperial Hotel when the first tremors of the 'quake were felt. "We were deciding between chicken a la king and roast pork," he writes, "when we felt a slight tremor of the earth. The beautiful mosaic flooring cracked in several places beneath us. Chandeliers swung violently." Once outside, there was "the loud crashing of glass windows for blocks around—many people were hurled on their faces and pinned under flying blocks of stone. Tall stone buildings swayed out of alignment, one near us toppling into the street."

For safety, he fled to the public park on the Emperor's grounds. There, "stone blocks 7 ft. in length and 3 ft. square, forming a fence around the park, had been tossed about like toothpicks and were now in jumbled heaps along the roadway. From across the park, we saw the great Imperial Hotel shake like a leaf in the wind, and every moment we expected it to go."

It is true that fire swept the city, starting in buildings that had crumpled from the shock. While walls stood, floors crashed within the buildings, and my friend escaped death by pure chance. He was to have met a friend in the Standard Oil building on the Bund, but finding him away, had gone to the hotel a short time before the 'quake. The Standard Oil building collapsed, killing many occupants.

This full account by my friend will be found in the Sept. 26, 1923 issue of the *Pasadena Star-News*, signed by Lehmann Hisey.

Tokyo's city authorities may have more complete statistics on the over-all picture with which I'm not familiar. It is apparent, however, that conventional buildings did collapse, destroying many lives, while so far as I know not a floor collapsed nor a life was lost in the Imperial Hotel.

L. J. SALTER
*North Rose, N. Y.*

### G. I. MONEY

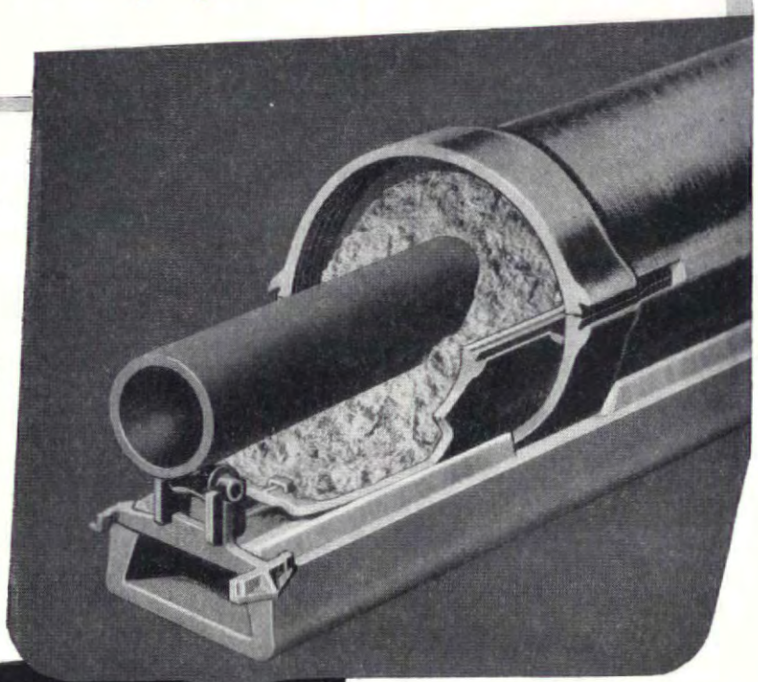
Forum:

. . . as everyone knows, one of the leading projects of this country today is the attempt

*(Continued on page 38)*

**SOLVES TODAY'S BIGGEST PROBLEM**

**IN UNDERGROUND** *pipe insulation*



**AVAILABLE NOW!**
Your order can be filled now . . . shipped at once from stock.

**LOW IN COST!**
Easy assembly . . . requires a minimum of field engineering.

**EFFICIENT!**
Assures maximum insulation and protection . . . minimizes heat loss.

# RIC-WIL
## TILE CONDUIT SYSTEMS

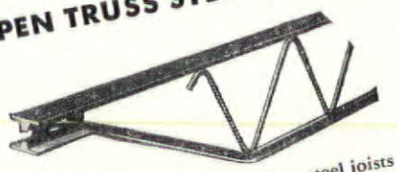
Every requirement of efficient underground pipe insulation and protection is fulfilled by Ric-wiL tile conduit systems. Strength, water-proofing, alignment, thermal efficiency, speed and economy of installation, are standard elements of Ric-wiL design, materials and engineering—provided by exclusive features which assure maximum protection to pipe distribution lines.

- Insulation may be as specified for steam, hot water, oil, or process-liquid pipe distribution systems.
- Non-settling base drain provides drainage in addition to supporting conduit and pipes.
- Correctly-engineered roller-type pipe supports carry the weight of the piping on the base drain.
- Shipped full-round, the tile conduit is scored for easy splitting and resealing after pipe and insulation are installed.
- Super Tile and Cast Iron conduit, interchangeable with standard construction where overhead loads are above normal, are additional, exclusive Ric-wiL features.

*Write for descriptive Catalog No. 44.*

**RIC-WIL** INSULATED PIPE CONDUIT SYSTEMS
THE RIC-WIL COMPANY · CLEVELAND, OHIO
AGENTS IN PRINCIPAL CITIES

## OPEN TRUSS STEEL JOISTS

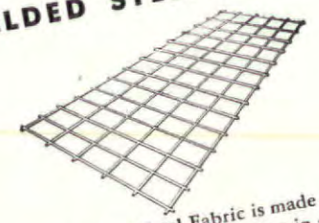


Truscon developed the open truss steel joists to meet the demand for economical, light weight, fire-resistant floors in office buildings and other light-occupancy buildings. They are easy to install. Completely shop fabricated, they reach the job ready for placing.

## CONCRETE REINFORCING BARS

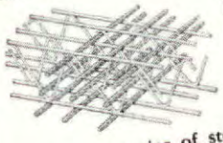
A special rolled section of high grade steel, with a series of longitudinal and diagonal ribs, so designed to provide the maximum bond with the enclosing concrete.

## WELDED STEEL FABRIC



Truscon Welded Steel Fabric is made in various sizes for concrete reinforcing in all types of structures. Each joint is electrically welded for permanence.

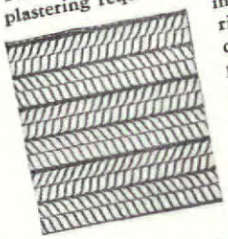
## BANK VAULT REINFORCING



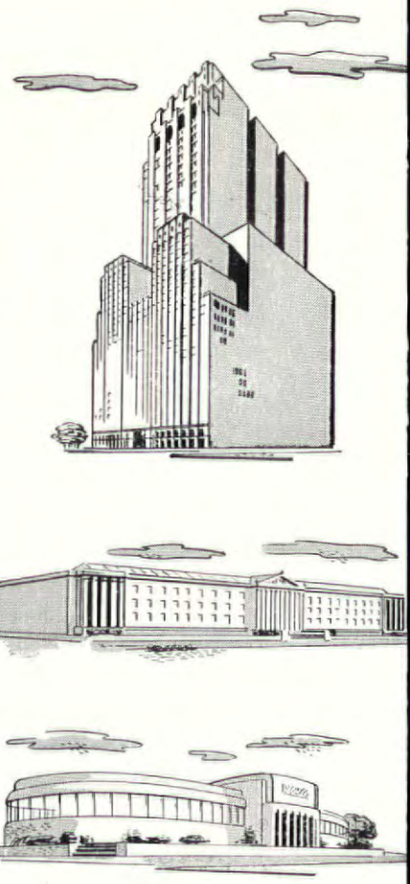
Truscon Welded Bank Vault Reinforcing consists of welded steel units placed parallel to each other with their chord members forming a barrier of steel near the inner and outer faces of the walls, floor and ceiling slabs. The web members of the welded units provide reinforcement through the thickness of the concrete.

## METAL LATH

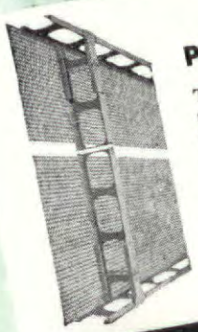
There is a Truscon Metal Lath for every plastering requirement. Flat laths for ceilings and sidewalls; rib laths to reinforce concrete floor or plaster ceilings; expanded lath for stucco reinforcement. Corner Beads and Cornerite, to protect outside and inside corners.



# Any Type of Office Building



## HOLLOW PARTITION STUDS

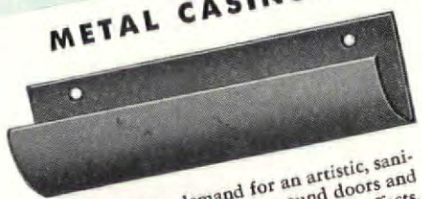


Truscon hollow partition studs assure permanence, rigidity and economy. They are fire-resistant, provide excellent heat insulation, and sound resistance, are rodent and termite proof. They will not swell or warp and will resist impact, vibration or plaster cracking.

## CORNER BEADS

Recommended as an exposed corner reinforcement. The round nose is strongly reinforced by a deep groove which holds the plaster flush for a perfect bond. It can be wired, stapled, nailed or stuck to any kind of wall construction without the use of clips.

## METAL CASINGS



Meet a definite demand for an artistic, sanitary method of trimming around doors and windows. Afford many architectural effects. Metal casings are fire-resistant, vermin proof, easy to maintain and do not shrink or warp.

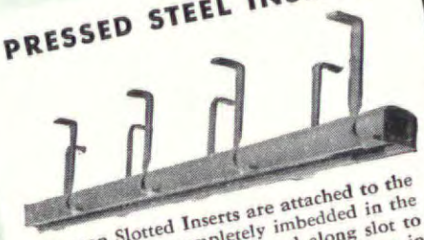
## FERROBORD STEELDECK ROOFS

Truscon Ferrobord provides a fire-resistant, economical roof deck for all new construction or replacements. Covered with insulation and waterproofing, it weighs approximately 5 pounds per square foot.

## CURB BARS

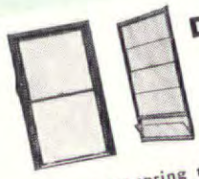
Protect exposed corners of concrete curbs, walls, steps, etc. Designed to give positive anchorage into the concrete. Plate surrounds and protects the corner without splitting concrete into two portions.

## PRESSED STEEL INSERTS



Truscon Slotted Inserts are attached to the forms and are completely imbedded in the concrete. Bolt can be moved along slot to any location, allowing wide variation in position. Used in ceilings, slabs, beams or columns.

## DOUBLE HUNG WINDOWS



**In Two Types—**
**Series 1380 and Series 46**

Series 1380 Windows are equipped with positive action motor-spring type balances and weatherstripped with spring bronze. Available in single units or in integrally built twin, triple and panoramic window units all are available with or without sill ventilators. Series 46 windows are of the counterweighted design. They are especially adapted for use in office and public buildings or where Underwriter's label of approval is required. Single or twin units may be had in either standard or special sizes and are available with or without sill ventilators.

# Will be *Better* with these Truscon Steel Building Products

Every Truscon steel building product is engineered to meet the exact demands of all kinds of office buildings. They provide beauty, long life, fire resistance and low upkeep.

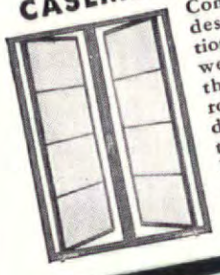
Listed on these pages are some of the Truscon steel products for buildings. Note how well they fit into your plans and how they can be used to create beauty and durability. All of these items are factory made. They reach your job complete, accurate, ready to slip into place fast, without fuss or delay.

At the moment, not all of these products are immediately available. But we are bending every effort to make them so. In the meantime, plan to make Truscon your major source of supply. That way you can be sure of time-proven steel building products and practical engineering assistance.

## ARCHITECTURAL PROJECTED WINDOWS

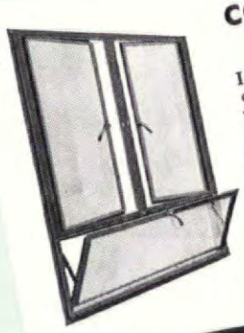
Attractive in appearance and convenient to operate. Provide maximum daylight, ventilation and freedom from drafts. Heavy one piece casement type sections in ventilator assures rigidity. Hardware is solid bronze. Screens and underscreen operating hardware are available for all ventilators.

## INTERMEDIATE CASEMENT WINDOWS



Constructed of specially designed one-piece sections throughout. Accurate weathering is assured through the final cold-rolling of sections to produce positive contacts between weathering surfaces. Hardware is solid bronze furnished in medium statuary finish.

## INTERMEDIATE COMBINATION WINDOWS



Incorporates sided hinged casements and projected ventilators in one design. Fabricated from specially rolled steel casement sections substantially heavier than the minimum Metal Window Institute standard weights. The wide selection of sizes add to the adaptability of the window to a wide range of architecutral use.

**TRUSCON STEEL COMPANY**
Reg. U. S. Pat. Off.
**YOUNGSTOWN 1, OHIO • Subsidiary of Republic Steel Corporation**

**Manufacturers of a Complete Line of Steel Windows and Mechanical Operators...Steel Joists...Metal Lath ...Steeldeck Roofs...Reinforcing Steel...Industrial and Hangar Steel Doors...Bank Vault Reinforcing ...Radio Towers...Bridge Floors.**

to get returned veterans into homes which they want and need. These boys don't want just any old house. They want nice new homes—the little dream homes which they thought so much about while they were lying in wet foxholes on the front and longing for the day when they could get back into a home of their own.

**A great deal** has been said and done, especially by Mr. Wilson Wyatt, to try to get houses into production. This is all well and good. However, looking at this matter from the angle of the retail merchandiser, I can safely say that the boys themselves aren't getting any sort of a break in the *financing end.* And here's the reason why only about one out of every fifty is getting the home he wants—and why forty-nine are still living with his or her folks in crowded homes with no privacy.

First, the veteran must buy land on which to build. This most of them can do—and in many cases the land is deeded to them by relatives. Next, they must decide what type and size of house they want and build a basement or foundation to accommodate it. This, too, most of them can afford and can do. The big hitch is where to find the money *to buy the shell of the house which goes on that land and basement!* There's hardly a bank that will lend money on a house which it "can't see yet," with the result that the vets are running around borrowing money from parents, relatives or friends to buy a prefabricated house, have it delivered, erected and roofed in order that a bank will even consider making a loan. The upshot is that only one fellow out of fifty can get the house up. The other forty-nine are still wanting their houses as much as ever and are bitter against the banks and the world at large for not trusting them with their sincerely worked-up plans.

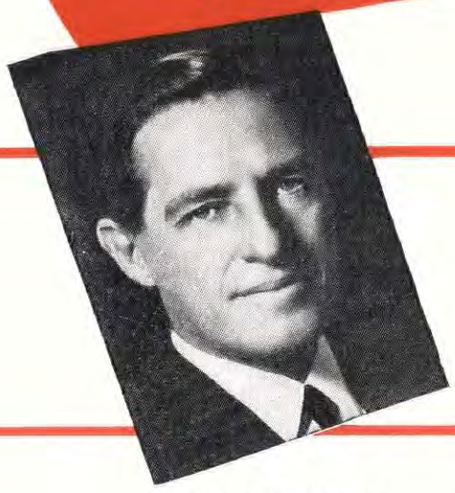
I have written Mr. Wyatt about this problem, and have advised him that some finance plan should be worked out wherein—if a veteran owns his land and builds his basement (surely evidence of his sincerity in going ahead with his building plans)—some financing agency would lend him money, even on short-term loans, until his regular G.I. loan is granted.

**I have sold** many houses to veterans. The boys are living in them, and they did a swell job of erecting and equipping them. In each case, they borrowed the money from friends or relatives—then got their G.I. loans and repaid their original lenders. Instead of selling 100 homes, I could have—and *can*—sell 5,000 if some short-term financing were available. If this were the case:

Wyatt's production goals would be reached.

*(Continued on page 42)*

# 102 Fortunate Families Will Enjoy Personalized HEATING CONTROL



MR. ROBERT W. DOWLING
*President*
CITY INVESTING COMPANY

Architects: Leonard Schultze & Associates • Engineers: Slocum & Fuller
Heating Contractor: J. L. Murphy, Inc.

**MADISON AVENUE at 87TH STREET,** *New York City*

TO GIVE their tenants the ultimate in heating comfort, the City Investing Company is installing Honeywell *Personalized* Heating Control in two completely modern apartment buildings now being erected at 1211 Madison Ave. and 15 E. 91st St. in New York City. The new radiant panel heating is used and with one or more Honeywell thermostats installed in every suite, each tenant will be able to choose his own comfort temperature, just as he would select his furnishings and color scheme.

For apartment tenants the advantages of Personalized Heating Control are obvious. And these same advantages directly benefit building owners and managers, because satisfied tenants means easier rentals, longer leases and less turnover. Moreover, an important reduction in heating costs is gained. A fuel savings record that averages 20% has been established by installations already made.

You can specify a Honeywell P. H. C. System in modernizing and remodeling projects as well as for new construction. Even in existing buildings, installation is handled quickly. It's as simple as putting in a telephone. Even now, this radically improved method of heat control has been ordered for, or installed in 322 apartment buildings (5,410 suites) in 46 different cities. When you recommend Personalized Heating Control, you are backed by proved performance.

Architects and Engineers: learn how P. H. C. can help make any apartment building truly modern. Get complete facts — learn exactly how this modern system of heat control can benefit your clients. . . . Just mail the coupon.

MINNEAPOLIS **Honeywell** *Personalized* HEATING CONTROL

Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minnesota . . . Canadian Plant: Toronto 12, Ontario.

**MINNEAPOLIS-HONEYWELL REGULATOR COMPANY**
**2601 Fourth Avenue South, Minneapolis 8, Minnesota**

*Please send information about M-H Personalized Heating Control for:*

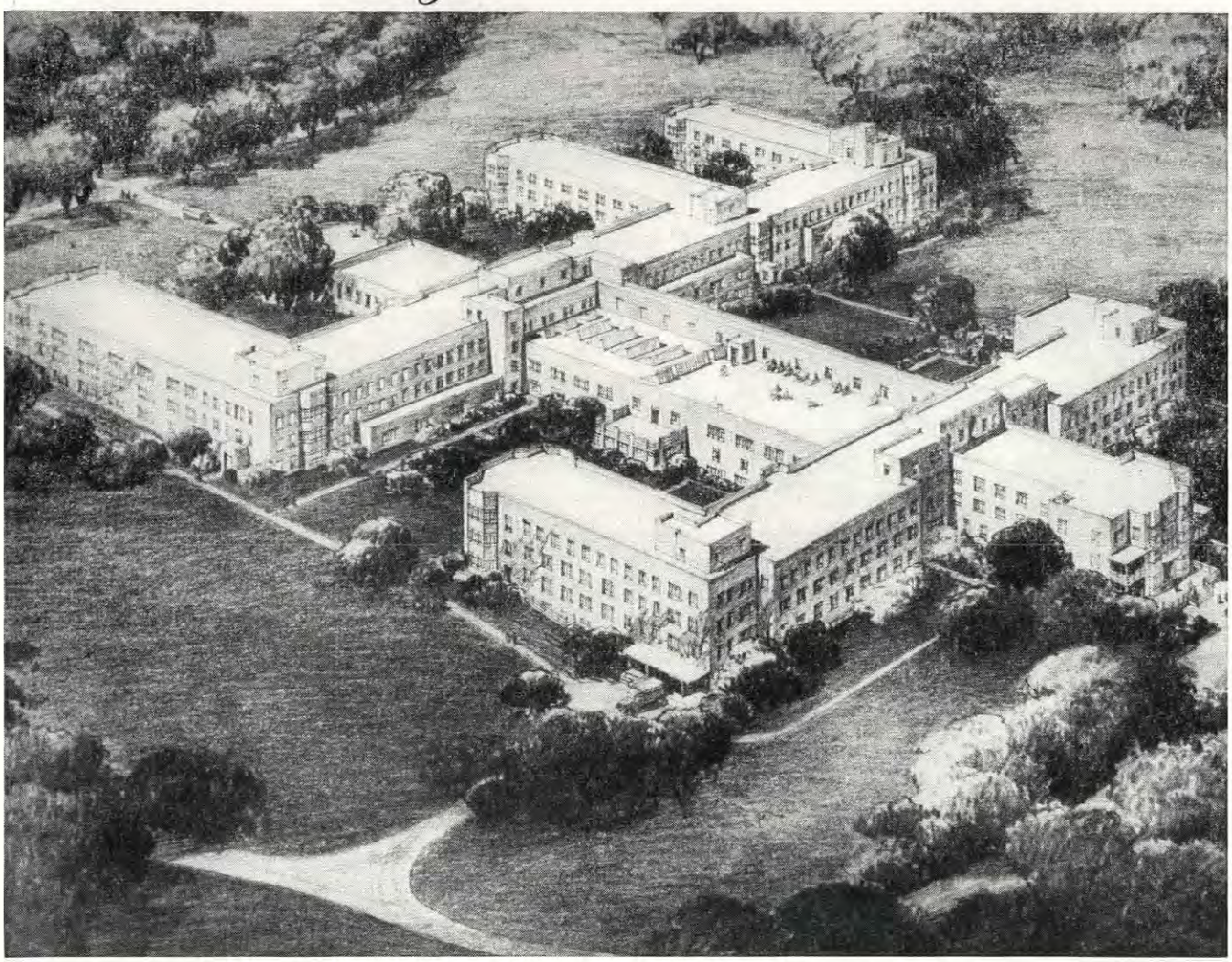
Existing Buildings_____ New Buildings_____

Name_____

Address_____

City_____ State_____

# *Buildings of Character*



HOME FOR THE AGED, EASTVIEW, N. Y. MORRIS & O'CONNOR, ARCHITECTS

## FROM A CENTURY OF BUILDERS

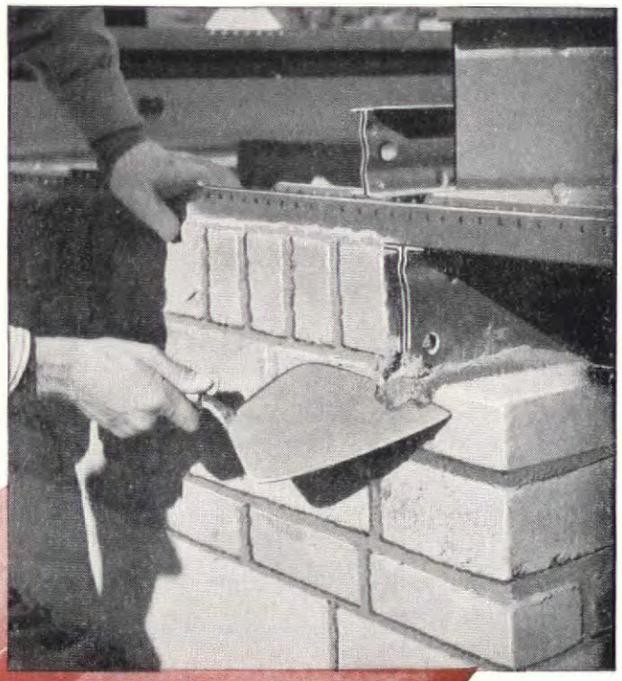
AT NO TIME in the history of American building has the experience, character and ability of 106 years of Crow Construction been as important as it is today. The irrefutable proof of those qualities still stands in the buildings already constructed by Crow over the past century.

**WILLIAM L. CROW CONSTRUCTION CO., NEW YORK**

OVER 100 YEARS OF BUILDING

BUILD WITH

# STRAN STEEL



## Easy to Design with . . . Easy to Build with

**ARCHITECTS** find Stran-Steel practical and economical to use. It provides durable, rigid, fire-safe framing of lightweight steel, yet permits wide flexibility in working out designs.

**BUILDERS** like to work with Stran-Steel. Pre-cut to required lengths, the framing members are assembled with self-threading screws. Other building materials are simply nailed to the frame by means of the nailing groove, a patented feature of all Stran-Steel studs and joists, which grips nails as in a vise, holds them permanently and securely. The frame goes up quickly, without the use of special tools or equipment.

**PROSPECTIVE BUYERS** are quick to appreciate the advantages of Stran-Steel. It gives homes, apartments, stores and industrial buildings a greater investment value, since sag-, rot- and termite-proof framing means lower maintenance costs.

For full details, see Sweet's File, Architectural, Sweet's File for Builders, or the January issue of Building Supply News.

**GREAT LAKES STEEL CORPORATION**
Stran-Steel Division · Penobscot Building · Detroit 26, Michigan
UNIT OF NATIONAL STEEL CORPORATION

YOU NAIL TO STRAN STEEL

# LETTERS



The boys would get the homes which they so badly need.

Cities wouldn't have to erect temporary structures which are going to prove a waste of money and an eyesore to the community in a few years.

If FORUM could pioneer an aggressive campaign for short-term financing, it would erect a monument of gratitude.

ROBERT F. MCCANN

*Allentown, Pa.*

## PITCHING ROOFS

Forum:

Congratulations on your penetrating statement over the lower right-hand photograph on p. 123 of the October issue. ("Where roofs are flat they have no pitch at all. This greatly facilitates framing.")

Although I had seen the house before, the topic dealt with did not immediately attract my attention.

W. P. HAGESTAD

*Grants Pass, Ore.*

Thanks to Reader Hagestad for his penetrating comment. As he undoubtedly knows, the so-called "flat roof" is seldom either level or flat, but is given a slight pitch toward the gutter for drainage purposes. This involves two sets of framing members. The flat roof area of the house in question was framed at dead level, allowing one member to do double duty as ceiling joist and roof rafter. This saved precious lumber and a deal of carpenter labor on the job.—ED.

## CORRECTION AND AMPLIFICATION

Forum:

We just received the October issue of the Architectural FORUM, which we think is one of the most interesting summaries of work which has been printed for quite some time. We have noticed with much pleasure the effective way in which you published the Grayson Store on Hollywood Boulevard.

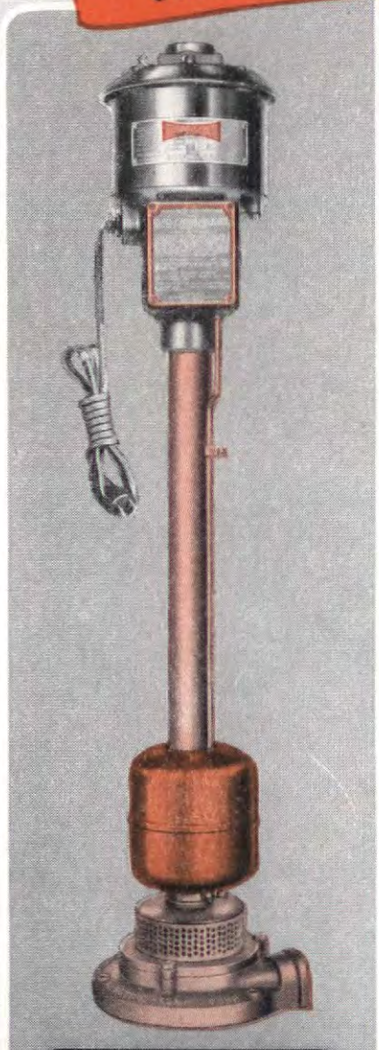
Reading the captions, however, we were a little disturbed by the large number of mistakes which crept into the article. To start with, credit is given to Gruen & Krummeck, Architects, though we always have made it a point to be called Designers, and no credit was given to the photographer, Harry Baskerville.

Then it reads, "located on Kings Road, a boulevard of brightly lit shops." Everybody who knows Los Angeles gets a terrific laugh out of this sentence. Kings Road is the address of our home and was, until a few weeks ago, the address of our main office which was on the second floor of our house. It is a nice, quiet little residential street, located on a hill slope, and the brightest light on the whole street is the one in front of our garage. The store is located on

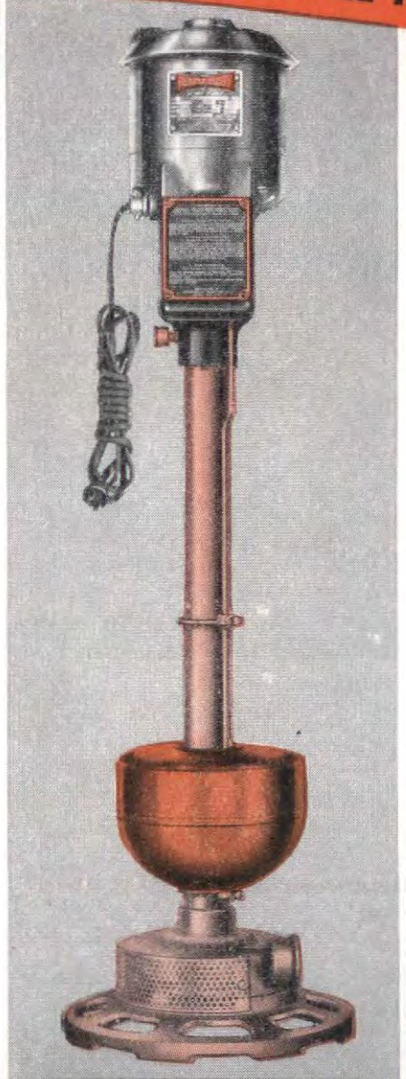
*(Continued on page 46)*

# PENBERTHY AUTOMATIC
## ELECTRIC SUMP PUMPS

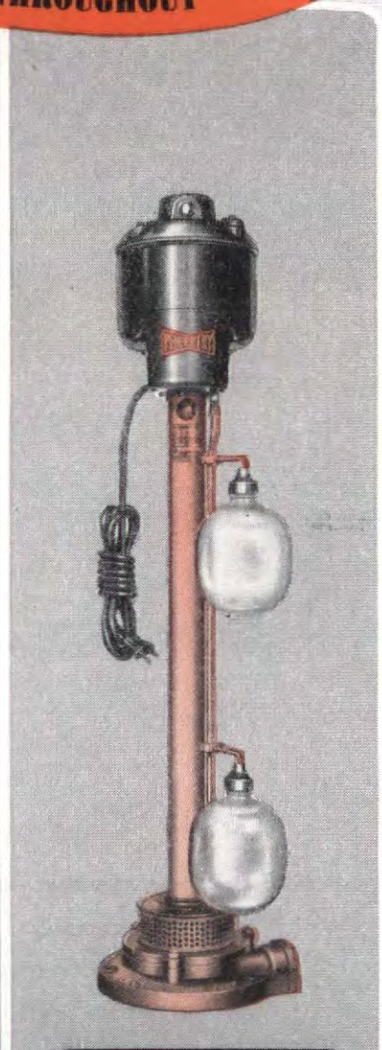
**CONSTRUCTED OF COPPER and BRONZE THROUGHOUT**



**MODEL 46**



**MODEL M**
*Made for 5 Different Sump Depths*



**MODEL 45**

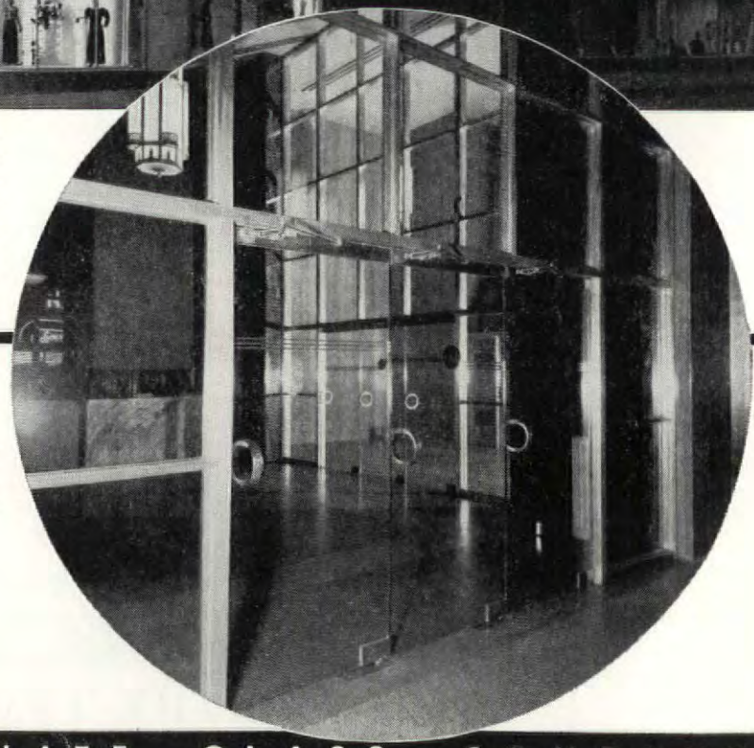
## PENBERTHY INJECTOR COMPANY

Canadian Plant—Windsor, Ont. (*Manufacturers of Quality Products Since 1886*) DETROIT 2, MICH.

PENBERTHY PRODUCTS EXPERT

# Practical applications of Glass

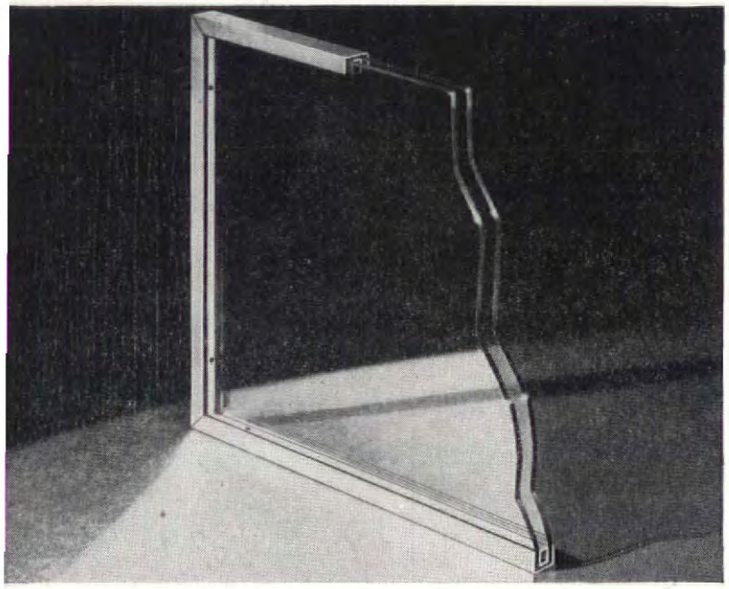
**THEIR COMBINATION** of modern good looks and remarkable functional versatility has won for PC Glass Blocks the high regard of most architects. These blocks transmit daylight generously . . . yet they preserve privacy, shut off unwanted views. Their insulation value recommends them for many applications. And the variety of patterns and sizes available create a wide range of design possibilities. Architect: Stiles Clements.



**FOUR TIMES AS STRONG** as ordinary Plate Glass of the same thickness . . . that's Herculite Tempered Plate Glass. It has been accepted as the ideal material for store doors, entrance panels, partitions . . . wherever you desire the beauty and transparency of Plate Glass combined with the ruggedness to resist hard usage. Architects: McKim, Meade & White. Samuel G. Wiener, Associate.

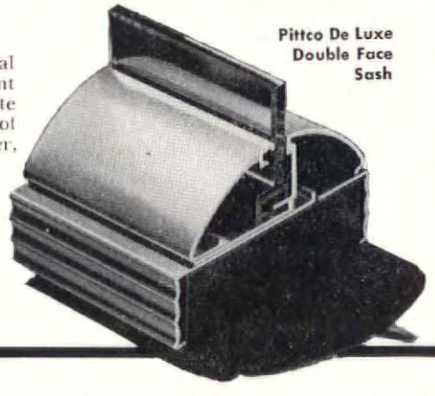
PITTSBURGH PLATE GLASS COMPANY

# commercial buildings



**TWINDOW,** Pittsburgh's new window with built-in insulation, is ideal for many applications such as hotel room windows, store windows, frozen food and refrigerated cases, office and factory windows, etc. Twindow made up of two panes of glass with an air space between them, cuts heat loss through windows nearly in half. When made with three or more panes of glass, Twindow's insulating effectiveness is even greater. It minimizes downdrafts through windows. It adds to comfort all year 'round. And it virtually prevents steaming or frosting of windows.


**THERE ARE 2 LINES** of Pittco Metal for you to choose from in store front work. Pittco De Luxe, long a favorite with architects, is the aristocrat of store front metals. Pittco Premier, lighter in weight and more moderately priced, is noteworthy for its beauty, its modern styling, and its quick, easy installation.



Pittco De Luxe Double Face Sash

**STORE FRONTS** today exhibit a growing trend toward the "open vision" type of design. These fronts make more exacting demands on store front materials than ever before . . . in quality, clarity, appearance, insulation effectiveness, etc. Pittsburgh Products such as Carrara Structural Glass, Polished Plate Glass, Pittsburgh Mirrors, Herculite Tempered Plate Glass and Twindow, the new window with built-in insulation, will invariably meet these demands to your satisfaction . . . and your client's. Architects: Thalheimer & Weitz.

*We believe you will find much to interest you in our illustrated booklet of ideas concerning the use of Pittsburgh Glass in building design. Send the coupon for your free copy.*

Pittsburgh Plate Glass Company
2022-7 Grant Building, Pittsburgh 19, Pa.

Please send me, without obligation, your booklet entitled: "Ideas for the Use of Pittsburgh Glass in Building Design."

Name.....

Address.....

City..... State.....

★ **Design it better with**

# Pittsburgh Glass

"PITTSBURGH" stands for Quality Glass and Paint

PITTSBURGH PLATE GLASS COMPANY

Hollywood Boulevard, which in fact is a boulevard of brightly lit shops.

Then it says, "Interior lighting combines cove wall installations with direct ceiling spots which do not illuminate the store to a brilliance corresponding with the exterior. Thus, the effect is of walking through an intensely bright gallery into a darker store."

**The interior lighting,** in fact, combines cove wall installations, direct ceiling spots and, most important, indirect dome lights which are visible on the photograph you published. The light intensity of the interior is much higher than that of the exterior—in fact, so much higher that we recently had to reduce the light intensity by using lower wattage bulbs than originally intended. Thus, the effect is of walking through a brightly lit arcade into a still brighter and better illuminated interior. In order to be absolutely sure about it, I had light meter tests taken. The meter shows 40 to 60 ft.-candles within the arcade; in the store interior, 60 to 75 ft.-candles.

Later on, the article reads, "only infants' wear and the wrapping desk are free standing." Inasmuch as there is no infants' wear in the store, we were looking for the reason for this error, and came to the conclusion that because the free standing units were labeled on the drawings "small wear," the writer must have thought that small wear would be for infants. Actually, one understands small wear to include all small items of women's ready-to-wear, such as lingerie, hosiery, etc.

**The mistake** about Kings Road is just funny, the one about the infants unimportant, but the criticism of the lighting hurts us—and hurts us especially because it is so completely unfounded. We are very conscious of lighting problems in our store design and you have even given us special credit for this in your general article on page 9. I really feel that something should be done to correct this erroneous criticism.

We feel that a magazine of the type and calibre of the Architectural FORUM should have the right to criticize the work which it publishes. However, this criticism, especially if it deals not with purely esthetic questions, should be founded on facts, and before a severe criticism is made it should be checked as to whether the assumptions of the writer are correct. This has obviously not been found necessary in our case.

VICTOR GRUEN
GRUEN & KRUMMECK, Designers
*Hollywood, Calif.*

Sincere apologies to much-maligned designers Gruen & Krummeck.—ED.

*(Publisher's Letter on page 50)*

# NORGE—designed and built to be the greatest values in the home appliance field

Leading architects and builders give the highest acceptance to all Norge appliances. This is proved by the great number of Norge products installed in some of America's largest apartment houses and home developments.

That's because they find that *the name Norge assures satisfaction.*


A BORG-WARNER INDUSTRY

Norge is the trade-mark of Norge Division, Borg-Warner Corporation, Detroit 26, Mich. In Canada: Addison Industries, Ltd., Toronto, Ont.

# "REALWOOD WALNUT IS RICH & HANDSOME!

*IN the design and construction of really modern offices Formica "Realwood" offers a material that is strikingly beautiful, for it has the grain of genuine wood and a deep limpid plastic surface that is by far the most attractive that was ever put on wood.*

*Because it is also a genuine plastic it is spot proof, absorbs no moisture, and resists wear and abrasion by its unusual hardness. On horizontal surfaces it is cigarette-proof. It is stable in color, consequently it never has to be refinished, and space does not have to be taken out of service for that purpose. Veneers of many attractively grained woods are incorporated in "Realwood" sheets.*

FORMICA
TRADE MARK REG. U.S. PAT. OFF.

**THE FORMICA INSULATION COMPANY, 4620 SPRING GROVE AVENUE, CINCINNATI 32, OHIO**

# A LETTER FROM THE PUBLISHER

Dear Reader:

When we want to "see" how many subscribers the FORUM now has, we shut our eyes and picture the Polo Grounds jammed to the flagpoles, with some dis-


tinguished late-comers still trying to get in. As far as we can find out, these 58,000 subscribers (all of whom have seats on the 50-yard line) make up the largest audience of any professional magazine on earth. And, of course, that doesn't begin to count the total readership of the FORUM. The last time we checked that, it was 4.2 readers per

copy, or considerably more than 200,000 readers per month. And that's more than twice the number of fans that packed the Rose Bowl a few days ago.

So, anyway you look at it, a lot of people see the FORUM regularly, and all of them are tied together by a common interest—Building.

It has taken the FORUM a long, long time and some very selective and expensive research to isolate these particular

people, and to convert them from total strangers to total fans, which most of them are. But it was, and is, worth whatever it costs in trouble, time and money. And from where we sit—they, or, as we prefer, you—are the most important people on earth.

All of the above is by way of a preamble to announcing the first mean trick we've played on you in years . . . There comes a moment, in that otherwise pleasant association between an architect or a contractor and his client, when the bids are opened. These are days when it becomes necessary to say "the bids are a little higher than anticipated."

That's precisely the situation the FORUM finds itself in at the moment. In fact, that's how it was in '46, but we kept the news from you. But now, we've opened 1947 publishing bids, and it's all too true—it's going to cost much more to publish the FORUM this year than any previous year in its history.

Consequently, we have to advise our clients, both readers and advertisers, that their share in publishing the FORUM will be higher than in the past. We've already notified our advertisers who showed small surprise. Probably, you will not be surprised either.

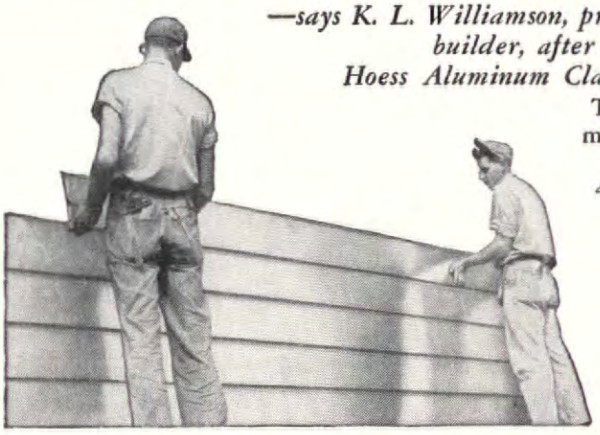
Obviously, we had the option of continuing our program of improving the FORUM or of beating a retreat. We could have cut down on paper quality, eliminated color, reduced the staff and adopted a dozen other money-saving steps. We do not choose to run — at

least, not in that direction. So starting February 1st the FORUM will sell to *qualified Building professionals only* at $5.50 a year (12 issues) in the U.S. and Canada. But wait until you see the 1947 FORUM—more of everything, including color. The only reduction will be in projects. Recently, with so many building restrictions, we were greatly limited in the completed buildings available for publication. Now, all that has been changed, and buildings will be popping up on every other corner. The FORUM will continue to corner the most interesting corners.

We promise you for 1947 the most exciting, provocative, helpful FORUM ever published. And being the kind of people we are, we will repeat that promise a year from now.

H.M.

# "THE ANSWER TO LIFETIME DURABILITY IN LOW COST HOUSING"



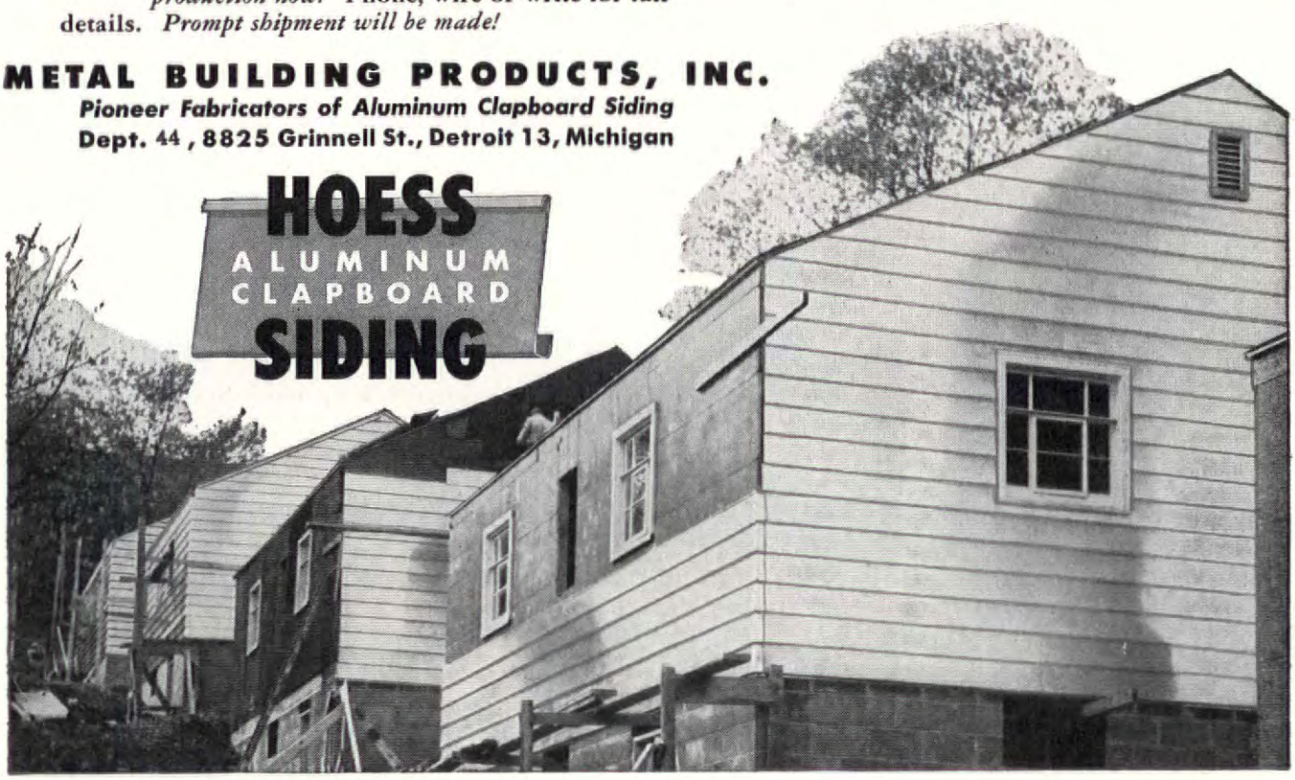
*—says K. L. Williamson, prominent Pittsburgh builder, after erecting 31 homes with Hoess Aluminum Clapboard Siding.*

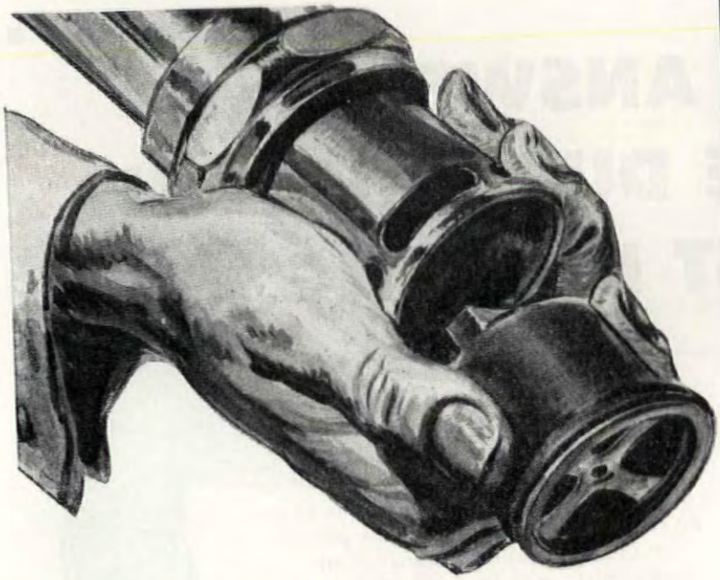
Thousands of Pittsburghers came to see, marvel and admire! Before the project was half completed, more than 400 applications to purchase had been received. The price: $7,500 including gas furnace, built-in shower, double oak flooring, and 50′ x 125′ lot.

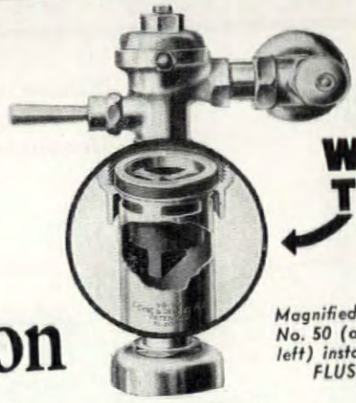
*Hoess Aluminum Clapboard Siding is a section of rolled aluminum sheet, beveled exactly like wood siding, and formed to interlock with other sections.* You get it in 12′ lengths and in 4″, 6″ or 8″ widths; packaged in neat, easy-to-handle bundles with corners boxed. You apply it over ordinary sheathing, or *sheathing can be eliminated* when a 2″ blanket insulation is used, as instructed. You simply nail the application clips to studs. Only three fittings are needed: starter strips for nailing to bottom plate of the house, Corner Finishing Caps and Application Clips. And you get *full coverage* per thousand feet.

Scores of builders praise the easy application method, the beautiful appearance, and the effective interlocking system of Hoess Aluminum Clapboard Siding. *It's in volume production now!* Phone, wire or write for full details. *Prompt shipment will be made!*

**METAL BUILDING PRODUCTS, INC.**
***Pioneer Fabricators of Aluminum Clapboard Siding***
**Dept. 44, 8825 Grinnell St., Detroit 13, Michigan**





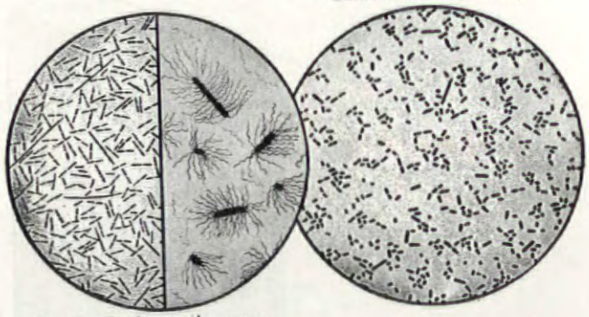



*Magnified cutaway view of No. 50 (as shown in hand to left) installed in a DELANY FLUSHBOY VALVE.*

# Ounces of Prevention Prevent Rounds of Epidemic

**—thru the use of No. 50 DELANY VACUUM BREAKER with ANY flushometer installation.**

*Bacillus Dysenterial Shiga: Causes human dysentery*



*Bacillus Typhosus, the causative organism of Typhoid*

***By preventing back-syphonage from entering the fresh water supply lines you STOP COMPLETELY one of the commonest sources of possible contamination with probably transmission of water borne diseases.***

### SIMPLICITY IS TRUTH

Everyone accepts the fact that the maximum of top performance derives from simplicity. The long life and iron clad protection provided in our No. 50 Vacuum Breaker has been proved in many laboratories of national repute. (Send for copies).

Also, its simplicity of design, free of numerous parts, emphasizes its low cost maintenance. When necessary, the accessibility and the replacement of one part (rubber sleeve) regains instantly the initial efficiency and is accomplished in less than three minutes. The No. 50 is always self-policing.

The No. 50 Delany Vacuum Breaker meets the requirements of the U. S. Bureau of Standards and is fully approved by most States and municipalities.

***Write for Folder***

SINCE 1879

**Coyne & Delany Co.**

**BROOKLYN N.Y.**

FLUSH VALVES · VACUUM BREAKERS · PLUMBING SPECIALTIES

# All America is talking about this

# NEW DISCOVERY about Hot Water

**THE DISCOVERY?** It's "packaged-in-glass" hot water . . . cleaner, purer, automatic hot water for every home use, including the newest automatic appliances . . . hot water supplied by the . . .

## Permaglas SMITHway WATER HEATER

This truly modern water heater CANNOT rust or corrode under *any* water condition. Its tank is mirror-smooth, sparkling blue glass-fused-to-steel . . . sanitary as a clean drinking glass!

It banishes tank rust that ruins clean clothes. It banishes the corrosion dirt that stains water and fixtures.

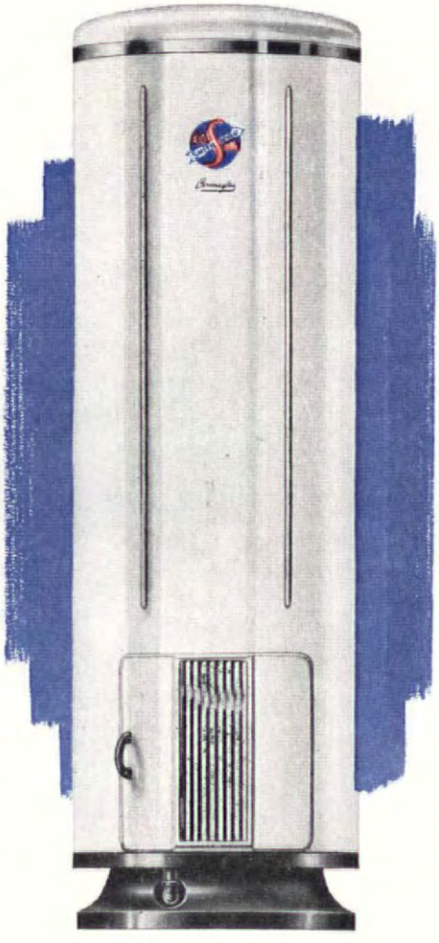
**SPECIFY CLEAN HOT WATER!**

The sleek, modern beauty of the *Permaglas* Water Heater has set the new postwar style. Its many features add up to the height of convenience, dependability, and trouble-free service. Gas or electric; capacities for all homes.

Get the facts now. Ask the nearest A. O. Smith office for a copy of "The Inside Story of Permaglas."

**HOT WATER "Packaged-in-Glass"**

*Guardian of the Nation's Health*



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# FAMOUS

## BIG FROZEN FOOD LOCKER

Servel's big, convenien Frozen Food Locker stores u to 60 packages of froze meats, poultry, vegetable fruits, biscuits. It saves home makers hours of shoppin time, helps them plan ne and varied menus every sea son of the year.

## MOIST COLD, DRY COLD

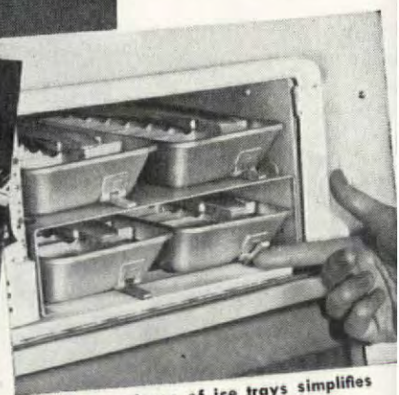
Garden fruits and vegetable stay at just-right tempera tures in Servel's big dew action fresheners. Salad greens crisp up, perishable stay safe and appetizing And there's plenty of extra room, too, because shelve adjust to eleven position

## NO NOISE, NO WEAR

Best of all, there's no ma chinery to cause noise o wear in the famous Serve Gas Refrigerator. Not a single moving part in it freezing system. As more than 2,000,000 happy owners know, Servel stay silent, lasts longer.

There's plenty of room to store tall bottles in the Servel interior.

Fresh meats keep tender for days in the convenient Servel meat keeper.



Trigger release of ice trays simplifies removal, saves time and trouble.

**FOR SILENCE AND DEPENDABILITY**

# *New 1947 Servel offers tenants and owners even more*

For years a big favorite because of its silent, dependable operation, the famous Servel Gas Refrigerator now gives tenants and owners a wealth of new convenience.

The new 1947 Servel contains a big Frozen Food Locker that stores a bushel basketful of frozen foods. Moist cold and dry cold provide just-right temperatures for garden vegetables and meats. The new Servel flexible interior is adjustable to eleven positions for extra roominess. Shelves are Plastic Coated for the utmost in rust- and scratch-resistance. These great new features, plus Servel's famous silence, will win the applause of tenants everywhere.

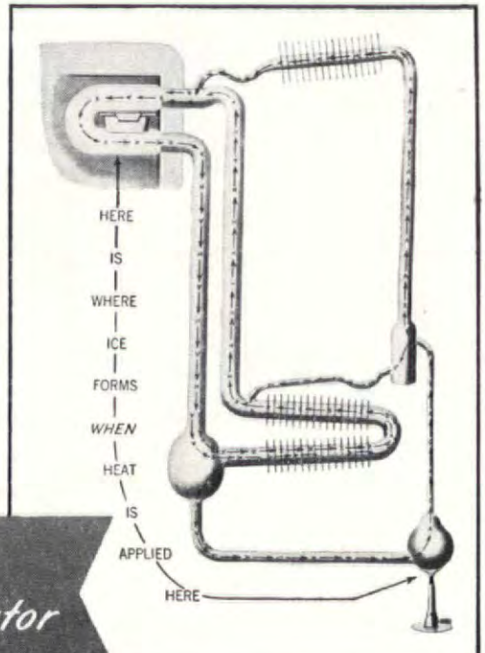
What's more, prewar installations have proved that the Gas Refrigerator is ideal for rental properties. Owners have found that Servel performs faithfully year after year. Operating costs remain low. Service upkeep is held to a minimum. These important advantages are the result of Servel's amazingly simple, basically different method of operation.

Specify the great 1947 Servel Gas Refrigerator for the apartment buildings and homes you design, build, or manage. Plan now to provide outlets for Gas Refrigeration in your current designs and construction work. Write today for the full story on the 1947 Servel. Address Servel, Inc., Evansville 20, Indiana.

**WHY SERVEL IS DIFFERENT... STAYS SILENT, LASTS LONGER**

There is not a single moving part in the freezing system of a Servel. That's because this different refrigerator operates on the continuous-absorption principle of refrigeration.

In a Servel Gas Refrigerator, the refrigerant is hermetically sealed in a set of vessels connected by tubes. A tiny gas flame is applied to the lowest vessel. As a result of the evaporation properties of the refrigerant and the law of gravity, ice forms in an upper vessel. No machinery—motor, valves, pumps and compressors—is needed. Servel has no moving parts to get noisy or wear. Thus, the Gas Refrigerator stays silent, lasts longer.




STAYS SILENT . . . LASTS LONGER

Servel *The GAS Refrigerator*

# FORUM

**Behind the scenes with FORUM contributors**

**ALFRED FELLHEIMER** and **STEWARD WAGNER,** with their partner-on-housing, **CARL A. VOLLMER,** pioneered in the early days of PWA housing. The Farragut apartment plan (p. 63) carries further their original ideas on compact unit planning.

**JOHN YEON,** who did the house in Portland, Oregon (p. 67), is a west coast designer, trained by apprenticeship and the night school system. Deep in regional planning at 21, he gave it up to return to the drafting board, but soon found the office-bound architect's life too confining. Solution: only as much work as he can handle from start to finish, with himself as designer, landscaper and construction supervisor.

**ERNEST BORN,** co-designer with **SERGE CHERMAYEFF** of the San Francisco house (p. 72), became famous as a delineator before he had turned twenty. His middle years have been spent soft-pedaling rendering in favor of designing. Chermayeff, a Russian-born, British-trained architect, has had an Anglo-American practice for a number of years.

**LIVINGSTONE ELDER** and **JAMES I. RAYMOND,** designers of the Clark house (p. 76), are partners in a city-country office which keeps Elder in New York, Raymond in Stamford, Connecticut. They call their designs "Contemporary Romantic," feel that they are staging at least a small revolt against the "Lally Column" school of architecture.

**JANET HENRICH O'CONNELL,** who hammered out the LIFE-FORUM exhibit, *Houses, U. S. A.* (p. 81), was until 1945 Supervisor of Circulating Exhibitions at the Museum of Modern Art. A depression graduate, she stepped from Vassar's expensive halls into the New Deal's Federal Art Project, learned her architectural ABC's there, scouting the history of New York's old and forgotten buildings.

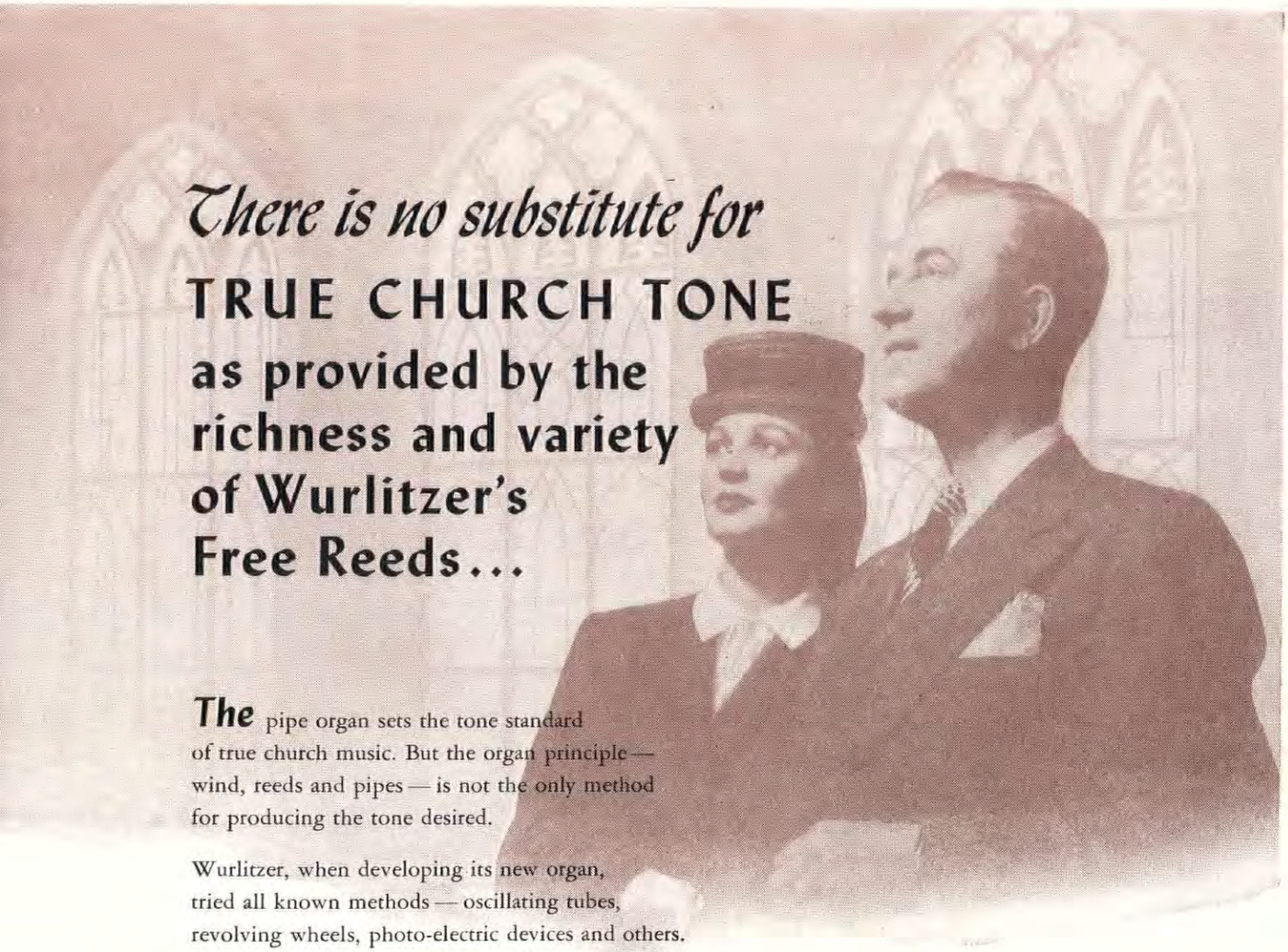
**WILLIAM H. HARMAN SR.** is president of the company which bears his name, a recently organized prefabrication outfit (p. 90). Before getting into housing, Harman spent a quarter of a century in the manufacture of locomotives and heavy machinery. He has not entirely forsaken former pastures with his new prefab venture, still doubling as president and general manager of William Sellers & Co., makers of machine tools.

**C. HENNING VAGTBORG** and **KENNETH N. LIND** preside over Production Line Structures, prefabricators of the "California Cabin" (p. 94). Vagtborg, former commercial and residential builder, now directs the company's manufacturing and building operations. Lind previously taught and practised architecture, now manages the firm's architectural and research activities.

**GORDON F.** and **HOWARD C. WICKES** are twin brothers who got their engineering degrees from the University of Michigan in 1914, went into the construction business in 1920. Each is now president of separate but interlocking companies —Gordon in Iowa, Howard in New Jersey. They started prefabrication during the war, now apply the technique to peace-time homes (p. 98).

**EMANUEL E. NORQUIST,** president of Kansas City's Butler Manufacturing Company, is fond of remarking that his plant can turn out anything from straight pins to threshing machines. Since the company's founding in 1902, it has done just that—but, until the war, stopped short of housing. Manufacturing Bucky Fuller's "grain bin" troop shelters paved the way however, and Norquist is now dedicated to prefabs (p. 96).

**W. D. RIDDLE,** architect of the General Electric Lighting Institute (p. 101), has been one of that company's experts since 1932. His particular work is relating lighting to such architectural applications as restaurants, theaters, service stations, etc. Outside the G-E compound, he has done residential and commercial remodeling, teamed up with Ernst Payer to produce some of Cleveland's most interesting postwar projects.



# *There is no substitute for*
# TRUE CHURCH TONE
## as provided by the richness and variety of Wurlitzer's Free Reeds...

**The** pipe organ sets the tone standard of true church music. But the organ principle — wind, reeds and pipes — is not the only method for producing the tone desired.

Wurlitzer, when developing its new organ, tried all known methods — oscillating tubes, revolving wheels, photo-electric devices and others. Finally, the wind-activated *free reed* was selected as the most adaptable, most easily controlled and most richly varied of all.

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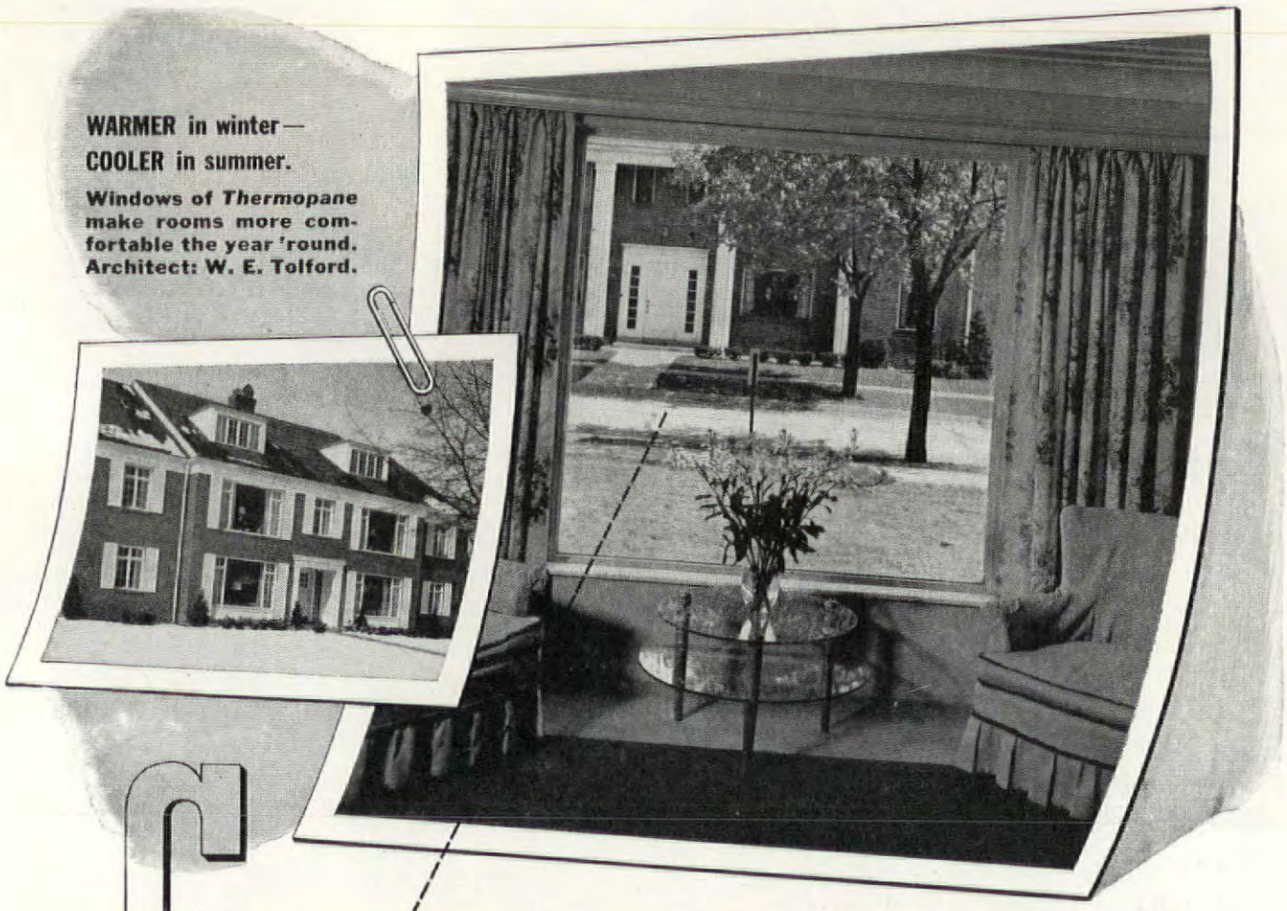
*Series 20*
TWO-MANUAL

**WARMER in winter—**
**COOLER in summer.**

**Windows of *Thermopane* make rooms more comfortable the year 'round. Architect: W. E. Tolford.**



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Think what bigger windows mean in adding the benefits of better daylighting to your buildings—in adding the attractiveness of an outdoor view—in giving rooms a feeling of greater spaciousness.

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*Thermopane* is made for most window openings...and in 50 standard sizes for simplification of design and replacement. Before you plan your next building write for desired *Thermopane* information. Technical data sheets by Don Graf will be sent to architects. Libbey·Owens·Ford Glass Company, 2117 Nicholas Building, Toledo 3, Ohio.

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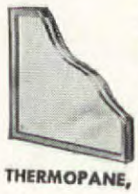

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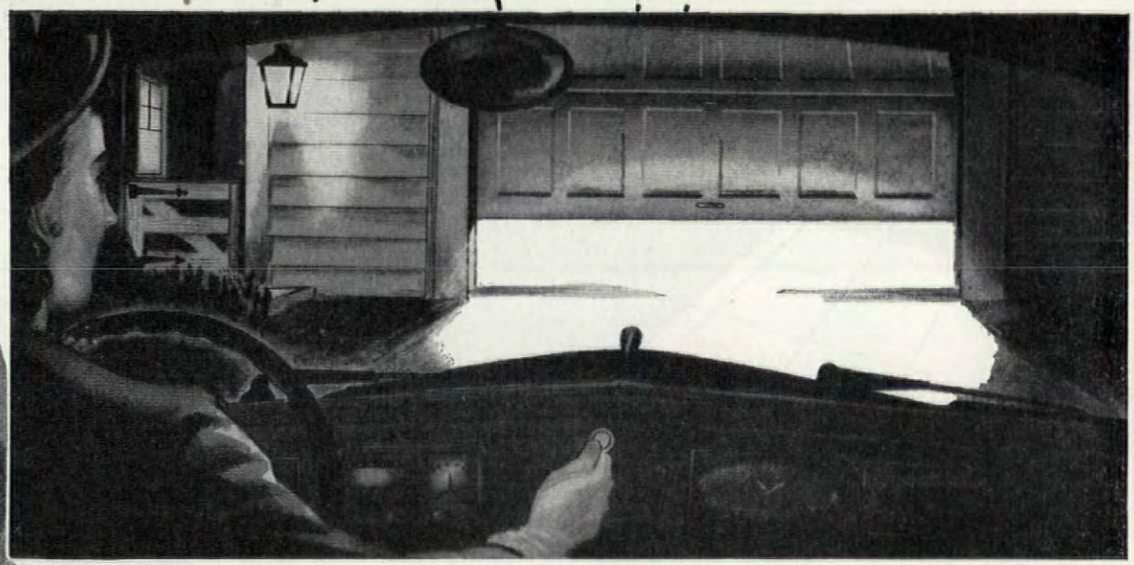
PLUMBING FIXTURES FOR THE BATHROOM, KITCHEN, LAUNDRY

# A MODERN TOUCH TO THE MODERN HOME

## *A valuable safety feature, too . . . .*



AN ULTRA-MODERN convenience can be designed into the homes with an Avco "Private Doorman." On duty 24 hours a day, it opens and closes garage doors—turns garage and house entrance lights on and off *automatically*.

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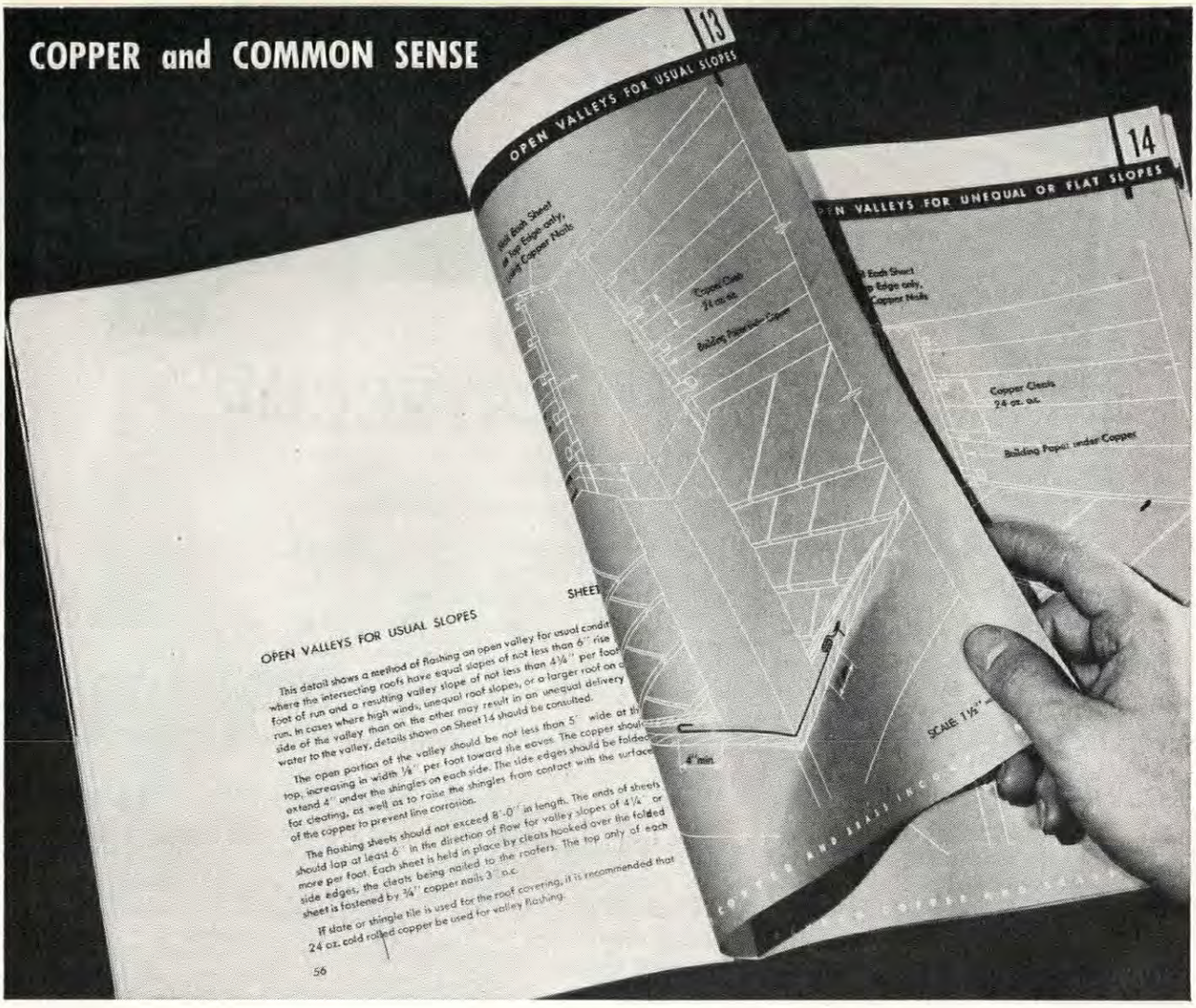


**QUESTION:** **What's the best method of flashing valleys for various kinds of slopes?**

**ANSWER:** **See pages 56 to 59 in Revere Manual* of Sheet Copper Construction.**

LIKE every other type of sheet copper construction, valleys were included in Revere's extensive sheet copper research program. New basic principles were discovered and tested, were applied to valleys as well as to every other kind of building construction in which sheet metal plays a part.

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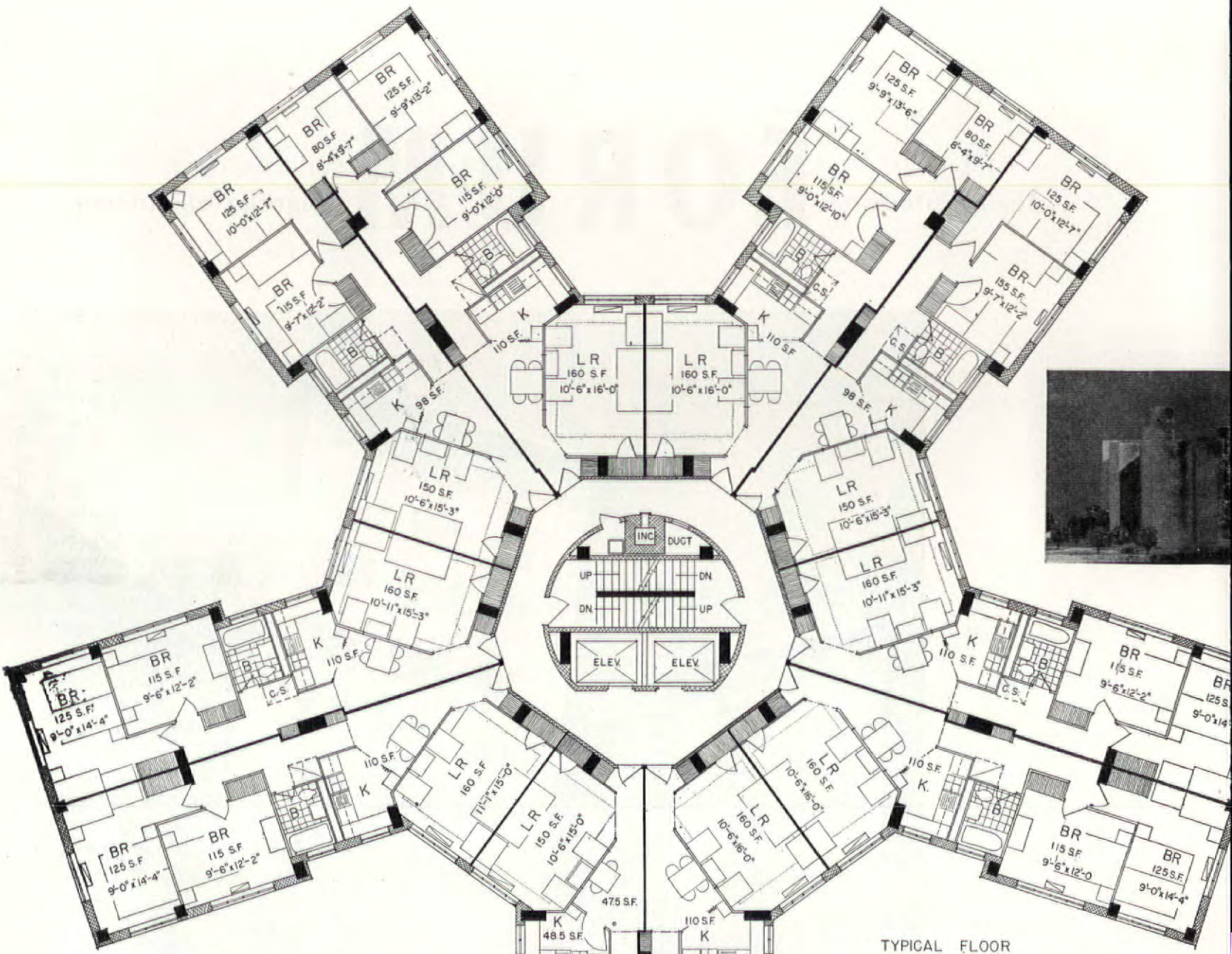
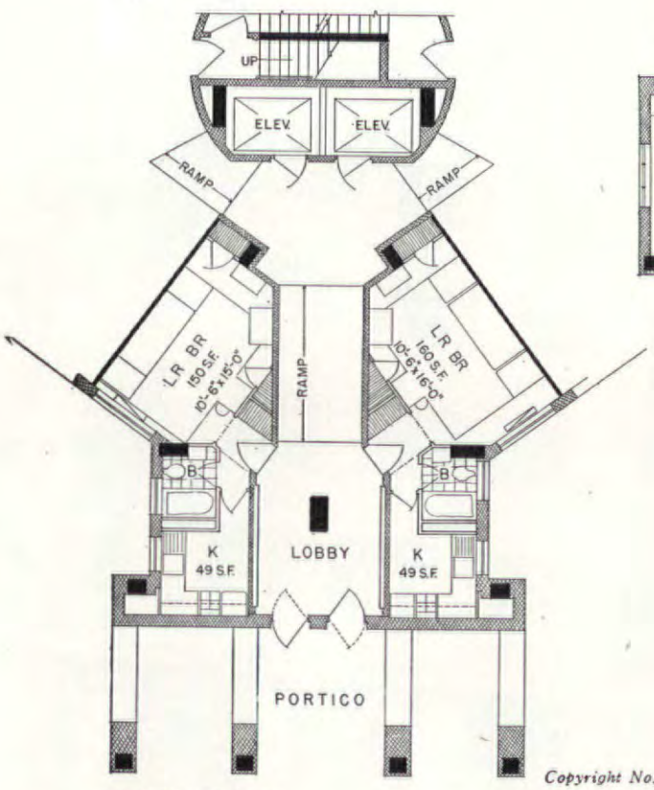
The Architectural **FORUM** Magazine of Building


STRAIGHTFORWARD DESIGN
SPRINGS FROM
A PENTAGONAL PLAN



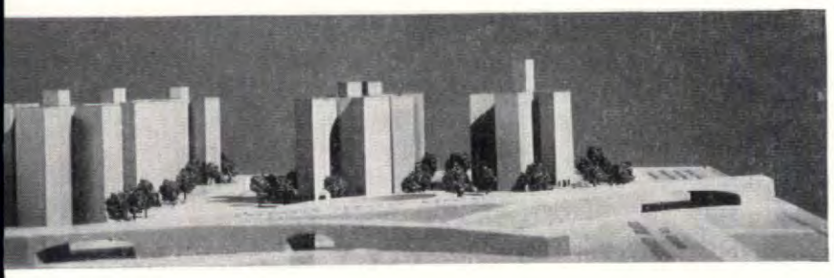

GROUND FLOOR



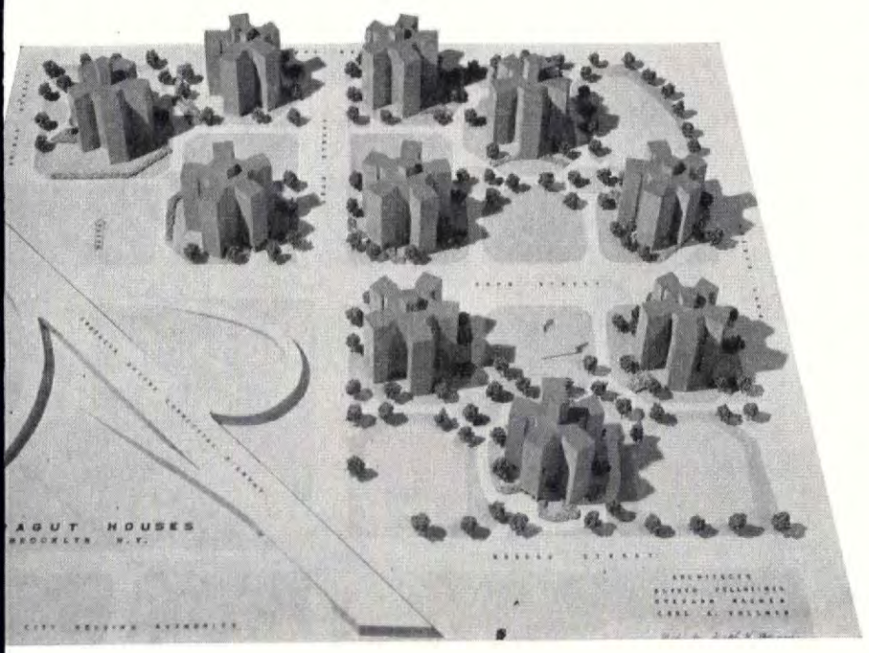
**LIKE A GIANT COG WHEEL,** the typical building plan is basically circular. Since all five cogs are substantially the same and are located with equal convenience around the public core, no apartment carries a premium for position—a consideration which will become particularly important when the plan is adapted for private housing. On the ground floor an open portico and entrance hall, with ramps instead of steps, replaces one cog of the wheel (left). Simple framing pattern of the reinforced concrete structure (black rectangles) produces only 1.6 columns per room, compared with as many as 2.5 in conventional plans.

# PENTAGONAL APARTMENT BUILDING, with maximum rental space around a compact vertical core, benefits tenants and landlords alike.

ARCHITECTS:
ALFRED FELLHEIMER
STEWARD WAGNER
CARL A. VOLLMER



**SITE PLANNING** of Farragut Houses in Brooklyn is facilitated by the tall, slim character of the pentagons. Surrounded by the equivalent of a city block each, the 10 buildings are a minimum of 250 ft. apart. Small land coverage (11 per cent of the 19 acre tract) and high density (300 persons per acre, compared with the 239 average of other New York City public housing projects) capitalize on the important fact that every room enjoys a direct view outwards.



Whenever a new building form provides better accommodations or lower costs than traditional forms, it is likely to establish a new design trend. Boasting *both* better accommodations *and* lower costs, the pentagonal invention on the opposite page has already started a mild revolution in the design of public housing for New York City. Its many good points are being used by the local housing authority as criteria for future projects. Because it makes a lot of sense and should save a lot of money, the pentagon promises to influence large-scale housing design throughout the country—wherever high land values dictate compact planning. It encircles a pair of elevators and a pair of stairs with ten apartments containing 40 to 45 rooms. While the plan illustrated is tailored down to public housing's minimum requirements, with increased room sizes and more deluxe appointments the scheme is equally adaptable to private housing. In fact, FHA has given its official blessing to the unique proposal, hopes it will stimulate lagging private apartment construction.

Although Architects Fellheimer, Wagner and Vollmer have copyrighted their conception of the ideal apartment, they take justifiable pride in watching it influence the design of others. It was developed during slack wartime years as a research project to give low income families better living facilities, to give public housers more economical projects and, of course, to give themselves an entry into the housing field. Since there was no specific project in mind and no deadline to meet, the design benefited from more study than normally goes into most apartment buildings. Small wonder, therefore, that when the scheme was submitted to the local housing authority last spring, it was promptly put to use. Ten pentagonal buildings will soon replace 17 blocks of slum dwellings in a Brooklyn project to be known as Farragut Houses.

**For the tenants** of this 1,400-unit project, the pentagonal plan will offer a host of amenities not enjoyed by other publicly housed New Yorkers:

- Being high (14 stories) and compact (8,576 sq. ft. per floor), the ten buildings will cover only 11 per cent of the 19-acre site, compared with the 23 per cent average of other New York City projects. Being widely spaced, the buildings will make room for large park and play areas and will stand clear of each others' shadows most of the day.
- Building entrances are prominently located, easy to find—not tucked away in a corner where those entering the building must pass an apartment window. Entrance foyers lead directly to elevators, and the usual steps are replaced by easy ramps—a boon to perambulator-pushing mothers.
- Circular public halls simplify the visitor's search for an apartment—he will not waste many steps looking for the number, nor can he become "lost." Around the hall, apartment entrances are uniformly spaced—not bunched in tight groups—and the distance between elevators and apartments is short and substantially the same. Incinerators are centrally located and removed from all apartment entrances.
- Internal apartment arrangement permits entry to any room without passing through any other room. Thus, privacy of the living room (a guest bedroom) is assured. Borrowing light from kitchen and living room, dining space may double as childrens'

work and play space, further insuring for privacy of the other rooms.

▸ Closets are numerous and well located. Bedroom closets are in the bedrooms—not in the hall—and each living room has an extra storage closet (not required by housing regulations) with door. Along with the coat closet adjacent to the front door, the living room closet serves as a noise buffer between the apartment and public hall.

▸ Like the shape of the building, layout of the apartments provides many advantages. Thanks to the building's obtuse angles, adjoining apartments look away from each other, and all their rooms enjoy unobstructed views. Moreover, with three exposures each, all apartments receive direct sunlight at some period of each day. Principal bedrooms are located on corners and thus benefit from cross ventilating. Finally, bedrooms are remote from living room and kitchen noises.

**For the landlord,** the pentagonal apartment building offers another series of benefits—all of which may be measured in dollars and cents:

▸ Construction economies will result from the fact that the number of stories, apartments and rooms per building have been pushed to the legal and practical maxima for buildings served by one incinerator, two elevators and two stairs. Obviously, foundation and roof construction are pared to the minimum; so are the costs of elevators and other public facilities. This concentration of 560 rooms within a diameter of only 140 ft. makes it possible to place the building within the narrow limits of existing slum blocks and thus obviates the expense of relocating or bridging over existing utility lines.

▸ All public facilities are located at the center of the building in a core which also carries electric mains. Branch wiring is facilitated by short and equal runs to uniformly located outlets in each apartment.

▸ Economies of repetitive construction operations will result from the fact that each wing of all buildings, up to and including the bathroom, is identically framed and constructed. Only the structure of the bedroom addition is varied to meet the requirements for apartments of different sizes. (Partitions within the standardized living-dining "wheel" are varied slightly to give larger living and dining spaces to apartments with an increased number of bedrooms—in accordance with local housing regulations.)

▸ Nature of the plan and use of exterior walls exclusively for the enclosure of habitable rooms (all closets are enclosed by interior partitions) help reduce the building's perimeter per room to a low figure—13 ft. Although public hall space is greater than it appears at first glance, it too is low, amounting to only 9.4 sq. ft. per room.

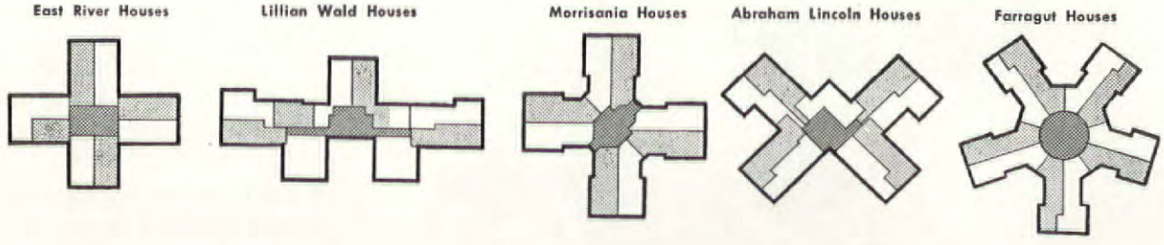
▸ Reinforced concrete construction will eliminate all ceiling beams, cut down story heights and cubage. Use of oversize brick as the exterior finish will also shave costs.

All of these features of the pentagonal plan should minimize the construction cost of Farragut Houses, perhaps push it below the present estimated cost of building an "average" public housing project in New York City—$1,800 per construction room or $7,200 per average dwelling unit. More important, most of them will also minimize the continuous maintenance and operating costs of the project, may help pull down the average for all New York City projects—now about $60 per room per year.

Of course, the biggest unit economies, both initial and operating, will result from the concentration of a maximum number of rooms in a single building around a utility core of minimum size. Assuming that the floor space, two elevators, two stairs and other facilities in this core cost $140,000 for a 14-story building, their cost per room would be $250. In a less concentrated plan, such as the one illustrated in the third column of the chart below, where there would be only 434 rooms per 14-story building, this core cost would be $72 per room more than in the 14-story pentagon. And, this comparison does not reflect the fact that the pentagon's core is smaller and more efficient.

That this concentration of apartment facilities can be achieved in conjunction with increased tenant conveniences and comforts is the most significant aspect of the pentagonal plan. As yet only in the blueprint stage, the Fellheimer-Wagner-Vollmer invention features so many improvements over the average large scale housing plan that its impact on future apartment construction has preceded the actual building of the first pentagonal apartment project.

**Figures show how pentagonal scheme compares in efficiency with four typical predecessor plans.**




| | East River Houses | Lillian Wald Houses | Morrisania Houses | Abraham Lincoln Houses | Farragut Houses |
|---|---|---|---|---|---|
| DWELLING UNITS per floor | 8 | 10 | 8 | 9 | 10 |
| ROOMS per floor | 29 | 39 | 32 | 38 | 41 |
| GROSS AREA per floor (Sq. Ft.) | 5628 | 7966 | 6613 | 8142 | 8576 |
| RENTAL AREA per floor | 5070 | 7054 | 5980 | 7509 | 7856 |
| RATIO | 90% | 89% | 89% | 92% | 92% |
| PUBLIC HALL AREA per room | 8.2 | 14.4 | 8.0 | 8.1 | 9.4 |
| STAIR AREA per room | 6.1 | 5.3 | 8.2 | 4.9 | 3.9 |
| ELEVATOR, ETC. AREA per room | 5.0 | 3.7 | 3.8 | 3.4 | 4.3 |
| TOTAL PUBLIC AREA per room | 19.3 | 23.4 | 20.0 | 16.4 | 17.6 |
| PERIMETER per room (L. Ft.) | 14.4 | 15.9 | 15.5 | 14.8 | 13.3 |

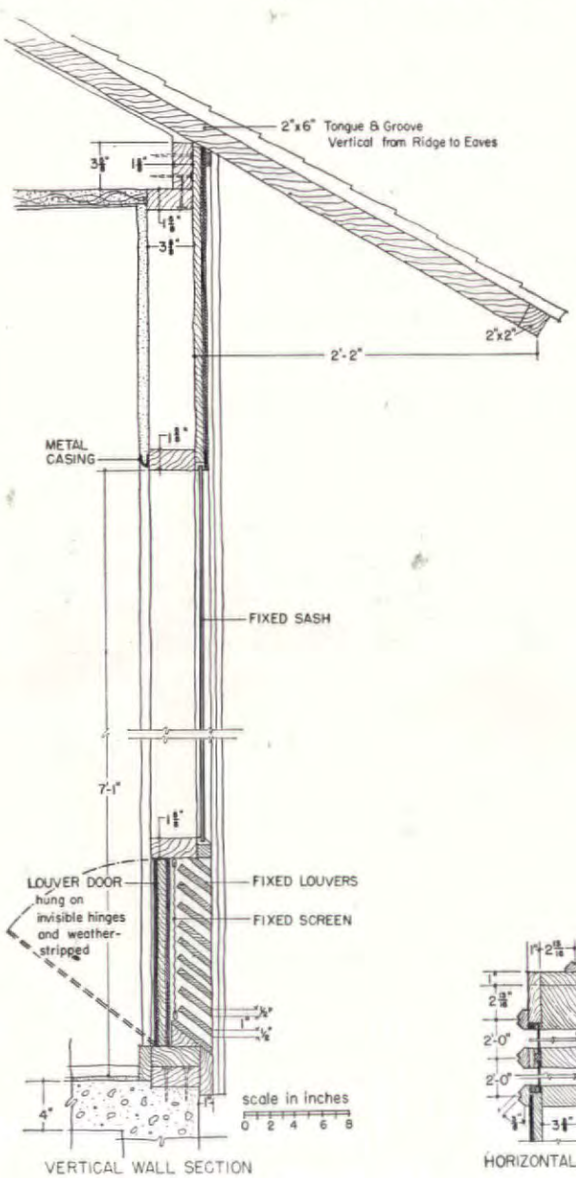
Note: All room counts in this article and tabulation cover only "construction rooms," exclude bathrooms and dining spaces.

# Culminating a brilliant series, this house demonstrates the flexibility of a tested design-construction formula

HOUSE NEAR PORTLAND, ORE.

JOHN YEON, Designer
BURT SMITH, Contractor

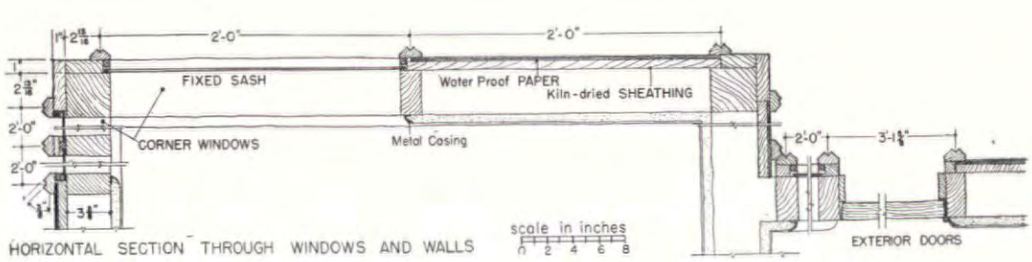
When the elaborate and unconventional Watzek house near Portland was completed by John Yeon in 1937, the general contractor, Burt Smith, was so impressed with the result that he asked Yeon to design for him a series of nine smaller wooden houses to be built for sale. The first was published by the FORUM in April, 1939. Shown here is the last and largest of the series—a house built originally for Mr. and Mrs. Victor Jorgensen in 1939, but now the home of Yeon himself, who purchased it to solve his personal housing problem upon his return from military service.


VERTICAL WALL SECTION

An economical construction formula using standard balloon framing on concrete foundation slabs was adopted for the series. The houses were sheathed externally with waterproof plywood attached to studs two feet on centers, to fit stock plywood sizes. Battens covered the joints between plywood sheets, dividing the exteriors into modular vertical panels. Instead of rafters and sheathing for the sloping shingle roofs, 2 x 6 in. tongue-and-groove boards extended from ridge to eave, providing added insulation and easier construction of the roof overhang. The usual expensive and complicated window frames were eliminated; instead, glass was solidly fixed between exposed studs, with ventilation provided through screened and louvered openings below or above windows and doors. In color, too, the series broke away from the prevalent white or weathered wood into many strong but subtle tones, chosen for appropriateness to each site.

Financial results though not startling, have been adequate. The contractor found that the public at first expected the houses to be cheaper than they were, mistaking design elegance for flimsy construction. However, "the houses were sturdier than any I had built," says Smith, who also recalls that not a single fixed window has had to be replaced nor a house repainted to date. "The maintenance has been minimum and the resale better than average," he concludes with satisfaction.



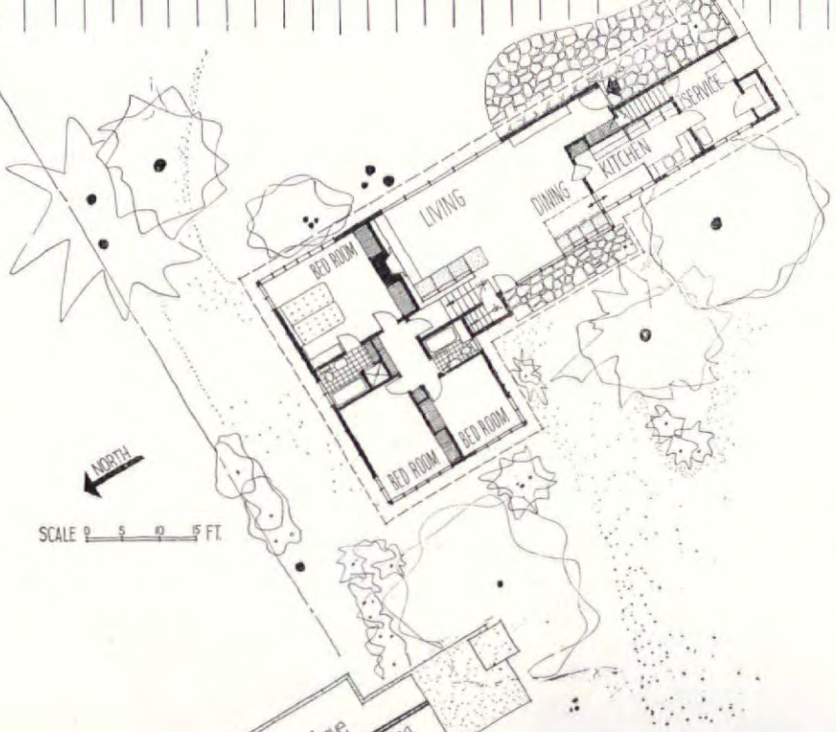

HORIZONTAL SECTION THROUGH WINDOWS AND WALLS

# HOUSE NEAR PORTLAND, ORE.

OOF OVERHANG SHELTERS DOOR

Contrary to the local practice of clearing for development, the house was sited to avoid removal of any sizable trees, thus preserving the density of the woods up to the walls of the building. In summer, ample windows fill the house with a diffused, cool light, which is automatically increased as the trees drop their leaves in winter. Color of the house is predominantly a dark greenish-blue, with walls of recessed portions painted a mossy yellow-green. Cedar shingles on the roof have a mulberry tone. Despite such a positive color scheme, the house is almost invisible from a short distance—"giving a cheerful effect without shattering the mysterious shadows of the forest interior," as Designer Yeon puts it.

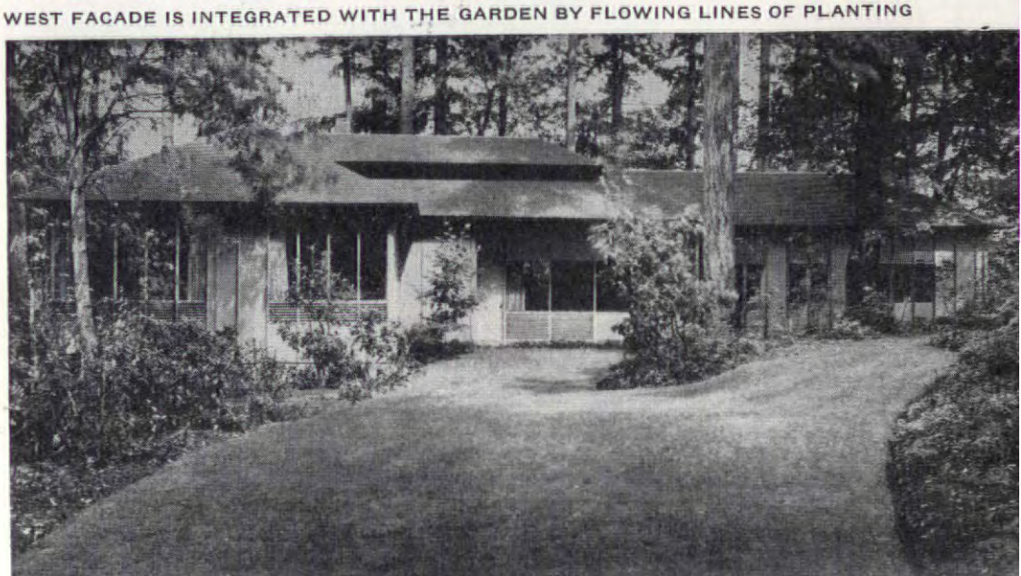





Garage and parking area are placed near the public road on the east, a covered walk providing sheltered passage to the house. Kitchen and service spaces are efficiently planned but small, to allow the assembly of entry, living and dining areas into a spacious single room. Windows on both sides afford views into the deepest portions of the long, narrow property. Ceiling height in the compactly arranged bedrooms and baths is lowered by ascending a few steps, a feature which provides headroom below for a ground-level basement containing recreation, storage and furnace rooms.

The ceiling and most of the walls of the living-dining area are covered in vertical grain hemlock boards, unfinished to preserve the original light color and luster. One wall area is paneled in plywood and painted, to provide texture and color contrast. Walls and ceilings elsewhere are of plaster.


WEST FACADE IS INTEGRATED WITH THE GARDEN BY FLOWING LINES OF PLANTING

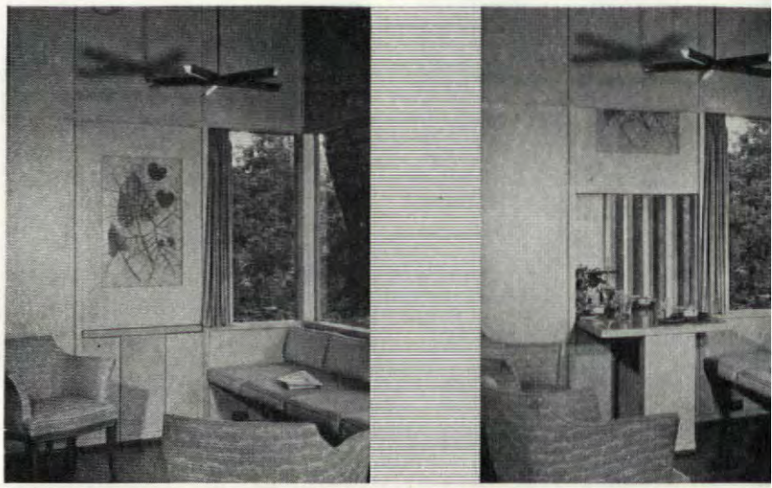


*Maynard L. Parker Photos*

## HOUSE NEAR PORTLAND, ORE.

In the ever-shrinking modern home, any saving of space is notable. Using the built-in sliding table shown at the right, John Yeon has created a dining space which takes no space in the living area except when actually in use. In addition, setting and clearing of the table in the kitchen, near storage and washing facilities, saves steps and time. Though the table accommodates eight, it need be extended only as far as the number of places required.

Other built-in conveniences include the long cantilevered cabinet on the east wall of the living area near the entrance door. The front of this cabinet folds down in three sections, providing writing desk, record album file and record player. A long, built-in couch flanks the fireplace while providing a direct view through the large window. Hidden in the metal hand-rail of the stair landing behind the couch are lamps which illuminate the steps, delineate ornaments on the bookcase and provide reading light on the couch.



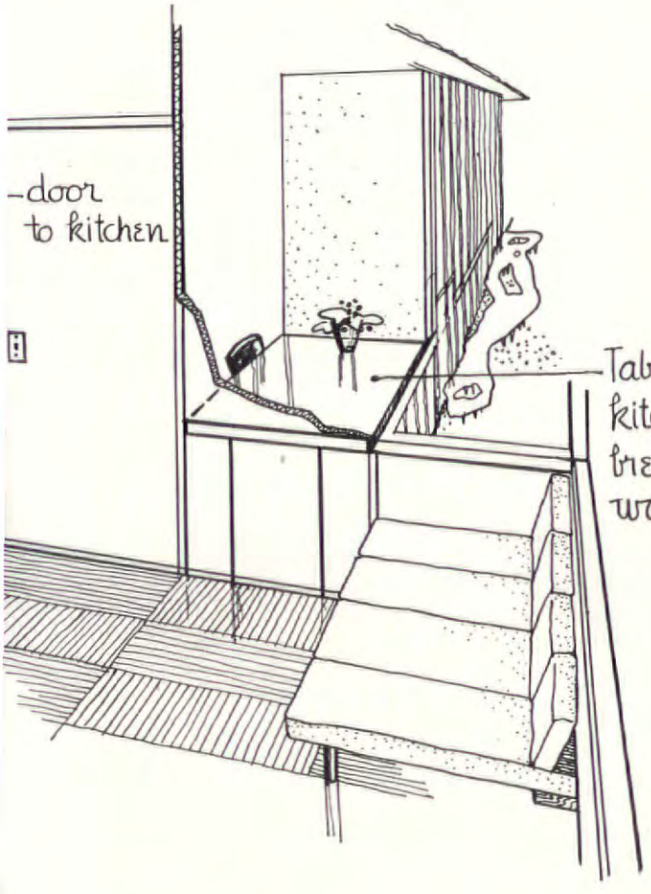
BETWEEN MEALS SPACE USUALLY OCCUPIED BY DINING TABLE IS FRE
PANEL BETWEEN DINING AREA AND KITCHEN CONCEALS SLIDING TABL

LIVING ROOM WINDOWS, SET DIRECTLY INTO STRUCTURAL FRAME, PROVIDE VIEW OF WOODLAND AND WALKWAY FROM GARAGE TO HOUS

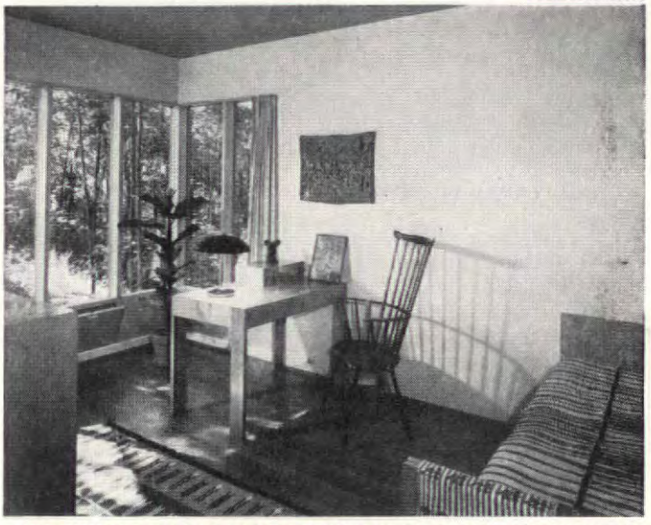
DINING TABLE SLIDES FROM KITCHEN COMPLETELY SET

*Maynard L. Parker*

TABLE SLIDES ON ROLLERS IN TRACKS SUNK IN KITCHEN COUNTER TOP; WHEN IN KITCHEN, IT SERVES AS A BREAKFAST BAR OR WORK COUNTER

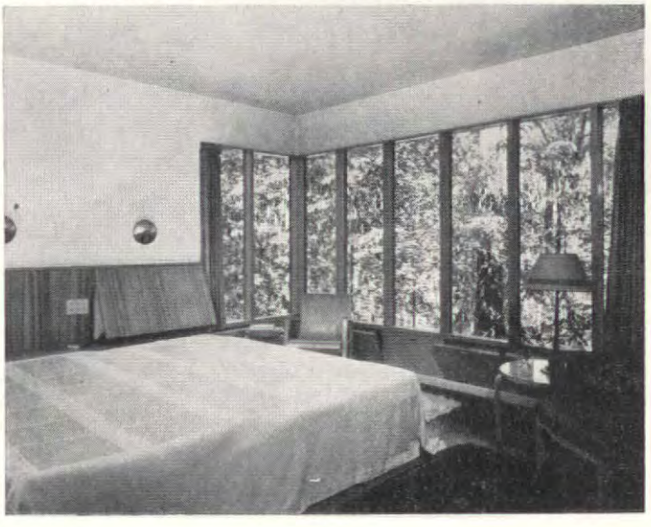



*P. A. Dearborn*



NORTHWEST BEDROOM VENTILATION IS BELOW WINDOWS

HEADBOARD IN NORTHEAST BEDROOM TILTS FOR COMFORT



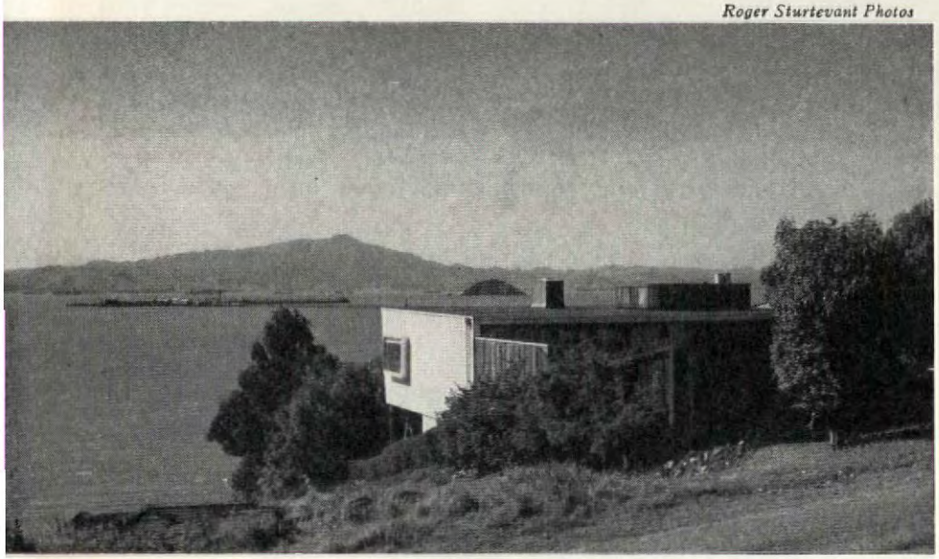
*oto: P. A. Dearborn*

# Hemming in the small lot contributes privacy and outdoor elbow room to a typical surburban site

HOUSE IN REDWOOD, CAL.

PROF. & MRS. WALTER HORN, Owners
SERGE CHERMAYEFF, Designer
ERNEST BORN, Architect
GARRETT ECKBO, Landscape Architect
ENOCH TRANMAL, Contractor

*Roger Sturtevant Photos*



FENCE AND CASUAL CLUMPS OF SHRUBBERY SCREEN PATIO FROM STREET

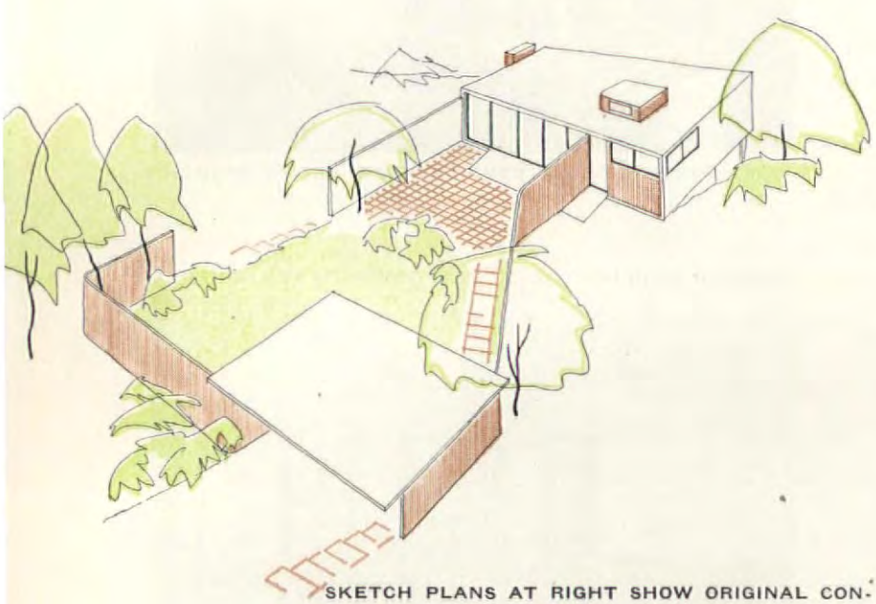
Perched on the brink of a 60 ft. cliff almost opposite the Golden Gate, in plan and structure this house had to take into account the persistent raw winds and rain of the stormy season without sacrificing a superb view. Instead of placing the house near the street, it was shifted as far toward the cliff-edge as feasible, thus acting as a windbreak for the terrace on the approach side.

The size of the lot, 50 x 90 ft., demanded all-out economy of space. This is expressed in the interdependence of the living and dining areas whose openness is one of the most successful features of the house. Another space-saving device was the elimination of corridors wherever possible.

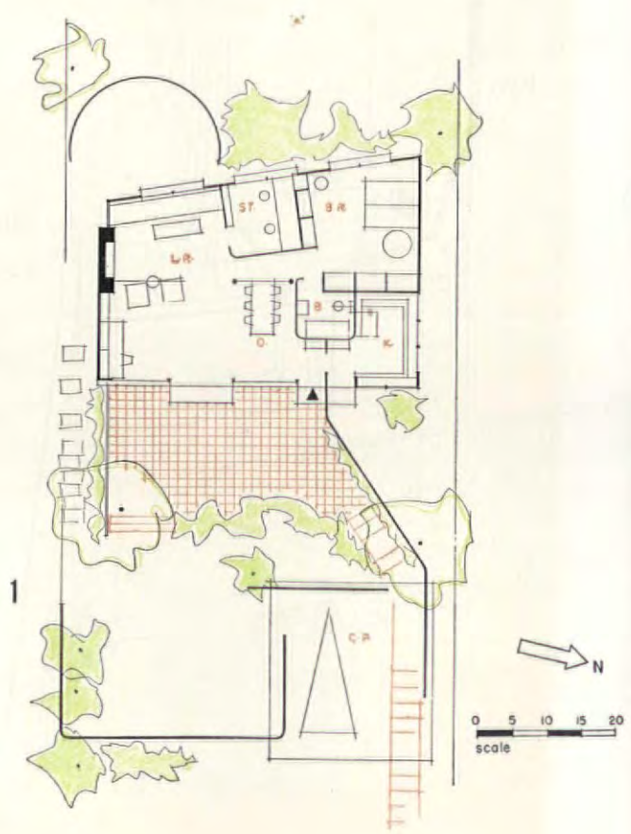
The disparity in the original and final plans (below) is explained by the fact that the contract was signed a week after Pearl Harbor and foundations begun just before the building shutdown. Despite the efforts of a seventy-year-old contractor who, deserted by assistants for shipyard work, finished the job almost single handed, rising materials costs dictated ever stricter economy. Though the house boasts some fine Old World craftsmanship, a number of unique design features had to be dispensed with.

Designed primarily for living, the house nevertheless includes required work space. The owner-artist, historian and Professor of History at the University of California—uses the southeast corner of the living room as his office-at-home. His wife, an architect in her own right, uses the study (which also serves as a bedroom) for drafting.

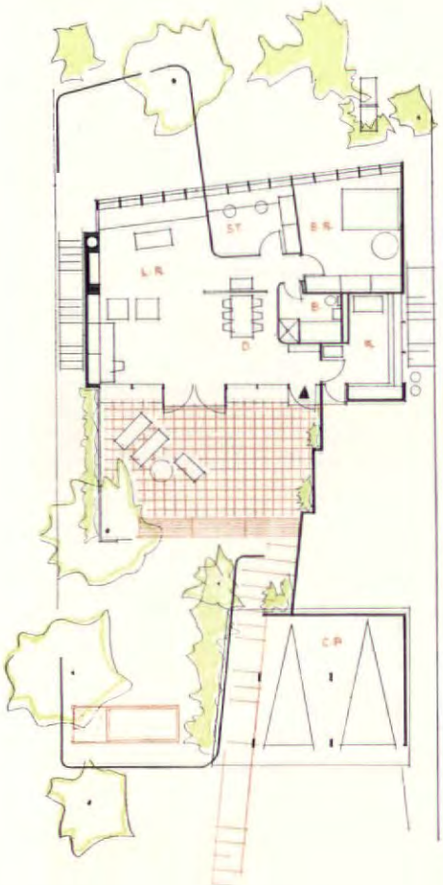
Additional bedrooms and a bath will eventually occupy the present service yard. Also, on the cliff side will be a ground level sun deck with the house acting as a wind baffle.



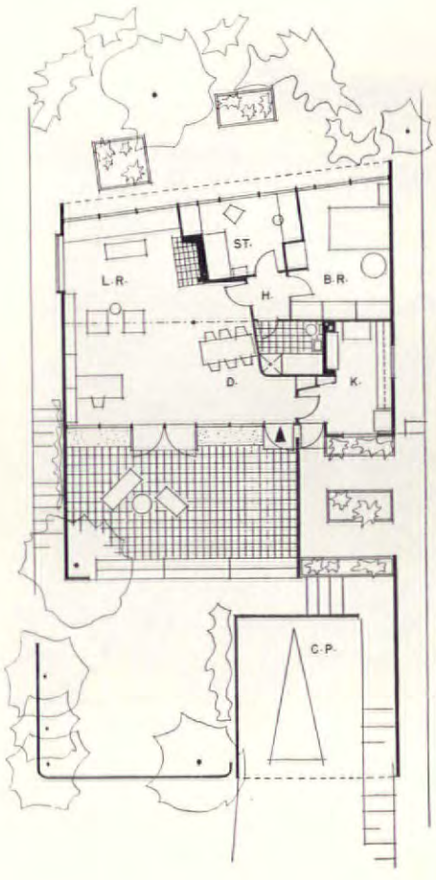
SKETCH PLANS AT RIGHT SHOW ORIGINAL CONCEPT OF HOUSE (1), WITH ADDITIONS AS PLANNED (2), AND THE HOUSE AS IT WAS BUILT (3)



MAIN ENTRANCE IS THROUGH GARAGE, ALONG PATH AT RIGHT. SQUARE SUPERSTRUCTURE ON ROOF LIGHTS AND VENTILATES BATH




2


3

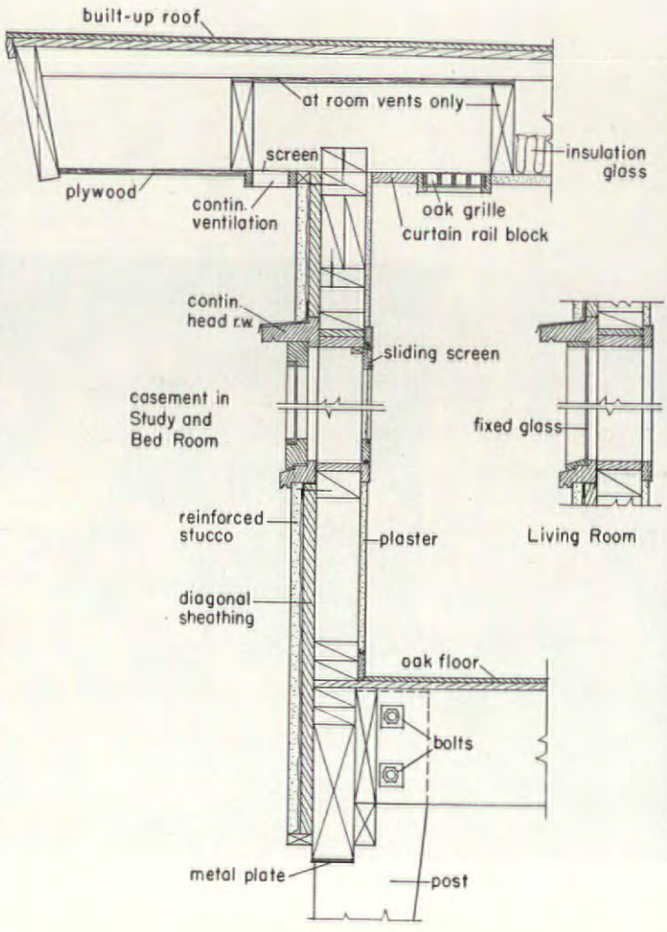
Panorama windows in the living room and study are fixed. Through ventilation is provided by an air channel above the frame, terminating in a series of internally controlled ceiling louvers just inside the sash. A single picture window facing south frames a view of San Francisco—particularly striking toward sunset.

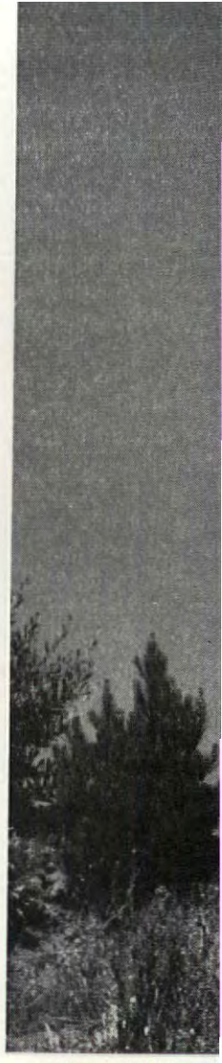
The open feeling of the house is due largely to the overall design, which has been described as a matchbox open at both ends—through which the eye travels from the patio through the living-dining area and on to a view beyond. Visual continuity is furthered by an outdoor redwood screen dividing service and family areas which is carried into and through the house itself.

So persistent and violent is the weather in this particular locality that, under continued pressure and capillary attraction, it was found to penetrate double wood walls of siding and sheathing—therefore, such construction is used only for inset panels on the sheltered east side. Exposed walls are stucco on expanded metal, painted.

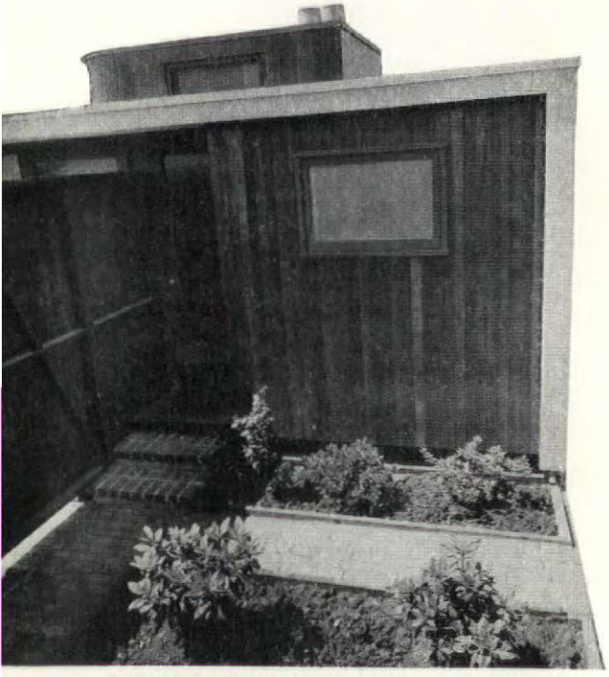
Though the house in its present form is intended for a married couple only, it will later be modified to allow the addition of a children's wing opening to the sheltered outdoor living space and facing south.

Familiar shortages of the last five years account for the incompleteness of built-in furniture—and because the owners had to leave the house unexpectedly almost as soon as it was finished, some very carefully considered landscaping remains to be added.



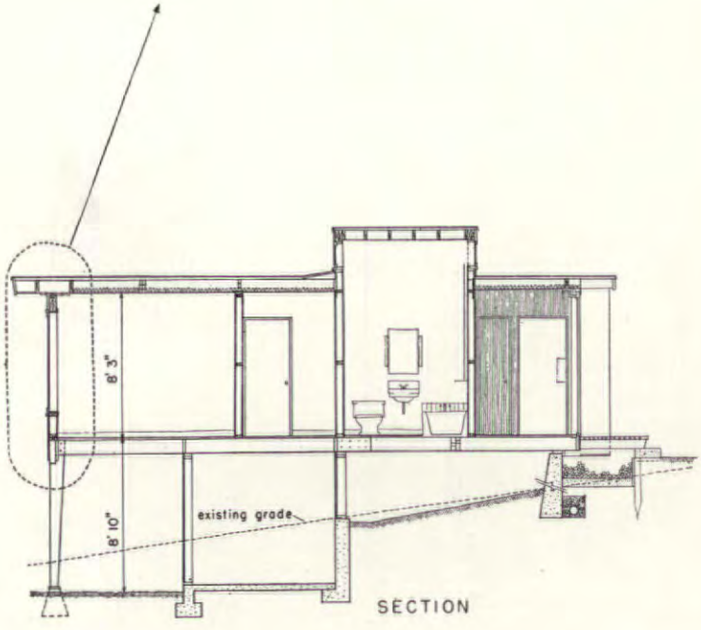



NOT OBVIOUS IN

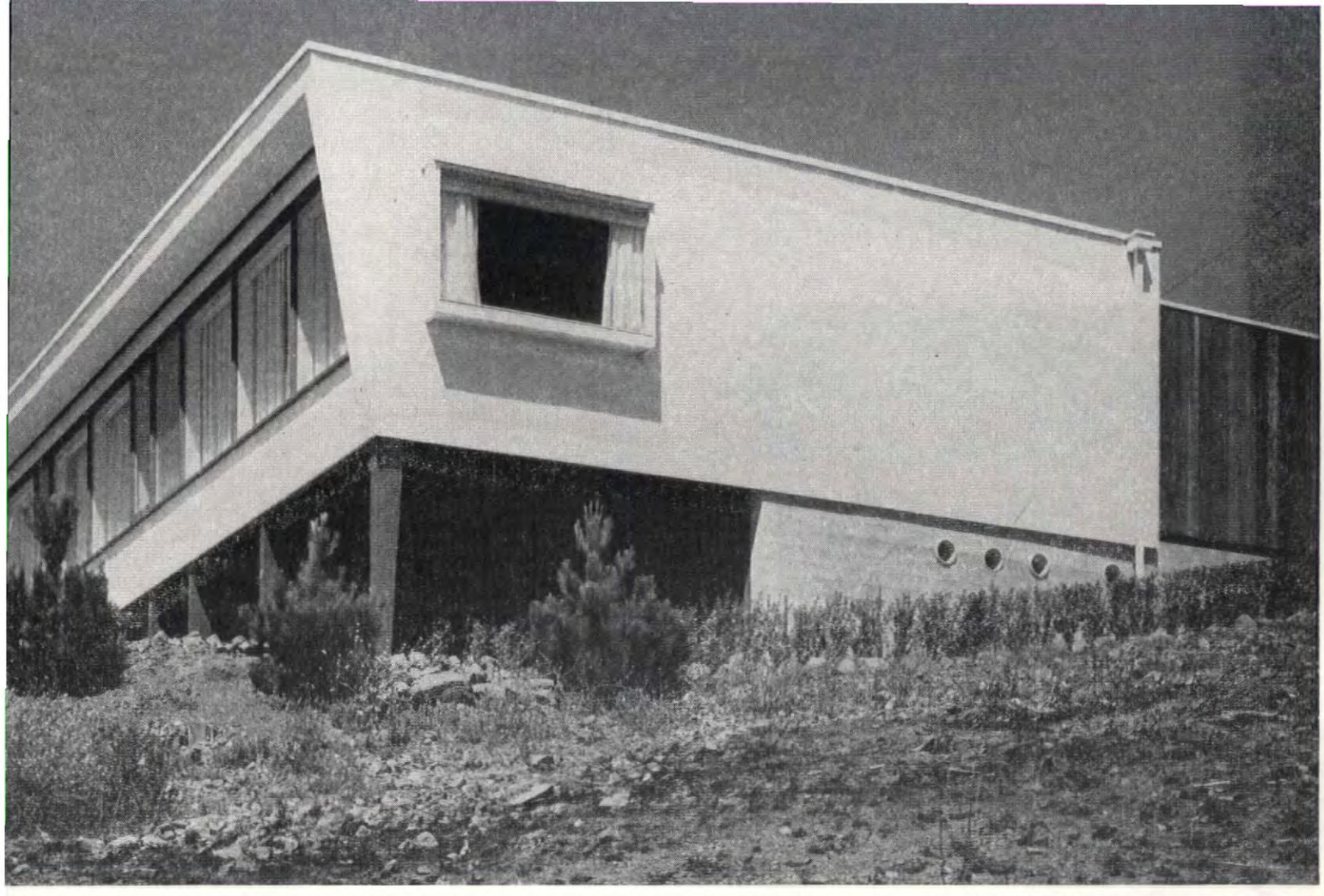


*Esther Born*

SERVICE YARD IS ENCLOSED, ATTRACTIVELY PLANTED



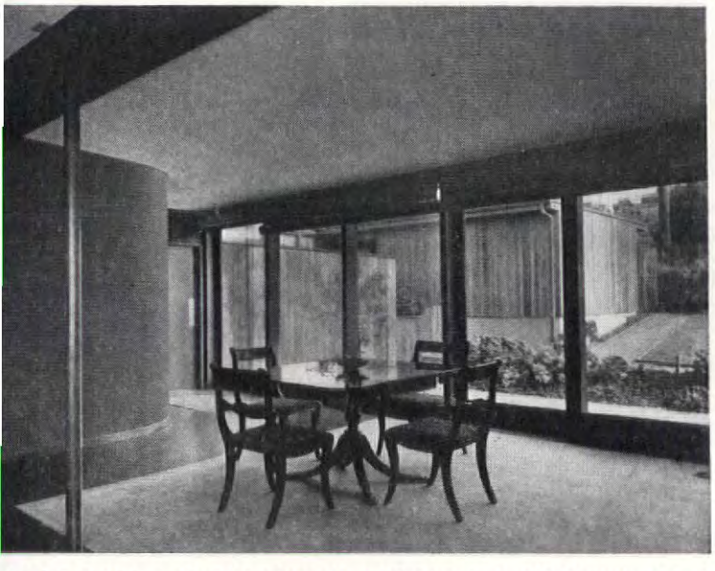

SECTION



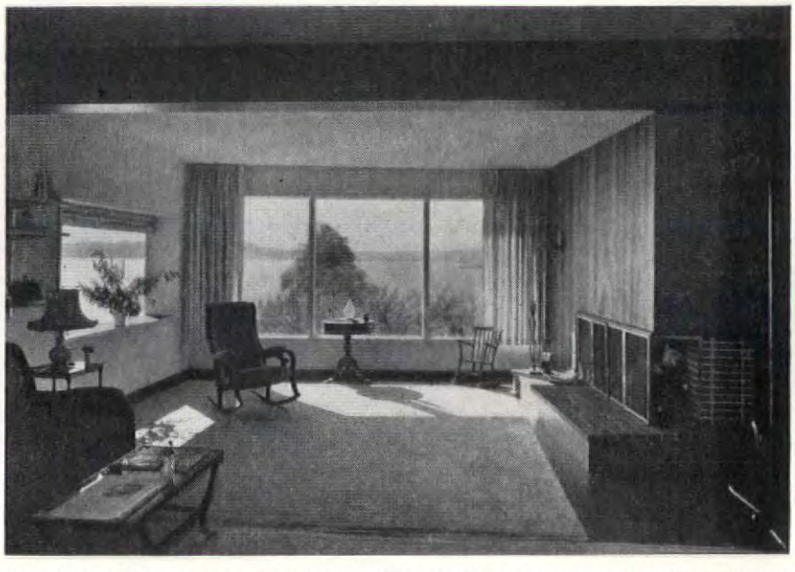
'HOTO IS CANT OF FACADE TOWARD SOUTHERN VIEW. HANDSOME, STURDY REDWOOD POSTS SAVE ON GRADING AND FOUNDATION COSTS

*ither Born*

*Roger Sturtevant*



)INING AREA AND ONE END OF LIVING ROOM OVERLOOK PATIO



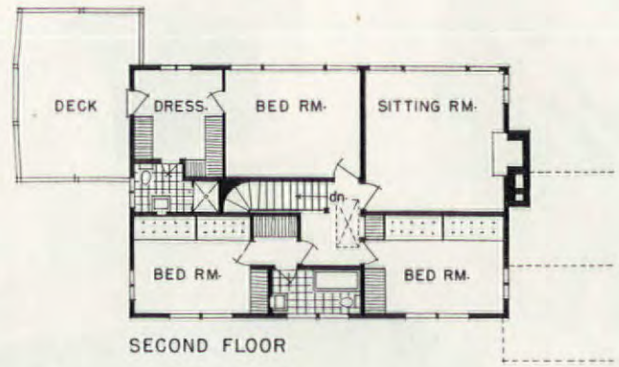
INCOMPATIBLE, OFF-SCALE FURNISHINGS BELONG TO CURRENT TENANT

# A mildly modern house with up-to-date planning has little to off

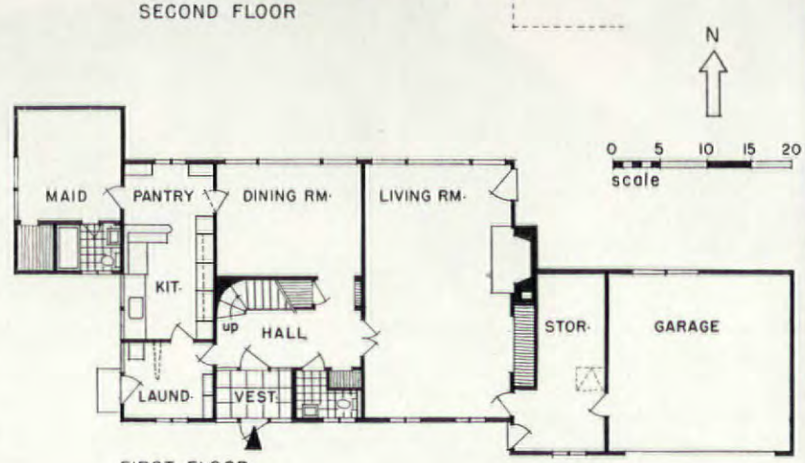
HOUSE IN DARIEN, CONN.

MR. & MRS. HAROLD CLARK, Owners
JAMES IRVING RAYMOND AND LIVINGSTON ELDER, Architects
HAKMAIER-THOMAS, Contractor

GLAZING AROUND FRONT DOOR HELPS ILLUMINATE HALLWAY




SECOND FLOOR

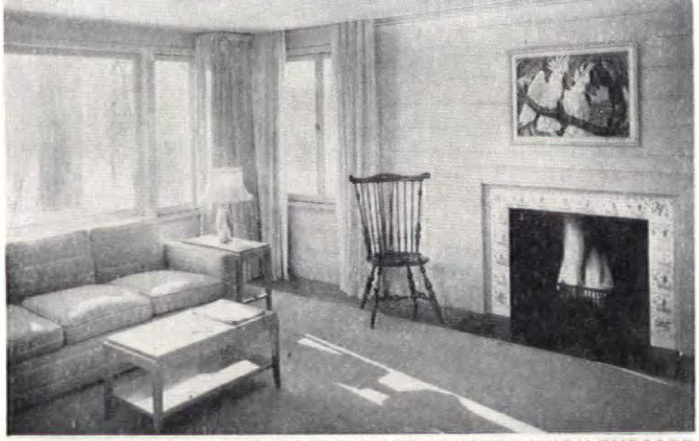



FIRST FLOOR

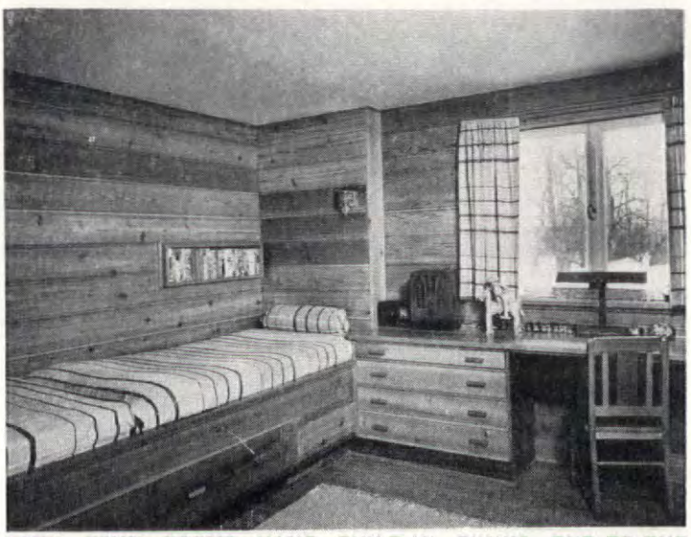
LINES AND PROPORTION RECALL COLONIAL STYLE BLENDED WITH MODERN FENESTRATION AND DETAIL

# nservative neighbors

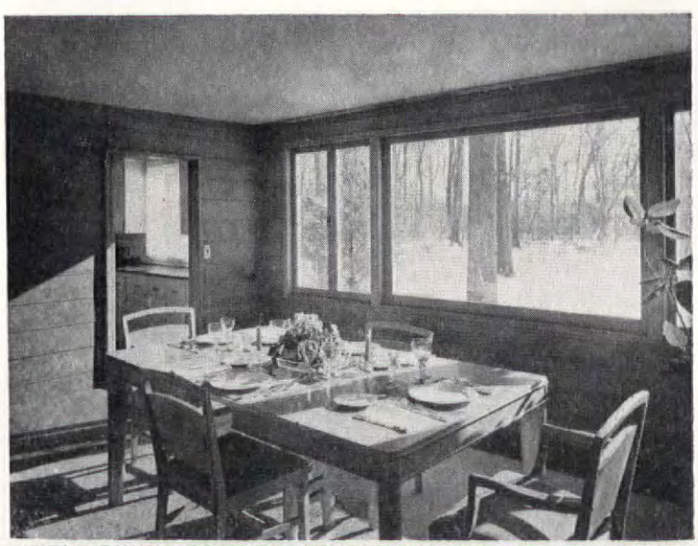
Conventional enough for its rural Yankee setting, this house nevertheless has extensive glass areas facing south which provide adequate solar heating. The approach side, however, retains a more conventional character without sacrifice to the integration of the design. In this instance, the owners' two sons presented a special set of requirements which were thoughtfully and thoroughly analyzed. Though the stuffier inhabitants of Darien are shocked at the presence of a ping-pong table in the "parlor," the owners felt they needed a large room for the boys' use but disliked the idea of a basement playroom. Consequently, the living room doubles as game room and, though the owners enjoy an occasional bout themselves, they more often retire to the privacy of the upstairs sitting room leaving the lower floor to the young people and their friends. Each of the boys' rooms has an extra bunk always ready for impulsive invitations to "spend the night." Another feature any housewife and mother would appreciate is the utility or "mud" room between garage and house, where children can shed their wet clothes and sodden galoshes before coming indoors. Invaluable in a servantless household is the kitchen bar (below) which saves countless steps, intrigues the youngsters and sharpens their appetites, and is perfect for informal entertaining. Guests can have a cocktail and chat with the hostess while she puts the finishing touches on her dinner. The house is oriented to the south, built solely of 5 in. interlocking timber with a cedar exterior finish.



INTERIOR WALLS HAVE SOLID TIMBER CONSTRUCTION EXPOSED



BOTH BOYS' ROOMS HAVE BUILT-IN BUNKS END-TO-END



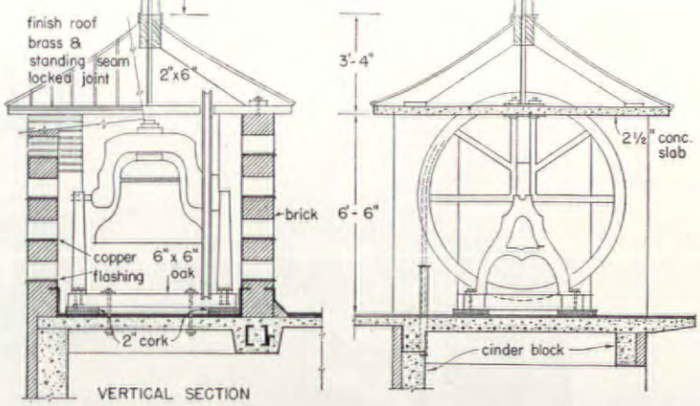
SIMPLE DINING ROOM TREATMENT STRESSES PLEASANT VIEW

GROUND FLOOR LIVING ROOM ALSO SERVES AS GAME ROOM

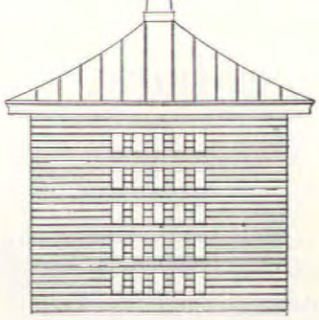
**CONSTRUCTION OUTLINE**

**STRUCTURE:** Exterior walls—Timbolok solid wood construction; inside—exposed construction, Timbolok, Inc. **INSULATION**—Balsam Wool Quilt, Wood Conversion Co. **FIREPLACE DAMPER**—H. W. Covert Co. **WINDOWS:** Sash—horizontal sliding, Andersen Frame Corp. Glass blocks—Pittsburgh-Corning Corp. **ATTIC STAIR**—Bessler Disappearing Stairway Co. **FLOOR COVERINGS:** Kitchen and bathrooms—Armstrong Cork Co. **WALL COVERINGS:** Kitchen—Sheetrock, U. S. Gypsum Co. Bathrooms—Linowall, Armstrong Cork Co. **PAINTS**—Minwax Co. and Breinig Bros., Inc. **DOORS**—birch, flush, U. S. Plywood Co. Garage doors—Overhead Door Co. **EQUIPMENT:** Attic fan—General Electric Co. Washing machine—Bendix Home Appliances, Inc. Bathroom fixtures—American Radiator-Standard Sanitary Corp. Cabinets—Charles Parker Co. **HEATING**—warm air, filtered and humidified. Burner—Petroleum Heat & Power Co. Thermostat—Minneapolis-Honeywell Regulator Co.

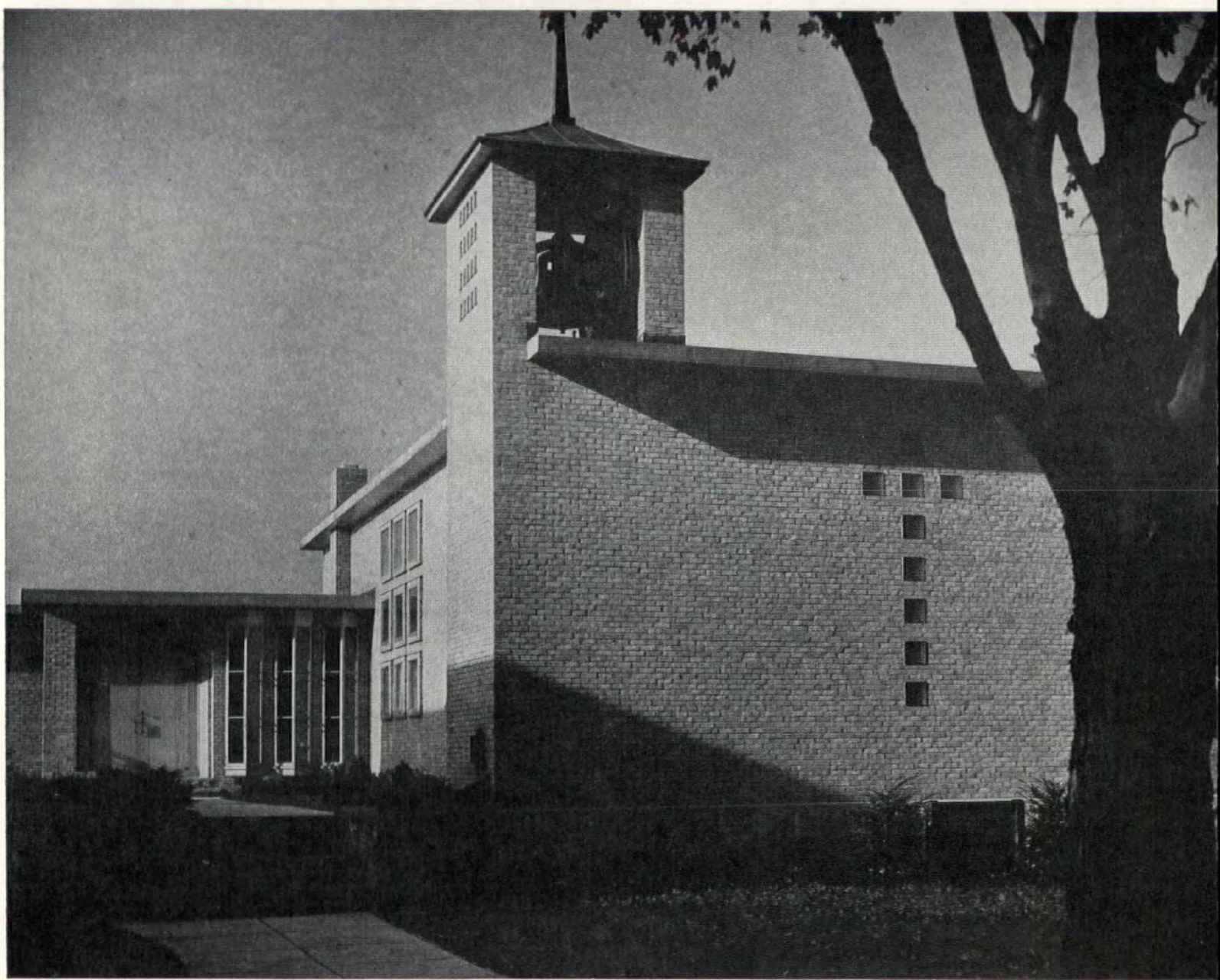
*P. A. Dearborn Photos*




VERTICAL SECTION



SIDE ELEVATION: BELL TOWER



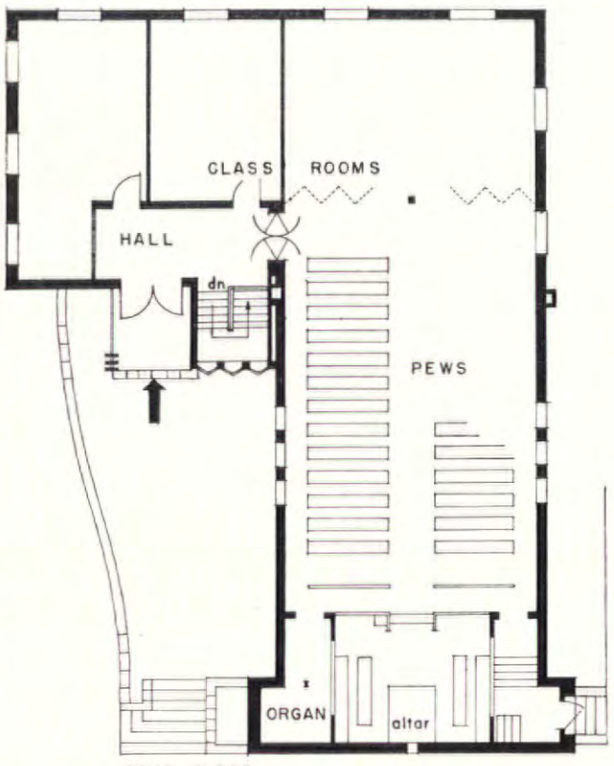
FRONT VIEW OF CHURCH SHOWS SETBACK OF MAIN ENTRANCE TO PREVENT STREET NOISES FROM ENTERING NAVE. BELL TOWER IS DESIGN'S ONLY BOW TO TRADITION.

# CHURCH IN MAYVILLE, N. Y.

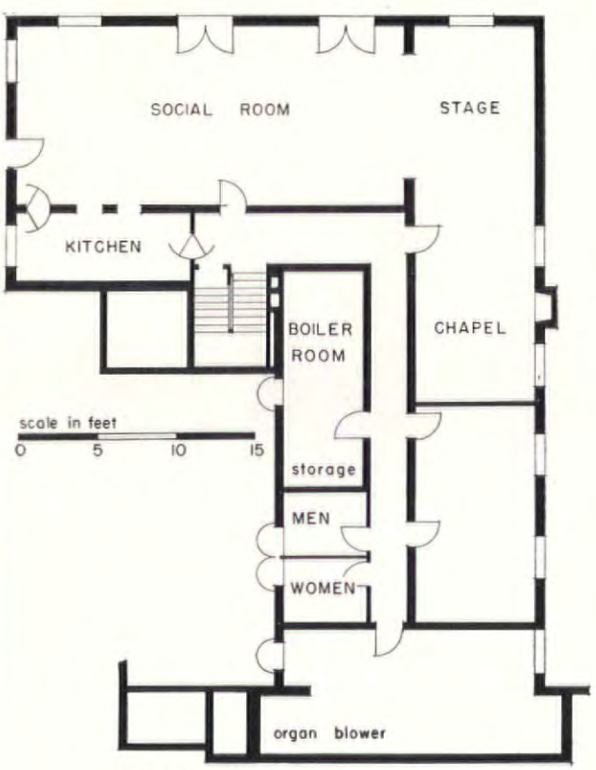
**Chautauqua County Methodists build a dignified, modern church in a conservative small-town community.**

JOSEPH B. WERTZ, Architect

LEO LUDWIG, Ludwig Construction Co., Contractor




FIRST FLOOR



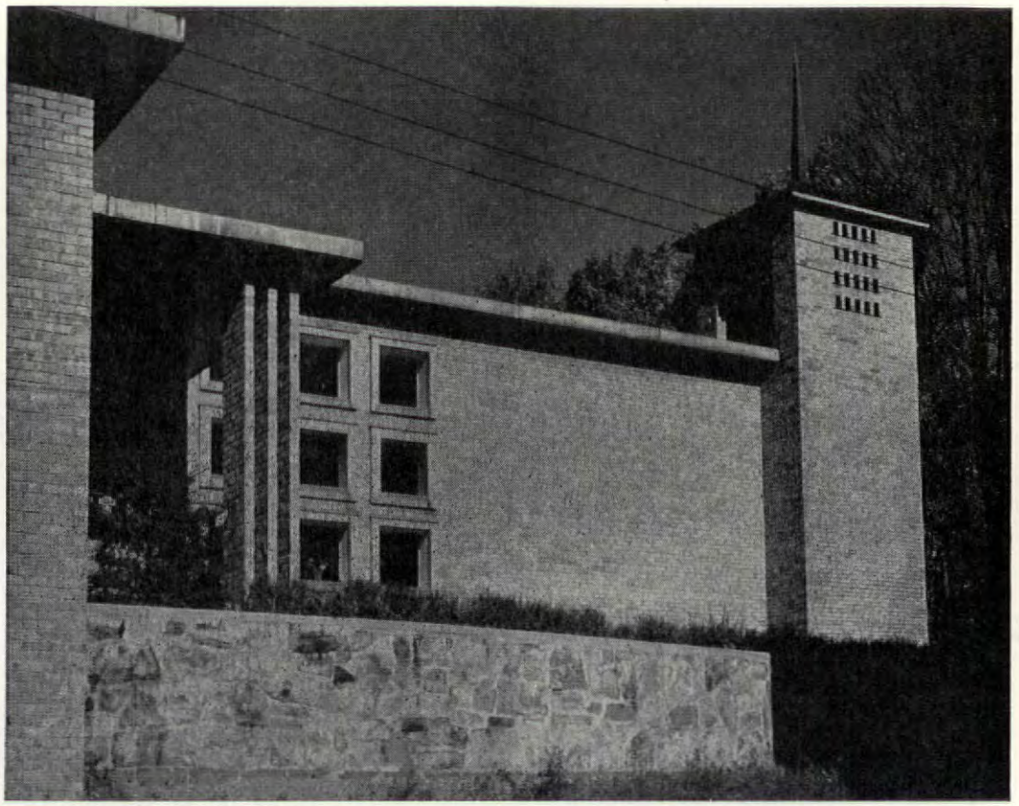

GROUND FLOOR

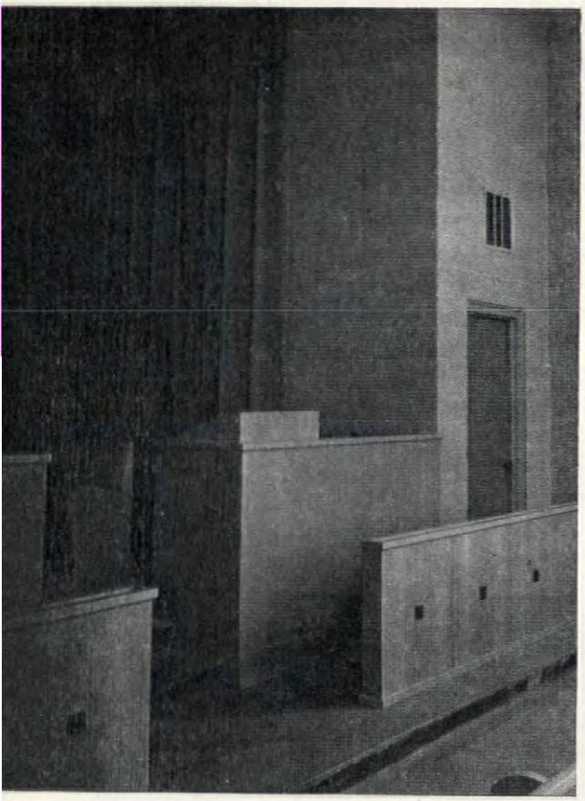
The grip of tradition, which holds most securely in the field of religious architecture, has been relaxing to some extent in recent years. This unpretentious Methodist church in Mayville, N. Y. is but another addition to the growing number of contemporary designs. Like most modern churches, however, this unorthodox house of worship was not greeted with unqualified enthusiasm when plans were first presented. Both church officials and the Methodist board of home missions in Philadelphia objected strenuously, preferring an alternate colonial design. The population of Mayville, mostly small business men and retired farmers whose mid-Victorian homes reflect the conservative temper of the community, could hardly be expected to jump at the chance for a modern building. In addition, the colonial scheme cost $700 less than the modern solution—although this saving was actually counterbalanced by the asset of fireproof construction in the latter. Under such circumstances, only the determined backing of the local committee made possible the final choice of the contemporary design. Since its completion, however, both minister and congregation have come to take great pride in their architectural achievement. The church has become so well-known that it attracts tourists and local citizens who never before attended services, and because of this enthusiasm, the debt of $18,000 has been paid off in less than four years.

The architect's problem was to design a church characteristic of the community—a simple rural environment without pretense or show. Low cost was, of necessity, an important factor. The choice of native brick for the exterior, cinder block for interior walls and stone for the floors—unadorned by carpets —was therefore practical as well as esthetically pleasing. Normal seating capacity is 100 persons, but two class rooms at the rear of the church are equipped with folding walls to allow extension of the nave in case of a larger-than-usual crowd. The basement includes a choir room, an adult meeting hall complete with stage and a modern kitchen and dining room for church socials.

SIMPLE PEWS, PULPIT AND ALTAR ARE OF POLISHED BLOND MAPLE

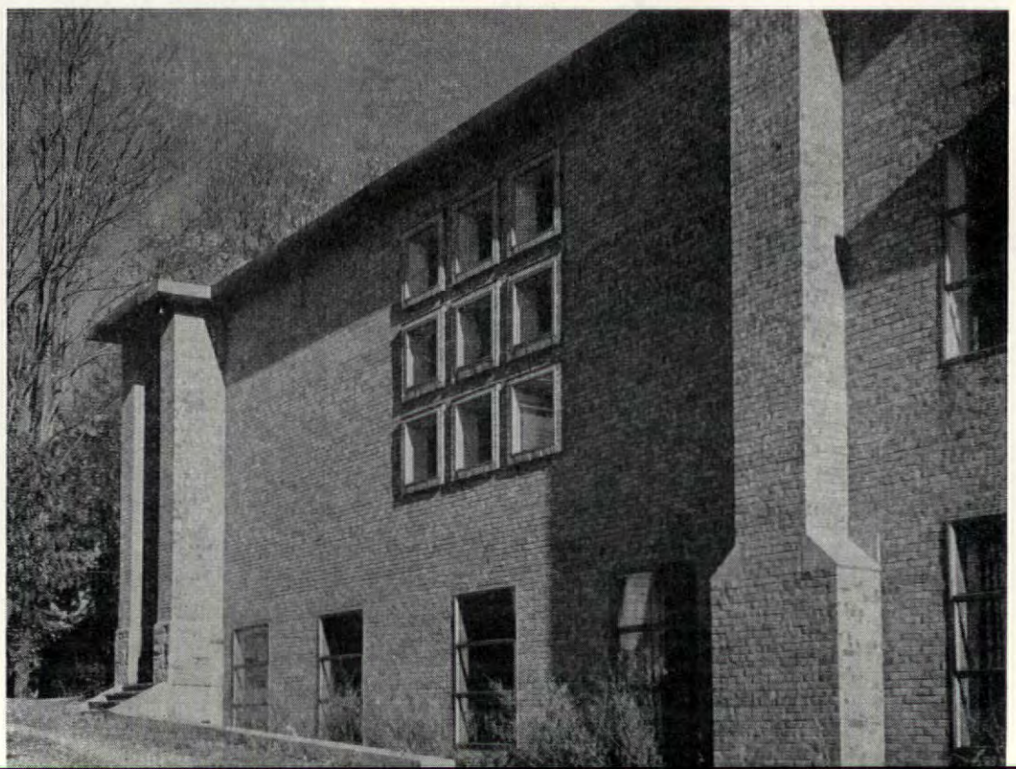
CHURCH IN MAYVILLE, N. Y.





SIDE VIEW SHOWS CORNER OF ENTRANCE PORTICO AND DECORATIVE BRICK PIER. INTERIOR (LEFT) IS DETAIL OF SIMPLE PULPIT AND CHOIR STALLS

GROUPED WINDOWS PROVIDE LIGHT AND VENTILATION IN NAVE, LOWER WINDOWS IN SOCIAL ROOMS. SIMPLICITY OF DESIGN IS MARRED BY CHIMNEY PROJECTION



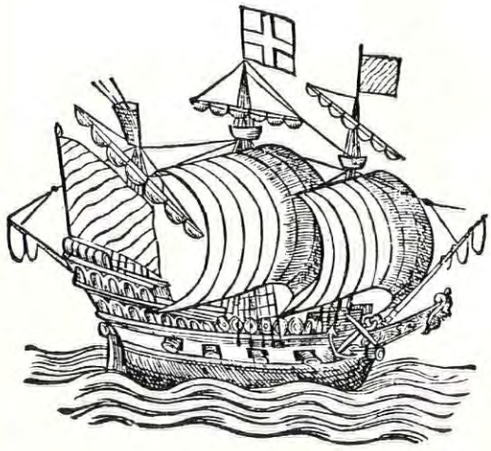
# HOUSES USA

## A brief review of the development of domestic architecture in America.

## Part I, 1607–1820.

*In answer to requests from South America, the Department of State recently commissioned LIFE and The Architectural FORUM to create a traveling exhibition on U. S. architecture. As the exhibition had to travel by air, the many technical problems of weight, size and durability became the responsibility of LIFE's Department of Photographic Exhibitions, while FORUM's editors were set the task of proving they could look backward as well as forward. The resulting technical and historical solutions were fused into a handsome, coherent exhibition by Janet Henrich O'Connell, formerly Supervisor of Circulating Exhibitions for the Museum of Modern Art.*

*As two Spanish and two Portuguese versions of the show began tours of South America, English versions went on display at the Metropolitan Museum and the Architectural League in New York, to be followed by other scheduled appearances throughout the United States. The reception accorded the New York showings indicates that Americans have reached a moment where a brief recall of their architectural heritage is appropriate. For those in the building industry, it should be of interest to review the triumphs and failures of our current housing attempts against such a background. The FORUM has therefore developed this printed version of* HOUSES, U.S.A., 1607-1946, *dividing the exhibit into three parts corresponding to the colonial, middle and contemporary periods of our architectural development. Parts II and III will appear in the March and May issues.*



### FIRST HOUSES, 1600-1700

Spanish colonial rule had been active in Central and South America for almost a century when the first European settlers built their houses along what is now the eastern coast of the United States.

English, Dutch and Swedish settlers came to North America early in the seventeenth century in search of land and religious freedom, or to develop trade in furs and agricultural products. Their first permanent houses reflect directly the varied backgrounds from which they came. For, like all colonists, they built what they best remembered, changing their methods only as changes in climate and materials demanded.

The middle-class Englishmen in the northern colonies copied the heavy frame houses of English towns, continuing to employ the overhanging upper stories which had given added room in crowded Old World streets, but which were hardly necessary in the New World wilderness. Since wood was plentiful and the climate extreme, the Colonists soon added a covering of clapboards for extra insulation. Farther south, formal Jacobean manor houses appeared on the rich landed estates. Much of the building around New York was to retain a Dutch flavor long after English rule intervened in 1664. And the Swedish settlers brought with them to Delaware the log cabin, a form so admirably suited to the new land that it has been used by forest dwellers and pioneers ever since. The Indians of the Atlantic seaboard had no highly developed building skills as did those of Mexico and Peru; only in the Spanish southwest did native custom affect building.

from EUROPE

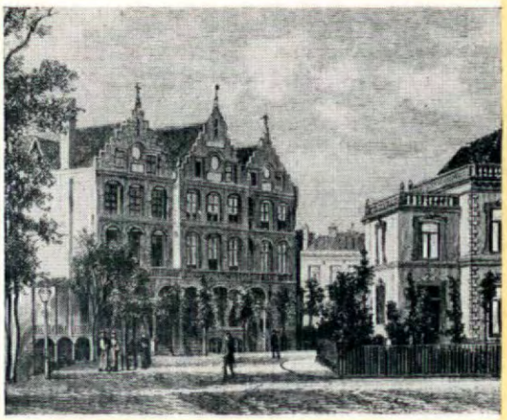
to AMERICA

**England**
House in Kent

1621

**Massachusetts**
Street in Boston

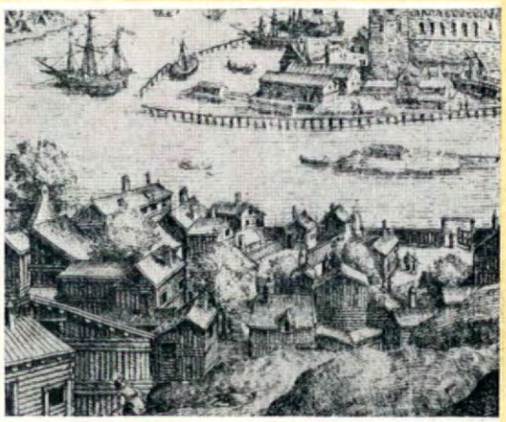
**Holland**
Street in Amsterdam



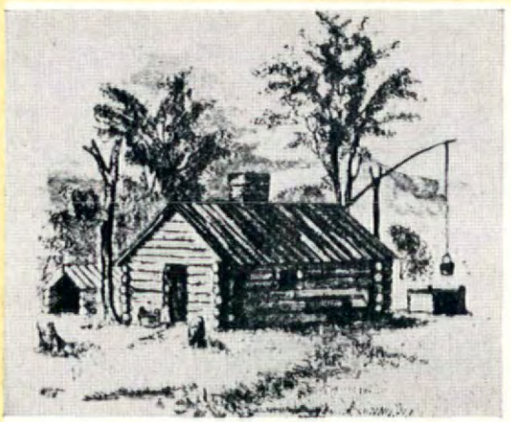
1624

**New York**
City Hall

**Sweden**
View of Stockholm



1638



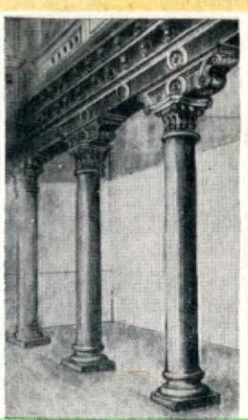
**Delaware**
Drawing by
Washington Allston

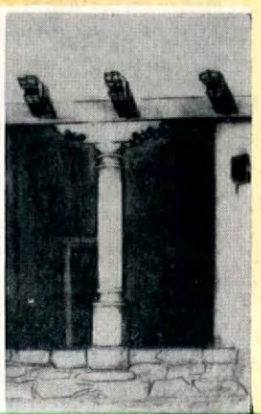
**England**
Ford House, Devonshire

1607

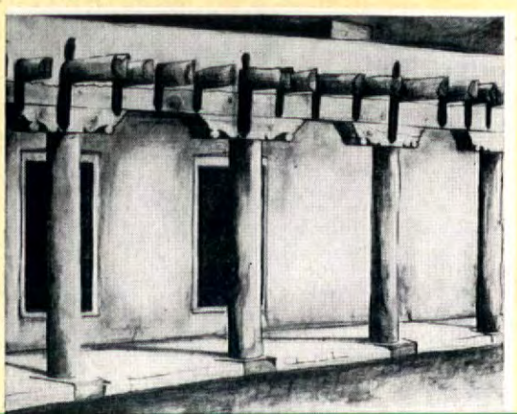
**Virginia**
Bacon's Castle

**Spain & Mexico**
House in Salamanca
House in Michoacan





1609



**New Mexico**
Governor's Palace,
Sante Fe

# LATER COLONIAL HOUSES, 1700-1800


By 1700, the North American colonies were predominantly English. Formal architecture followed English Renaissance ideals, although other national backgrounds continued to be subtly evident in much of the simpler building.

Following the Peace of Utrecht in 1713, trade with Europe increased. More and more settlers arrived. The cities along the northern seaboard grew, and colonists pushed inland, building new towns or isolated farmhouses with lumber cut as the land was cleared. In the south, although a few cities developed, the great estates continued to grow in number. And the indentured servants who helped work the plantations, upon gaining independent status, opened small farms of their own.

Wealthy northern merchants and southern planters demanded appropriate residences. This demand, plus the arrival of trained craftsmen and an increasing number of English books on architectural design and practice, resulted in many formal mansions. The owners often acted as co-designers, for knowledge of architecture was then a part of the education of every "gentleman." By the time the colonies declared their independence in 1776, the Georgian influence of Wren and Gibbs had given way to the more delicate classicism of the Adam brothers.

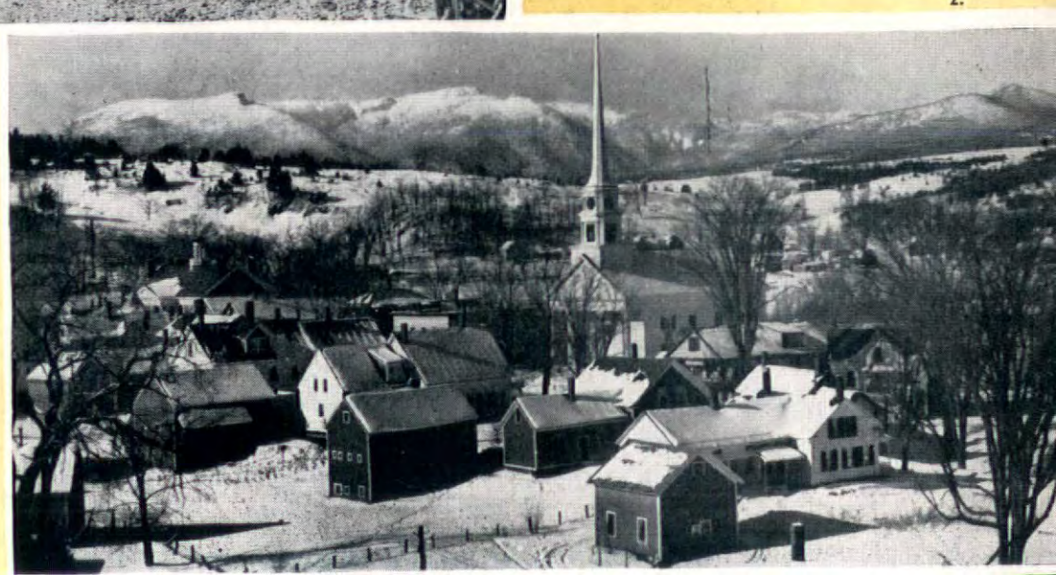
Wood remained, as it has until today, the principal building material. Following the designs in their English "builders' guides," American craftsmen imitated stone forms in wood, often with results of surprising distinction.

1.

*This house (1) of a wealthy New England trader presents a vigorous colonial version of a contemporary English facade. In front, wood imitates ashlar masonry with quoins, while ordinary clapboards sheath the side walls. Built about 1760 in the coastal town of Portsmouth, New Hampshire, it is known as the Wentworth-Gardiner house. The village of Stowe, Vermont (2), retains the characteristic New England town form which was carried westward as the settlers moved inland. Originally, houses were grouped together for protection around a common pasture and the "meeting house" served for religious as well as civic gatherings.*

2.

Samuel Chamberlain



Richardson Studio

*Often the austerely simple exterior of a large house in the northern colonies belied completely its elaborate interiors, as suggested by the stairhall (3) and a parlor (4) of the Lee House (5), 1768, in Marblehead, Massachusetts.*
*In Philadelphia, where the more sophisticated colonists prided themselves on close attention to contemporary English fashions, Mount Pleasant (6), 1761, has few typically American traits.*
*Lacking the skill or the tools to work in stone, colonial craftsmen often used wood for decorative details even when walls were of masonry. The Philipse Manor (7), Yonkers, New York, is one such example, built about 1750.*

4.

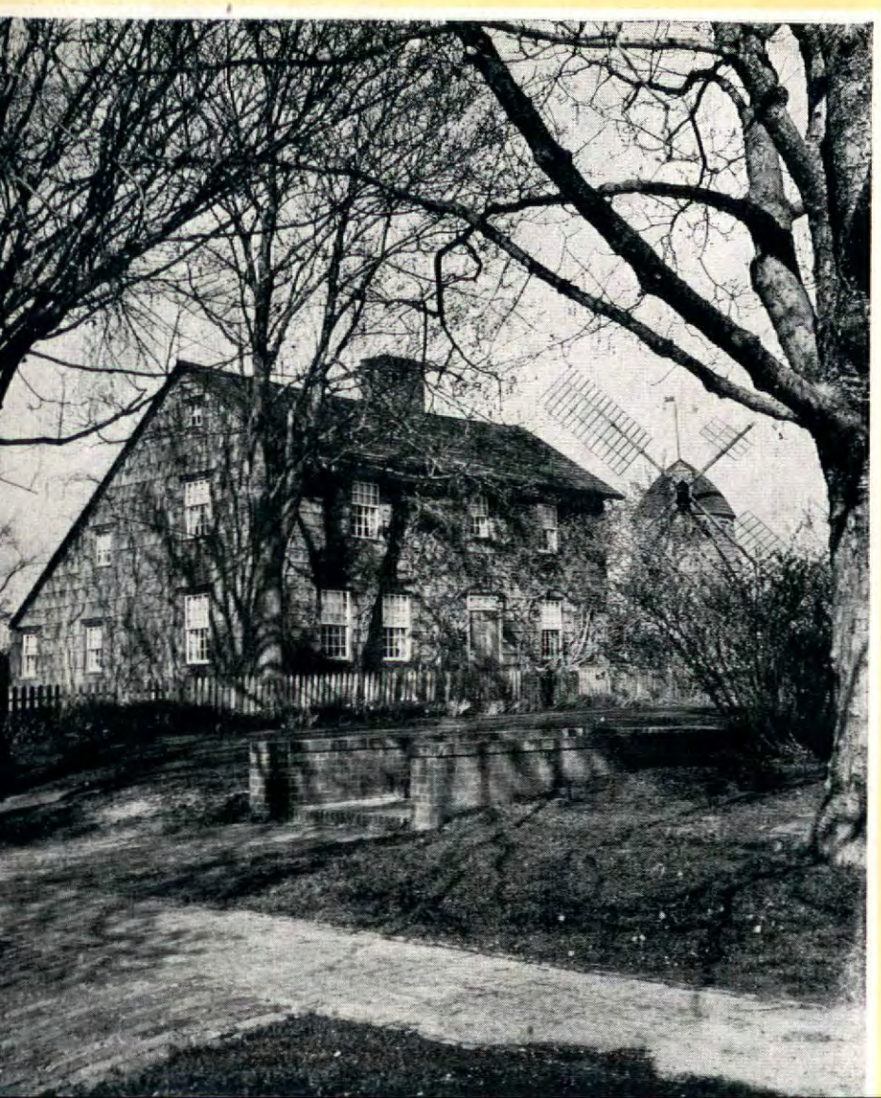
6. F. S. Lincoln

3.

5. Kosti Ruohomo

7. Walter Sanders

William C. Shrout



8.

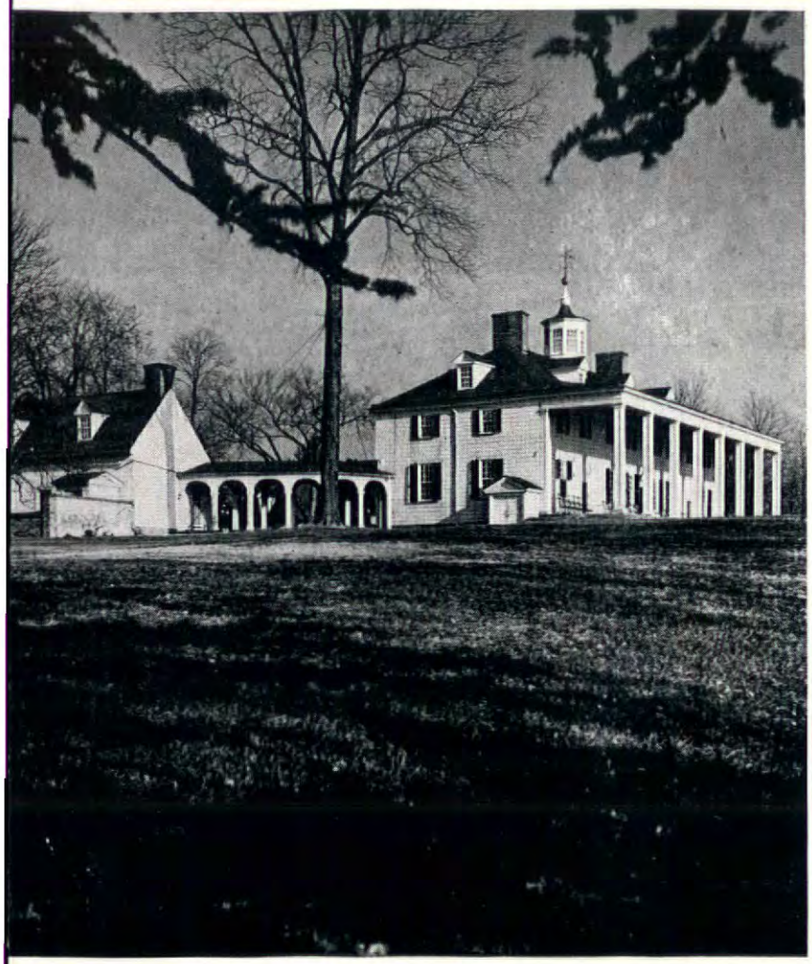
9.

Kosti Ruohoma

*Many country houses and those built by less prosperous northern townsmen were scarcely affected by newly imported architectural fashions. Regional types differed as they developed from neighboring houses of earlier generations. The houses at East Hampton (8), Long Island, about 1700; at Warrenpoint (9), Pennsylvania, 1756; and on Cape Cod (10), Massachusetts, 1750, are interesting variations on a simple basic theme.*

10.

Alfred Eisenstaedt



11.

*Mount Vernon (11) in Virginia, 1758-1778, the home of George Washington, illustrates the plantation form which first developed in the southern coastal colonies and later was carried west and farther south. The main house was the center of a symmetrical composition (12), including quarters for indentured servants and slaves and the variety of service buildings required by such a self-sufficient farm community.*

12.

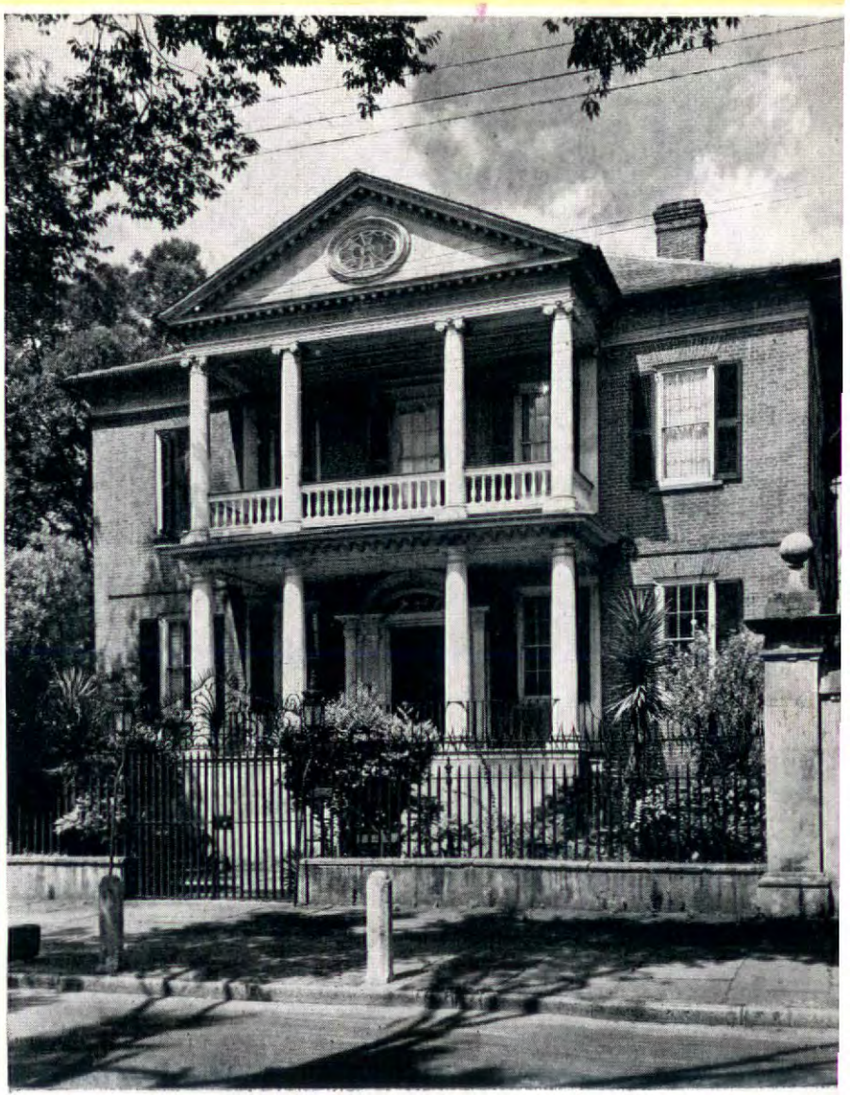
Fairchild Aerial Surveys

*Earlier than Mount Vernon, but more sophisticated, is Westover (13), 1730, perhaps the most charming of the great brick plantation houses along the James River in Virginia. In Charleston, South Carolina, the Miles Brewton house (14), 1765, is a typical city mansion in the southern colonies. The verandah, practically a necessity in the hot climate, was made fashionable with Georgian detail.*

13.

Hansel Mieth

14.



F. S. Lincoln

15. Kosti Ruohoma

16. Historic American Buildings Survey

17. Kosti Ruohoma

*The Brice house (15) in Annapolis, Maryland, 1740, is another example of the large southern town house. But all did not live in such splendor. Many simple wooden plantation houses (16) were in use, and the poorer merchant class in cities combined shops and homes (17), such as the one at right built soon after the French settled New Orleans in 1718.*

## HOUSES OF THE YOUNG REPUBLIC, 1780-1820

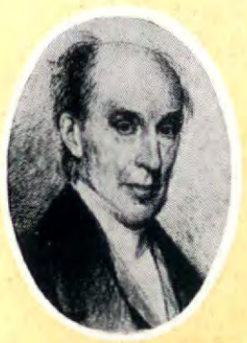
With the successful conclusion of the Revolution in 1781, the thirteen colonies became a republic, anxious to develop cultural as well as political independence. Two trends in architecture became evident. One was a further development of the earlier tradition, based on the delicate forms of the late English Renaissance with characteristic American variations. Books on this English-American style of design were now published in the United States and were responsible for the fine wood detail of cornices and porticos on houses far to the south and west, even after the style had been superseded in coastal urban centers.

The second trend was introduced by the statesman-architect, Thomas Jefferson, with the support of George Washington. Designs based on ancient Roman architecture became the accepted mode for official buildings. This more monumental style was reflected in many of the larger houses of the period.

The professional architect now appeared for the first time. The men whose work is shown here were among the best known but by no means the only talented designers. Architects from France and England and Americans trained in Europe joined the native craftsmen and gentlemen-architects in producing buildings for the young republic.

**SAMUEL McINTIRE**
**1757-1811**

*McIntire gained national renown as the architect of many houses and public buildings in his native city of Salem, Massachusetts, where he was known as woodcarver and furniture designer as well as master builder. The Pierce-Nichols house (1), built when he was twenty-four years old, shows the hand of an accomplished and confident designer. Under the influence of his contemporary, Bulfinch, the massive dignity of his early work gave way to a restrained and delicate elegance, admirably displayed in the facade (2) and a fireplace (3) of the Pingree house, built in 1805.*



**CHARLES BULFINCH**
**1763-1844**

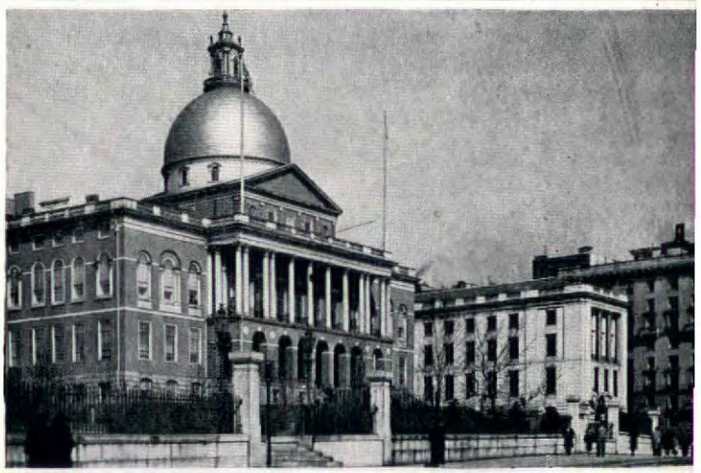
*Starting as a wealthy and cultured amateur, Bulfinch became a professional architect of impressive achievement. Although best known for his public buildings, such as the Boston State House (5), and for his work on the United States Capitol, he designed a number of handsome houses —two of which, the Larkin house (4), Portsmouth, New Hampshire, and the Otis house (6), Boston, 1805, are shown here. Late eighteenth century English architecture was his source of inspiration, but his personal style, far removed from slavish imitation, achieved a restrained elegance.*

1. Samuel Chamberlain

2. Samuel Chamberlain

3. Kosti Ruohoma

4. Samuel Chamberlain



5.

6. Essex Institute

**THOMAS JEFFERSON**
**1743-1826**

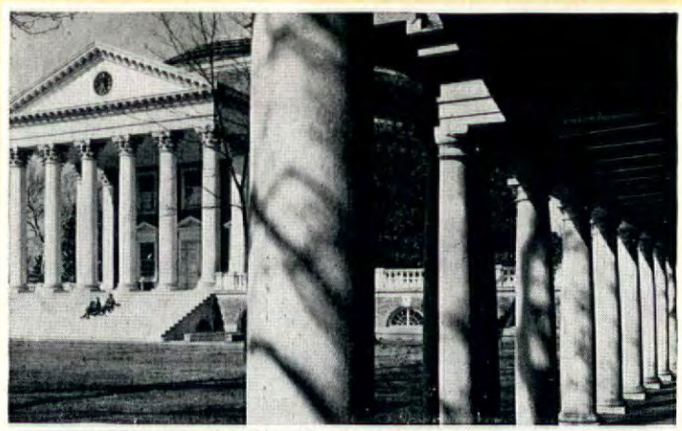
*The remarkable third President of the United States was statesman-diplomat, author, scientist and architect. While serving as U. S. Ambassador to France, he saw the Maison Carré at Nimes and used it as the prototype for his Virginia State Capitol, the first large copy of an antique temple in either Europe or America. Jefferson was a strong advocate of the return to ancient classic forms in architecture, and a passionate student of Palladio.*

*His own home, Monticello (8), he used as a constant architectural experiment from 1771 to 1809. The University of Virginia (7), at Charlottesville, was Jefferson's most ambitious work, while the home he designed for General Cocke at Bremo in Virginia (9), 1818, represented perhaps his most integrated residential style.*

**BENJAMIN HENRY LATROBE**
**1764-1820**

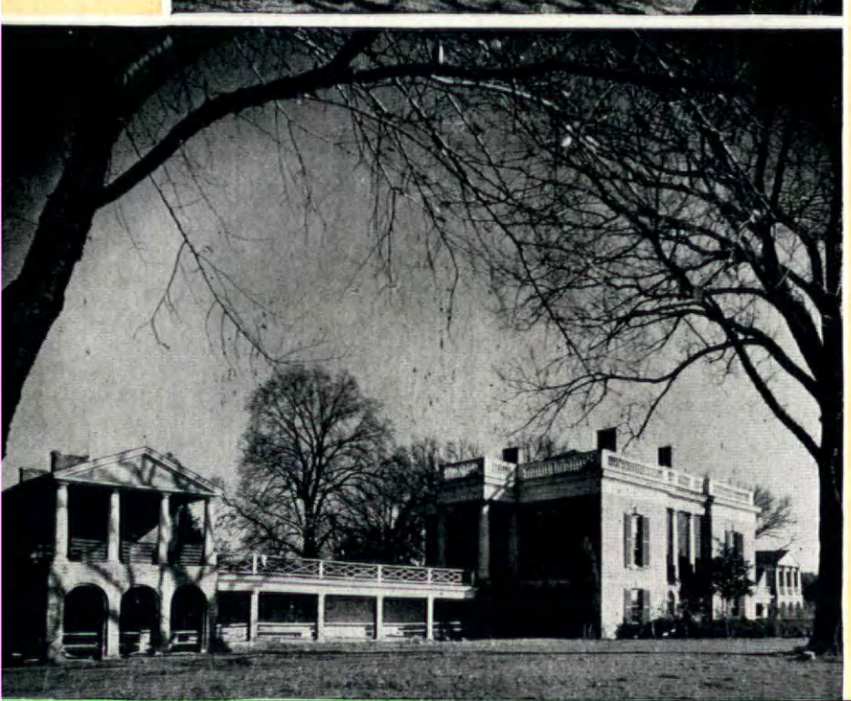
*Latrobe has been called the father of the architectural profession in the United States. A successful architect and engineer before he emigrated from England, he made a unique contribution to his adopted country. Not only did he practice architecture with brilliance and imagination, he also set for his pupils and contemporaries the highest of professional standards.*

*While in charge of construction on the United States Capitol, Latrobe designed two "American Orders" based on corn (10) and tobacco. In the Bank of Pennsylvania (11), Philadelphia, 1798, perhaps the first Greek Revival building in this country, he used Ionic columns reminiscent of the Erectheum. One of his residences still standing is the Decatur house (12), built in Washington, D. C. in 1819.*

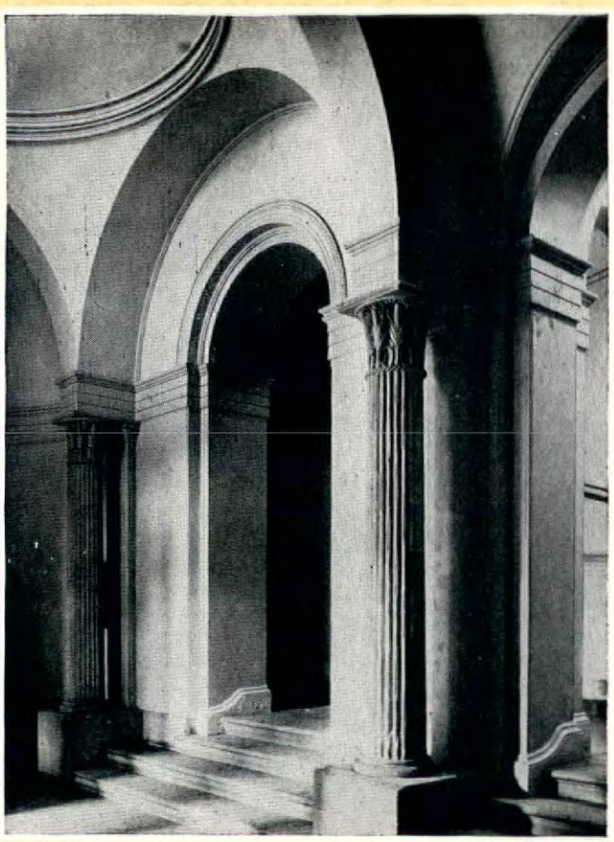


7. Alfred Eisenstaedt

8.



9. Kosti Ruohoma



10. I. T. Frary

11. Maryland Historical Society

12. Historic American Buildings Survey

# THE INDUSTRIALIZED HOUSE — only survivor of the Wyatt program, it may be the decisive factor in housebuilding's future.

When Wilson Wyatt walked out of Washington last month, accompanied by the small tearing sound of the last shreds of his Veterans' Housing Program, many a disgruntled building man concluded thankfully that this was the last that would be heard of Mr. Wyatt and his program. But, whether it knew it or not, housebuilding, although its liaison with the Wyatt program had been both brief and unwilling, would never be quite the same.

Mr. Wyatt's last headlined struggle with the RFC (climaxed by his humiliating discovery that there would be no help forthcoming from the President who, less than a year ago, had pledged "complete and unqualified support" and had directed "all agencies of the government . . . to use every resource at their command to fulfill this program") would soon be forgotten. But as a direct result of Wyatt's now thoroughly gutted program there were some housing newcomers who gave every sign of hitting the headlines for some time to come. Indeed, it was conceivable that the Wyatt program might even be remembered as marking the birth of the industrialized house.

Like many another houser before him, Wilson Wyatt had been lured by the promise of the factory-built house. Unlike many another who, after an ambitious start, had wound up with the familiar compromise of merely moving part of the conventional building operation under a roof, Wyatt had been forced by the circumstances confronting him to adopt a course more likely to pave the way for a really industrialized house. The most important factor pushing Wyatt in this direction was the shortage of conventional building products and the need for the introduction of new and alternate materials.

The wartime birth of the industralized house, confidently predicted by many in the preliminary stages of the war housing program, had failed to come off because materials suitable for this kind of production were pre-empted by war needs. Wyatt faced a directly reversed situation. He had to gear his program to a severe shortage of wood products and to an expected amplitude of metals resulting from war-expanded capacity and surpluses (which, ironically, failed to materialize). This, plus his own feeling that bold new measures were imperative, meant that he offered a helping hand to newcomers whose schemes involved steel, aluminum, porcelain enamel, foam concrete, etc. Few of these materials had been widely tested by housing performance, but they at least promised a radical re-engineering of the housing product and the use of the metal-working machinery and techniques basic to mass production.

This was the very aspect of the Wyatt prefab program that aroused the opposition of the RFC and the antagonism of the existing prefab industry, already solidly entrenched as a result of its government war contracts. With its bankers-eye view of the situation, RFC had been reluctant to advance funds to assist untried methods of housing production and had insisted that housing producers put up at least 20 per cent equity to qualify for a government loan. Wyatt had argued that the whole plan was intended to take care of just the situations that private financers would not consider a reasonable risk.

Although the much-publicized controversy over the proposed Lustron Corp. loan led to a decisive victory for RFC's George Allen and the final scuttling of the Wyatt program, some important gains had been made. While RFC had turned down the three biggest loans proposed by Wyatt ($32 million to Lustron; $15 million to Reliance Homes; $11 million to Higgins)*, it had granted loans to three other producers (Knox Corp., General Panel Corp., Continental Basic Materials). Even more promising was the fact that two applicants for RFC loans had already withdrawn their applications because they had been able to get private financing (Western Gypsum and the Vacuum Concrete Corp.).

It seemed unarguable that Wyatt's program had already supplied not only the initial impetus for a dozen or so impressive new industrialized housing ventures but also the very basis on which they had been able to secure private financing. In this respect, the newcomers in the field had stood particularly in need of the government guaranteed market contracts. Hardly less important were the priorities which assured them access to raw materials markets, while some of them were considerably aided by the promise of government war plants (notably General Panel, see NEWS, p. 8).

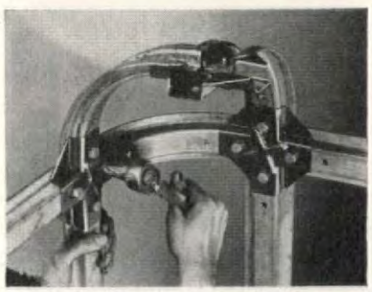
After considerable investigation, FORUM editors are convinced that among these newcomers are enterprises which are worth the careful study of every building man. Practically all of these producers have given their plans the kind of study rarely seen in a factory-built house. Many of them have supplemented their production formula with a merchandising formula designed to appeal to small building men forced out of the present materials market. Their selling prices, geared to a measurably lowered production cost, promise to have a deflationary effect on the present inflationary housing market. With this issue, the FORUM presents four of these new industralized houses, to be followed by others in subsequent issues.

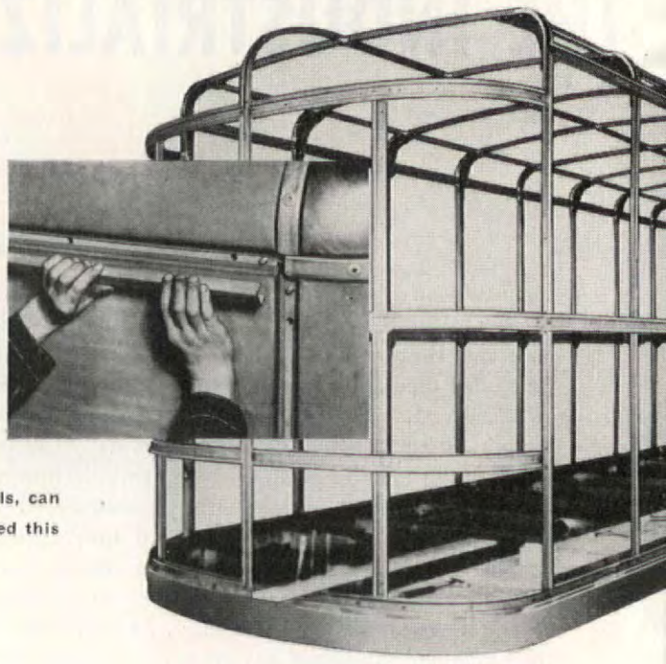
When the gentlemen in Washington sat down last month to piece together the tattered shreds of something they might be able to call a Veterans' Housing Program, the outlook for the factory-built house, like that for every other building enterprise, was extremely uncertain. So far, the prefab industry as a whole had seemed to merit Wyatt's initial confidence. By last October, when 30,300 units were produced, rate of production had increased four times over what it was at the beginning of the year. But production dipped in November when the general price decontrol order was issued. If the government dropped housing priorities and allocations of scarce materials, all kinds of housing production would have a tough time in the materials market for a long while to come. But, on these counts, the fellows with factory-built houses in their pockets would stand in a scarcely less favorable position than any other housing entrepreneur. If their respective formulas clicked, they might even stand in a considerably more favorable one.

* As we go to press, RFC announced it had re-opened consideration of the Higgins and Reliance loans.

# THE HARMAN CORPORATION. A big newcomer to industrial housing produces a packaged, all-metal unit.

## Its pleasant, conventional appearance belies the fact that the structure was borrowed from the heavy transportation field.





**RIGID LIGHTWEIGHT STRUCTURE,** consisting of steel frame and stressed steel panels, can be assembled with little more than a power screwdriver. Harman has readily adapted this structural system from the truck body above to the house seen at right.

Newcomers not only to housing but to the building field itself, Philadelphia's William H. Harman Corporation is directed by men from heavy machine industry. President William H. Harman, Sr. is a veteran locomotive builder; his son, W. H., Jr., left Baldwin Locomotive's Testing Machine Division for house manufacture; G. H. Froebel, vice president in charge of sales, spent 25 years with Westinghouse; while Max Essl, vice president in charge of engineering, has 25 years in diesel engines to his credit. Only L. E. Lee, vice president in charge of building operations, and Oscar Stonorov, consulting architect, come from the building field itself. Yet, despite (or perhaps because of) their lack of detailed knowledge of the business, these men have created an industrialized house and a company to merchandise it. Both house and company are sensibly designed.

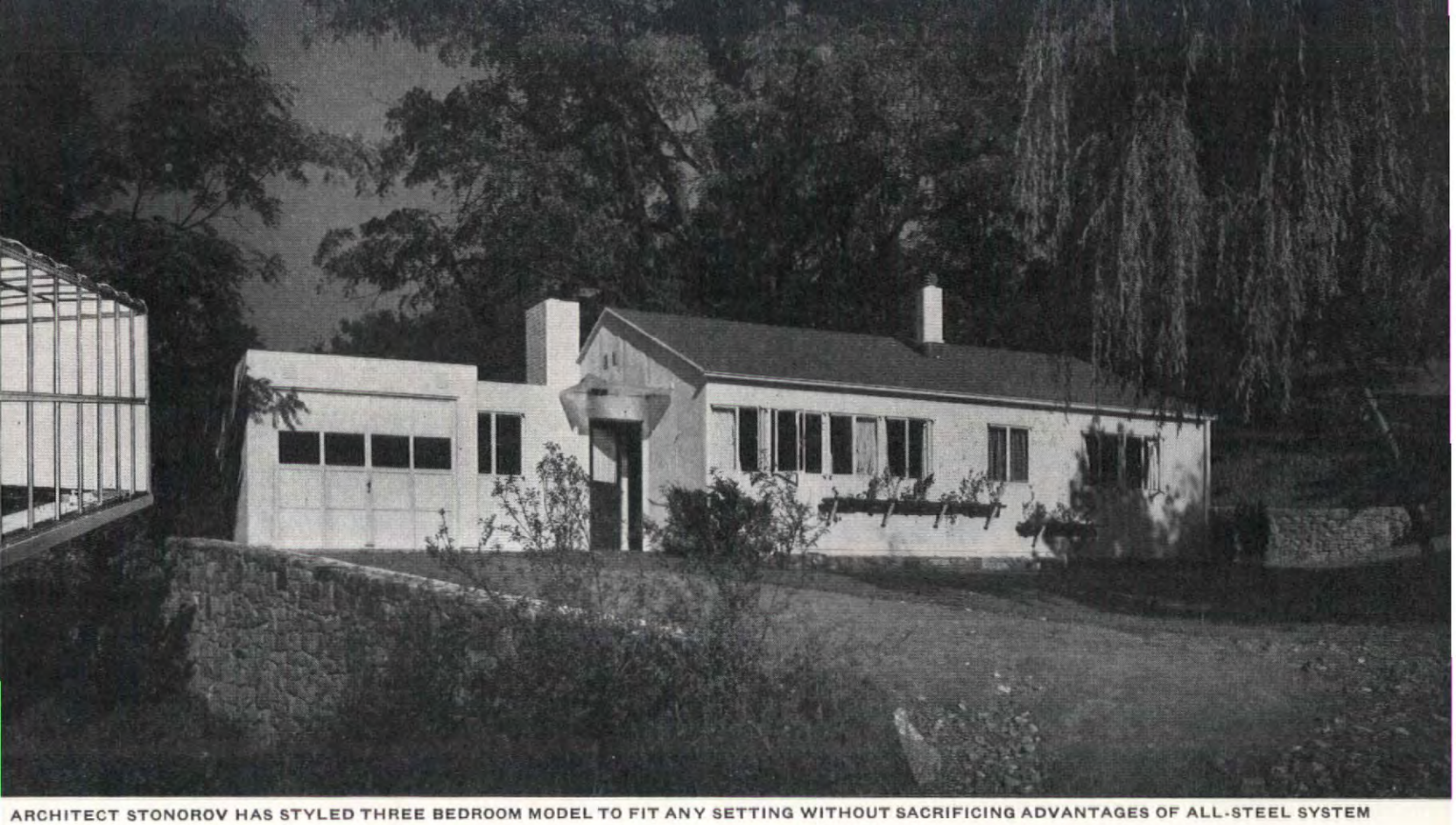
The company began by short-cutting the time-consuming process of working out a structural system from the ground up. They did this simply by finding one which was already in production and adaptable to their purposes. The system selected was the all-steel monocoque shell developed by Chicago's Lindsay Corporation for specialized truck bodies. Its ruggedness established in this grueling service, the Lindsay system was modified by Harman engineers to meet architectural standards of appearance, insulating value, field assembly, etc. Lindsay will manufacture this modified system exclusively for Harman.

Except for foundation and floor—which the builder provides—all structural components of Harman's two- and three-bedroom houses will be assembled at their Wilmington, Del. plant and shipped in 8½ to 11 ton packages to the building site. Actually, Harman will do little plant fabrication, since the house is largely site-assembled from precisely-fabricated and labeled parts. (In this sense, it resembles one of the older "pre-cut" wooden houses more than a panel prefab.) However, all cutting, fitting, punching and mitering is done at the shop so that erection calls for little more than a power screwdriver and a hammer. Many time-devouring operations have been moved into the shop. For example, the electrical wiring system is delivered to each house as a completed "harness." Each run of wire is cut to proper length, and connected to the corresponding outlet or fixture. The plumbing stack is also prefabricated, delivered in the basic package ready for connection to fixtures and utilities.

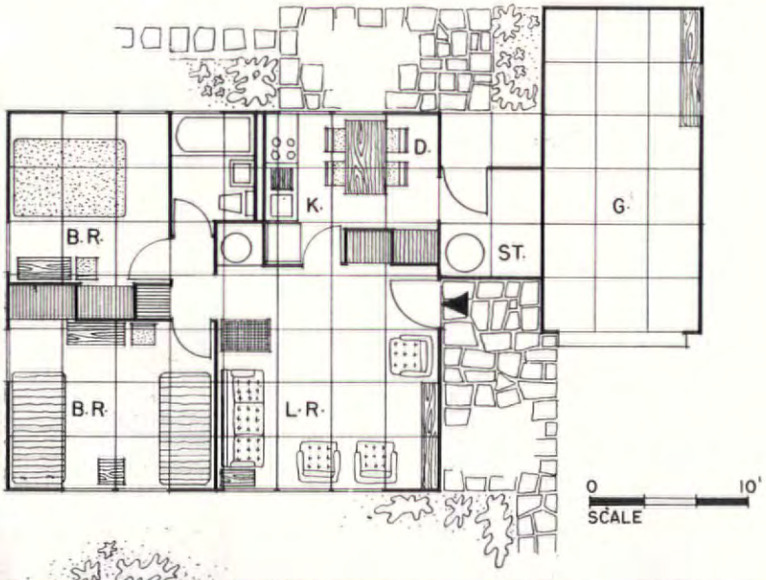
Because of its basic conception as a package of site-assembled parts, the Harman house has the great merit of being truckable to any point east of the Mississippi at a cost of no more than $200. The corollary of this, of course, is a comparatively high site labor requirement. In the company's opinion, this will be offset by its low f.o.b. prices—from $3,250 to $4,080—for the package shipped from the factory. This means a price range for completed house and lot of from $6,000 to $7,500.

One of the first to get structural approval from Wyatt's office and one of the few to get a market guarantee from Allen's RFC ($38,000,000), the Harman Housing Corporation was in a favorable position at year's end to turn out its first houses in March of this year. Like all prefabricators in these precarious times, Harman plans to feel its way in the matter of distribution and merchandising. For the present, however, it plans to deal directly with dealer-builders—preferably large ones. Later on, it may sell directly to individuals whom builders can follow up.

OIL PAINT AND SAND GIVE METAL EXTERIOR WALLS PLASTER-LIKE MATT FINISH

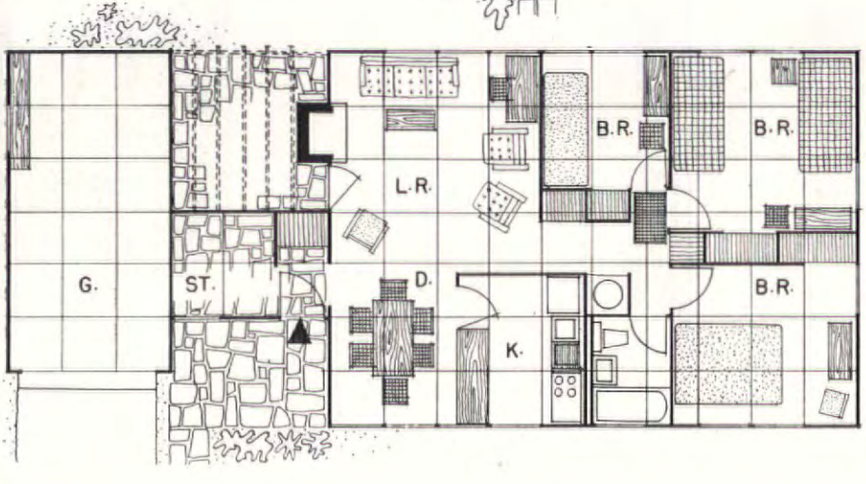


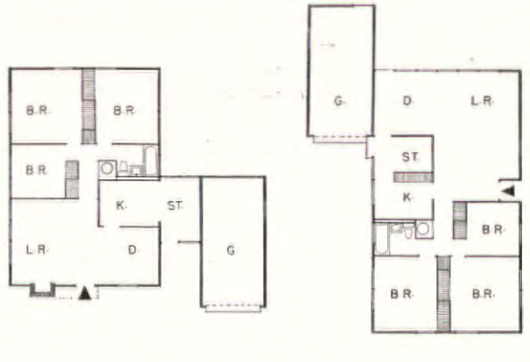
ARCHITECT STONOROV HAS STYLED THREE BEDROOM MODEL TO FIT ANY SETTING WITHOUT SACRIFICING ADVANTAGES OF ALL-STEEL SYSTEM

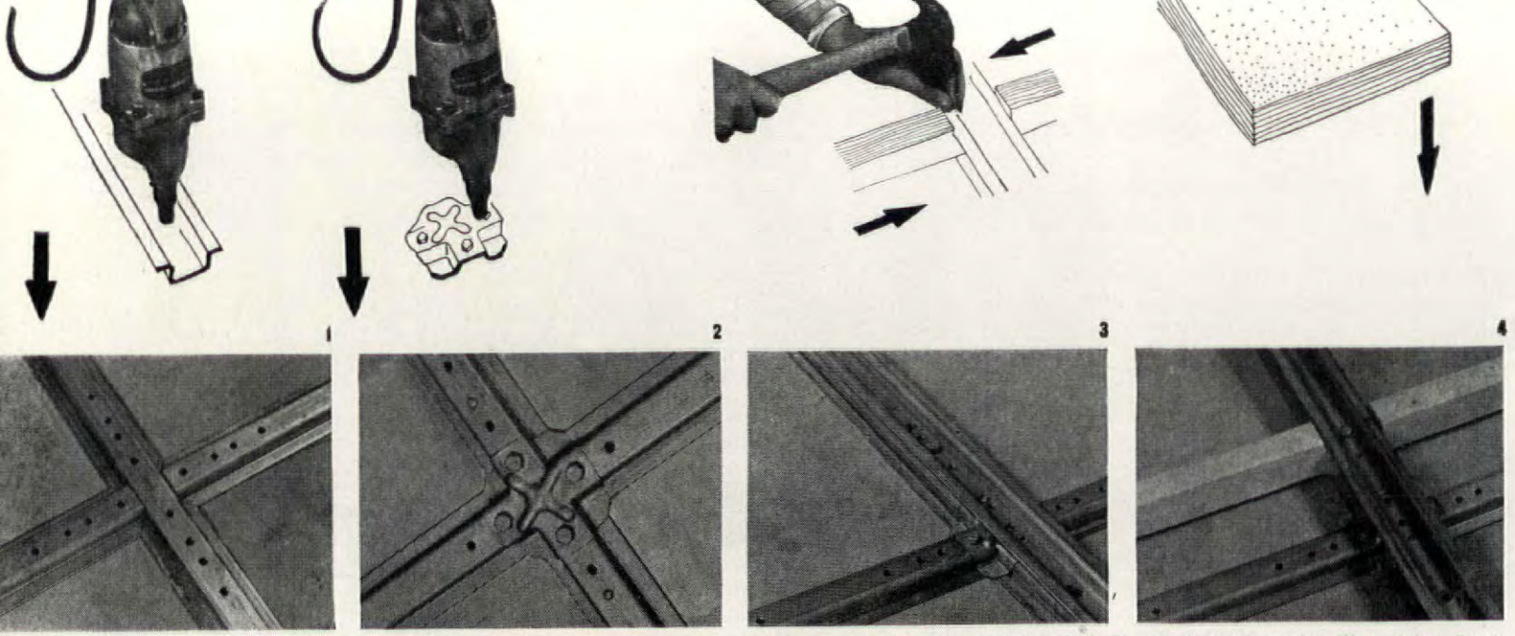




**EIGHT DIFFERENT MODELS** of single story, two- and three-bedroom houses will roll off Harman lines at a peak production rate of 1,500 homes per month. Styling—ranging from semi-modern to Colonial—permits variations in siting, fenestration, location of garages, porches and terraces. Fireplaces are extra.





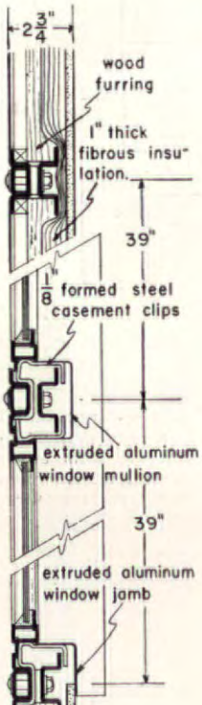

**SEEN FROM INSIDE,** panel has been clipped to vertical channel, horizontal braces placed (1). Molded crossplate is then bolted on (2). Inner vertical channel completes stud (3). Horizontal wood nailing strips, fixed between studs, are ready for insulation (4). Any finish may then be attached.

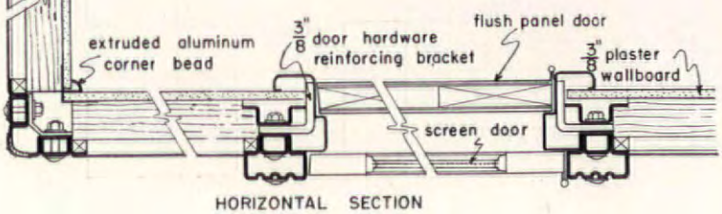
**THE WALL** of the Harman house is ventilated by a continuous air space between its outer steel membrane and the blanket-type insulation. This not only minimizes any danger of condensation within the wall but adds materially to its summertime comfort performance, serving to exhaust heat before it enters the insulation. The same ventilation principle is employed on a larger scale in the roof. All steel elements in the wall are factory-processed to hold a painted surface over a long period of time. Protection against lightning is obtained by grounding the house.

Another interesting feature of the Harman wall system is the horizontal wood nailer. This not only permits the installation of any type of interior finish (although plaster board will be the standard) but also frees the interior from any dependence on the module of the outer wall.

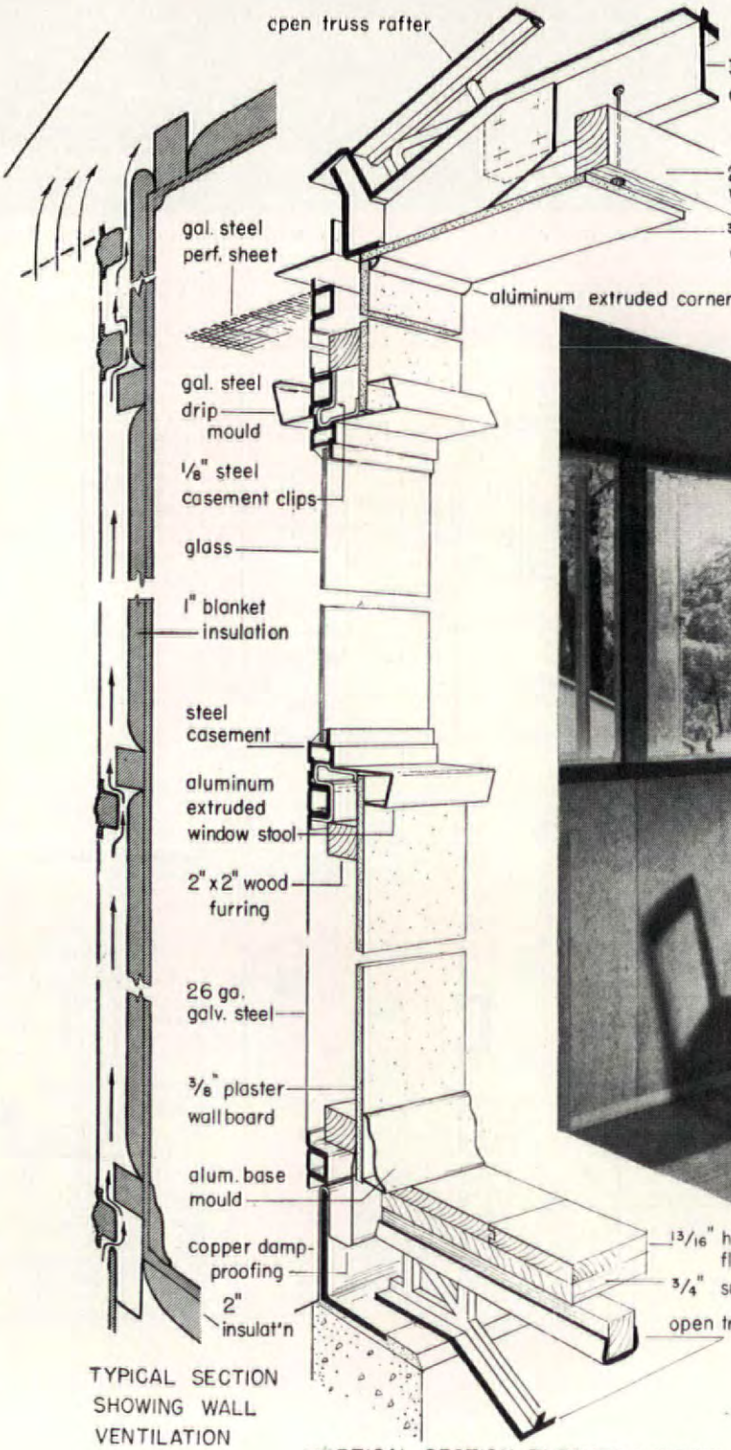
Insulation materials are flame-proofed and fire resistant. Interior walls and partitions are of fire-proofed plasterboard on metal studs. Trim and jambs are all-metal. Thus, all materials used tend to reduce to the barest minimum any chance of damage by rats, mice or termites.

**KITCHENS WILL BE EQUIPPED** with double sink and tray combination, an undersink cabinet, base cabinet, overhead hanging cabinets and a cooking range. Bathrooms have waterproof wall coverings and are supplied with lavatory, toilet, bathtub, shower, medicine cabinet and various accessories. Each Harman home contains a hot water heater and a hot air heater, thermostatically controlled for operation by either oil or gas. Sheet metal gutters, downspouts and leaders are supplied. Piping is furnished in pre-cut "stack" form. Electric wiring comes as a semi-assembled "harness" complete with either wall or baseboard outlets. Porches, window boxes, screens and storm sash are among numerous accessories available at a corresponding low cost.



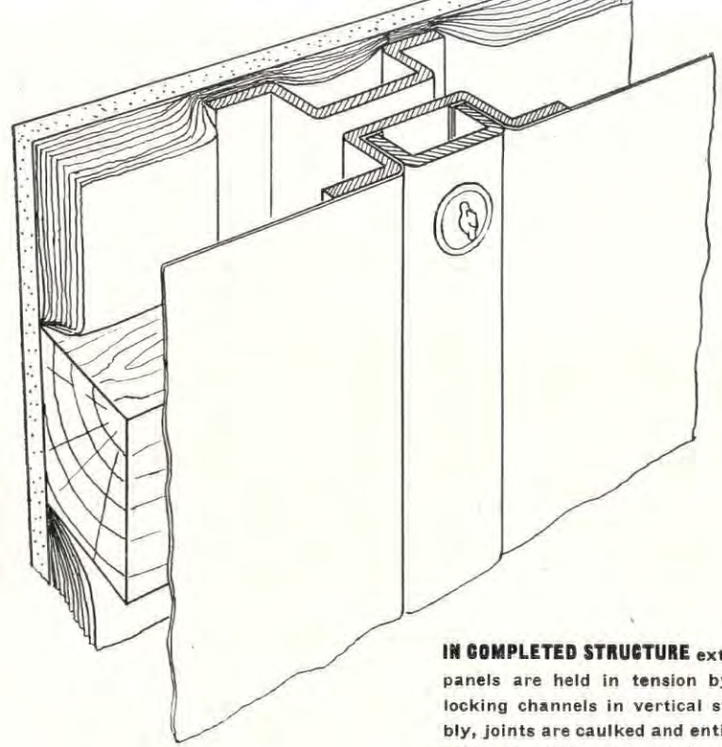




HORIZONTAL SECTION

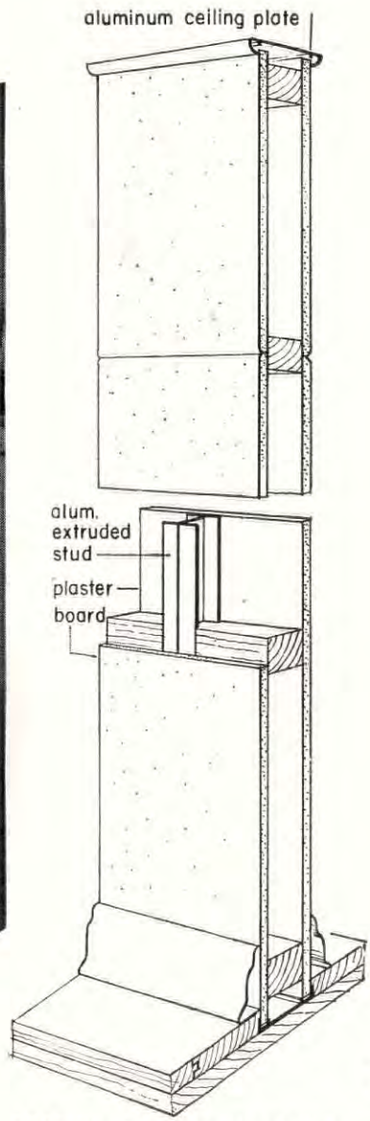



TYPICAL SECTION SHOWING WALL VENTILATION

VERTICAL SECTION THROUGH WINDOW

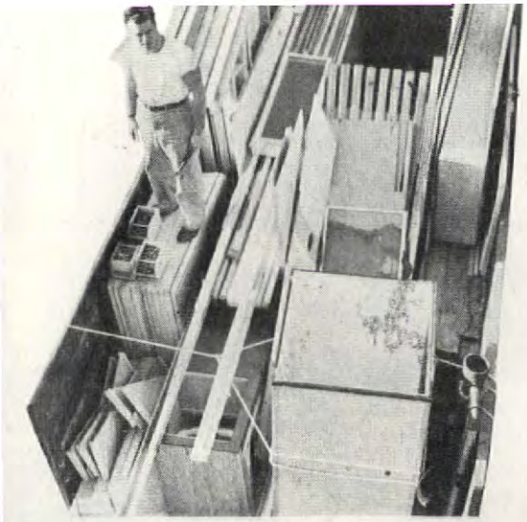


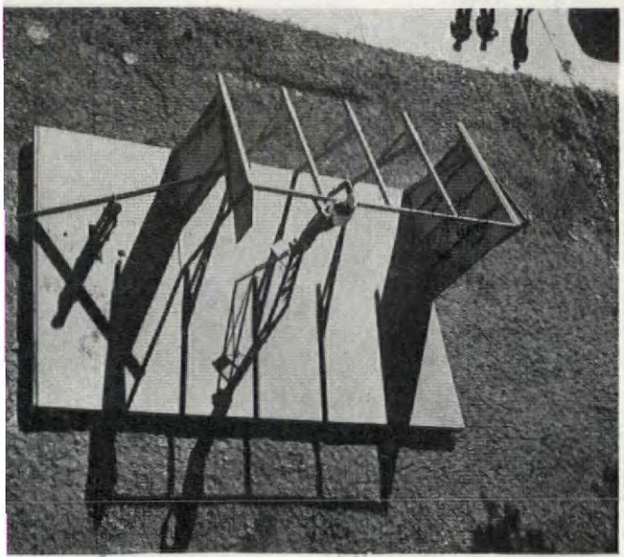
**IN COMPLETED STRUCTURE** exterior wall and roof panels are held in tension by ingenious interlocking channels in vertical stud. After assembly, joints are caulked and entire surface sprayed with oil paint and sand in a single operation. Nailing strips carry insulation and interior finish, thus preventing through-wall heat conduction.

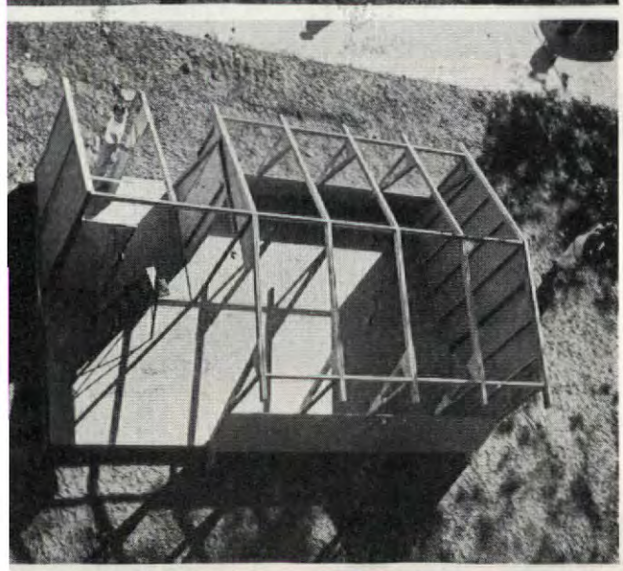


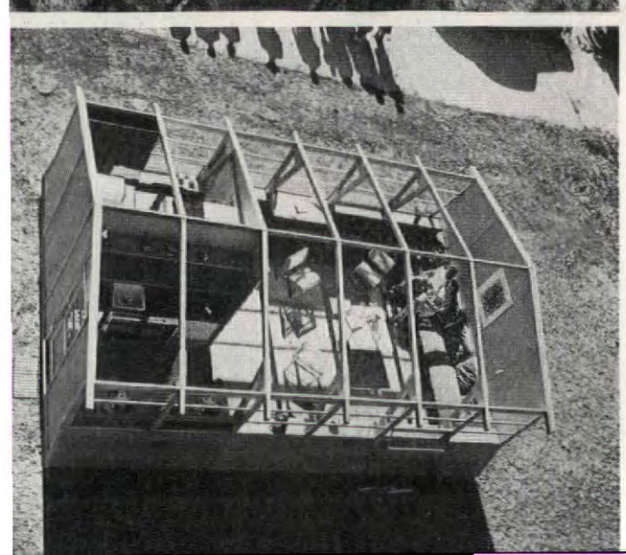

SECTION THROUGH PARTITION

*Gottscho Schleisner Photos*









# PRODUCTION LINE STRUCTURES, estimating its chances in a competitive situation, decides on a regional product for a strictly local market.

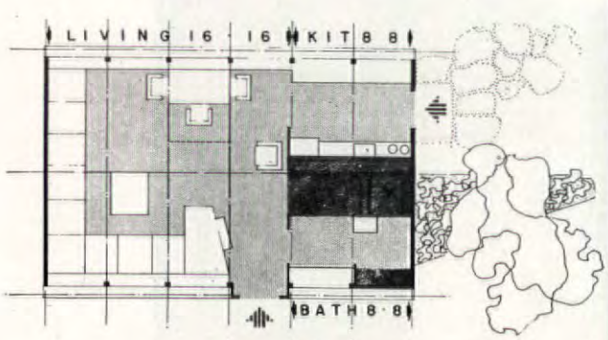
The young man at left is showing how one person can buy a complete house, truck it to the site, erect it himself and move in—all in one day. The structure pictured is actually only a demonstration—the roof is not on, the plumbing not connected and the lot not bought. But it does point up the cardinal virtues of the "California Cabin"—its completeness, lightness, ease of assembly and pleasant finished appearance. There is an admirable modesty to both the Cabin and the operational plans of its manufacturers, Production Line Structures. The house is designed for the mellow Los Angeles climate, where heating season and frost lines are no problem at all. Gearing itself to this compact, homogeneous market, Production Line had a regional product and—originally—no ambition to export it. However, to their surprise, they have been successfully selling the Cabins in similar climates as far east as Phoenix, Ariz. and as far west as Hawaii and the Philippines. For export, the smallest unit is shipped in one 6,000-lb. crate measuring 8 ft. x 7 ft. x 16 ft. The Cabin is sold in three variations of a basic plan for $1,975, $2,475 and $3,125, f.o.b. Santa Monica, Calif. It can be bought as a complete package at the plant and erected by the buyer. Or the company will erect it, ready to move into, on the buyer's lot. In the latter case, financing under one contract is available.

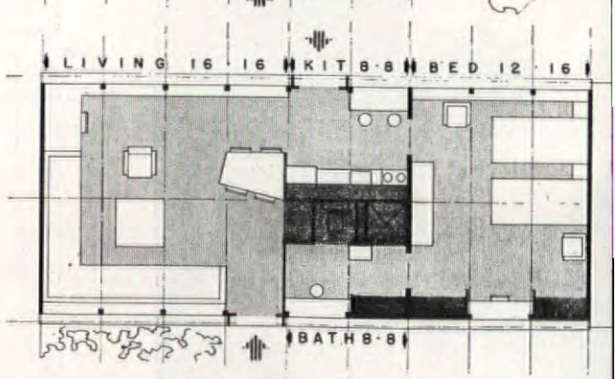
Structurally, the Cabin employs what Architect Kenneth Lind calls a "trussed modular system." This consists of a series of regularly spaced, rigid frames; wall panels with doors, windows or solid panels which fit snugly between the frames; shop-fabricated end walls and interior partitions; and a plywood roof panel installed and surfaced at job.

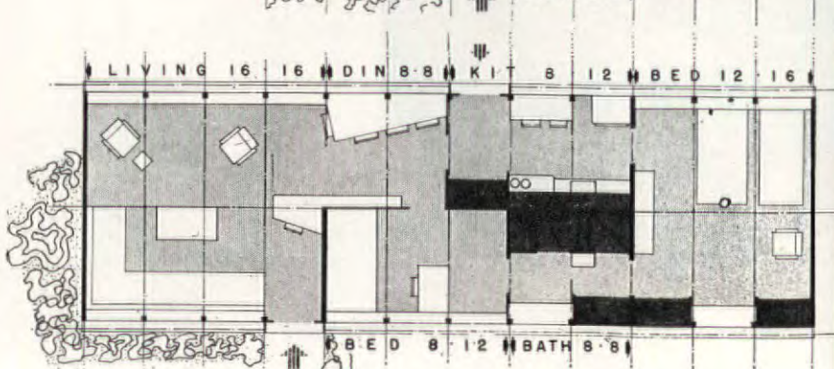
Production Line is at present merchandising their system in three house packages although, as the houses on the facing page indicate, the system is flexible enough to meet a wide range of plan problems. These packages include kitchen cases, counter shelving and hardware; sash, doors and screens; prefabricated rough plumbing and all fixtures. If erection is included in the contract, all excavation, foundations, wiring, roofing, caulking and linoleum are provided.

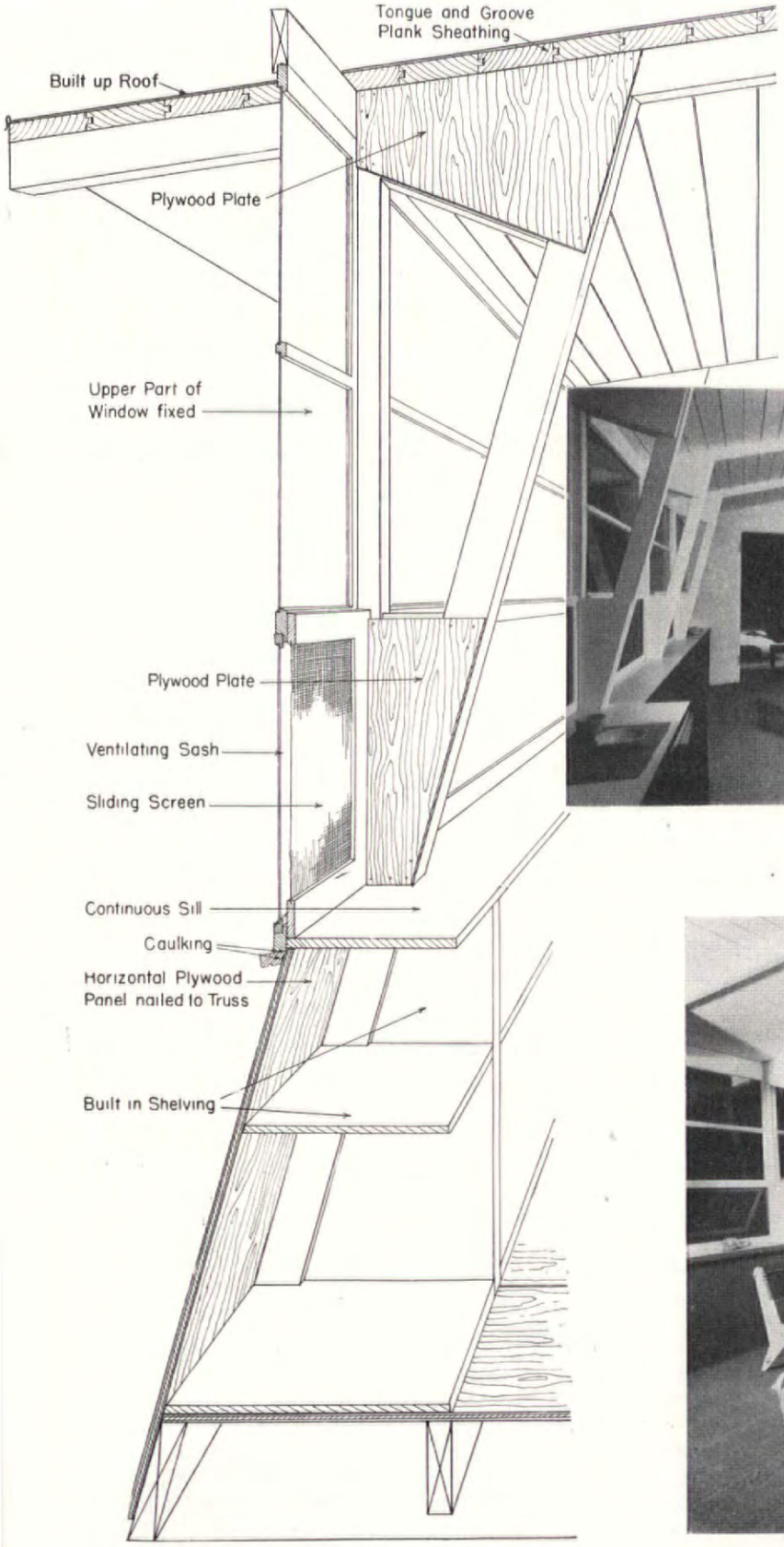
In their anxiety to produce a really complete product, Production Line Structures has gone yet a step further. They are manufacturing a line of knock-down furniture and selling it in packaged cartons, ready for assembly. From the boards of the well-known west coast designer, Herbert Matter, this moderately-priced line adds a note of real distinction to California Cabin interiors (facing page).

**CABINS ARE SOLD** in three basic packages shown at right. However, because of its modular character, the system has been adapted to many other plans (see bottom, facing page).



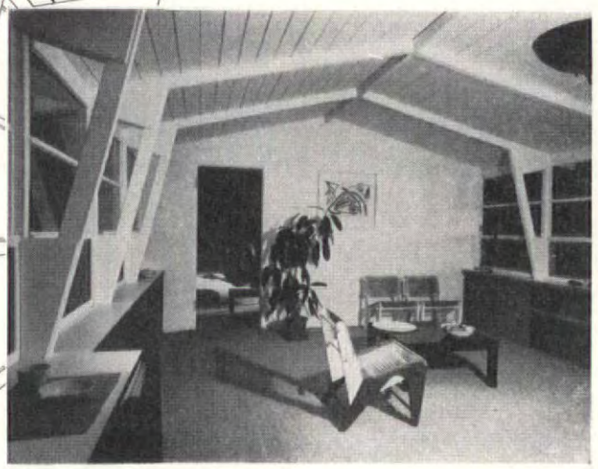



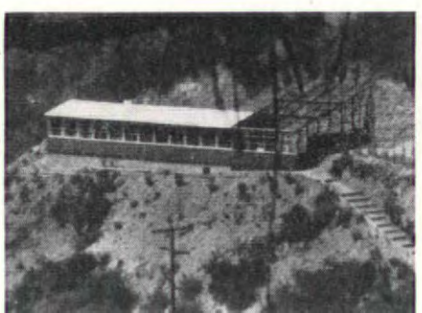



**Site labor totals only 284 man-hours for largest unit.**

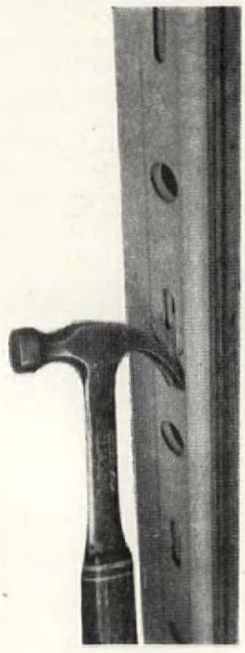
| Unit Type | "B" | "C" | "D" |
|---|---|---|---|
| Excavation | 8 | 12 | 16 |
| Concrete | 16 | 20 | 32 |
| Forms | 8 | 11 | 16 |
| Building Erection | 36 | 52 | 72 |
| Plumbing | 20 | 30 | 40 |
| Wiring | 10 | 15 | 20 |
| Roofing | 8 | 12 | 16 |
| Painting | 36 | 54 | 72 |
| Total Site Labor | 142 | 206 | 284 |
| Shipping weights | 6,000 lbs. | 9,000 lbs. | 12,000 lbs. |

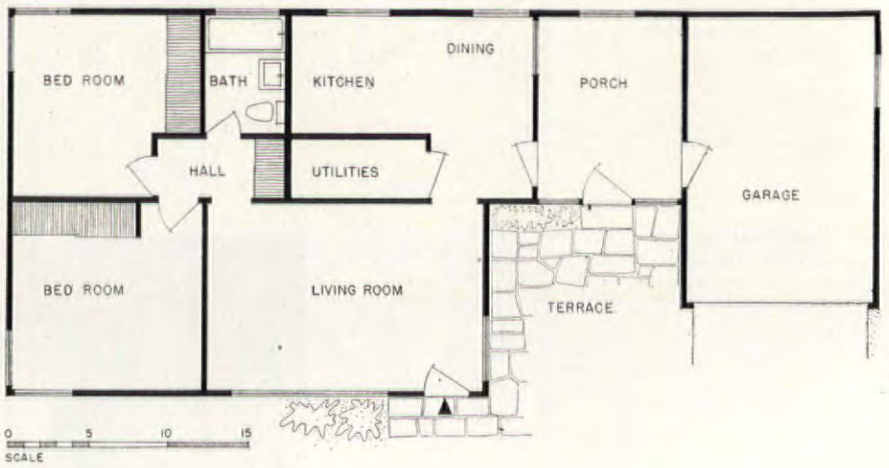


**THE SIMPLE AND EFFECTIVE** framing system consists of a series of shop-fabricated rigid frames supporting a modular panel system of windows, doors and solid walls. T-and-G plank ceiling used in this early model is now replaced by hollow plywood roof panels, surfaced with tar and gravel after erection.



# BUTLER MANUFACTURING CO., one of the midwest's oldest fabricators of steel, turns to aluminum in this house which carpenters can assemble and the public will mistake for wood.






**Appearance of Basic House** may be varied by different placement of garage, porch, fenestration and entrance door.

When it unwrapped this all-aluminum house in October, the Butler Manufacturing Company was not exactly a newcomer to the building field. For almost half a century, this Kansas City firm had been manufacturing all sorts of specialized structures for the farms, filling stations and oilfields of the midwest. Just prior to the war Butler had a short-lived but amicable arrangement with Buckminster Fuller to convert grain bins into temporary houses. (FORUM, June '41, p. 425). During the war Butler built—along with a raft of miscellaneous items—about 90 per cent of all prefabricated steel hangars shipped overseas to Army and Navy. Thus, unlike many newcomers to the industrialized housing field, Butler had a backlog of technical experience. Luckily they had more than that: manufacturing facilities which could be easily retooled for aluminum; sheet aluminum on order even before V-J Day; and a national organization accustomed to the distribution and merchandising of metal structures. Thus they are among the few house manufacturers whose operations will not be affected by the virtual collapse of the Wyatt program.

The Butler-Built Home resembles the Harman product on severela important counts. Like Harman, Butler manufactures only a structural shell. This consists of a factory-fabricated metal system which is shipped as a package of precision parts to be assembled at the site. The Butler package does not include foundations or heating, plumbing and electrical systems. These components will be furnished by local dealers, through whom all sales will be made. Obviously, this simplifies Butler's production problems. Except for doors and frames (which are wood), their plant will fabricate nothing but metal parts.

For the present, the Butler people will merchandise only one model—a two-bedroom house with or without garage and breezeway. The basic unit, ready for furniture but not including garage, breezeway or lot, will sell for approximately $7,000. Like all packaged houses, the Butler product implies a comparatively high amount of site labor—900 man hours. But in addition to the fact that it ships easily in a 4½-ton package it is a fairly flexible system which permits a range of floor plans, alterations and additions. Even the basic model permits a number of variations in sitting, door and window placement, location of garage and breezeway (see sketches above).

Heart of the Butler system is an aluminum wall panel and an ingenious locking device. The panel is story-high and is formed with a special 4-in. flange. The flanges of two adjacent panels lock together, tightly enclosing a wood nailing strip, to form what is in effect a strong and rigid stud. The patented locking key (left, above) yields a tight, foolproof joint: since it is driven home with a hammer, this key has the great merit of allowing carpenter labor to erect a metal structure. The panels are automatically aligned by aluminum base and top channels which are bolted to foundation and roof. Interior partitions and ceilings are framed in the same fashion. Thus, the whole assembly is one rigid structure.

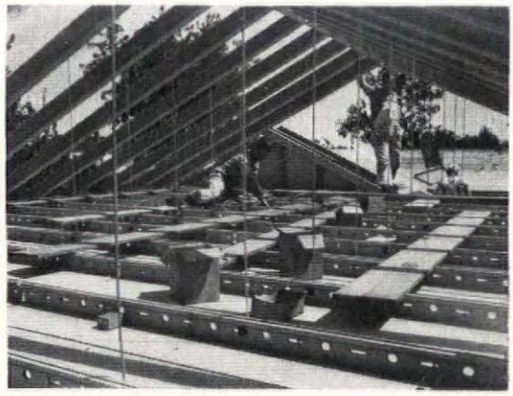
Butler will supply only one type of floor construction—a panel similar to the walls but made of steel with a 6-in flange. Here the panels are laid flange up, locked together and a wooden subfloor nailed directly to the nailer strip. However, any conventional floor construction may be substituted by the local dealer. For the roof, Butler supplies only the steel rafters, ridge plate, aluminum gable and cornice molds. Dealer lays his own roof of wood sheathing and composition shingles.

The system has been ingeniously devised to afford the purchaser a wide choice of surfacing and finish material without committing the Butler plant to fabricating, handling or shipping anything but metal. In every case, the local dealer will supply any finish floor and roof desired. All wall and ceiling surfaces may be aluminum if desired: since all aluminum is treated to receive paint, this will probably be the standard finish (with stainless steel in the kitchen). However, thanks to the nailing strip, one surface of all interior partitions may have any finish desired.

The Butler plant at Galesburg, Ill. is presently geared to produce 100 houses a month, but this volume can be upped sharply if conditions warrant.

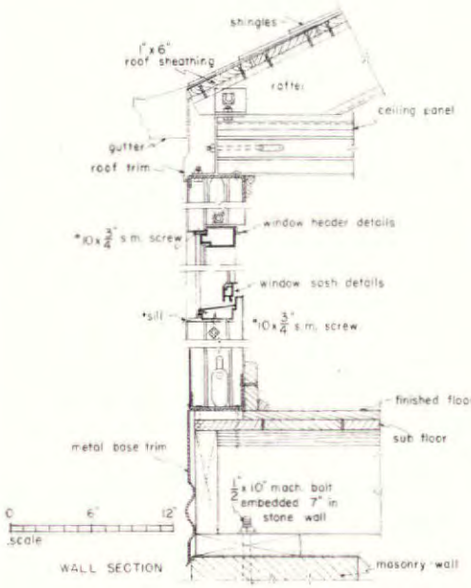
**Packaged Structural System** lies on site, neatly labeled for use with special set of erection drawings.

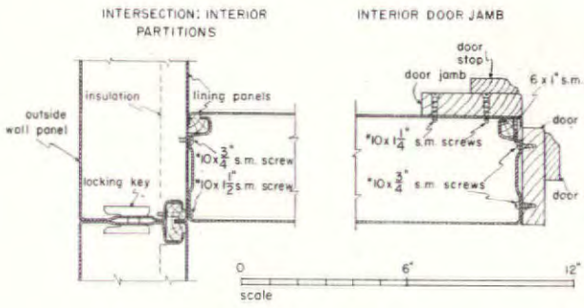
**Wall Panels are Aligned** by bolting into aluminum base and top plates, clipping flanges together.



**Ceiling Panels are Hung** from metal rafters by tie rods. Of same section as wall panels, they are clipped together, filled with loose insulation.

**Insulation is Stapled** directly to wood nailer. Any type of finish may be applied on top of this.

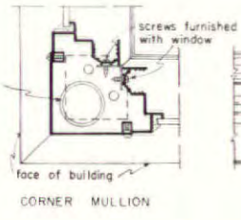


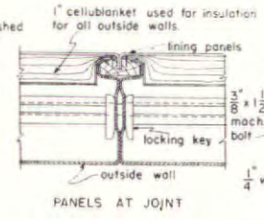



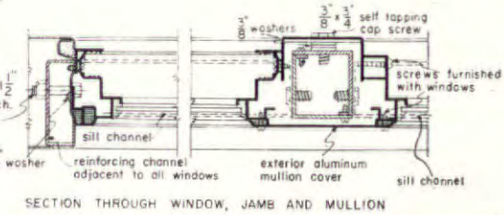




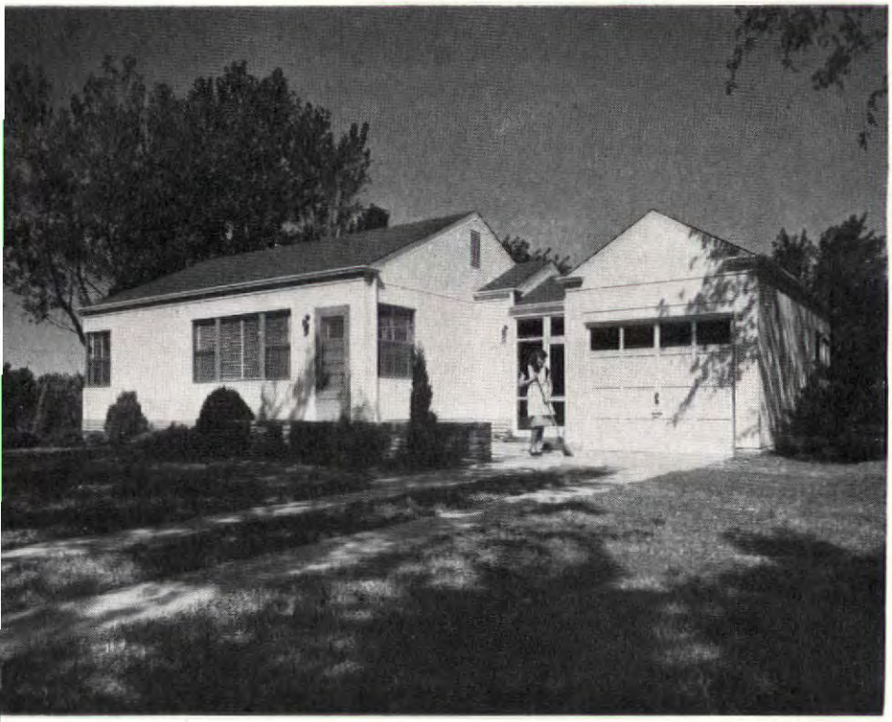
**Erection Details** show how Butler has formed sheet aluminum to yield strong, lightweight walls and partitions. Window frames and sash are also of aluminum.

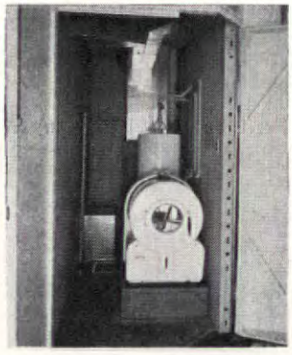


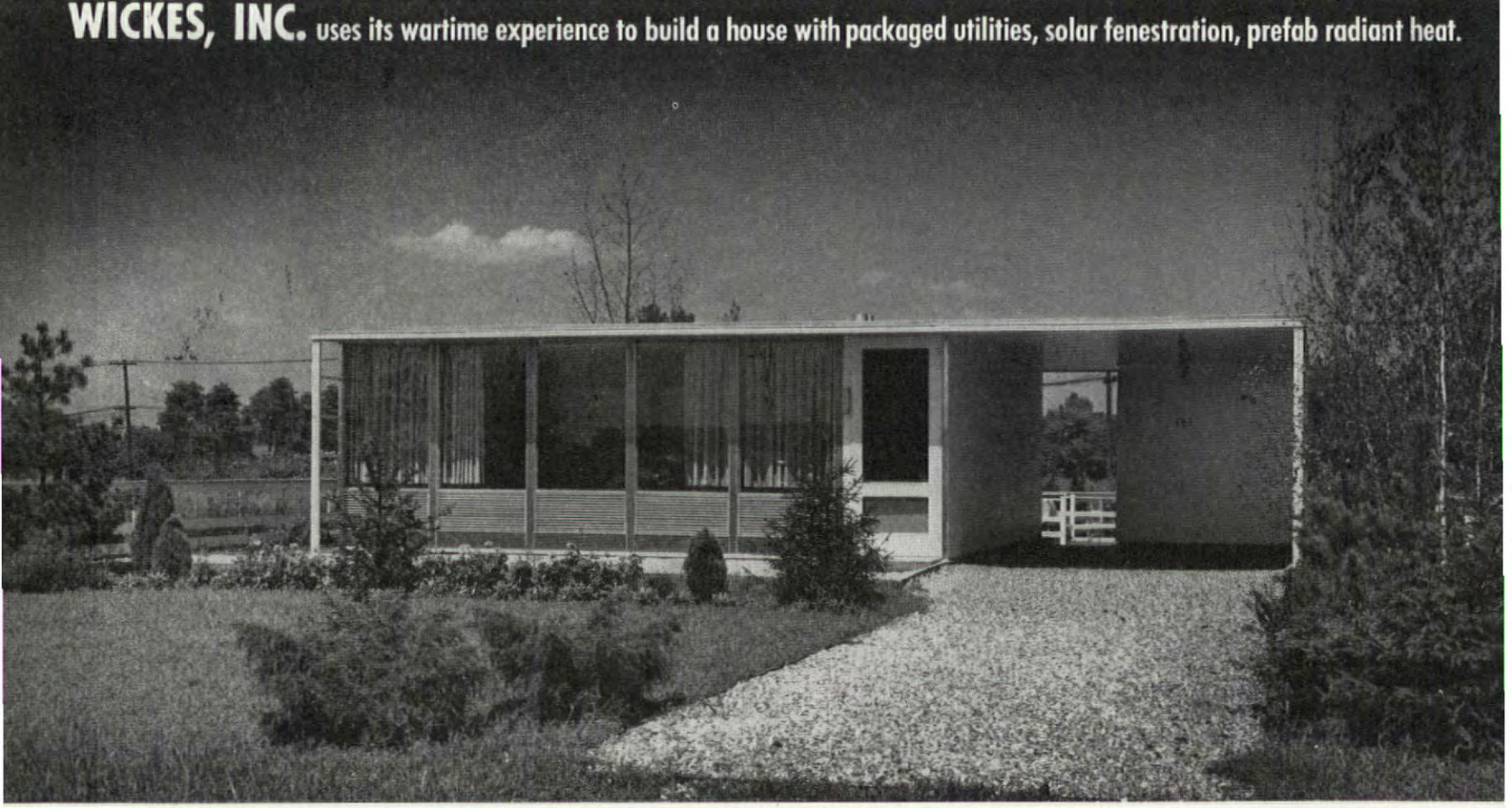




CONSULTING ARCHITECT R. N. WAKEFIELD HAS STYLED THE BUTLER HOUSE INSIDE AND OUT TO MEET AVERAGE POPULAR TASTE

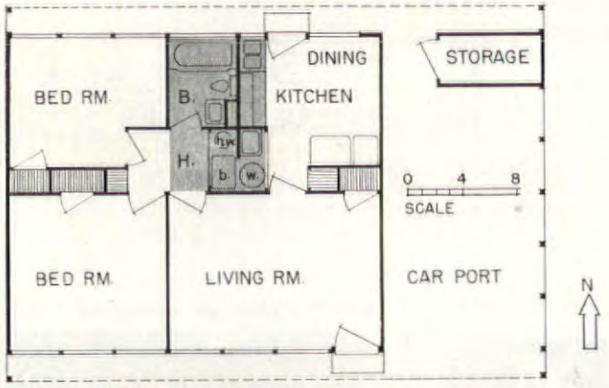


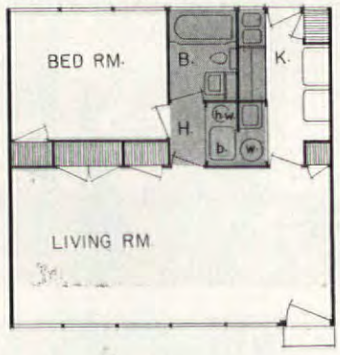


# WICKES, INC. uses its wartime experience to build a house with packaged utilities, solar fenestration, prefab radiant heat.



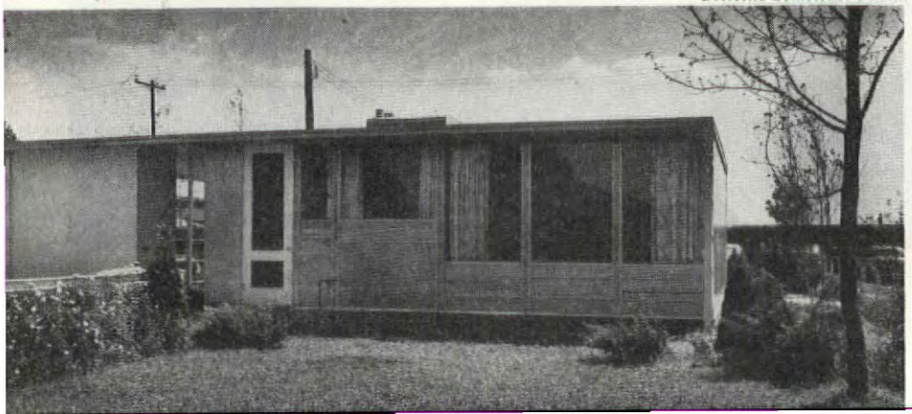
DESIGNED BY ARCHITECT OREN THOMAS, THE WICKES HOUSE MAKES A SKILLFUL AND UNCOMPROMISING USE OF MODERN DESIGN




**TWO BASIC MODELS** will be produced initially—a one-bedroom at $5,000 and a two-bedroom at $5,400 f.o.b. Camden, N. J.

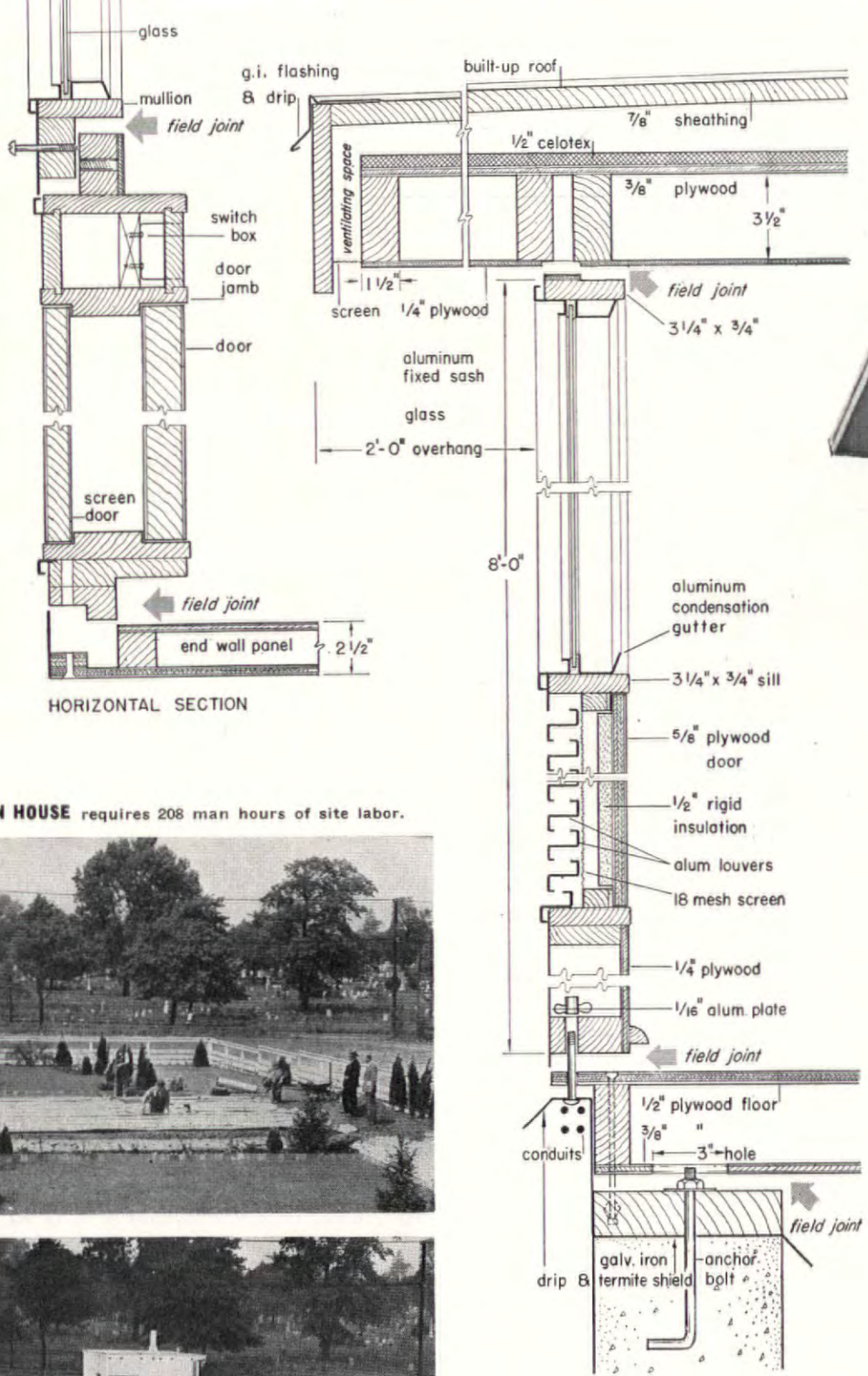
*Gottscho Schleisner Photos*



The house shown on these pages is a direct result of the wartime experience of Wickes, Inc. of Camden, N. J. Having designed and manufactured a quantity of demountable buildings for the armed services, they found themselves, at war's end, with considerable resources in architectural and engineering know-how, manufacturing facilities, supply sources, stocks of material, etc. Thus, it was entirely logical that they turn to the industrialized house as a postwar product. The Wickes basic house (first experimental model of which is shown here) lies at the other end of the spectrum from the Harman product. It is specifically a factory-built house, with site labor reduced to an absolute minimum—about 280 man hours for the one-bedroom model. The decision to concentrate labor in the plant was not lightly made. Only after serious study was it decided to ship the unit complete down to curtain tracks, lacking only footings to stand upon, final paint coat and built-up roof membrane. The result is an all-panel job which is quickly assembled on the site.

The house has many novel features: it is probably the first prefab with solar fenestration and is certainly the first with prefab radiant heating. It boasts a completely shop-fabricated utility core containing kitchen, bath, laundry and heater. Innovations like these obviously bring the Wickes house into head-on collision with the country's maze of obsolete and contradictory building codes. Wickes' answer is to ignore them, turning out a product which meets all FHA requirements and all general and state codes. The company believes there are plenty of areas in which it will be accepted.

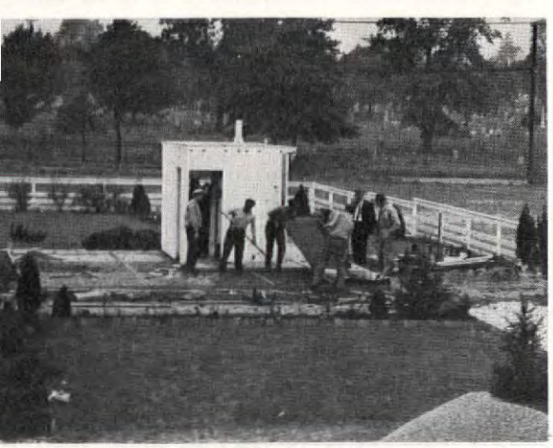
Initially, the Wickes unit will be offered in two models: the basic one-bedroom model shown, which is priced at $5,000 f.o.b. without carport or storage unit; and a two-bedroom variation at $5,400 with carport and storage. The company is setting up its own system of distributors, who may be either contractors or merchant-builders or both. All sales and financing will be handled by them under terms of a master contract by which Wickes approves orientation, siting and erection.




HORIZONTAL SECTION

**11-TON HOUSE** requires 208 man hours of site labor.

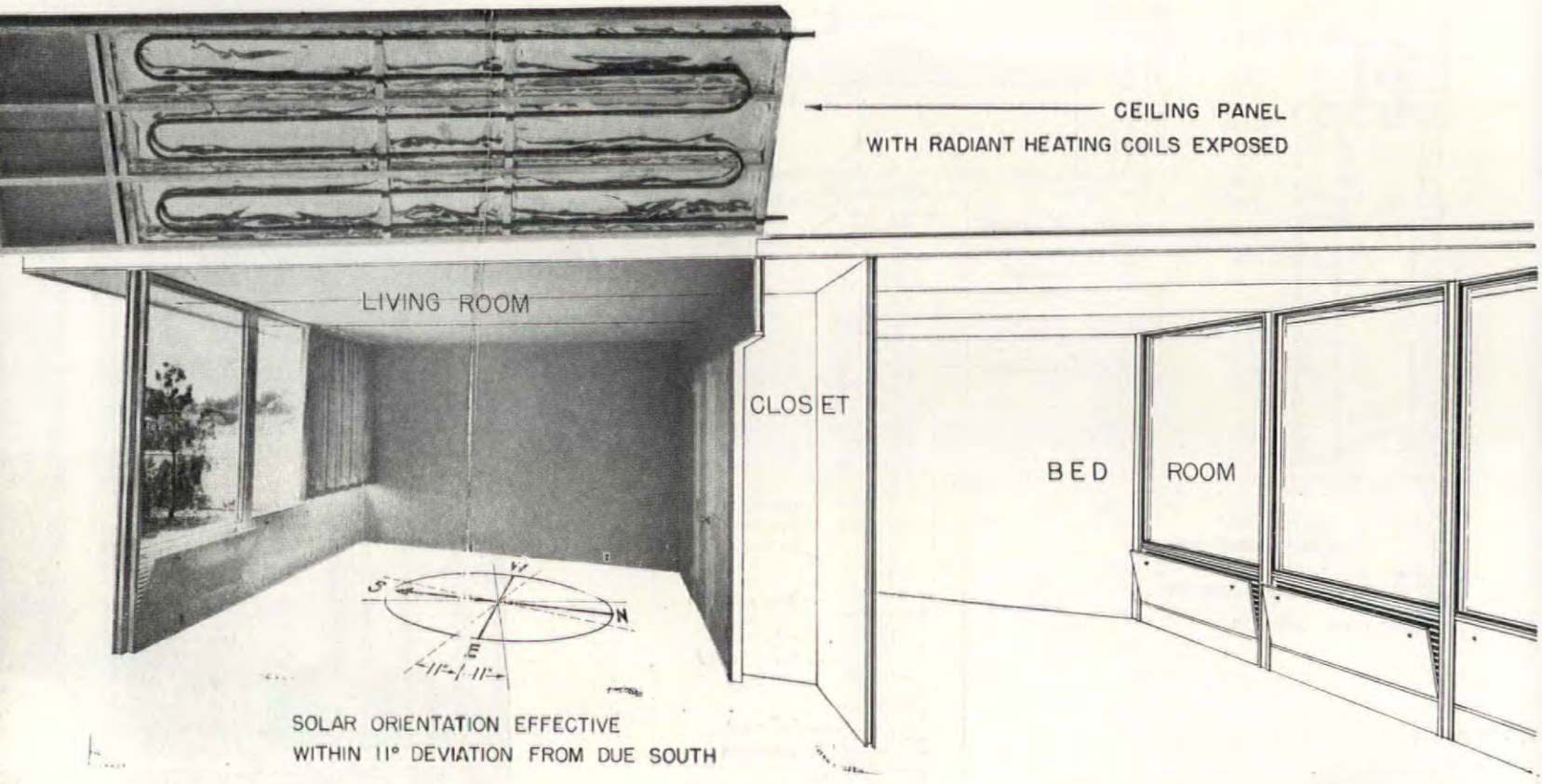


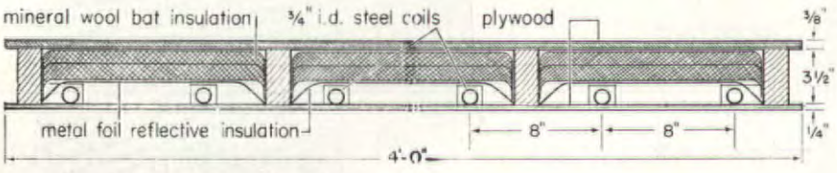


*Wickes Inc., Photos*

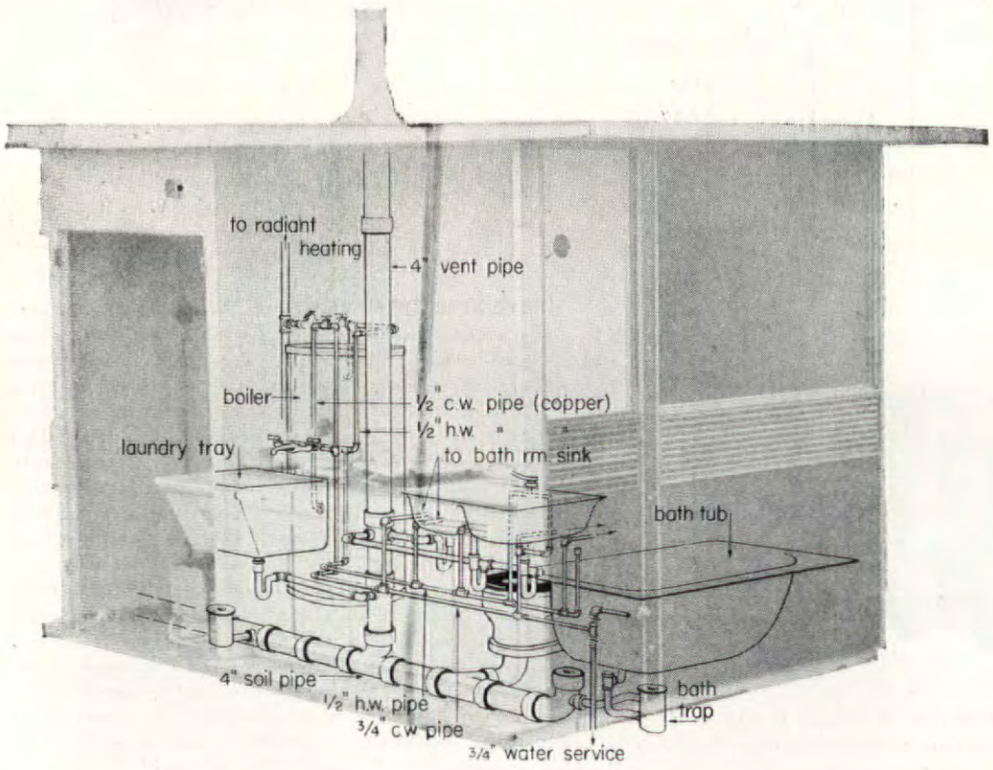
**Utility Unit** is trucked to site, includes complete bath, kitchen, laundry as well as heating, plumbing and electrical systems.

**THE STRUCTURAL UNIT** of the Wickes system is a pre-stressed plywood panel on a wood frame. With slight modifications, this panel serves for floor, exterior walls, partitions, ceiling and roof. Its dimensional stability is guaranteed by production in an air conditioned plant: moisture content is thereby controlled and all surfaces sealed with a spray coat before delivery. Because north and south walls are largely of fixed glass with louvered vents below, panels here are externally sheathed with aluminum. These are neatly detailed to form a continuous, metal surface. End walls are of marine plywood, with vertical erection joints caulked. Rigid insulation board is built into all exterior wall and roof panels, with metal foil added in the latter. Unlike many prefabs, Wickes includes the floor panel in the basic package. Hence, the only surface not furnished is finish flooring in main rooms (hall, bath, kitchen and utility get linoleum at shop): this may be either carpet or linoleum. The house is delivered with all trim and hardware—including even roller bearing curtain tracks.




SECTION THROUGH CEILING PANEL




**HEATING, ORIENTATION AND VENTILATION** is unusually well-engineered for so small a house—for a prefab, it is almost unprecedented. The house boasts a shop-fabricated panel heating system, has an exhaust fan for summer ventilation, and is designed for solar heat gain in winter. All of these features, moreover, are designed and fabricated to keep site labor and construction errors to a minimum. Thus, each roof panel has a built-in coil of seamless pipe, tested before it leaves the plant. In erection, these coils converge on a prefabricated manifold which runs down the center of the house. This, in turn, connects to the oil-fired hot water boiler which is an integral part of the packaged utility unit. The exhaust fan ventilates the entire house through a louvered grille in the hall. Since this fan is factory-installed over a hot water boiler, no ductwork of any sort is required. Finally, Wickes will control orientation of all houses so that all glass walls will face within 11 degrees of south or north. Efficiency of this heating system has been established in extended tests at the Camden plant, which showed that a temperature differential of less than one degree between floor and ceiling could be maintained day and night.

**PLUMBING SYSTEM** is completely contained in the utility unit. Trucked to site, this unit requires only two external plumbing connections—to water supply and sewer or septic tank. Plumbing system includes, two-compartment kitchen sink, laundry tub, bathtub, toilet, lavatory and a hot water supply independent of the house-heating system.

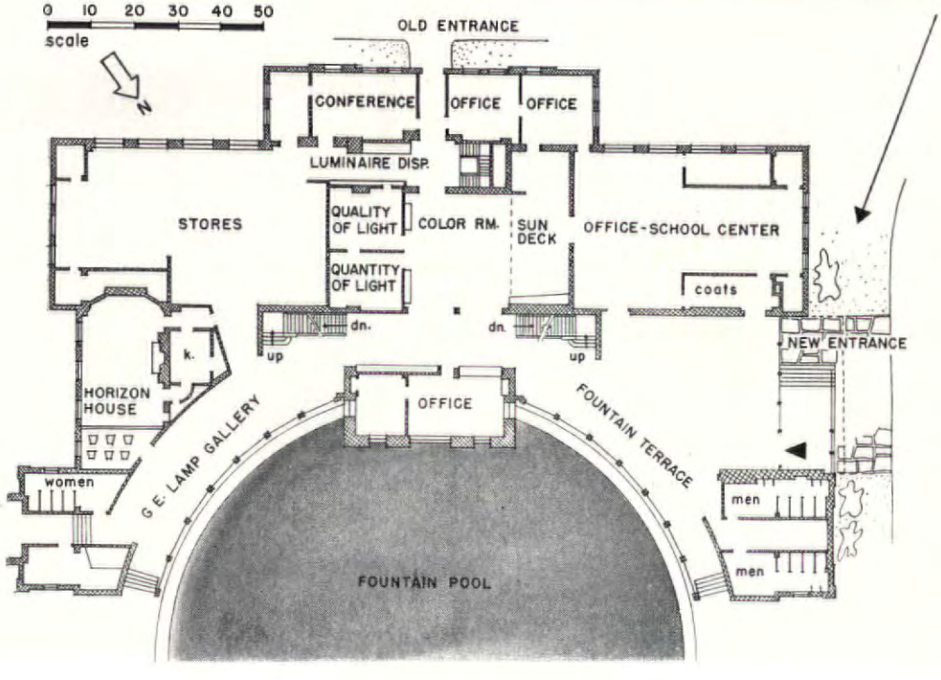
**ELECTRICAL DISTRIBUTION SYSTEM,** with meter setting, main switch, circuit breakers and connections for all mechanical equipment, is an integral part of the utility unit. Only field work required is connection of light outlets and base plugs (already installed in panels at factory) to prefabricated lead-covered circuit wiring. This is carried around outside perimeter of house under an aluminum shield (see wall section, p. 99).

## G-E's LAMP DEPARTMENT performs some adroit architectural surgery at campus-like Nela Park, bringing its prewar lighting center up-to-date.

*G. E. Photos: Hedrich Blessing*

A semicircular glass screen around a hitherto-neglected pool completely transforms the building's character without doing violence to . . .

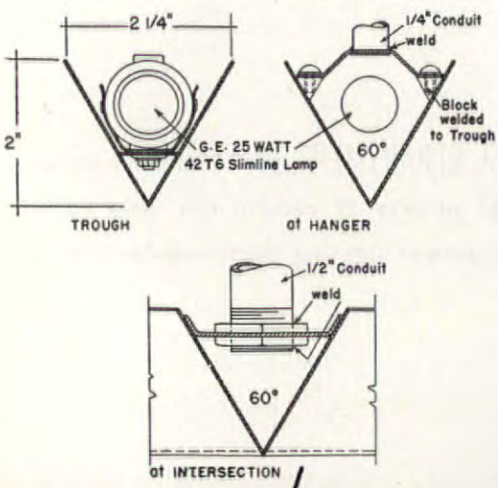
. . . its neo-Classic facade.
The new main entrance (right) opens up the interior in another direction by skillful use of projecting marquee and glass screen.

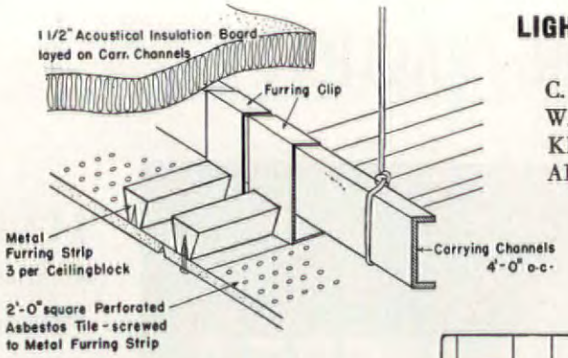




Another wartime blackout ended recently when General Electric reopened its famous Lighting Institute at Nela Park, Ohio. Visitors who trooped through the Institute's new quarters found it hard to realize that it was housed in the same building as before the war. For, with only minor alterations to the exterior of the Classic structure which architect Frank E. Wallis had designed in 1919, the internal plan had been neatly reversed. Originally, the main entrance had been from a cobbled courtyard at the southwest, while the building turned a semicircular rear on the handsome round pool at the northeast. As remodeled, the Institute is now entered from the northwest and has continuous glass walls which embrace the pool and the campus-like per-

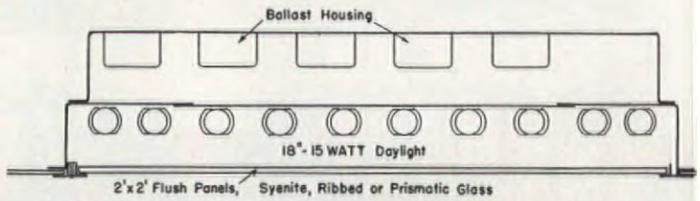
## LIGHTING INSTITUTE employs 147 differe

C. M. CUTLER in charge of design
W. D. RIDDLE, Staff Architect
KETCHUM, GINÁ & SHARP, Consulting Architec
ALBERT M. HIGLEY CO., General Contractor



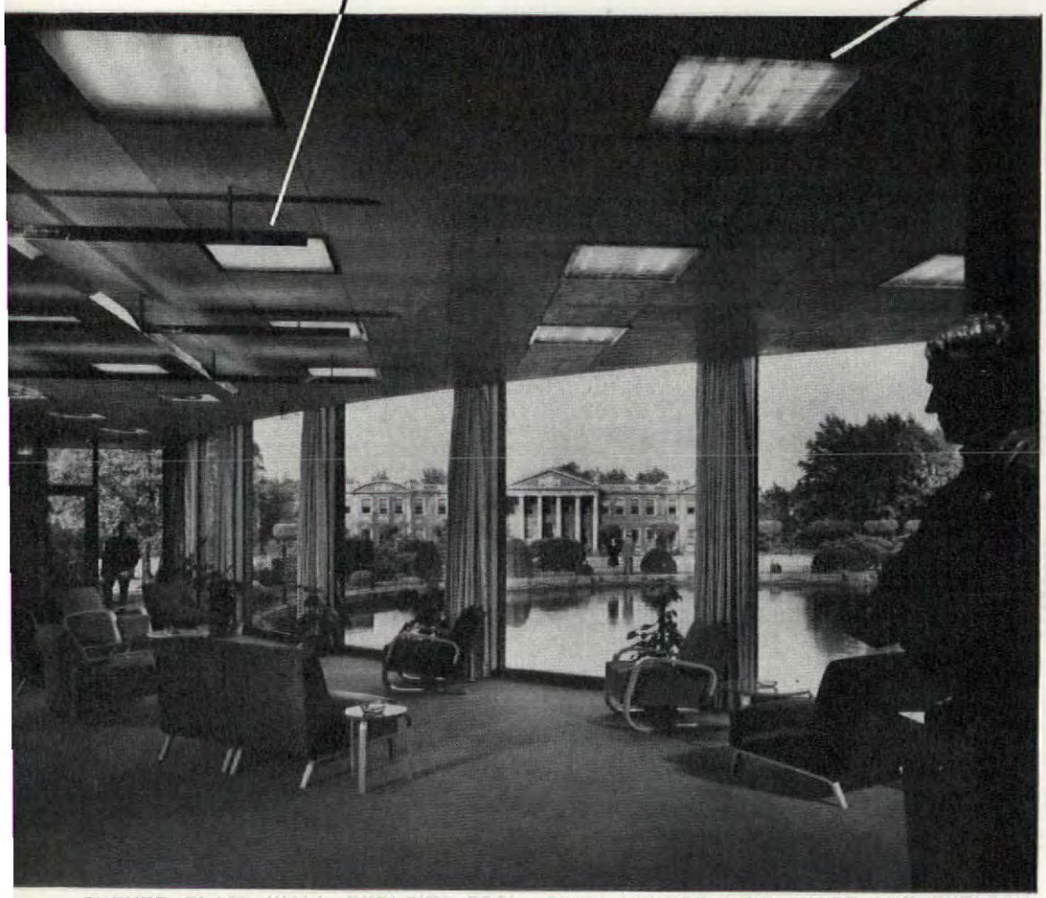




SUSPENDED CEILING CONSTRUCTION




SECTION RECESSED FLUORESCENT DOWNLIGHT

*Hedrich Blessing Photos*



CURVED GLASS WALL EXPLOITS POOL, GIVES LOUNGE NEW SPACE AND OUTLOOK


REGISTRATION CENTER HAS FREE-FORM COVE LIGHTING

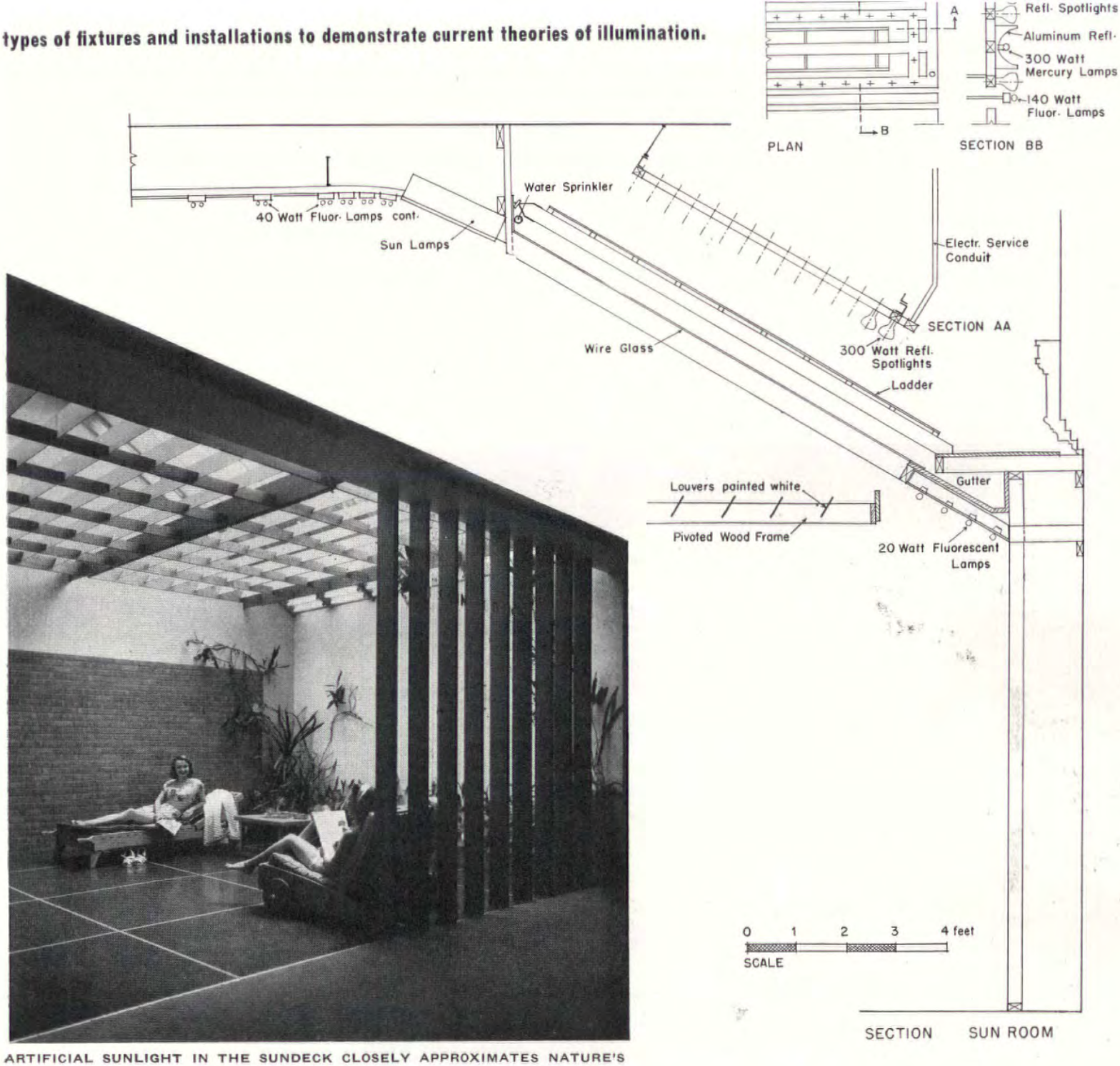
spective beyond. Considering the simplicity of the means, the improvement in interior space is little short of startling.

Credit for the rebuilt Institute is shared by G-E's three man Planning and Building Committee. Chaired by C. M. Cutler, with A. L. Reas in charge of construction and W. D. Riddle as staff architect—the Committee called in the New York firm of Ketchum, Gina & Sharp as consultants. Together, they formulated the company's requirements. These had clearly changed since the original Institute was built. As a producer of some 10,000 types and sizes of lamps, G-E's merchandising problem had changed from one of selling lamps to one of selling light. Salesmen—mostly from the public utilities—had to be trained to understand the basic principles in lighting before they tried to sell it. They were brought to Nela Park for instruction. This implied actual installations for demonstrating lamp performance: and—with the current specialization of building—implied separate installations for schools, shops, homes, etc. New and more versatile quarters for lighting and illumination displays were in order.

There was, of course, no shortage of ideas for specific lighting problems. The company's engineers are a prolific lot and one of the architects' main problems was to select their most significant ideas and organize them into some sort of coherent entity. They were aided in this by the fact that, since G-E itself makes no lighting fixtures, they had the whole field of

**"HORIZON HOUSE"**—as G-E calls its home lighting center—has been illuminated by E. W. Comery as a living room, one end of which is a small theater, the other a mechanized stage for various displays.

**types of fixtures and installations to demonstrate current theories of illumination.**




ARTIFICIAL SUNLIGHT IN THE SUNDECK CLOSELY APPROXIMATES NATURE'S

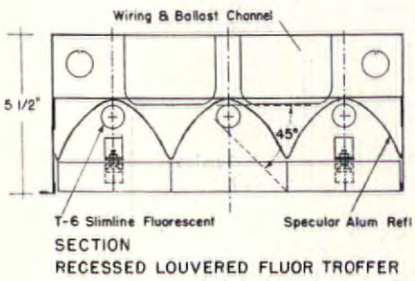
commercial fixtures and custom-built installations to choose from.

As in the old Institute, lighting ideas are grouped into various "centers" for commercial, residential, office and school applications. (Industrial lighting standards are demonstrated in actual use in other buildings at Nela Park.) In addition, there are special rooms for demonstrating various phenomena of light—brightness, direction, color, glare, etc.—as well as a sundeck whose artificial light closely approximates that of sunlight.

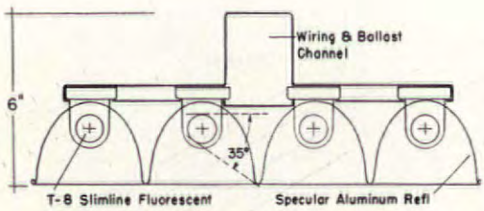
Because of its shape and relation to neighboring buildings, there was only one way in which the Institute's floor area could be increased and that was to enclose the 10 ft. semicircular terrace between the pool and the original wall. By pushing the new wall out to the pool edge, and by designing it as a glass screen, the architects succeeded in increasing both real and apparent space at their disposal (left, facing page). Although it involved some rather tricky framing, all evidence of this has been successfully concealed by a new suspended ceiling which extends in one unbroken plane across the whole northern half of the building. This new ceiling combines air conditioning outlets, acoustical treatment and lighting. Recessed square lighting panels are set at regular intervals between perforated asbestos tile of the same size: below the ceiling surface, is a gridwork of suspended fluorescents in stainless steel troughs. Conditioned air outlets, regularly spaced between recessed downlights, use perforated ceiling for grilles.

Although there has been talk of "bringing the sun indoors" with electric light, the Institute's sunshine room (above) is one of the few installations which actually approaches the spectral quality of sunlight. This is accomplished by five different types of lamps, selected for their spectral output and arranged in banks. Together, they yield a spectrum which reaches from the ultraviolet, across the visible wave band, well into the infrared. Some of the lamps, because of their excessive heat, are placed above a sloping skylight which is bathed in a sheet of running water. This installation is of largely theoretical interest today; but there are many institutions where it might even now be practicable.

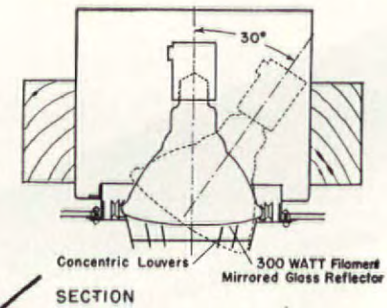
**STORE LIGHTING CENTER has four model shops demonstrating latest techniques and equipment.**



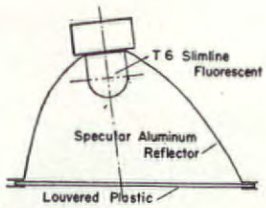

SECTION
RECESSED LOUVERED FLUOR TROFFER



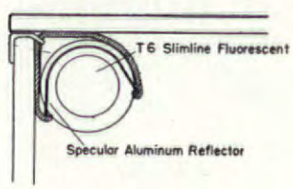

SECTION
FLUORESCENT UNIT - DIRECT LIGHTING




SECTION
RECESSED PROJECTOR LAMP




SECTION
RECESSED TROFFER




SECTION
SHOWCASE STRIP LIGHT

SPECIALTY SHOP'S MANY CIRCUITS PERMIT DEMONSTRATION OF VARIED LIGHTING EFFECTS

One of the major features of the remodeled Institute is the store lighting center. Here, at full scale, is a model specialty shop (shown above), a neighborhood grocery and a drug store, as well as two bays of a typical high-ceilinged department store. The installations are designed to demonstrate the principles, tools and techniques whereby lighting can be used to move merchandise. G-E's theoreticians hold that illumination enters the buying process in three distinct ways: good lighting *attracts* the customer; aids him in *appraisal* of the goods; and creates an *atmosphere* in which he will not only buy with pleasure but return to buy again.

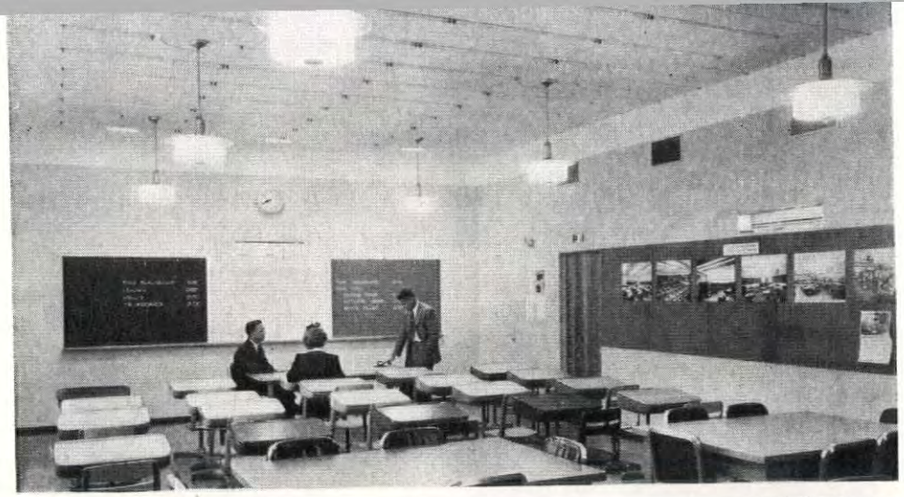
The specialization implied by this approach is very well demonstrated in the specialty shop. On top of its high level of general illumination, all sorts of special effects can be superimposed — accents, floods, spots, colored back- and valance-lighting, etc. The wide variety of fixtures, wired on separate circuits, permits visitors to study the effects of different types of illumination, both separately and together. On a somewhat simpler basis, the same technique has been followed in the other model shops.

The Institute is packed full of other lighting ideas. Most ingenious of all are the adjacent office and school lighting centers (see facing page). To demonstrate the effects of recessed, troffers, hanging luminaries, exposed fluorescent tubing and louvers, G-E has hung complete systems of all in the classroom. Each of these has an independent elevating mechanism above the ceiling so that, at the touch of a button, they may be raised or lowered at will. In the basement, there is a model dealer's shop where ceiling fixtures are displayed on electrified trolleys. When not being shown to a customer, the fixtures slide back along electrified rails into storage cupboards along the wall. In the basement also is a cafe and bar for Institute visitors which, incidentally, will double as a stage on which G-E engineers will show off their latest ideas.

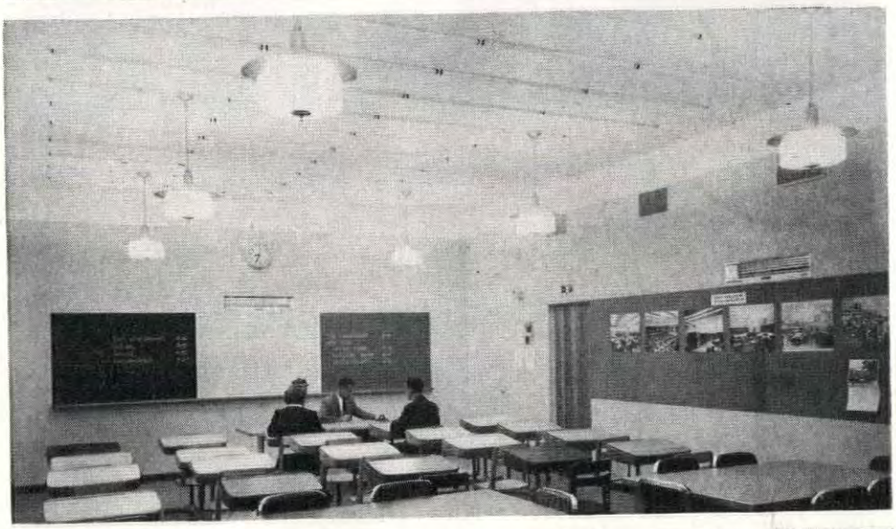
Still to be revamped is the second-story auditorium. Located in the center bay overlooking the pool, it is scheduled for complete renovation, including provisions for movies, lectures and demonstrations.

## CLASSROOM CENTER can simulate any lighting condition by means of its retractable fixtures.

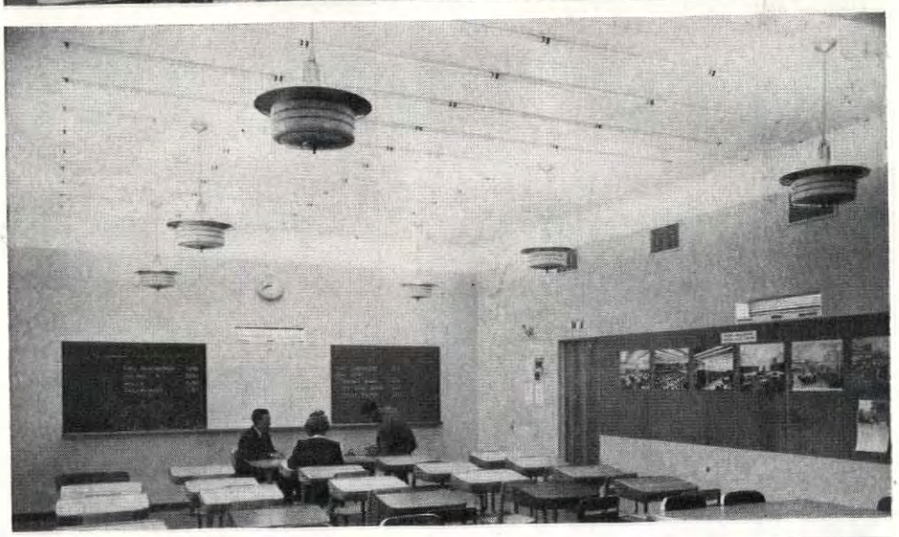
**LAMPS IN OPAQUE GLASS BOWLS** are typical of the lighting fixture found in the average classroom today. Such luminaries can produce up to about 15 footcandles before the fixture becomes too bright and hence too annoying and distracting. But the national average obtained with this type of lighting averages about 6 footcandles.



**LUMINOUS INDIRECT LUMINAIRES** can very satisfactorily obtain illumination levels up to about 30 footcandles. Brightness of the luminaire itself is pleasingly low. As the bulk of the light is diffused from the ceiling, resulting illumination of desk tops is comfortable, with the glare-free, shadow-free characteristics of indirect lighting. Illumination levels much above 30 footcandles with filaments are generally prohibited by the heat developed.

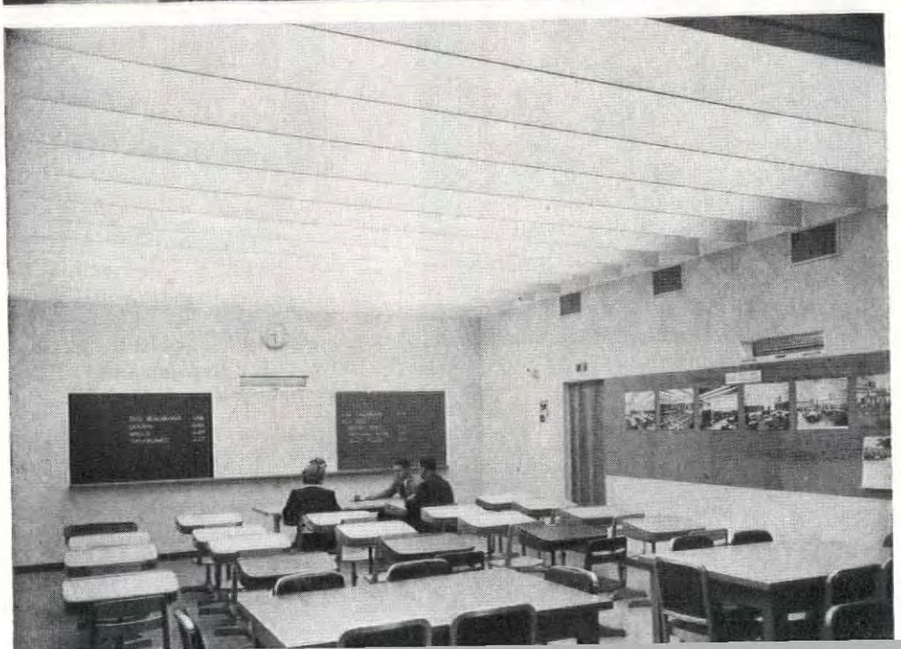


**TOTALLY INDIRECT FIXTURES** using silvered-bowl lamps are capable of maintaining slightly higher illumination levels than other types of totally indirect luminaires of equal wattage, as original efficiency of silvered-bowl type fixtures is high and is essentially renewed with each lamp replacement. Resulting illumination is soft and, below 30 footcandles, relative free from heat.



**WHILE FLUORESCENT LAMPS** are not generally recommended as lighting fixtures complete in themselves, they are shown below producing 40 footcandles of uniform illumination with good economy and freedom from the heat problem. The relatively high brightness of the lamps in the field of vision is annoying and produces a distracting and uncomfortable condition.

**VERTICAL LOUVERS,** dropped between the exposed fluorescent tubes, instantly change the environment from one of considerable discomfort to one which is comfortable and pleasing. In multi-story schools with poured concrete ceilings, suitable forms could be used to produce this type of ceiling. In single-story schools with wooden ceilings and wooden beams, the beams themselves might be used to provide the necessary shielding.



# EDGE LIGHTING OF ACRYLIC PLASTICS yields a new decorative medium. Henry Pearson* gives some pointers on "light-piping" plastics—how they work and how to use them.

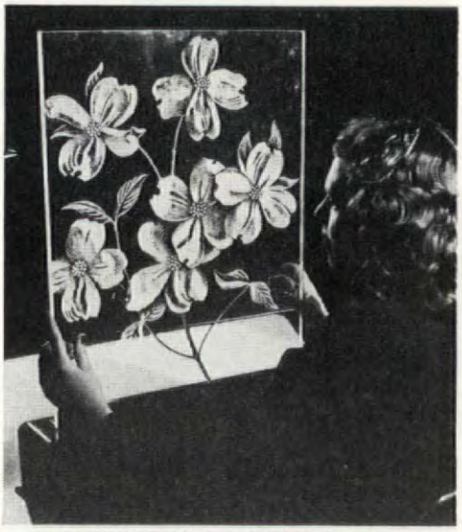
*Endicott*

**THESE LUMINOUS PANELS** in New York's Sheraton Hotel (above) and the Waldorf Restaurant in Newark, N. J. (right), were designed and fabricated by the Endicott Corp. of Boston, Mass. The series of framed scenes above are lit with a single fluorescent tube, while that at right is edge-lit by tubes placed at sides and top.

*F. S. Lincoln*

*C. W. Ackerman Studio*

**USING "BLACK LIGHT"** and fluorescent paints, Cleveland's Gull Industries are producing luminous plastic murals. Based on the same principle as those employing visible light, Gull's ultraviolet-lit panel has glowing colors—possible only with fluorescent paints—in this case, on surface.



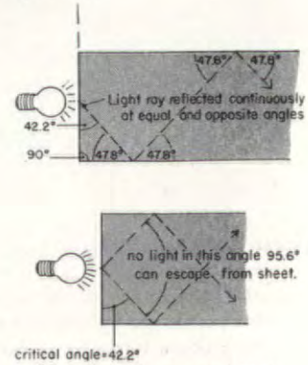
**SOFT ILLUMINATION FOR ENTIRE ROOMS** is also possible with edge-lit panels. This demonstration at Rohm & Haas's laboratories shows type of loose, overall design necessary to this type of application, which is best suited to low illumination levels of movies, theaters, nightclubs, etc.

The illuminated murals on this page are an interesting and practical application of a peculiar property of acrylic plastics—their ability to "pipe" light invisibly from one point to another. It has long been known that colorless transparent materials such as optical glass or fused quartz will carry light from one point to another—even around corners and curves—but, until the development of acrylic plastics, applications for this light-piping effect were strictly limited. If the path of travel exceeds a few inches, the residual color in ordinary glass absorbs much of the light, and perfectly clear glass and other colorless materials are restricted by cost or other factors to a few special applications. These restrictions are removed by the acrylic plastics. Colorless and crystal-clear, these plastics show almost no absorption of the light passing through them; since they are thermoplastic, they can be readily shaped into any desired form and are, in addition, easy to machine. Finally, they are reasonable in price.

The murals shown employ a variant of light-piping known as "edge-lighting." The distinguishing characteristic of edge-lighting is that light introduced into the edge of the sheet is caused to leave the sheet at spots along the surface as desired by the designer. At these points, therefore, the sheet appears to glow. The effect can be produced in a number of ways, but the fundamental requirement is that the high polish on the surface of the sheet be removed or coated. It may be sanded, engraved, scribed, etched, painted or treated in any other way that serves to disturb or cover the surface luster. A film of oil or grease—even a layer of water on the sheet surface—will change the behavior of light rays at the surface of the plastic and allow some to escape.

Fundamentally, the phenomenon is simple. In acrylic plastics, all light enter-

* Head of Design Laboratory of Rohm & Haas, Philadelphia, Pa.




*(Continued on page 108)*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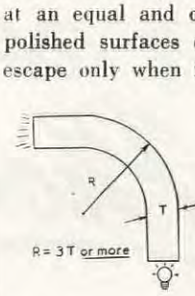
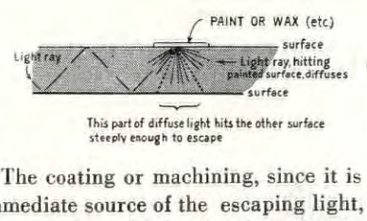
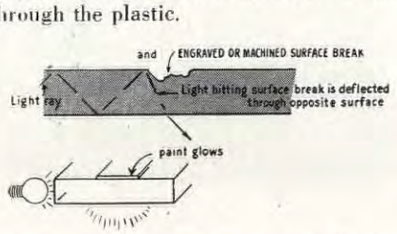
ing the edge of the sheet through an arc of 95.6° will be trapped inside the sheet. It will be efficiently reflected back and forth—at an equal and opposite angle—by the polished surfaces of the sheet and will escape only when it reaches the opposite edge or a point where the surface has been disturbed. A curved sheet of plastic will carry light without leakage around a curve of any radius greater than three times its own thickness.




Illuminated designs can be achieved by excluding air from a surface without actually destroying the surface. Any material which adheres tightly to the plastic and thus excludes the air will glow when seen from the opposite side of edge-lighted sheets. Such coatings produce the same result as shading or engraving the surface; that is, they change the angle at which light beams striking the surface are reflected.

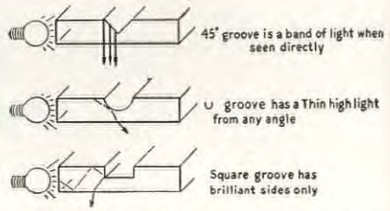



The coating or machining, since it is the immediate source of the escaping light, appears to glow. Obviously, since the glow is due to internal reflections, the design is more brilliantly lighted when viewed through the surface opposite the interruption than when seen direct. In the former case, the light seen is reflected from the interruption and is almost entirely visible, but in the latter instance, the only light visible is that which has been able to escape through the interruptions. Opaque paints are often used in producing edge-lighted designs and these, of course, must be viewed through the plastic.




The most brilliant effects are obtained when all possibility of light transmission through the back of the design is blocked (since a portion of the light in an edge-lighted panel will be transmitted if the interruption is not opaque). Machined or embossed designs, for example, may be filled with opaque pigments of the proper color. Unpainted, sand-blasted surfaces are brighter than simple machined areas because they are more irregular.

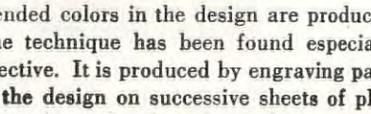
A variety of techniques is available t produce different effects. A painted desig glows with a uniform diffuse light, bu actual cutting of the plastic surface pro duces sparkling highlights. An engrave line appears most brilliant, seen directly, i given a "V" profile. A "U" profile reflect a thin highlight from any angle. A squar



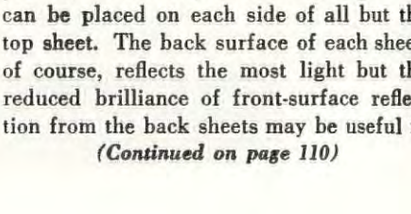

groove is not well lighted on the flat bot tom, but is brilliant on the sides which ar least visible.

Scribing, as distinguished from engrav ing, consists of closely spaced lines and i reminiscent of dry-point etching. As thes lines are microscopically rough, they ar evenly lighted at any angle. Highlights, i this process, are made by using masses o fine lines. Since there is always some o the original surface not disturbed by scrib ing, the reflection of light is extende from one interruption to another, and uniform illumination results. Pleasin effects are obtained by combining severa techniques.

If the edge through which the light enter the sheet is colored with a transparent dye a white-painted or an engraved design o the sheet will be similarly colored. If dif ferent colors are spotted along one edge




blended colors in the design are produced One technique has been found especially effective. It is produced by engraving part of the design on successive sheets of plas tic so that, when bound together, an entir scene is represented. The edge of each shee is colored as desired and, when edge-lighted the complete scene appears in depth, ligh and color.




There are endless variations for thi process. If desired, some of the engravin can be placed on each side of all but th top sheet. The back surface of each sheet of course, reflects the most light but th reduced brilliance of front-surface reflec tion from the back sheets may be useful i

*(Continued on page 110)*

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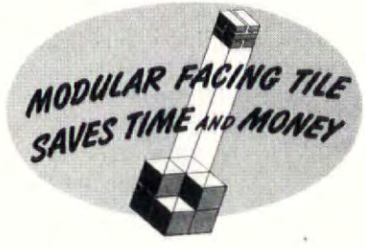


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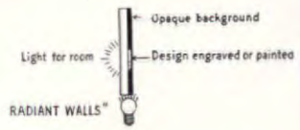
certain designs. Paint and engraving may be combined for still further modification of the result. The distance between the sheets may be varied or each of the sheets may be of different thicknesses. In some cases, the designer may find it desirable to cut out sections from one or more of the sheets. If color is added to the edge thus formed, light of pleasing tint may be thrown on another part of the design.

It is often desired to provide some sort of backing for an edge-lighted panel. This need be nothing more than a single sheet of paper or other material, and any color or design may be chosen. Such a background, since it is unattached to the sheet, remains unlighted when a design is illuminated.



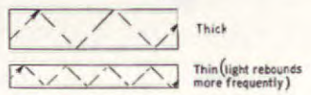

Here again, the originality of the designer can be used to produce almost endless variations in the effect. With the background color matching that of the design painted on the plastic, a sign can be made to appear or disappear as the light goes on and off. Thus, if the edge of a sheet is colored red and the design is white against a white background, the design is only faintly visible when not illuminated. When the light is on, however, the design becomes luminous in red light while the unlighted background appears as gray.

Entire rooms can be illuminated by an extension of this principle. The surface of the wall is covered with an acrylic sheet on which an appropriate design is painted or engraved. Provided the design is large in scale and more or less continuous, enough light will be emitted to give an entire room a soft, low illumination.

The whole surface of the plastic sheet cannot be covered by painting or engraving and still be edge-lighted satisfactorily. The design must be intermittent to allow the light to reflect back and forth between the surfaces; otherwise, the light will be largely diffused through that portion of the design nearest the source and the balance of the sheet will be very dimly lighted. In general, the less decoration, the more intense the light.

The color of a painted surface also bears a relationship to the light transmission from a sheet. When light strikes a painted pattern, some is absorbed, some escapes from the sheet to make the design glow, and the rest continues to travel within the plastic. The more light absorbed by the paint, the less there is to be reflected out to illuminate the design and to reach othe parts of the design. Paint applied to panel, therefore, should be fairly light i color—preferably white.

The area of decoration that can be ade quately illuminated varies directly with th sheet thickness. For example, a 2-in. dis painted on 1/16-in. material will be poorl lighted in the center, but when painted o ⅜-in. material is evenly illuminate




throughout. Obviously, the thinner th sheet, the closer the two reflecting surface and the more frequently the light rebound between them. Hitting at shorter intervals all available rays in the thinner materia will be diffused in a shorter time.

Light which is not diffused from a desig in a decorated sheet normally escapes fron the edge opposite the source of light. T prevent loss of this light, provision shoul be made to reflect it back into the sheet In theory, this is done most effectively b mirroring that edge of the sheet. However in most cases, the best method is to pain


the edge with opaque white paint. By this means, the light is re-diffused and a large portion is turned back into the sheet.

One of the difficulties in edge-lighting designs is the securing of sufficient illumination over a large area. There is no one solution to this problem. Each separate case requires individual handling, but there are some considerations which may be applied effectively in many instances. The thickness of the material is of primary importance, since the wider the edge, the greater the quantity of light that will enter it. However, other conditions often set sharp limits on the thickness of the material that can be used.

The character of the edge through which the light enters the sheet is also important. It should be polished and be at right angles to the sheet surfaces. A rough, bevelled or wavy surface will transmit light into the material at angles which permit it to escape immediately.

Experiments have shown that the ideal source is a line filament lamp, with the edge of the plastic as close to the light source as possible. In practical application, however, a filament source of this type is objectionable because of the heat developed. Moreover, line filament lamps are not

*(Continued on page 112)*

THIS BOOKLET

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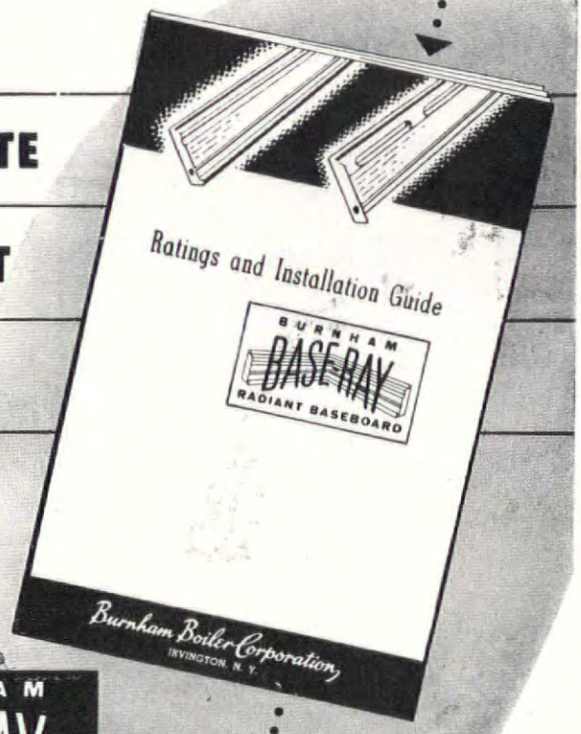


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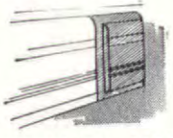

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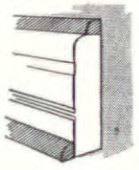

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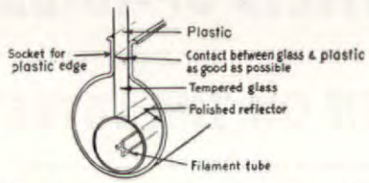
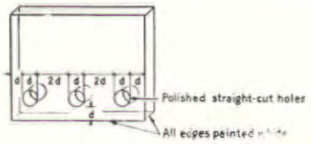
readily available in the lengths required for many applications. Because of these limitations, line filament lamps have been generally replaced with fluorescent tubes. The intensity of illumination produced by fluorescent lamps is less, since only a comparatively small amount of the light from a tube can be directed into the edge of the plastic, but the tubes are practically free from heat and are available in satisfactory lengths.




When more intense light is desired and fluorescent tubes are not practical, special methods of lighting with hot filament lamps may be devised. Line filament lamps could be used by separating the plastic from the tube with a piece of tempered glass. The lamp should be placed at the focus of a metallic reflector, having a radius about one-third more than that of the tube. This reflector should be brought up around the tube, completely enclosing it except for a deep slot at the top. A piece of tempered glass, placed in this slot in contact with the tube, provides the base on which the plastic rests. This arrangement secures most of the light of the filament lamp without exposing the plastic to undue heat hazard.

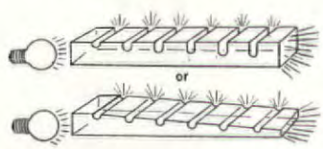
Another method of lighting employs small incandescent bulbs. Polished holes, about an inch larger than the diameter of the bulbs to be used, are made in the edge of the plastic. The centers of the holes are




located at a distance from each other of about twice their diameter. In use, bulbs are inserted in the holes just far enough to give maximum illumination. Light enters the sheet all around the perimeter of the holes, and the sum of these perimeters is somewhat more than the length of the straight edge of the sheet. This method, therefore, has the advantage of introducing light on a longer surface than a single edge, and a rather intense light is available. Since, in this system, light enters the sheet in all directions, it is necessary to paint all four edges of the sheet to keep light from escaping.

Uniform illumination of an edge-lighted sheet often is difficult to obtain, but designers can employ various devices to avoid trouble from this source. In many cases is practicable to light the sheet on two more edges to increase the amount of li available. In other instances, the desi itself can be planned to compensate for lighting characteristics by avoiding conc tration of large masses of engraved painted areas in any one spot. It especially important to avoid such mas near the light source.

In a short edge-lighted piece, unifo illumination can be obtained by making engraving progressively deeper as the d tance from the light source increases. such a case, light traveling along ess tially parallel lines may be a sizable fr tion of the whole illumination; progr sively deeper cuts under these conditio reach successively lower "layers" of t parallel light. Each cut, therefore, receiv almost the same amount of illuminatic This device is not effective in large are because, in such cases, the near-paral light spreading through the bigger sheet employed in lighting portions farther fr the source.




Another device which aids in providi even illumination in short edge-light pieces is tapering the piece so that decreases in thickness as it gets furth from the source of light. The rays mo nearly parallel to the axis of the wedge w travel farther before they strike the surfa at an angle great enough to allow them escape. In addition to improving the ill mination of a design, this device helpful for concentrating light rays at t end of a bar in such light-piping applic tions as are used in dental or medic instruments.

While edge-lighting and light-pipi open a wide field of uses, there are certa limitations to their application. Obviousl dirt and scratches on the acrylic materi disturb the surface the same as paint engraving, and such defacement will edge-lighted with the design. When edg lighting is used where the plastic is great exposed to scratching or soiling, it is som times desirable to cover the panels with protective sheet of glass. Edge-lighting also limited in its application on large ou door signs because of the difficulty in secu ing adequate illumination over a large are and the necessity of weather-proofing However, these limitations are negligib when compared to its many useful a plications.

# "I was just a boy back in '47...

## when those Adlake Windows were installed!"

**BUILT FOR A LIFETIME** of service, designed for lasting beauty—*Adlake* Aluminum Windows are today's best window investment!

*Only Adlake* combines non-metallic weather stripping and serrated guides to stop excessive air infiltration and give you finger-tip control. What's more, its lustrous aluminum sash requires no painting or maintenance. No warp, rot, swell, stick or rattle—*ever*.

Truly, the Adlake Aluminum Window fulfills your every architectural requirement! Complete information and data will be mailed you on request. Drop us a postcard today . . . there's no obligation, naturally. Address: The Adams & Westlake Company, 1101 N. Michigan, Elkhart, Ind.

**THE**

# Adams & Westlake

**COMPANY**

Established 1857 • ELKHART, INDIANA • New York • Chicago

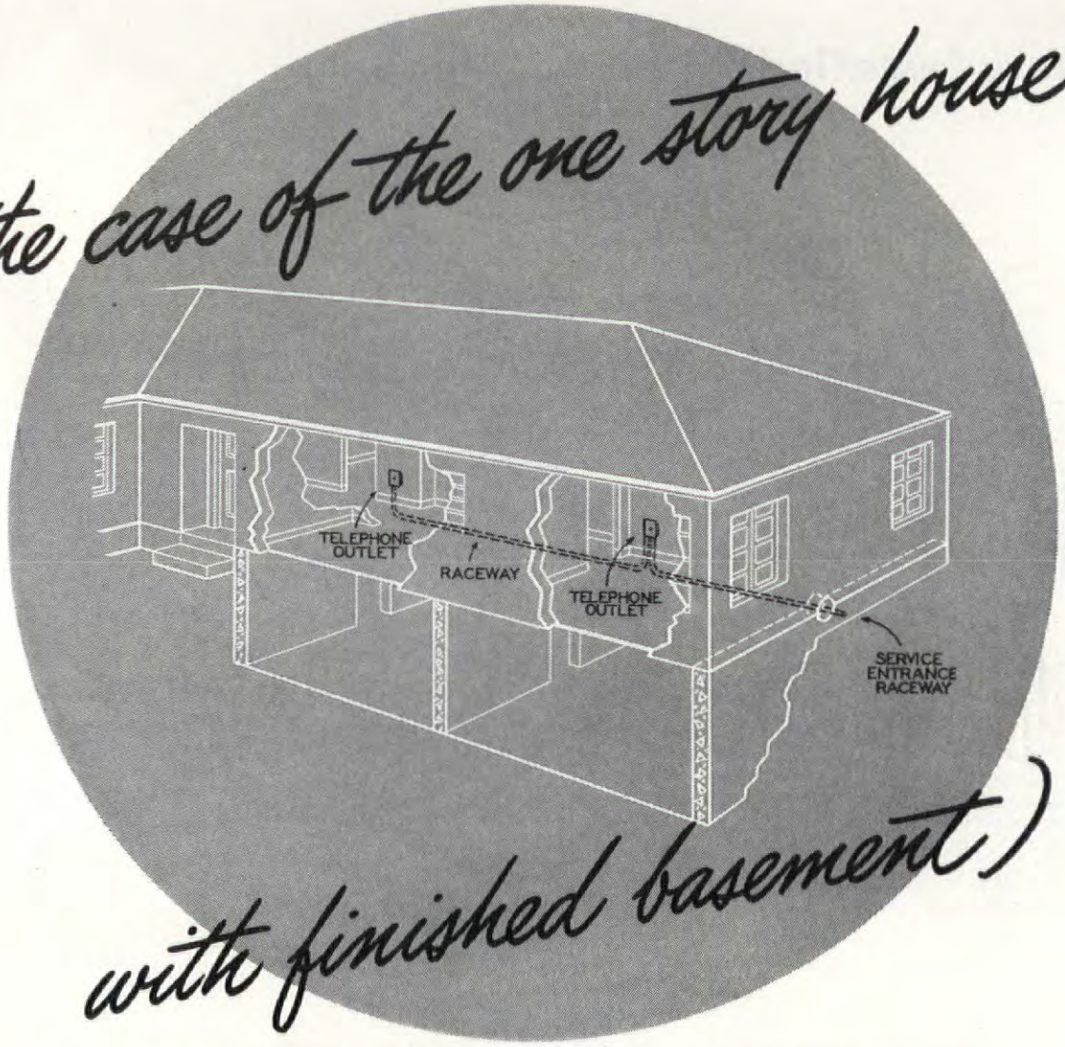
Adlake TRADE MARK

Furnishers of
Windows to the Transportation Industry
for Over 30 Years

EVEN SMALL HOMES SHOULD HAVE RACEWAYS FOR TELEPHONE WIRES

# SMALL-HOMES TELEPHONE PROBLEMS

*(the case of the one story house with finished basement)*



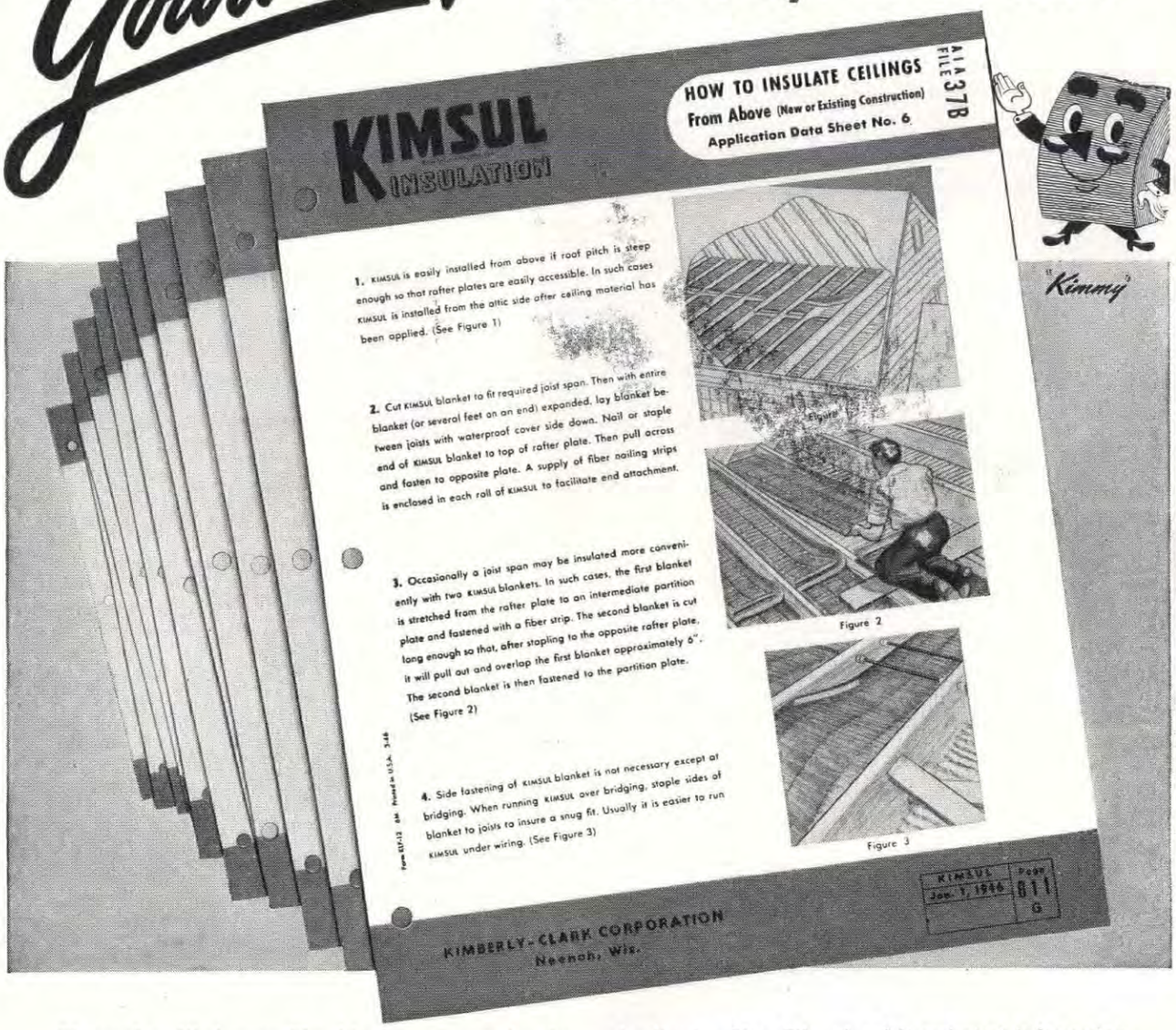

RACEWAYS for concealing telephone wires assure a convenient and attractive telephone arrangement in small as well as larger homes. Yet the additional cost is very small.

In homes you design with finished basements, exposed wires can be avoided in the basement as well as on the main floor. Wiring channels leading to one or more convenient telephone outlets should be installed before floors are laid and walls are finished. Your clients will appreciate this provision for their future telephone needs.

Your Bell Telephone Company will be glad to help you plan telephone wiring facilities. Just call your Telephone Business Office and ask for "Architects and Builders Service."

BELL TELEPHONE SYSTEM

# Yours now! This practical file of better ways to insulate




Eleven fact-filled pages like this one are yours for the asking—in the new KIMSUL* Application Data File, a source of technical information you can use to advantage. Shows how many applications, from the simplest to the most difficult, can be more efficiently handled with prefabricated, *many-layer* KIMSUL. To get your Application Data File, plus full technical information on KIMSUL, mail the coupon on your letterhead or business card today. . . .

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INSULATION
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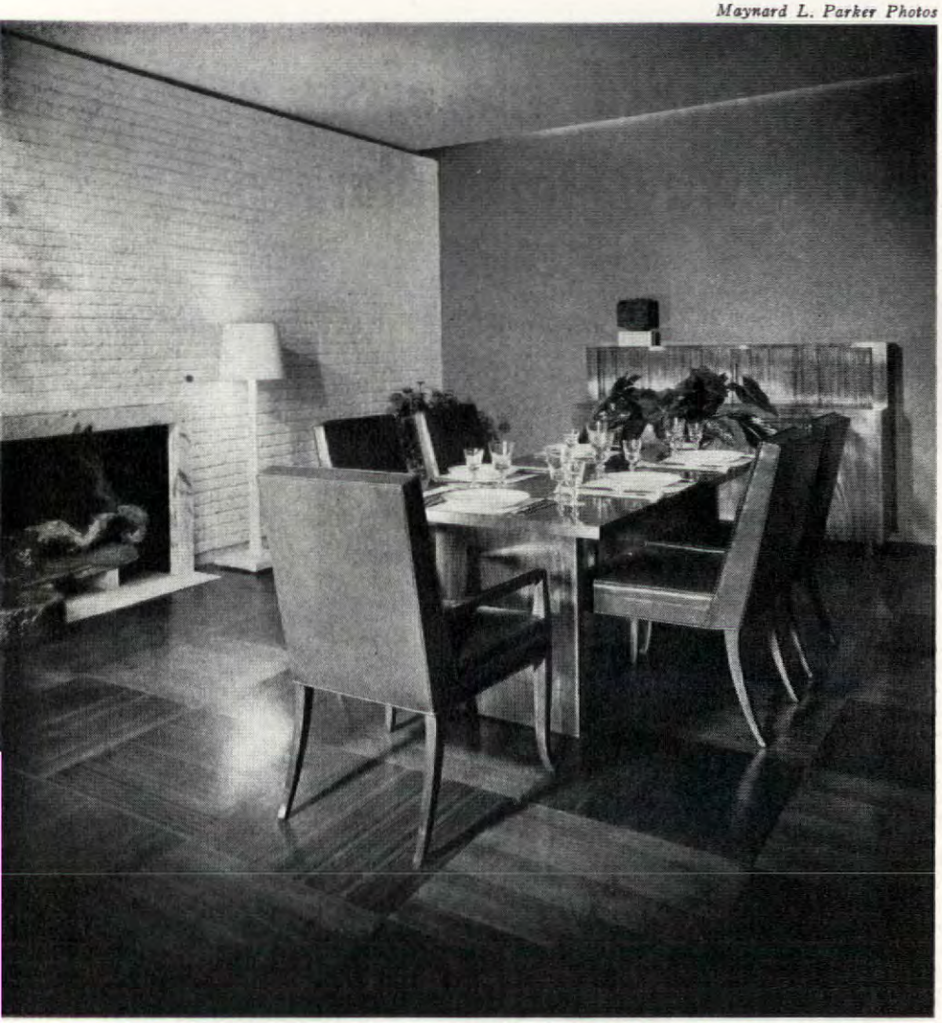
*Firm* _____

*Address* _____

*City, Zone, State* _____

( ) *Architect* ( ) *Builder* ( ) *Contractor* ( ) *Other*

*Maynard L. Parker Photos*



DINING ROOM FURNITURE BESPEAKS COMFORT AND QUIET STABILITY

## THREE NEW FURNITURE LINES

Designer Robsjohn-Gibbings, when he wrote *Goodbye Mr Chippendale* (FORUM, Mar. '44), wasn't kidding about hi all-out conversion to modern. And, from the look of his lates work, he has put fire in the eye of period-minded Grand Rapids. This extensive new line will be manufactured by the Widdicombe Furniture Co. and presented to the public through department stores late next year. Emphasis is on fine craftsmanship and wood finishes, so there will be little point in poking around budget departments looking for the pieces Mr. Gibbings has given special thought to fitted storage. For instance, the drawers of the man's bureau are designed to accommodate two stacks of laundered shirts. The doors of the dressing table are backed by three circular shelves far enough apart to hold creams, lotions, etc., in an upright position.

NON-COLLAPSIBLE GAME TABLE OPENS TO DOUBLE SIZE

DRESSING COMPARTMENT OF BUREAU CLOSES TO FORM PLAIN CHEST

VANITY IS THREE-PIECE SECTIONAL UNIT

# Crane's production plans for 1947

We don't need to tell you that Crane plumbing and heating equipment has been in short supply this past year. Even stepped-up production has been unable to meet the unprecedented demand. Here's how the situation stands today:

**THE CRANE POTTERIES AT TRENTON** have greatly enlarged their facilities and are today producing more vitreous china and Duraclay fixtures than at any time in our history.

**THE CRANE ENAMELWARE PLANT AT CHATTANOOGA** is in production on bathtubs, sinks, lavatories and other porcelain enamel on cast iron products. Manufacture has been concentrated on items in greatest need, and production on these in many cases exceeds prewar production. Plant capacity is greater than ever before, and 1947 will see an even greater quantity of plumbing fixtures pouring out as fast as material and labor conditions permit.

**THE CRANE BOILER AND RADIATOR PLANT AT CHATTANOOGA** produced as great a number of boilers as were made before the war, and radiator production closely approached prewar peaks. This new plant with its modern equipment is designed to turn out heating equipment by mass production methods, assuring even greater production in 1947.

This is a record of which Crane Co. may well be proud—we regret that it was still not enough to give everyone the new Crane equipment he wanted.

Every effort is being made to step up this production in 1947. How soon this increased production can meet the tremendously expanded demand for plumbing and heating depends on conditions which today are shrouded in uncertainty, but builders may be assured that Crane Co. will continue to do everything possible to meet the unprecedented demand.

The situation is improving steadily. Check with your Crane Branch on the items you need—we will do everything in our power to supply you with the equipment you want.


**ADVANCE INFORMATION FOR BUILDERS ON THE CRANE 1947 LINE**

*This colorful book just published shows Crane Bathroom Groups, Kitchen Sinks and other plumbing equipment that will be available in 1947. Copies should be in the hands of every builder planning residential construction. If you have not received yours, ask your Crane Branch or write Crane Co. on your business letterhead.*

# CRANE

CRANE CO., GENERAL OFFICES
836 S. MICHIGAN AVE., CHICAGO 5

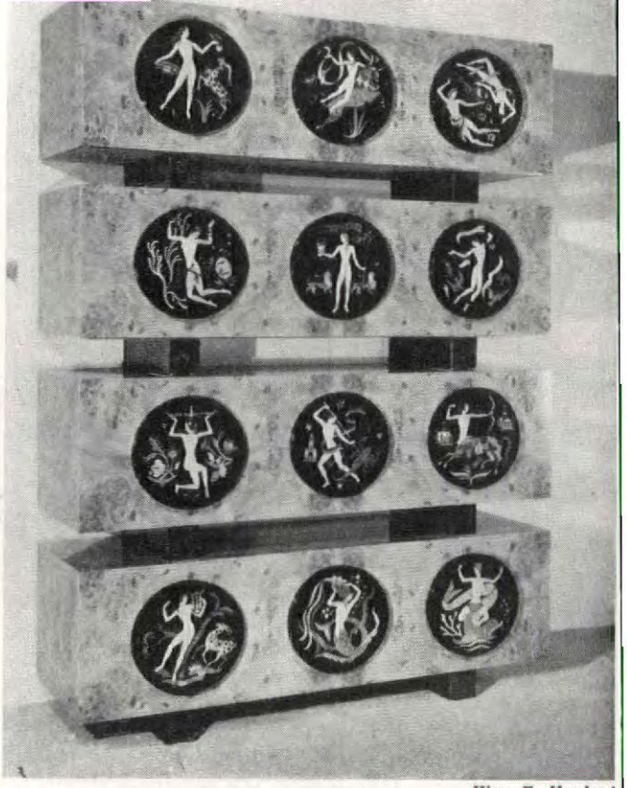
*PLUMBING • HEATING • PUMPS*
*VALVES • FITTINGS • PIPE*

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

*Scores of exotic woods go into elaborate inlays*

*Desk is suitable for apartment or office use*

*Sectional units permit Flexible arrangement*

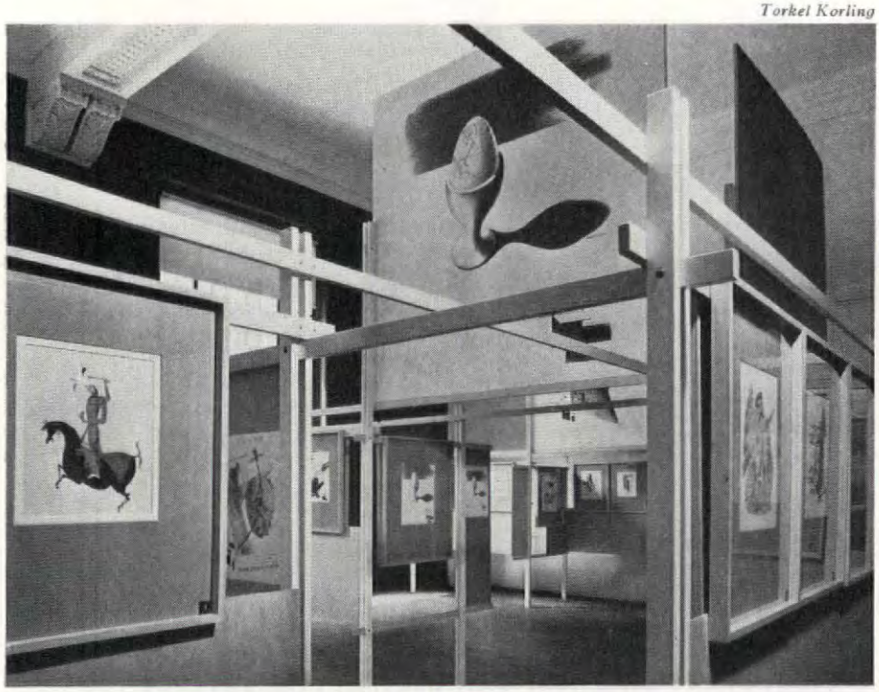


*Wm. F. Howland*

**Andrew Szoeke,** long known to decorators for superb craftsmanship in custom cabinet work, has recently designed a complete line of furniture now being sold through B. Altman & Co., New York. The chest (above) is one of his most striking pieces. Though prices parallel those of rare antiques, no eighteenth century craftsman mastered the art of inlay more skilfully than Mr. Szoeke. Most of the most elaborate designs are after other artists, but his original work, if simpler, is equally impressive. In almost every instance, rich burls are used as veneers in combination with the marquetry.

**Jens Risom,** who before the war designed for Dan Cooper, Georg Jensen and Knoll Associates, has now set out on his own to design well made, middle-of-the-road contemporary furniture, two examples of which are presented at left. This line, thoroughly adaptable to most existing interiors, will not be sold at retail but will be confined to architects, decorators and a few selected stores.

*Torkel Korling*



# BOOKS

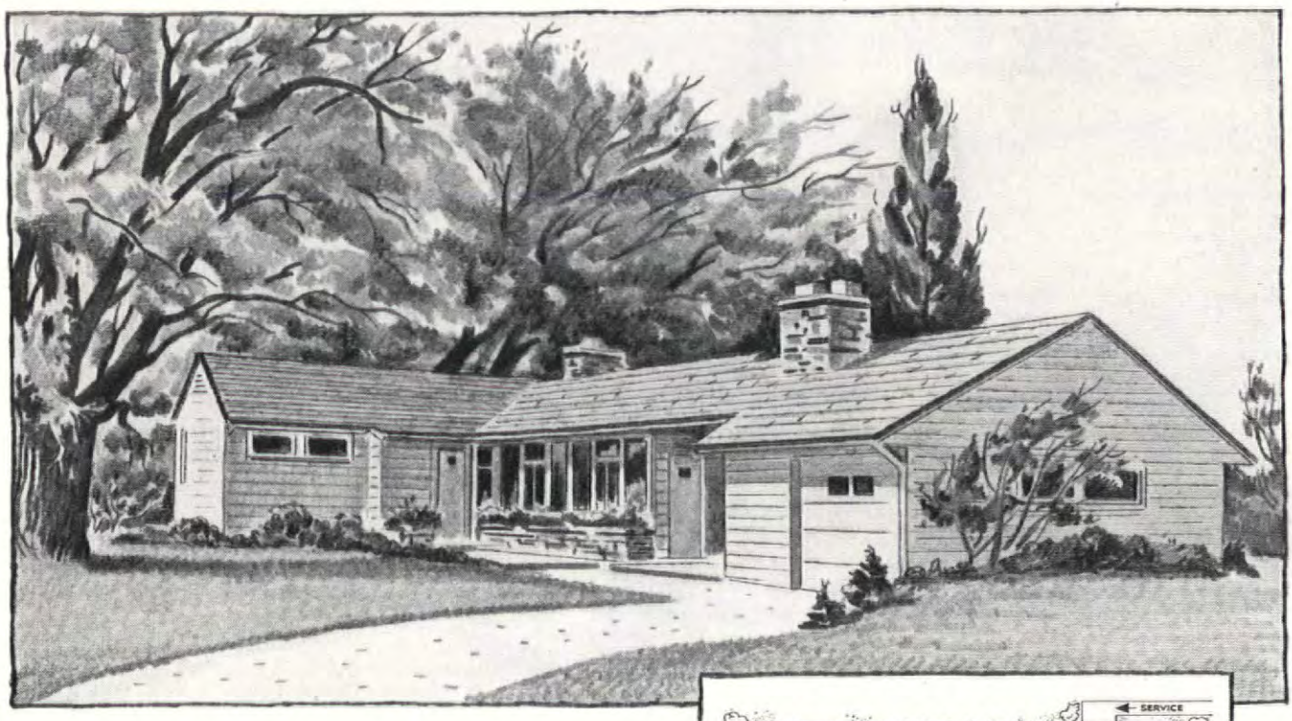
**MODERN ART IN ADVERTISING.** Designs for the Container Corp. of America. Published by Paul Theobald, Chicago. 109 pp. Illustrated, color, black and white. 9 x 12½. $7.50.

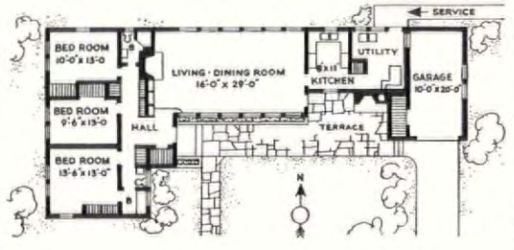
As straight commercial advertising, the campaign of the Container Corp. of America has probably aroused more interest in artistic circles than any other. Since 1937, this company has offered a consistently fine selection of specially commissioned designs by outstanding artists which have appeared in leading magazines. The campaign eventually totted the collection that last year won an exhibition invitation from Daniel Cotton Rich, Director of the Art Institute of Chicago. The show (see cut) was highly successful and aroused the interest of museums throughout the country not only for its art but also for its architectural excellence and flexibility as a traveling installation. Mr. Rich says that he finds the designs, while grouped together, have lost some of their original power but, after studying them individually, he has decided that they add up to the most creative campaign in modern advertising. He also reached several other conclusions:

- That modern art has discovered a set of dynamic principles which can be used dynamically in other visual fields.
- That a first-rate artist, once he gets the idea, can turn in a

*(Continued on page 120)*

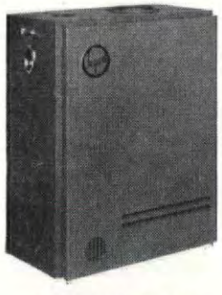
# *First home* NEARS COMPLETION IN THE CHICAGO TRIBUNE'S PRIZE HOME BUILDING PROGRAM






*Suitable for a 50-foot lot, this home for a navy veteran and his family was adapted from a design by Lt. W. R. Burns, Jr., of Harrisburg, Pennsylvania.*

**Veteran's home features ceiling radiation heating system using Bryant Model 26 Boiler**



Near completion in suburban Chicago is this attractive ranch style house, the first of 22 new Metropolitan Chicago homes being constructed in the Tribune's Prize Homes Building Program. Like all others in the Program, the house will be owned by a veteran and is being built from a design which won an award in the Tribune's recent Chicagoland Prize Homes Competition.

Featured in this house is a comparatively new radiant heating method in which the pipes and radiant coils are embedded in the ceilings. Walls and ceilings are insulated with rock wool as part of the heating arrangement. Heat source for the system is a Bryant Model 5-W-26 Boiler, with an output of 90,000 btu per hour.

The Bryant Model 26 Boiler, long a favorite in the nation's home radiation heating systems, is made in ten sizes to provide for a wide range of hot water or steam applications. Bryant Heater Company, 17825 St. Clair Avenue, Cleveland 10, Ohio. *One of the Dresser Industries.*

bryant

GAS HEATING

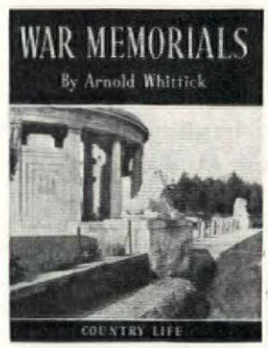
LET THE PUP BE FURNACE MAN

first rate job of advertising, if no one meddles with him. ▸ That talk of advertising design as an "American form" or an "American art" is cheap superstition. Some of the most effective pages in this collection were by Europeans and Orientals.

Now these designs have been assembled in a catalogue which eloquently bears out all Mr. Rich's praise and enthusiasm. It is a beautiful job that fortunately contains no commercial plugs other than the art itself.

Tracing the history of the campaign, Egbert Jacobson, director of Container's department of design, remarks "The series began as a forthright bid for attention to the company's developing business, to its policy of integrated production and management, and to its awareness of the importance of good taste and top-notch design in any public statement. Skillful design had still another and special implication in view of the fact that the company was often asked to suggest package design to its customers. It was believed that if we ourselves practiced what we preached—that is, engaged the best available artists to represent us to the public—then our special pleading that good package design is the most effective would be taken more seriously." Coming from a large manufacturer, a statement like this is nothing less than celestial music to the ears of the art world.

Most familiar among the paintings is the stylized Persian horse and rider by Persia Abbas symbolizing the wartime transition from the scimitar to the modern hand grenade. Publisher Paul Theobold, a recent but bright star in the field who specializes in books on art, has again lived up to the high standard he set during the war years, production difficulties notwithstanding. To the artists, the manufacturer, the museum and the publisher—more power. M.S.



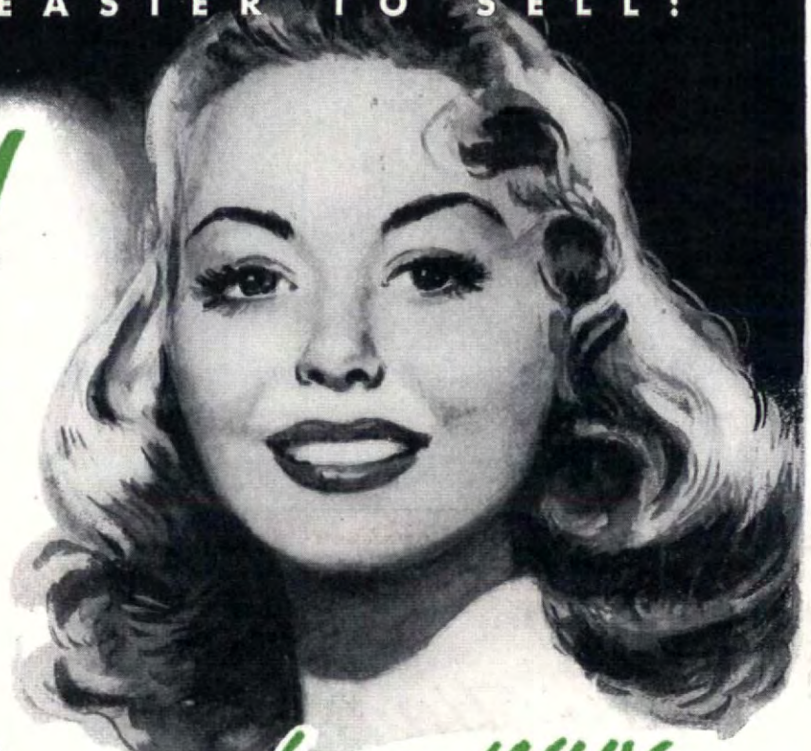

**WAR MEMORIALS** by Arnold Whittick. Country Life, Ltd., London. 181 pp. Illustrated, with index and bibliography. 7½ in. x 10 in. 30/.

"A war memorial should take the form of something that should contribute to the preservation of peace and the prevention of future wars," says the author of this timely and thoroughly researched book, just published in England. Exactly what the form should be he does not insist, but leaves it to two conflicting schools of thought—those who want a "living" or useful memorial, and those who want the more traditional, monumental structure. He discusses a wide range of memorial types, from national shrines and battlefield memorials (which he thinks were the most impressive commemorations of World War I) to local memorials put up by towns and villages and by individuals. The book is well illustrated with traditional examples, ranging from the time of the Greek "Nike" (better known as the Winged Victory of Samothrace) through World War I monuments and two projects for World War II memorials. Recent selections are limited to British and American examples, including the well-known Lincoln and Jefferson Memorials.

"I have asked a considerable number of persons," says the author, "what they feel on this matter, and the response from the majority has been that a war memorial should serve some useful purpose like a hospital ward, a park, homes for the

*(Continued on page 122)*

THEY'RE EASIER TO SELL!



# Yes!

# THEY ALL WANT IT . . . . here's WHY—


Like a dealer's dream come true . . . housewives, husbands, young marrieds...people *everywhere* are saying, "Yes...you bet I want the new Gar Wood Tempered-Aire!"

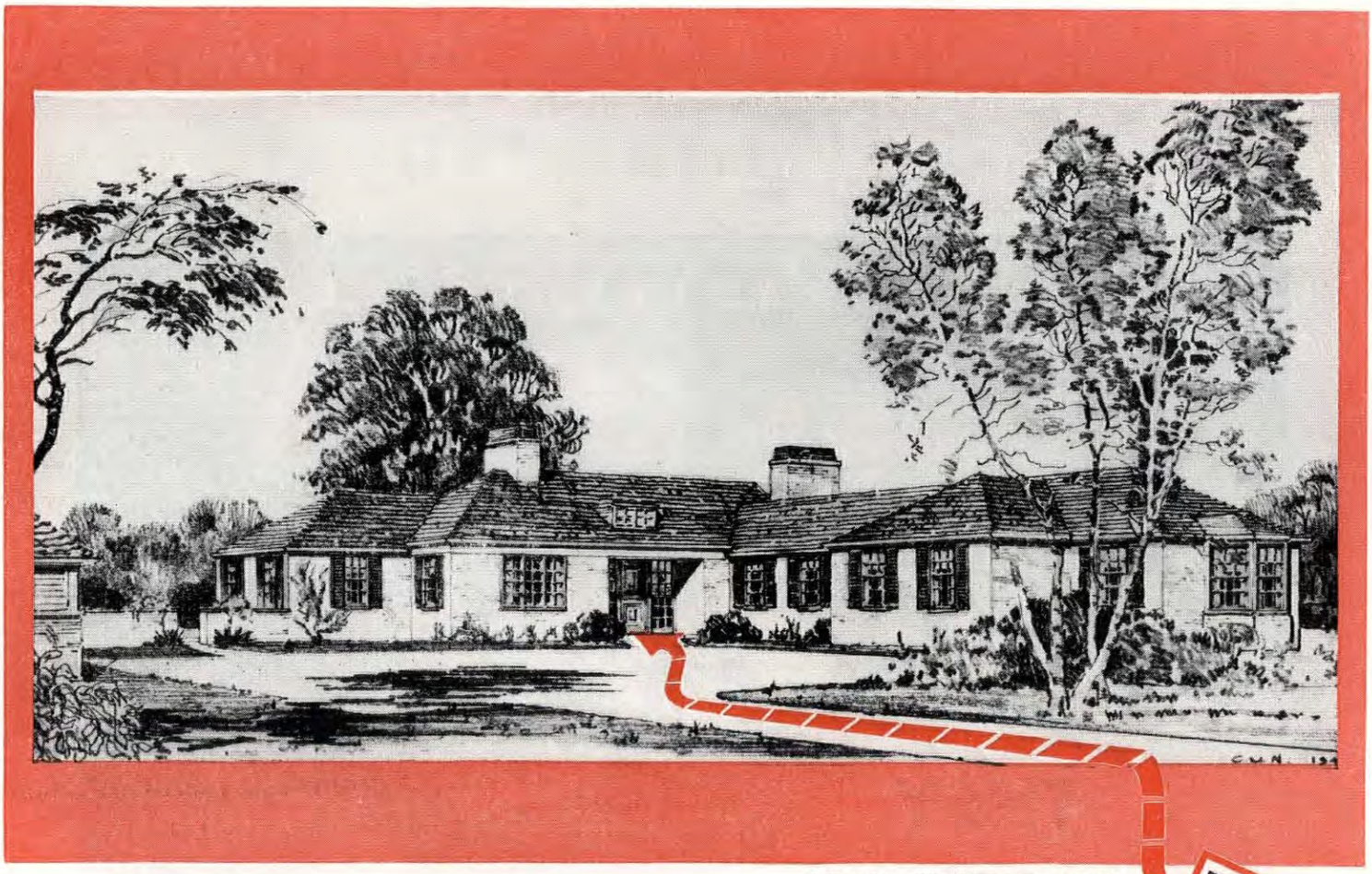
That's because the brand new, completely automatic Gar Wood Tempered-Aire means a new kind of completely automatic home heating and conditioning *comfort*...day in and day out. Tempered-Aire is crammed with outstanding new features that make it *easier to sell . . . every* time! And that's a *fact* . . . borne out coast-to-coast by individual dealers' sales records.

Tempered-Aire *is* easier to sell...means *greater profits*. Write Gar Wood *today* and learn why. You'll be glad you did!

HEATING DIVISION • WAYNE, MICHIGAN

**Gar Wood Tempered-Aire**

IN CANADA: ENGINEERING INDUSTRIES CO., LTD., 1304 CANADA PERMANENT BLDG., 320 BAY ST., TORONTO, ONTARIO



Architects: Palmer, Fisher, Williams & Nes—Baltimore, Md.

# *Presenting* THE SHOW-ROOM HOMES *of the Nation*

THE HALLE HOME is one of many "show-room" homes TIME-reading families are building or planning to build in better residential communities from coast to coast . . .

> . . . homes whose construction, materials, and equipment will be admired, noted, talked about—and *bought* by millions of other U. S. families.

Of course, not every one of TIME's 1,500,000 families has a home like this, in actuality or in the blueprint stage. But, as a group, they own more than 1,300,000 all-year homes and nearly 100,000 seasonal homes—and 409,500 TIME-readers tell us they are interested in buying or building *new* homes.*

**Mr. & Mrs. David H. Halle's** TIME subscription #12-10-7-H will go right along with them when they change their address to this new home soon to be completed in Pikesville, Md.

**With double the average U.S. family income, TIME families can afford to keep their homes a jump ahead of their neighbors'. And so when you sell your new building products to the forward-looking, looked-up-to TIME market, you're well on the way to selling the rest of the country too.**

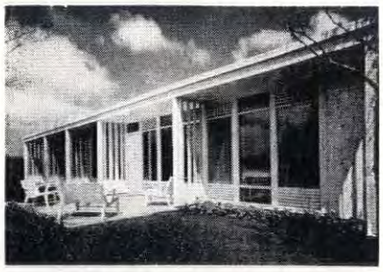
*These figures are taken from a recently completed survey soon to be published as "The Houses TIME Families Live In." If you would like to reserve a copy, please write David Wallace, Research Director, TIME, 9 Rockefeller Plaza, New York 20, N. Y.

THE GATEWAY TO THE BUILDING MARKET

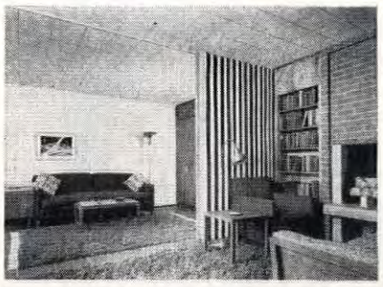
TIME

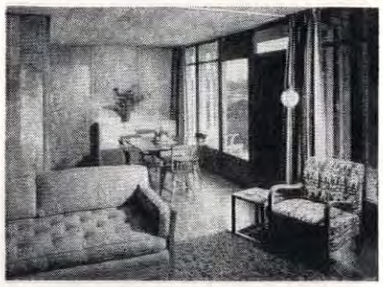
ADVERTISING OFFICES • NEW YORK • CHICAGO • BOSTON • PHILADELPHIA
CLEVELAND • DETROIT • ST. LOUIS • SAN FRANCISCO • TORONTO • MONTREAL

## Green's Solar Homes are designed for "MORE PERFORMANCE IN EVERY ROOM"







Hailed by House Beautiful as "the most exciting architectural news in decades," the Green Solar Home, erected in Rockford, Ill., has been visited by thousands. Four hundred and fifty Bendix Washers have been ordered for the hundreds of these homes soon to be built.

## . . . so naturally they include BENDIX WASHERS!

Architect George Fred Keck has developed a flexible system of plans for Green's Solar Homes—plans that permit the harnessing of the sun's rays for summer and winter comfort—*without* that standardized look that has been the bane of the prefabricated house. And *with* twice the utility of the old-fashioned house!

This "More performance in every room" is achieved by folding partitions, built-in storage units, convertible bedrooms.

And the Bendix Automatic Home Laundry!

For the Bendix can be placed in the kitchen as this actual photograph shows, or it can be placed in the utility room, depending on owner preference. The Bendix has been chosen as the washer that's the most dependable and the "most automatic"—for the Bendix is the machine that is nine years ahead in both performance and proven dependability. Four hundred and fifty Bendix machines have been ordered for these Green Solar Homes.

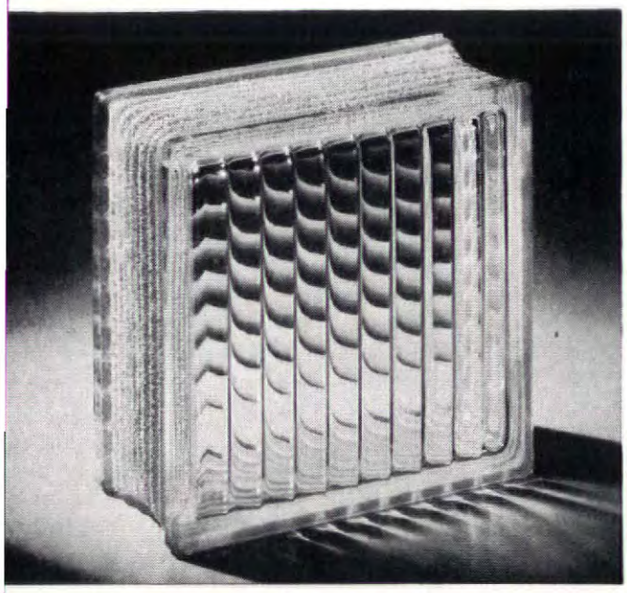
Your plans too can include the Bendix and in most states it can be financed with the home under FHA. Its four square foot compactness, (no need for set tubs) its svelte beauty, its low price, recommend it to the builder. Its economy in soap and water, its nine-year record, its workless washday, its reputation as the world's most wanted washer, recommend it to the housewife. And make her partial to the plans that include a Bendix in her new home.

BENDIX HOME APPLIANCES, INC., SOUTH BEND, IND.

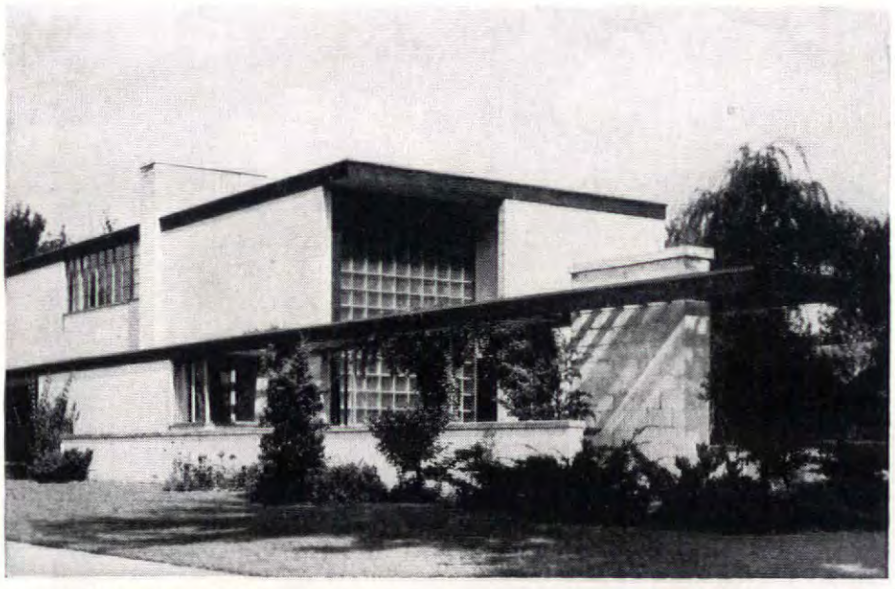
wounded or aged, anything that the people really need. These persons generally have added that they do not think we want any more stone monuments like crosses, obelisks, cenotaphs, and similar types." Despite this change in public attitude, Mr. Whittick himself is inclined to favor the traditional, monumental type, particularly on a national scale. He cites the article by Mr. Charles D. Maginnis, "Living Memorials" (FORUM, Sept. '44), which stressed the importance of the spiritual aspect of memorials, and most of the book is devoted to pictures and analyses of the traditional types approved of in that article (which, incidentally, did not necessarily reflect the ideas of FORUM editors).

Sifting down to the local scene and the individual, the author points out many mistakes made after World War I and casts his vote for parks, fountains or even a town hall. "The purely sculptural monument would be less suitable in a public square and, if the monument is large and elaborate, it would be impossible. Here, then, is the question of collaboration between the architect and sculptor. The ideal is that the architect and sculptor be one. This was usually the case in the art of the Italian Renaissance, and it has occasionally been so since, but generally now for a large monument the functions of architect and sculptor are separated."

A final chapter, added as an afterthought, presents a proposal for a United Nations War Memorial quite different in concept from most memorials illustrated in the book. This project is for "an International University dedicated to understanding between the peoples of the earth," and there is an accompanying plan designed by J. Schreiner, an English architect, for a university situated on an island, with a harbor, an airfield and a central auditorium reminiscent of the Perisphere at the New York World's Fair. E.B.



*Insulux Glass Block is a functional building material—not merely a decoration. It is designed to do many things other materials cannot do. Investigate!*



**The sought-after** simplicity of line characteristic of contemporary design is carried out by Insulux Glass Block. This versatile material is equally attractive from inside or out.

# Add a light touch for modern living

**Add a welcome** new touch of natural daylight to your next home.

Panels of Insulux Glass Block bring in abundant light. And it is *private* light—(certain Insulux patterns insure complete privacy)—ideal for bathrooms and bedrooms. Insulating properties of the block are high, even with a large panel, minimum load is placed on heating and air conditioning equipment.

Technical data, specifications and installation details will be found in the "Glass" section of Sweet's Architectural Catalog, or write Dept. D-13, Owens-Illinois Glass Company, Insulux Products Division, Toledo 1, Ohio.

**OWENS-ILLINOIS**

**INSULUX**

**GLASS BLOCK**

**A floor-to-ceiling** panel of Insulux Glass Block fills the unusual two-story living room of this residence in Grosse Pointe, Mich., with softly diffused daylight. Architect Alden B. Dow, Midland, Mich., demonstrates here one of the exceptional design possibilities and the ready adaptability of Insulux in contemporary architecture.

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS states that American engineers will participate in a permanent World Engineering Conference with headquarters in Paris. The Engineers Joint Council will be the medium for organizing American participation through its Committee on International Relations. Malcolm Pirnie is serving as chairman of the committee with offices in the Engineering Societies Bldg., 29 W. 39th St., New York, N. Y.

THE COMMITTEE ON EMPLOYMENT for the Association of Collegiate Schools of Architecture announces that additional instructors in Architectural Design, Structural Design, Building Materials and Building Equipment are needed for the second semester. Those interested in a teaching career may apply to Professor Paul Weigel, Secretary of the Association, at Kansas State College, Manhattan, Kan.

THE UNIVERSITY OF BRITISH COLUMBIA, Vancouver, Canada, has opened a Department of Architecture with Fred Lasserre, MRAIC, as head. Courses will cover all aspects of building construction, industrial design (including prefabrication), town and community planning, basic human needs and esthetic principles. Professor Lasserre is interested in obtaining qualified instructors for his staff.

THE FEDERATION TECHNICAL INSTITUTE announces that it will sponsor spring, 1947, review courses for the Architects Registration Examinations. Classes are scheduled to start the first week of February, 1947. Further information may be obtained from Earl Strunk, R. A., Director, at 5 Beekman St., New York 7, N. Y.

THE STORE MODERNIZATION SHOW, designed to give the million-and-a-half U. S. retail store owners a glimpse of most recent advances in store fronts, floorings, lighting fixtures, showcases, display equipment, heating, air-conditioning and other aspects of store modernization will be held in Grand Central Palace, New York City, the week of July 7, 1947. One feature of the show will be a daily Trade Clinic which will answer questions on remodeling problems.

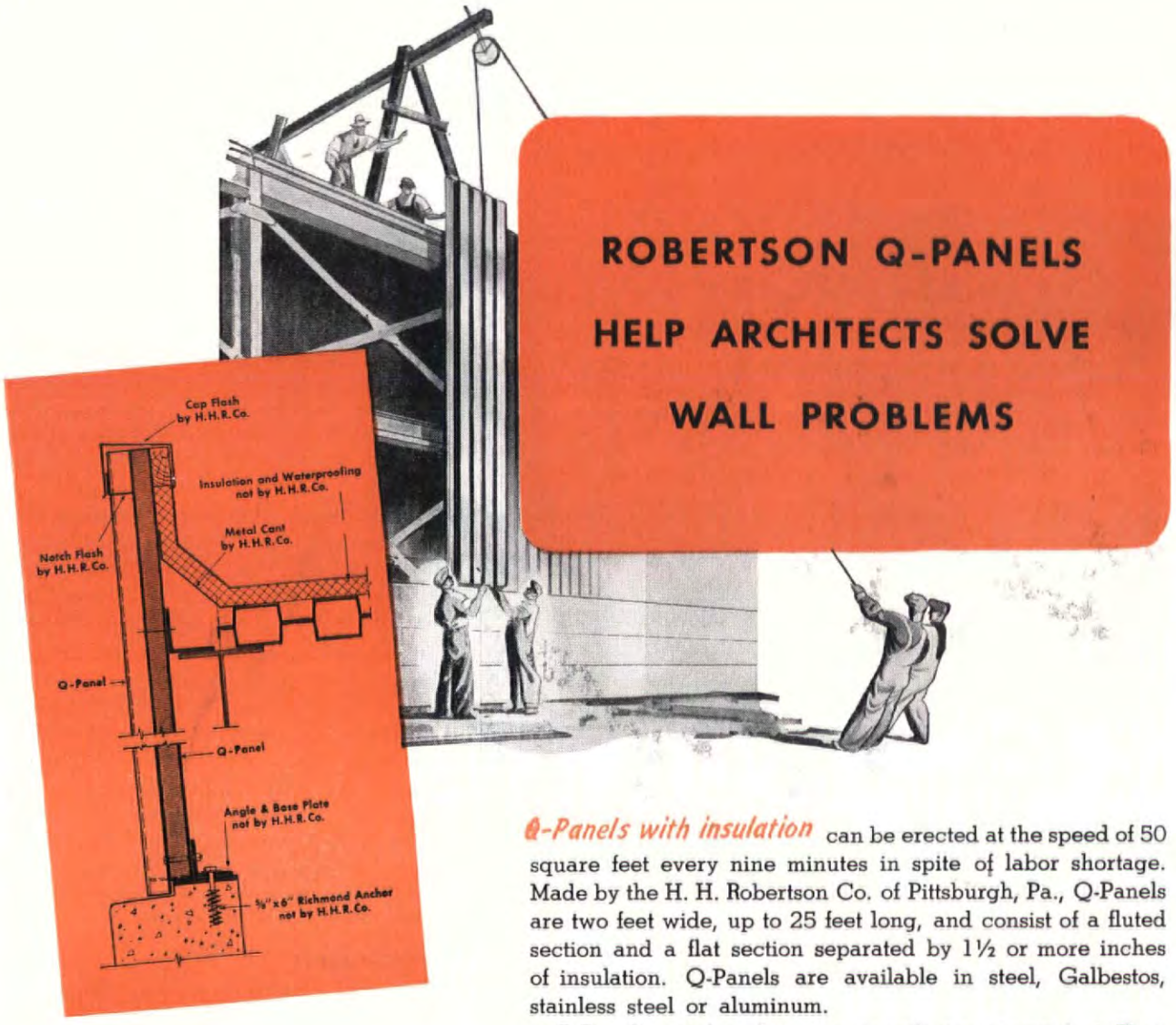
THE SOCIETY OF THE PLASTICS INDUSTRY announces plans for its forthcoming second annual Exposition and Convention at the Stevens Hotel, Chicago, May 5-11, 1947. All divisions of the industry will be included—material manufacturers, machinery companies, molders, laminators, fabricators, etc.

## COMPETITION

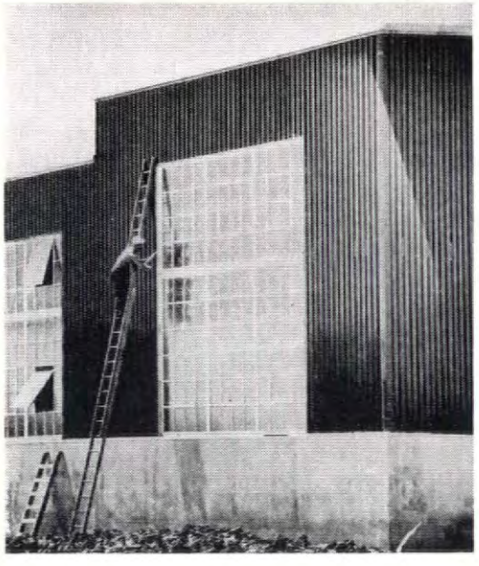
THE "BETTER ROOMS FOR BETTER LIVING" COMPETITION, sponsored by the *Chicago Tribune*, offers $26,250.00 in prizes for the best ideas on furnishing 7 typical rooms in the home (living room, dining room, combination living and dining room, bedroom, juvenile bedroom, kitchen and recreation room). First prize in each of the 7 categories is $1,000; second prize $500; third $250; fourth through twenty-third, $100. Winning ideas will be presented in the *Chicago Tribune* throughout next year. Rules may be obtained from "Better Rooms for Better Living Competition", *Chicago Tribune*—Room 2319, Tribune Tower, 435 N. Michigan Ave., Chicago 11, Ill. Closing will be March 17, 1947.

## FELLOWSHIP

THE LOWELL M. PALMER FELLOWSHIP offers a year of advanced study in architecture at Princeton University (tuition fees, residence on campus and a $700 stipend). In awarding the fellowship, particular consideration will be given to achievement in architectural design, scholastic record, personal character and *(Continued on page 126)*




# ROBERTSON Q-PANELS HELP ARCHITECTS SOLVE WALL PROBLEMS



*Q-Panels with insulation* can be erected at the speed of 50 square feet every nine minutes in spite of labor shortage. Made by the H. H. Robertson Co. of Pittsburgh, Pa., Q-Panels are two feet wide, up to 25 feet long, and consist of a fluted section and a flat section separated by 1½ or more inches of insulation. Q-Panels are available in steel, Galbestos, stainless steel or aluminum.

Q-Panels weigh only seven pounds per square foot. They are delivered cut to fit and need only to be attached to the steel framework. Assembly crews can be small. Construction is so fast that wall areas equal to ⅓ acre have often been erected in one day.

Construction is dry, clean, noncombustible. The finished wall has a thermal insulating value equaling 12 inches of dry masonry.

Combinations of texture and color have been used by architects with striking success. Fluted and flat sections have been alternated in patterns of light and shade. Aside from the purely functional advantages, Q-Panels have proved a satisfying and stimulating medium for expression of both modern and classic lines.

*For literature and details, please write:*

## H. H. ROBERTSON CO.

2403 Farmers Bank Building
Pittsburgh 22, Pennsylvania

Offices in 50 Principal Cities
World-Wide Building Service

# ANNOUNCEMENTS

professional experience. All applicants must hold a Bachelor's degree, be U. S. citizens and less than 27 years of age on October 1, 1947. Applications and supporting documents must be received by the university not later than March 1, 1947. The award will be announced on April 1. Application blanks may be obtained from the Secretary, School of Architecture, Princeton University, Princeton, N. J.

## BUILDING PREVIEWS

Plans for a $16,000,000 MEDICAL CENTER in Brooklyn, N. Y. have been announced by the Long Island College of Medicine. The project will include five new buildings: a nine-story basic science building for clinic, laboratory research, and teaching in basic sciences; a three-story medical library; a two-story auditorium which will serve both the medical school and the community; a nine-story residence and recreation hall; and an institute of industrial medicine. Preliminary plans have been drawn up by Skidmore, Owings & Merrill, New York architects with Edwin Salmon, as consultant. Construction on the basic science building will begin as soon as possible.

WESTERN RESERVE UNIVERSITY announces that construction has begun on the Karl Davis Memorial building, to house 73 student veterans and provide additional gymnasium facilities. This three-story structure, costing about $95,000, will be of fire-proof concrete block construction with brick facing.

THE DUPONT COMPANY plans a new $3,000,000 unit in its Niagara Falls electrochemicals plant. The new unit will include four main buildings—general office and laboratory building, power plant, water-pumping station, electric substations and smaller miscellaneous structures.

IRVINGTON VARNISH AND INSULATOR CO. announces that construction is under way on its new $1,500,000 plant at Newark, N. J. The H. K. Ferguson Co. is in charge of constructing the project, which will provide thirteen manufacturing buildings and three storage tanks for the processing of oil used in varnishes, resins and allied products.

## APPOINTMENTS

SYRACUSE UNIVERSITY SCHOOL OF ARCHITECTURE, Syracuse, N Y. announces the appointment of William Lescaze, AIA and James Britton, AIA to its Cooperating Committee of Architects.

FREDERICK LACK, of Western Electric Co., will be president of the American Standards Association for the coming year.

RUDARD JONES, architect, has been appointed research associate professor in the University of Illinois to carry on a new three-year study on the use of coal in home heating.

JOHN O'BRIEN, recently brigadier general in the U. S. Army Engineer Corps, has been elected vice president of L. J. Sheridan & Co., real estate firm, Chicago, Ill.

DOMINIC CAMPANELLA has become a partner in the firm of Telchin & Campanella, architects, N. Y.

## NEW OFFICES

OREN THOMAS ASSOCIATES, architects, announce the opening of offices at 726 Cooper St., Camden, N. J.

C. HARDY OLIVER and ALEX DICKSON have formed an architectural partnership at 1205 Hampton St., Columbia 29, S. C.

GERALD PAUL, R. A., has established an office of architecture, engineering and industrial design at 333 Fourth Ave., New York 10, N. Y.

*(Continued on page 128)*

# "Thine alabaster cities gleam"

In *all* the world, *only* in America can be found so great and shining cities.

They are, in one, both the symbol and the accomplishment of our aspirations. They are, in a way, America. Ask a couple of million returned GIs!

If beyond our alabaster cities we sense the roar of mighty machinery, the belching stacks of industry, the skill and sweat of human beings . . . they obscure not at all the handiwork. For in America we know that not alone with ideals, but with the "sterner stuff" of toil and resources shall a nation be moulded at last.

So, some practical dreamer it was, who watched the first *steel pipe* clank from the grimy benches about sixty years ago. Who, in shaping the hot metal, gave form and substance to fair cities yet to arise . . . cities that became realities because these *arteries* of steel could convey water, oil and other essential fluids, gas, steam and even some forms of solids, over long distances and to great heights.

Actually, the achievement of the modern city directly parallels the development and plentiful production of reliable, economically adaptable *steel pipe.* Yes, *steel pipe makes it possible!*

The interesting story of "Pipe in American Life" will be sent upon request.

*Committee on Steel Pipe Research*
OF
AMERICAN IRON AND STEEL INSTITUTE
350 FIFTH AVENUE, NEW YORK 1, N. Y.

## STEEL PIPE MAKES IT POSSIBLE!

*. . . better living through pipes of steel for plumbing and heating purposes.*

JONATHAN BUTLER and FRANCIS ROGERS have formed the partnership, Rogers & Butler, architects, at 70 E. 45th St., New York, N. Y.

DAVID MARNER, architect, announces the opening of his office at 305 Bond St., Asbury Park, N. J.

C. HOOD HELMER and PRESTON COLE have announced their association for the practice of architecture at 30 Pleasant St., Woodstock, Vt.

LOUIS ROTH, architect, has opened an office for general practice at Box 206A, Farwell Ave., Saratoga, Calif.

EUGENE WEISBERG has established an office for the practice of architecture at 219 Central St., Lowell, Mass.

ROBERT MAYER and JOSEPH KICHAVEN, architects, are associated in practice at Room 203, El Serrano Bldg., 556 S. Serrano Ave., Los Angeles 5, Calif.

LAURENCE JOHNSTON, AIA, will specialize in hospital planning at his new office at 1515 Sherman Ave., Evanston, Ill.

SCHULMAN & SOLOWAY, a new architectural and engineering firm, have opened offices at 4 Court Square, Brooklyn, N. Y.

ROBERT MCKEAN has opened an office of industrial design and product development at 165 E. 72d St., New York 21, N. Y.

NORRIS GADDIS, architect, announces the opening of his office at 544 Colusa Ave., El Cerrito, Calif.

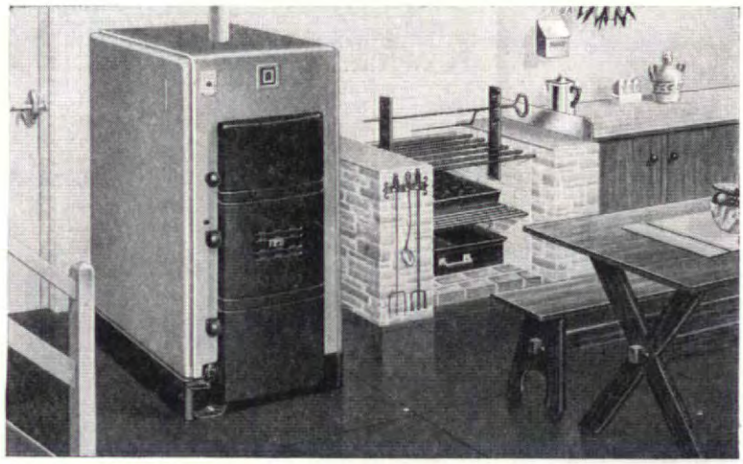
E. J. CAPPELLO, architect, has opened an architectural office at 164-01 Northern Blvd., Flushing, N. Y.

CONSTRUCTION ASSOCIATES have established offices at 630 South Wilton Place, Los Angeles 5, Calif.

ARCHIBALD ROGERS, AIA, has opened an office at 49 College Ave., Annapolis, Md.

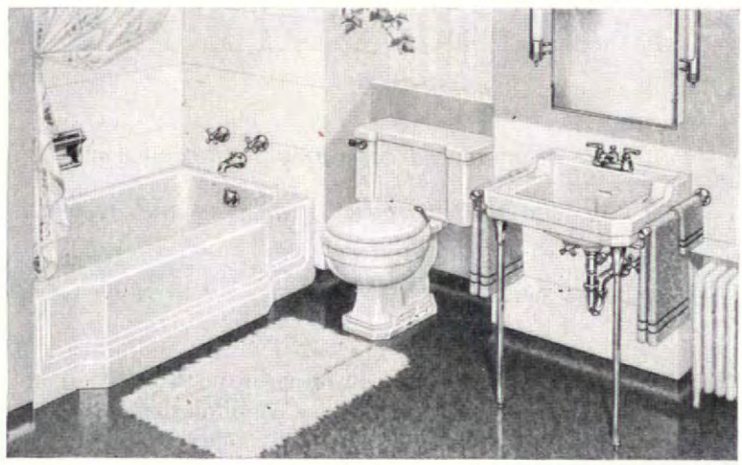
*(Continued on page 130)*

# Engineered to Stand Up



**TYPICAL** of the better heating equipment developed by American-Standard research and engineering, is the SEVERN Boiler. Note how its smart, trim lines stand out. Incorporating many features not usually found in such a moderate priced boiler, the SEVERN is just right for small or medium sized homes. Available in models for coal (hand fired or stoker), oil, or gas.

# Styled to Stand Out



**LUXURIOUS** bathrooms like this are easy to achieve when you specify American-Standard fixtures. The bath is the MASTER PEMBROKE—a beautiful creation in durable enameled cast iron. The shelf-back lavatory is the COMRADE, and the close-coupled closet is the COMPACT, both of genuine vitreous china. All three pieces come in white and a wide range of harmonizing colors.

## AMERICAN-Standard

HEATING PLUMBING

■ The superb design and sound construction of American-Standard products assure many years of efficient, economical service. Their smart, trim lines and colorful finishes add beauty to any setting. And, being backed by more than half a century of manufacturing experience, they enjoy a public acceptance second to none. Yet, they cost no more than others . . . and can be bought on a convenient Time Payment Plan for modernization. Ask your Heating and Plumbing Contractor for details. **American Radiator & Standard Sanitary Corporation**, P. O. Box 1226, Pittsburgh 30, Pa.

AMERICAN-Standard HEATING · PLUMBING

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***LOOK FOR THIS MARK OF MERIT***—It identifies the world's largest line of Heating and Plumbing Products for every use . . . including Boilers, Warm Air Furnaces, Winter Air Conditioners, Water Heaters, for all fuels—Radiators, Convectors, Enclosures—Gas and Oil Burners—Heating Accessories—Bathtubs, Water Closets, Lavatories, Kitchen Sinks, Laundry Trays, Brass Trim—and specialized products for Hospitals, Hotels, Schools, Ships, and Railroads.

*SEND TODAY FOR YOUR FREE COPY OF THE RULES OF THE*

# Chicago Tribune's

# $26,250.00

# *"Better Rooms for Better Living"*

# *COMPETITION*

***offering 161 cash prizes ranging from $100.00 to $1,000.00 each for the best ideas for furnishing and decorating typical rooms of homes***

*ALL ENTRIES IN THE COMPETITION MUST BE RECEIVED BY 5 P.M. OF MARCH 17, 1947*

DO YOU have fresh and interesting ideas for furnishing and decorating a living room, a combination living-dining room, a dining room, a master bedroom, a juvenile or infant's bedroom, a kitchen, or a recreation room for adults or for children?

So that it may present to its readers the widest range of the latest, best and most effective ways to furnish and decorate typical rooms of homes, the Chicago Tribune is conducting the "Better Rooms for Better Living" competition, offering $26,250.00 in 161 cash awards ranging from $100.00 to $1,000.00 each for the best entries presenting ideas on this subject.

Just as the Chicago Tribune's recent $24,000.00 Chicagoland Prize Homes competition and its annual American Fashions competitions have been highly productive of ideas which have set the pace in these respective fields of popular interest, so this new project has been designed to set new high standards of excellence in home interior fashions.

Here is an opportunity to give your talent and ability free play in planning one or more interiors just the way you would have them, without compromising in any detail. Here is a chance to win substantial monetary reward and national recognition for your efforts.

After the prize-winners have been selected, the Tribune plans to give them the widest publicity. It is the newspaper's intention to reproduce the winning ideas, or adaptations of them, week after week, in full color in the Sunday Tribune with its more than 1,500,000 circulation.

Everyone is eligible to compete, except Tribune employes, members of their families and of the Jury of Awards, which will be composed of persons competent and skilled in this field.

For complete information about how to submit an entry, write today for a free copy of the rules which will be sent postpaid. As is made plain by the anonymity provision of the rules, all entries will enjoy equally fair consideration in the judging.

Fill in the coupon below, paste it on a postcard and mail today. All entries must be received not later than 5 p.m. of Monday, March 17, 1947.

MAIL THIS RULES REQUEST FORM TODAY

Better Rooms for Better Living Competition
Chicago Tribune, Room 2319
Tribune Tower, 435 N. Michigan Ave.
Chicago 11, Ill.

*Without cost or obligation to me, please send by postpaid mail complete details and rules of the Chicago Tribune's $26,250.00 "Better Rooms for Better Living" competition to me at the address below:*

My Name .....

Street and Number .....

City ..... State ... Zone Number, if any ....
(Please PRINT plainly) AFJ

# ...and it's just as unwise to cut a house "adrift"!

• When it comes to providing a house with uniform, dependable, low-cost heat—Bituminous Coal has no equal. Every architect and builder knows that!

So what can you do when a client *insists* on some other fuel? Simply this—make sure the house plans make it possible for him to change his mind later on—and turn to coal

Then his house won't be "cut adrift" from the benefits of coal heat when stoker developments or local coal services or cost differentials convince him of the advantages of coal.

This means: (1) Provide a chimney with sufficient flue capacity to burn coal efficiently; (2) Provide sufficient space adjacent to the heating unit for eventual coal storage and stoker installation.

These sensible precautions constitute low-cost insurance of a home's future value.

Coal supplies uniform, *steady* warmth throughout every portion of each room. For there's always a fire in the furnace—no "pop on and pop off" periods that permit accumulated heat to rise to the ceilings and leave floor areas dangerously cold. That, plus its low cost, is why more than 4 out of every 7 homes in the United States now heat with coal!


Every new home you design or build should be planned to permit the efficient burning of coal—no matter what fuel may initially be selected. In two simple ways you can free any new home to turn to coal—the most plentiful and most economical fuel of all. This means:

**1. Provide a chimney of adequate flue capacity.**

**2. Provide sufficient space adjacent to the heating unit for eventual coal storage and stoker installation.**

**BITUMINOUS COAL**

**BITUMINOUS COAL INSTITUTE**
**Affiliate of NATIONAL COAL ASSOCIATION**
**Washington, D. C.**

ARTHUR DAVIS and NATHANIEL CURTIS, JR. announce the formation of the firm, Curtis & Davis, architects and associated engineers, at 720 Union St., New Orleans, La.

THE DUNCAN SHAW CORP., manufacturers of a newly designed line of builders' hardware, has opened an office at 33 W. 42d St., New York 18, N. Y.

### CHANGES OF ADDRESS

GRUEN & KRUMMECK, store designers and merchandising consultants, have moved their Los Angeles office to 8460 Santa Monica Blvd., Hollywood 46, Calif.; and have opened a new office at 967 Sutter St., San Francisco.

KETCHUM, GINA & SHARP announce the removal of their offices to 227 E. 44th St., New York 17, N. Y.

FRANCIS LLOYD, architect, has moved his office to 305 Grant Ave., San Francisco 8, Calif.

ROBSJOHN-GIBBINGS announces that his new address is 145 E. 72d St., New York 21, N. Y.

THE SOCIETY OF INDUSTRIAL DESIGNERS is now located at 48 E. 49th St., New York 17, N. Y.

THE GYPSUM ASSOCIATION has moved its office to 330 S. Wells St., Chicago 6, Ill.

BENJAMIN IRBY, AIA announces the new location of his offices at 2288 Victoria St., Beaumont, Texas.

CHARLES KAHN announces the removal of his office to 1518 Walnut St., Philadelphia 2, Pa.

### CORRECTION

The photo-murals shown on pages 96 and 127 of the October 1946 issue should have been credited to Lens Craft Studios, Inc., New York City.

# MODERN UPHOLSTERY FOR MODERN DESIGN

## CUSHIONED IN Firestone FOAMEX*

The best specifications read "cushioned in Firestone *Foamex*." Why? Because, it's the modern, cost-cutting upholstery material. One piece of buoyant, air-and-latex takes the place of old-fashioned stuffing and springs . . . and brings a new degree of comfort to seating. And it is electronically processed for longer wear. *Foamex* is dust-proof, dirt-proof, damp-proof, odor-proof and mildew-proof! Specify *Foamex* in custom-cut or stock sizes.

## COVERED WITH Firestone *Velon*®

And cover *Foamex* with the eye-appealing fabrics woven of *Velon* fibres. Decorator-right in color and textures . . . these non-fading, wipe-clean fabrics look new even with years of use and abuse! Ask your fabric sources for samples and information. Write Firestone, Akron, for *Foamex* and *Velon* full-color booklets.

BEST TODAY··· STILL BETTER TOMORROW

Listen to the Voice of Firestone
Monday Evenings over NBC

*TRADE MARK

# PAINT AND ZINC BURY THE HATCHET

Usually paint takes a beating after it meets the zinc on an ordinary galvanized sheet. Even when it is acid-treated, the raw zinc dries out the vital paint oils. Paint gives up and starts to peel and flake off. The whole job must be repainted.

Yet it's different when gutters and downspouts, air-ducts, furnace casings and other building construction and equipment are made of ARMCO Galvanized PAINTGRIP Steel. Bonderizing at the mill insulates the zinc coating of this special-purpose sheet, makes it friendly to paint. Weather-exposure tests prove that paint on ARMCO Galvanized PAINTGRIP lasts several times longer than on ordinary galvanized or uncoated steel. And this *extra* PAINTGRIP protection *actually costs less* than it does to use ordinary galvanized steel and acid-etch before painting.

Armco distributors are trying hard to meet the enormous demand for ARMCO Galvanized PAINTGRIP but, of course, cannot always do it. Please be patient and remember that they and sheet-metal contractors and the Armco mills are making every effort to provide enough special-purpose metals for your needs. The American Rolling Mill Company, 71 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.


**SEE SWEET'S CATALOG** for uses, advantages and general specifications of these other Armco special-purpose sheets:

**ARMCO Stainless Steels**

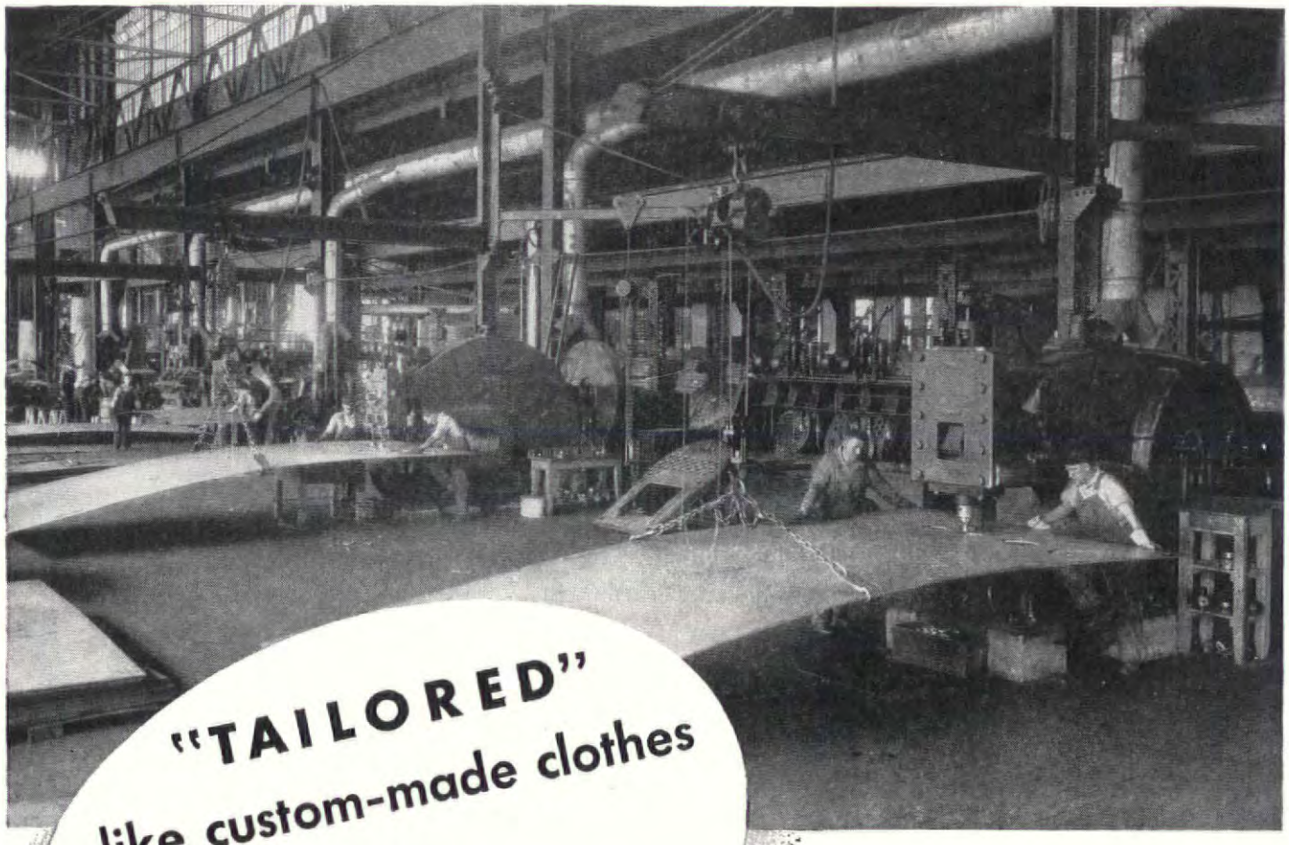
**Galvanized ARMCO Ingot Iron**

**ARMCO Enameling Iron**
(for fine porcelain enameled work)

GALVANIZED PAINTGRIP ARMCO STEEL

**THE AMERICAN ROLLING MILL COMPANY**

• SPECIAL-PURPOSE SHEET STEELS • STAINLESS STEEL SHEETS, STRIP, BARS AND WIRE



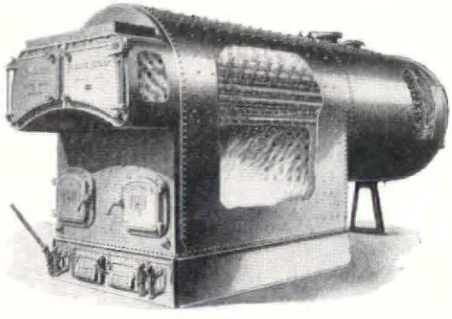
"TAILORED"
like custom-made clothes

# KEWANEE

## HEAVY DUTY STEEL BOILERS

In the mammoth Kewanee Shops . . . a third of a mile long . . . husky steel plate, up to an inch thick, is tailored to exact dimensions — with more painstaking precision than the finest tailor-made suit.

And as a basis of this fine precision manufacturing by expert boilermakers, working with the most modern machinery, are principles of boiler design which 78 years experience proves most efficient in producing steam at lowest costs.



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Reg. U. S. Pat. Off.
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**Kewanee High Pressure, Heavy Duty Firebox Boilers are built for 10 to 304 Horse Power at 100, 125 and 150 pounds working pressure . . . burning coal, oil or gas.**

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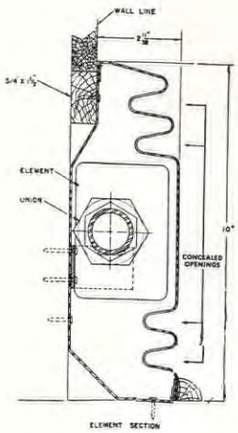
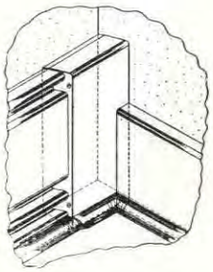
ARMY NAVY

# BUILDING REPORTER



**BASEBOARD HEATING SYSTEM surrounding the house provides comfortable heat, is easily installed.**

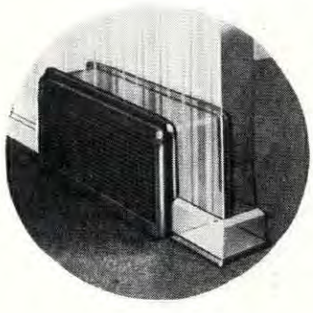
The Dunham Baseboard Simplicity Heating System lines all the exterior walls of a house with a continuous one-inch pipe concealed in a specially engineered baseboard. Warm water flows through the pipe, and air circulates around it to give off clean, comfortable heat. Lengths of finned units which have additional heat output are installed under windows to compensate for heat loss over and above that taken care of by the plain pipe. Installation of the system is simple and operation is entirely automatic. A room thermostat starts and stops the water circulator to provide the right amount of heat, and an aquastat regulates the heating device on the boiler to maintain a minimum water temperature. According to the manufacturer, the automatic operation, plus high efficiency and complete simplicity of the system, cuts installation and operation costs to a fraction of that of old-fashioned heating systems. The specially engineered baseboard is attractively styled with completely hidden louvers and, fitting snug against the floor, facilitates cleaning. Cover is removable for access to all parts. Baseboard units to cover bare pipe only are supplied in 10-ft. lengths and are cut to fit on the job. Finned sections are supplied in units 2, 3, 4, 5, and 6 ft. long. Inside and outside corner and door-stop fittings are supplied complete.

*Manufacturer:* C. A. Dunham Company, 450 E. Ohio St., Chicago, Ill.

**ELECTRIC WARM AIR FURNACE equipped with automatic modulating controls provides steady, comfortable heat.**

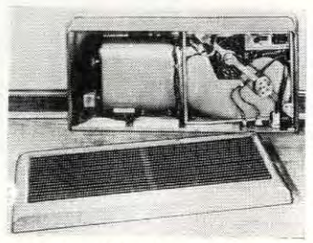
The new Electromode warm air furnace for central home heating provides automatic heat with a differential of only 3 degrees between floor and ceiling. Incorporating six patented heating elements as the heart of the unit, the flow of heat is automatically regulated by a Minneapolis-Honeywell Moduflow system. The Moduflow motor, mounted in the furnace cabinet and controlled by exterior and interior thermostats, meters the flow of power to the six elements, turning them on and off individually as variations in temperature demand. Other features of the new unit include an air filter located in the incoming air duct, humidity control apparatus installed as an integral part of the system in the outgoing hot air duct, and a fan for forced air circulation rated at 1,400 cfm. The new furnace resembles a home freezer more than a conventional central heating plant, is finished in white enameled steel and can be installed without chimney or vents. Available in two sizes for homes containing up to 11,000 cu. ft. and 24,000 cu. ft., each unit is 48 in. high, with width varying from 26½ in. to 33 in., and length from 58 in. to 72 in. The larger unit is rated at 25 K, 230 v., 109 amp., 60 cycles, A-C, single-phase, and has a rated output of 85,375 BTU's at full capacity. The load of 25 K is divided into the six heating elements, each rated at 4156 W. Tested in a 10-room, brick, partially insulated house in Chattanooga, Tenn., power consumption for the 1945-46 heating season was about 27,600 Kw-hr., representing a cost of approximately $203.

*Manufacturer:* Electromode Corporation, 45 Crouch St., Rochester 3, N. Y.



**SMALL GAS-FIRED HOME FURNACE, easily installed for zone heating, offers modulated heat flow, zone control.**

South Wind midget gas-burning furnace can be installed in each zone of a house to supply automatic modulated flow of heat with individual thermostatic control. About the size of a suitcase (14 in. wide, 30 in. long and 9½ in. thick), its use eliminates the large central heating plant and chimney. It can be placed in horizontal or vertical position, in the floor between joists, ceiling, attic or wall. Of sufficient capacity to heat 2½ rooms, it can be recessed in a wall to heat two rooms, or it may be placed to heat 3 rooms through short lengths of duct. Each furnace has its own thermostatic control. Used in an average five-room house, one unit might heat the two bedrooms and bath, while another would allow individual heat control of the kitchen, living and dining rooms. South Wind automatically adjusts its heat output to the requirements of the room by modulating from full capacity down to about one fifth of full capacity, not by turning off and on. Operation is quiet and trouble free. Key feature of the new unit is its two completely isolated fan systems—one for combustion, one for circulation. The fire, completely sealed, is fed by outside air with combustion wastes discharged back to the outside. The closed metal path from outside into the firebox and back again acts not only as a fire protection, but guards against the possibility of asphyxiation. Actually, the heater needs no draft because it has its own fan which blows air into and through the fire box. This allows the heater to function without a chimney and makes possible a simple fitting on the outside of the house to discharge combustion fumes. A 2-in. insulated pipe is used as an exhaust and can be run under the floor up to a distance of 25 ft. without affecting the heater's operation. The unit, made of stainless steel, operates on city, manufactured, natural or bottled gas and is approved by the AGA. It may be easily handled by one man, since it weighs only 75 lbs. with cabinet and 45 lbs. without. It can be installed in about 3 hrs. According to the manufacturer, cost of the units for a job are about the same as a conventional central heating plant with automatic controls, but a substantial saving is affected by the elimination of elaborate ducting or piping.



*Manufacturer:* Stewart Warner Corporation, 1826 Diversey Parkway, Chicago, Ill.

**MULTI-ROOM, MULTI-STORY AIR CONDITIONING SYSTEM combines advantages of various types of systems.**

The new Trane Custom-Air System of air conditioning for multi-story, multi-room buildings (1) cools and dehumidifies in summer; (2) heats and humidifies in winter; (3) ventilates, cleans and moves air the year around; (4) provides various phases of air conditioning as called for by the controls; (5) provides heating early in the day and cooling in the afternoon; (6) operates in the most automatic way possible; yet (7) permits each occupant to select the temperature he desires. Combining the advantages of various air conditioning systems for the multi-room building, the new system comprises, mainly, two major pieces of equipment. A small motor-driven room unit is used to offset sensible heat gains in rooms, and a central fan system supplies ventilating and dehumidifying air.

From the standpoint of temperature, air circulation and cleaning, room units are complete air conditioners and can be operated independently of each other. They are attractively designed with integral grilles, and fit under most standard windows. Coil in the unit is of standard tube and fin construction and can be furnished in *(Continued on page 138)*

# *a modern building is truly modern...*

## *when pipe joints are* SILBRAZ*

Silbraz joints are threadless, silver brazed joints that, when properly installed, actually make a "one-piece pipeline" on red brass or copper pipe runs. Silver brazed — not soft soldered — Silbraz joints will not creep or pull apart under any condition which the pipe itself can withstand.

Experience covering hundreds of installations where Silbraz joints were specified by leading architects and builders, prove that this type of pipe connection is permanent, leakproof, and troublefree. Their use has avoided costly maintenance and repairs.

**Walseal* Valves and Fittings for making SILBRAZ JOINTS**

The Walworth Company, oldest manufacturer of valves and pipe fittings in the United States, produces a complete line of Walseal Valves, Fittings, and Flanges for making Silbraz Joints — the modern method of joining brass or copper piping. For further information, see your nearest Walworth distributor, or write for Circular 84A.

**Patented—Reg. U. S. Patent Office.*

***Make it a "one-piece pipe line" with Walseal***

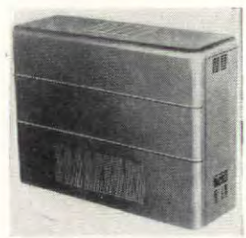
Cut-away view of a Walseal tee

# WALWORTH

**valves and fittings**

**60 EAST 42nd STREET, NEW YORK 17, N. Y.**

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD



four or six rows. Fan draws room air into the unit through a one-in. filter, over the coil, and discharges it through the outlet grille. In continuous operation during the heating and cooling cycles, the fan operates quietly at slow speed. Two size units are available, with one and two fans respectively.

The other air conditioning requirements—ventilation, dehumidifying and humidifying—are handled by the central air unit of the Custom-Air System. This consists of some form of dehumidifier, sprays, a set of preheat and reheat coils, a heat exchanger, filters and a fan for drawing in the outside air and discharging it to the spaces to be ventilated. Operating in conjunction with this equipment is the refrigerant plant, which supplies chilled water to the dehumidifier coils and a mixture of chilled water and recirculated water to the room units. The distribution system or duct work can be either high, low or medium pressure.

This dual arrangement of central and individual units yields a flexible system. In winter, hot water is circulated through coils in the room units, quantity being controlled by room thermostats or manual valves. Ventilation air is introduced separately at or near room temperature, and moisture in the proper amount to produce humidity is supplied by sprays. Changeover from winter to summer operation is entirely automatic. During the summer cycle, chilled water is supplied to the coils in room units. Ventilation air is introduced separately at predetermined minimum temperature and low moisture content. Between seasons and on rising outdoor temperature, water temperature in the room units is gradually reduced. Ventilating air temperature remains constant until outdoor temperature reaches 75 degrees, then is reduced to 60 degrees. On further increase in outdoor temperature, water to room units is chilled to capacity. On falling outside air temperature, the cycle is reversed.
*Manufacturer:* The Trane Co., La Crosse, Wis.

### HOME PRECIPITRON removes 85-90 per cent of dust from air circulating systems.

The new home Precipitron, for use with warm air heating, independent air circulating, or air conditioning systems, will electrostatically remove 85-90 per cent of all dust in the circulating air streams of an 8-room house. Based on the electrical principle that objects with like charges repel each other, and objects with unlike charges attract, air to be cleaned is passed through an electrostatic field created by a gate of 7 highly-charged thin tungsten wires and 8 grounded aluminum tubes, alternately spaced. Air then enters the dust-collecting cell, consisting of 69 aluminum plates alternately charged negative and positive and set edgewise to the air stream, where the charged dust particles are attracted to the oppositely-charged plates. Clean air goes through the furnace to be heated and circulated through the house. Dust-collecting plates are washed by turning a handle which releases 5 sprays of hot water. Flushing takes 3 minutes and is required about as often as defrosting the refrigerator. High voltage direct current for the unit is produced from standard house current by an "energizer," which consists of electronic tubes, transformer and capacitor. The home Precipitron will be available in a compact cabinet model, 52 in. high, 27 in. wide and 34 in. deep, or built into furnace units by furnace manufacturers. *(Continued on page 140)*

# *Future Home Buyers...*

## Will Expect STEEL DOOR FRAMES

The average home buyer has been educated to look for important basic improvements in home construction. The benefits of steel door frames to the home owner are obvious . . . Permanency, Beauty and the Wear Resistant qualities of steel.

Equally important are the many advantages to the builder. One piece, all welded construction means that Aetna Steel Door Frames can be installed in a fraction of the time that it takes to erect multiple unit frames . . . and at a lower cost.

Hinges come welded to the AETNA FRAME, bronze strike plate is furnished and frames are prime coated at the factory.

STEEL PRODUCTS CORPORATION

*Send for this Aetna Steel Door Frame Booklet*

**AETNA STEEL PRODUCTS CORPORATION**

*Manufacturers of Quality Hollow Metal Doors, Trim and Elevator Enclosures*

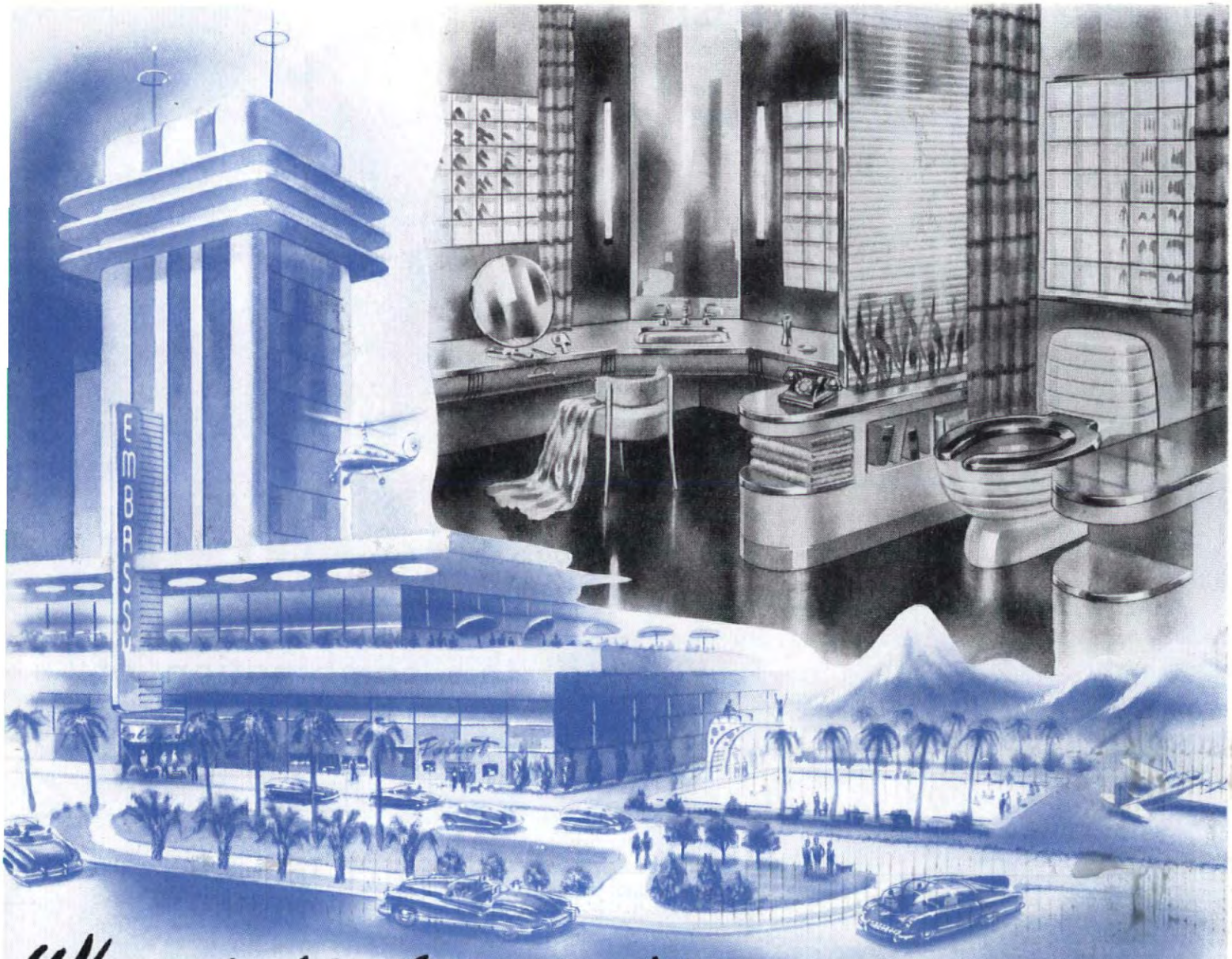
**EXECUTIVE OFFICES: 61 Broadway, New York 6, N. Y.**

When used in conjunction with a warm air heating system, the cabinet model is installed at the inlet side of the furnace and requires a water supply and drainage outlet, electrical connection and duct work. Approximate selling price is $420. *Manufacturer:* B. F. Sturtevant Co. Div., Westinghouse Electric Co., Hyde Park, Mass.

**TRANSPARENT MIRROR functions as reflective surface from one side and window from the other.**

Transparent mirror-glass that transmits light as well as reflects it is now in volume production. Based on a principle long known but perfected only by wartime advances in glass technology, the mirror is transparent when viewed from one side but a mirror when viewed from the other. Surfaced on

one side with a chromium alloy bombarded onto the glass in a high vacuum, the thinness of this chromium film—four ten-millionths of an inch thick—is the key to the mirror's performance. When used between two rooms or areas of equal brightness, or when seen from the darker of two areas, the "two-way" glass will transmit an image—i.e., appear transparent. But when seen from the *(Continued on page 144)*



*When specifications are rigid—*

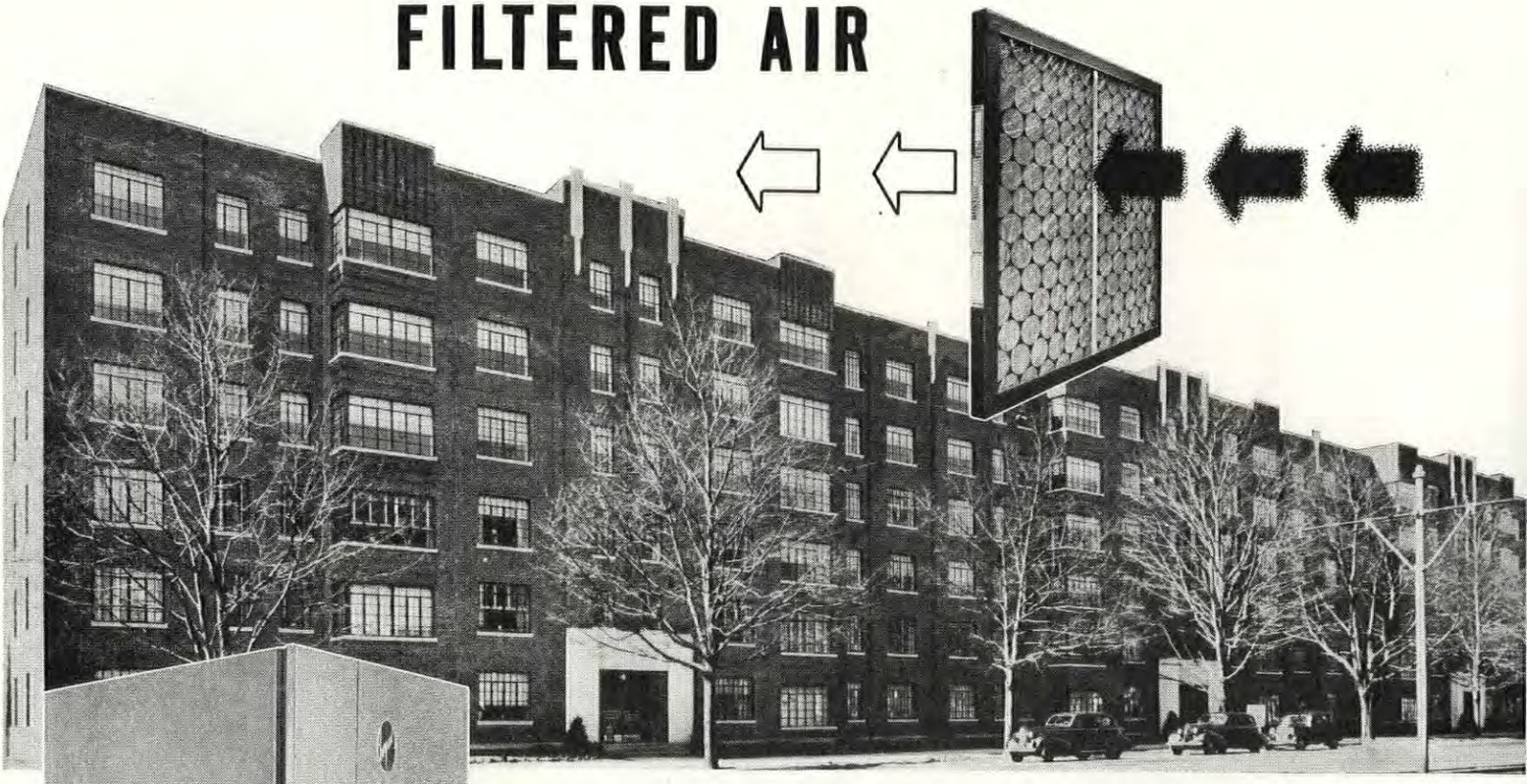
# BENEKE PLASTIX

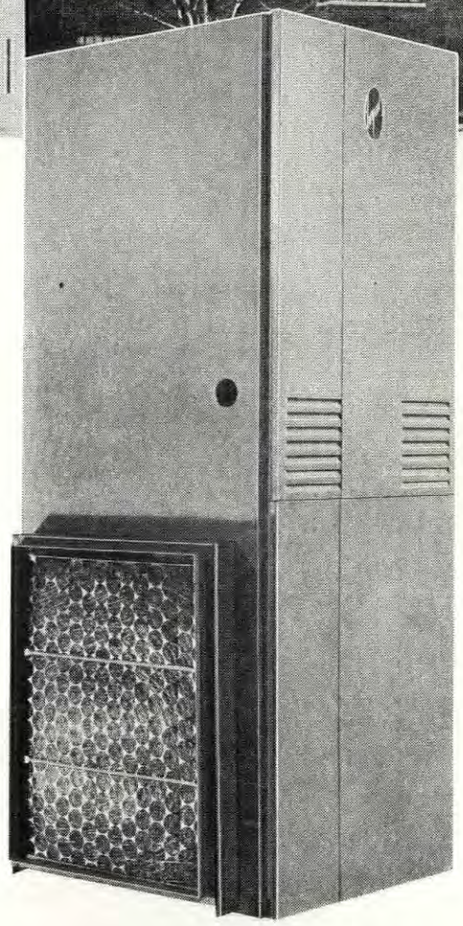
For fifty-three years this company has been a leader in the manufacture of quality toilet seats . . . Shown at left Style 523-B Beneke Plastix.

## BENEKE CORPORATION

Columbus, Mississippi, U.S.A. Offices in Principal Cities

# FILTERED AIR





DUST-STOP Filters in the Bryant (Model VB) Winter Air-Conditioner installed in the Parklake Apartments, Boston, Mass. (above). Each of the 151 suites is equipped with its own warm-air heating unit and duct system, permitting independent, automatic control of temperatures by the occupants of each apartment. The Parklake was designed by Saul Moffie, architect, and built by Cline Construction Company. The P. A. Dolan Company was the heating contractor.

## Look at this combination of

## *Warm Air Heating Values*

Public recognition of the "extras" in comfort, convenience and economy offered by modern warm-air heating has been demonstrated in several recent surveys among present and potential owners of single and multiple dwellings.

The comforts in living provided by today's winter air-conditioning systems are made possible by this exclusive combination of values:

1. **WARM AIR,** with room temperatures quickly responding to automatic controls.
2. **CLEAN AIR**—Filtered at the heating unit, all heat delivered throughout the warm-air duct system is free of nuisance dusts, lint and most air-borne bacteria.
3. **MECHANICALLY CIRCULATED AIR** keeps warm air fresh and clean while providing the proper number of air changes per hour.
4. **HUMIDIFIED AIR** affords greater physical comfort at lower room temperatures.

Architects and builders who specify and provide modern warm-air heat know that circulating air will be cleaned efficiently. For DUST-STOP* Filters, a Fiberglas product, are the choice of most manufacturers as original equipment. They're the homeowner's choice, too, for replacement DUST-STOPS are readily available at low cost through suppliers in every community.

For complete information on DUST-STOPS, see Sweet's Files or write: Owens-Corning Fiberglas Corporation, Dept. 830, Toledo 1, Ohio. Branches in principal cities. *In Canada: Fiberglas Canada Ltd., Toronto, Ontario.*

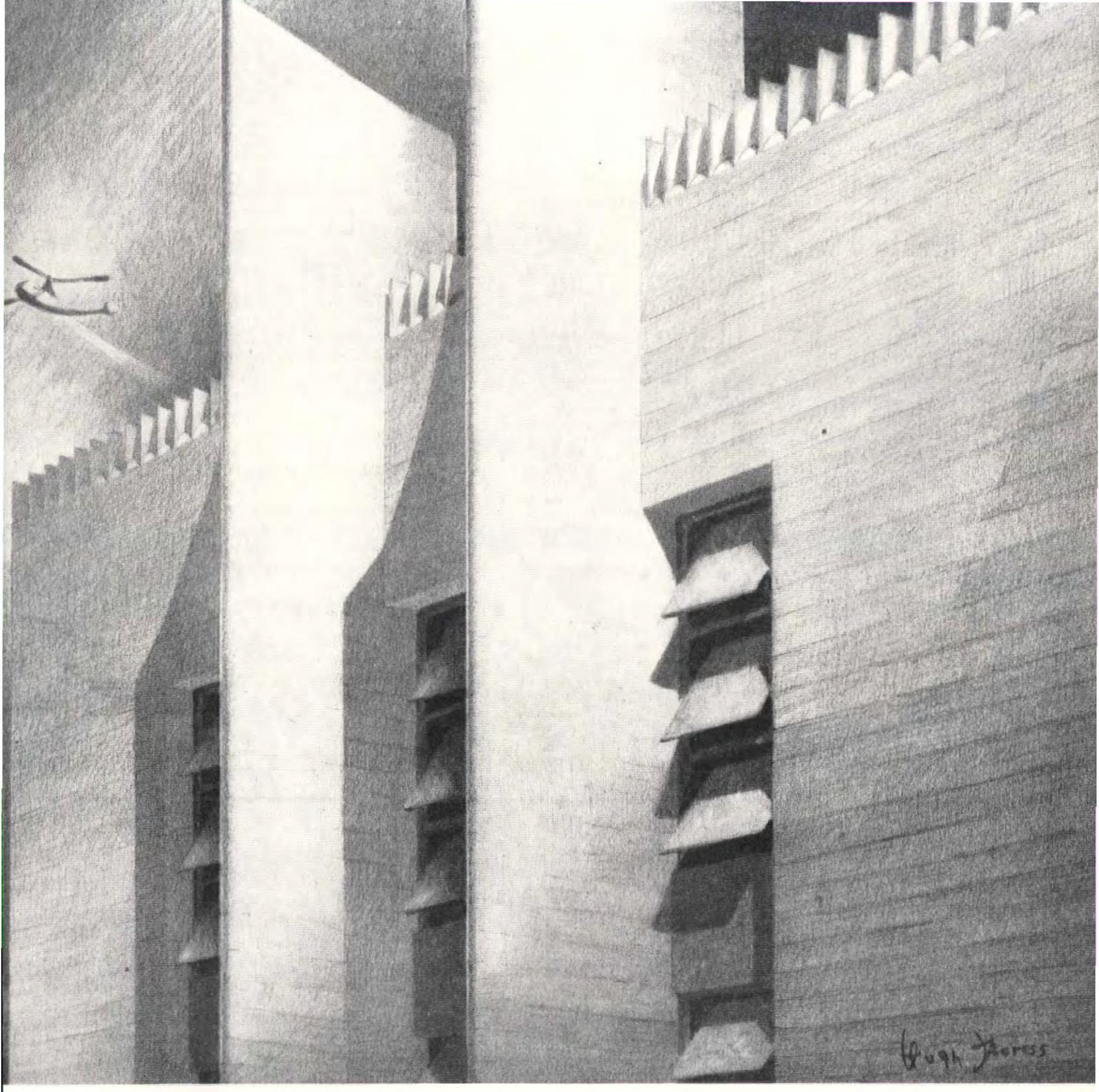
*T. M. Reg. U. S. Pat. Off.

OWENS-CORNING

FIBERGLAS

T.M. REG. U.S. PAT. OFF.

MEMBER NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION INDOOR COMFORT



# ARCHITECTURAL CONCRETE

In Architectural Concrete, features such as the bladed pylons and crown moulding illustrated here by Hugh Ferriss, may be cast in one operation as integral parts of the whole structure. This is typical of the economies effected by using concrete for apartment houses, hotels, hospitals, schools or industrial buildings.

**PORTLAND CEMENT ASSOCIATION**

DEPT. A1-7, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

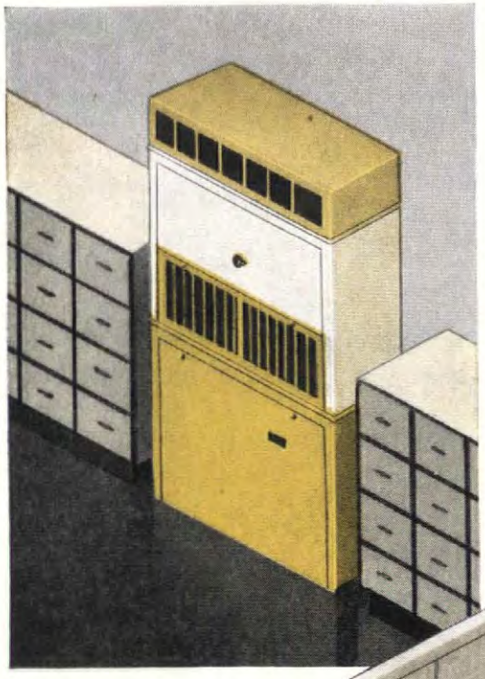
A national organization to improve and extend the uses of concrete...through scientific research and engineering field work

brighter of two areas, the glass will reflect an image; i.e., act as a mirror—even though, from the darker side it appears transparent. With this property, many uses are envisioned for the new mirror in homes, commercial enterprises and public institutions. Used in front doors of homes and apartments, it will enable the occupant to view the caller without revealing his presence. Other possible applications might be observation windows in child behavior clinics or psychiatric wards of hospitals, security windows of banks, brokerage offices, post offices and department stores. The metal surface adheres permanently to the glass, will not tarnish, withstands extreme variations in temperature, and may be scrubbed without rubbing off. Mirrors are now being produced in sizes up to 30 by 40 in., larger sizes will follow shortly.
*Manufacturer:* Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo, Ohio.

**ORIENTATION CHART eliminates tedious projecting and computing.**

Sunspotter Orientation Chart is designed to aid architects in orienting buildings. It shows at a glance the sun's position at any hour of any season; azimuth angle of sun's rays; length of shadow cast, in plan, for any height; time and season when no light will enter the room; when a wall is in shadow, etc. Simple to use, plan may be at any scale and no sectional drawings are needed. The chart is available in four variations for the following latitudes: 30, 35, 40 and 45 degrees. Measuring 11 by 17 in., it comes in plastic and on non-transparent Superfine Bristol, priced at $10 and $3.95 respectively.
*Manufacturer:* William's Methods, Box 40, Redding, Conn.
*(Technical Literature, page 148)*

# Air-Conditioning . . . Builder of Good Will and Business for Banks



Air conditioning is recognized today as an outstanding builder of good will and business for banks. The public prefers to conduct its summertime business in cool, refreshing comfort . . . where employees are more alert and efficient, and render better service. Packaged Air Conditioners, pioneered by Chrysler Airtemp, are ideal for banks and financial offices. They occupy little floor space, fit into any architect's plans and are easily installed, singly or in multiple as shown below. Operation is automatic and costs of operation and upkeep are low. For specifications, architects are invited to write . . . Airtemp Division of Chrysler Corporation, Dayton 1, Ohio • In Canada: Therm-O-Rite Products, Ltd., Toronto.

*Simplified Cooling*

FOR EVERY BUSINESS

*Automatically Yours*

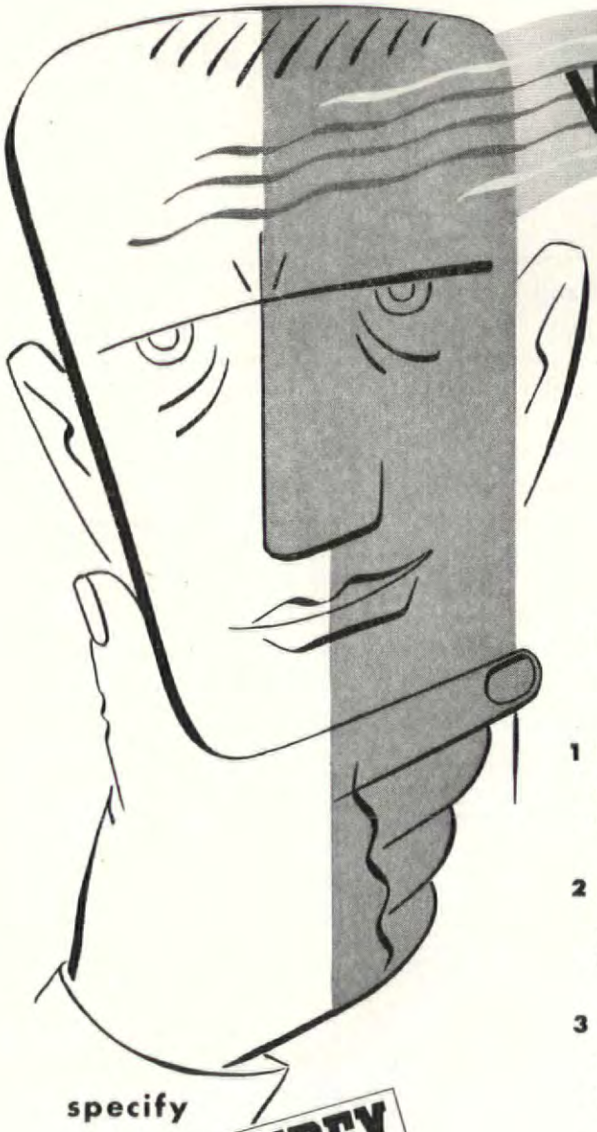
CHRYSLER AIRTEMP
DIVISION OF CHRYSLER CORPORATION

PACKAGED AIR CONDITIONERS



HEATING • AIR CONDITIONING • COMMERCIAL REFRIGERATION

# When you think of WATERPROOFING



## You think of BONDEX cement paint

## For 6 very good reasons

1 **Performance** — Bondex has proven its ability to check dampness in every type of climate the world over (in 90 foreign countries besides the U. S. A.).

2 **Reputation** — Bondex is favorably known by homeowners who have used it and by millions more who have read Bondex advertising.

3 **Economy** — Bondex is priced to make it practical for all types of structure. It fits every budget from modest homes to mansions and institutions.

4 **Ease of Application** — Bondex is easy to apply with brush or spray — so simple that it's become a "staple" in the building and construction trade.

5 **Color** — Bondex provides an effective, inexpensive way for "exterior decorating" buildings after erection to suit individual tastes. Comes in white and 12 colors.

6 **Patented Formula** — Bondex is manufactured by a patented process which makes its bonding characteristics unique. That's why it out-sells all other cement paints combined.

**specify BONDEX**

- **For Exteriors, Basements and Foundations**
- **On Concrete or Cinder Block, Stucco, Brick and Masonry**
- ***For full information and new Bondex color chart, WRITE —***

**THE REARDON CO.**
St. Louis 6 • Chicago 9 • New York 6
Los Angeles 21 • Montreal 1

**CONSTRUCTION OUTLINE**
STRUCTURE: Exterior walls—used brick, [illegible] furring, insulation lath and plaster.
PAINTING: Exterior—Bondex, waterproof paint, Reardon Co.

**CONSTRUCTION OUTLINE**
EXTERIOR SURFACE: Common brick veneer over tile.
EXTERIOR PAINT: Brick painted 2 coats "Bondex" cement paint.

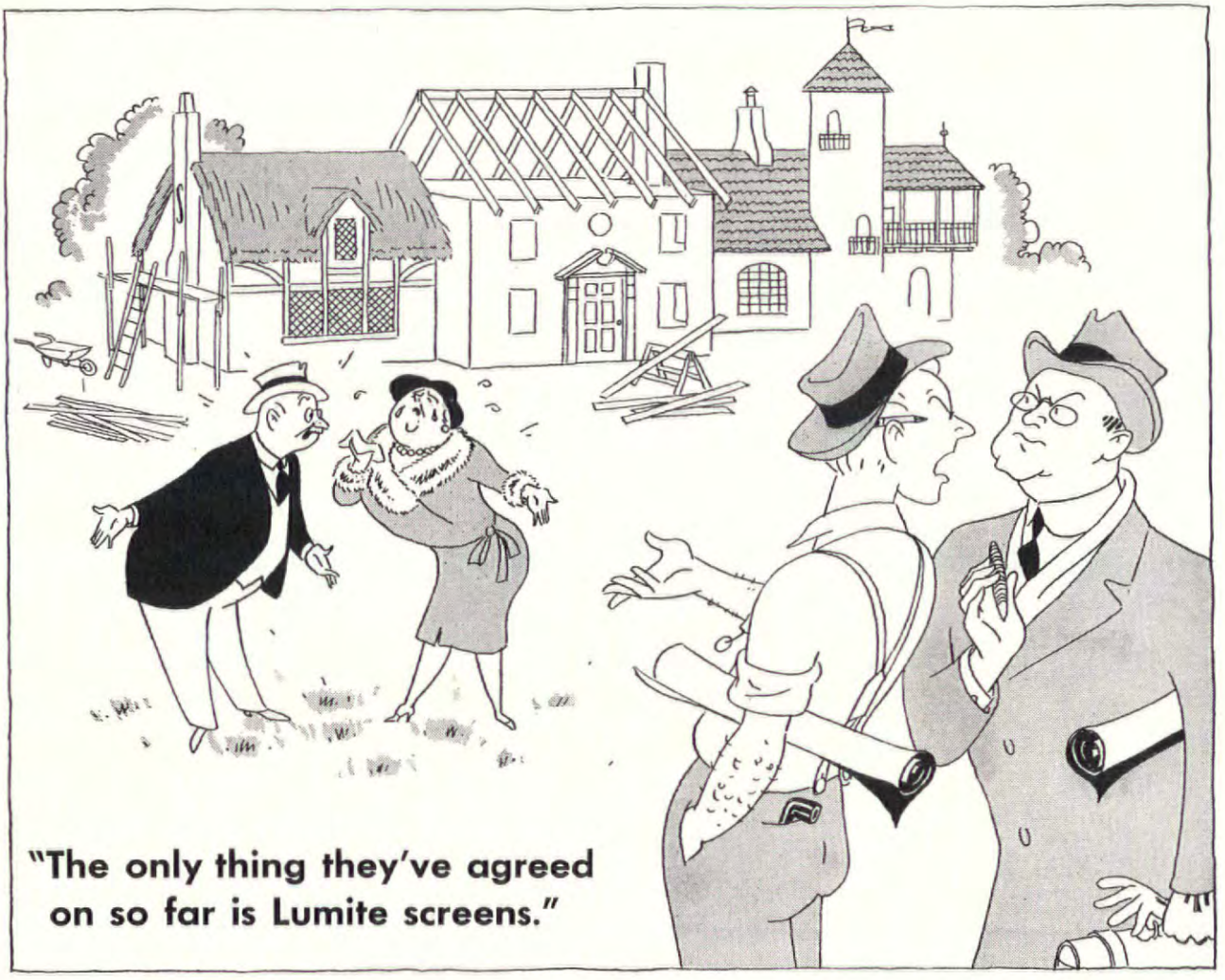
**CONSTRUCTION OUTLINE**
STRUCTURE: Exterior walls—9 in. common furred, lathed and plastered inside.
PAINTING: Exterior walls—Bondex, Reard

**A OUTLINE**
erior walls, brick veneer, insulatio
rock wool.
terior Walls, Bondex, Reardon C

**TRUCTION OUTLINE**
R SURFACE: Brick Veneer.
PAINT: Brick—2 coats Bondex

**CONSTRUCTION OUTLINE**
STRUCTURE: Exterior walls—4
PAINTING: Exterior walls—
Bondex, Reardon Co.

**CTION OUTLINE**
: Walls and cellar floor—conc
erior walls—Bondex, Reardon




There's many a change made 'twixt first sketch and finished house, as architects and builders know. But window screens? Just one answer there from the start: Lumite, the amazing screen cloth that cannot stain!

Yet this is only one of Lumite's many advantages!

Where are your houses going up? In a coastal area? Biting salt air quickly corrodes ordinary screens, but leaves Lumite unharmed. Factory area? Smoke, soot and acid fumes have no effect on Lumite. Rainy region? Lumite will not rot or rust in any weather from snow to burning sun.

Lumite (woven of Dow's Saran) is a modern material for you to work with—the screen for every part of the country! When you design or build that "perfect" house, be sure to recommend Lumite screens for windows, doors and porches. Write for our A.I.A. 35P folder and free sample.

***Sold through Hardware and Lumber Dealers and Screen Manufacturers***

**LUMITE DIVISION, Chicopee Manufacturing Corporation**
**47 Worth St., New York 13, N. Y.**

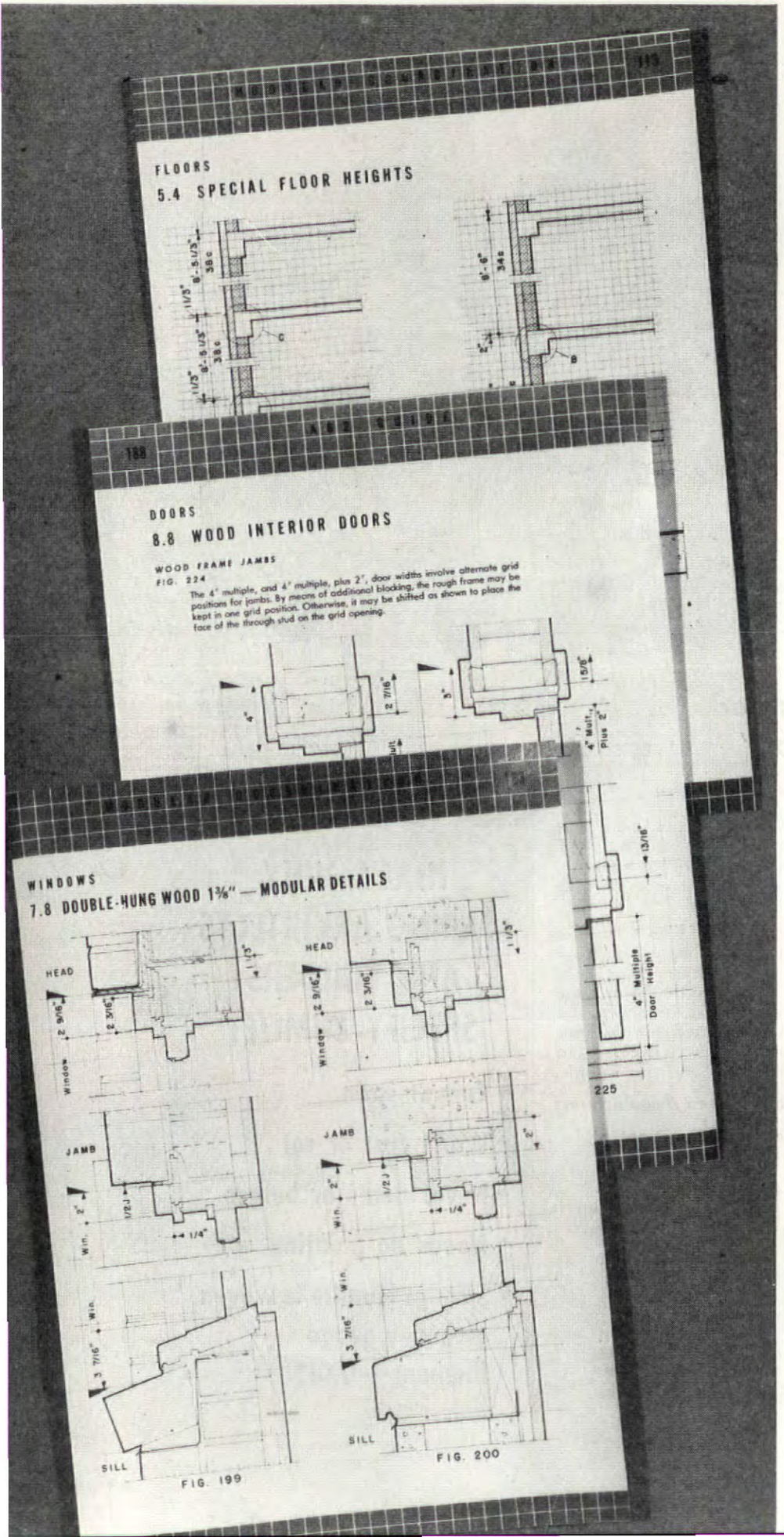
# LUMITE

**MODERN INSECT SCREEN CLOTH**

## HERE'S WHY LEADING ARCHITECTS AND BUILDERS SPECIFY LUMITE:

- **Cannot stain**
- **Won't rust or rot**
- **Never dents or bulges**
- **Needs no painting**
- **Strong! (Lumite is woven of heavy gauge filament— 0.015")**

# TECHNICAL LITERATURE




**A62 GUIDE FOR MODULAR COORDINATION.** By Myron Adams and Prentice Bradley. (Prepared under direction American Standards Association Project A62, sponsored American Institute of Architects and Producers' Council, In Published by Modular Service Association, Boston. 271 pp., in. x 12¼ in., $10.

While the physicists have been quietly working away at dimensions of the atom, juggling the physical structure matter according to a mathematical formula, their scient cousins in the building profession have been thoroughl and painstakingly working away at a method for dimensioni building parts. The results of years of research are present in this handsome volume—and, although it may not cre as much stir as the physicists' findings, it should rece widespread attention from architects, prefabricators, draf men, students, builders and manufacturers of buildi materials.

The system summarized and amply illustrated here is 4 in. cube grid basis for building design: an attempt standardization of the sizes of building parts and, just important, of the method of assembling these different pa with one another. After a vast amount of research by co mittees working in various fields (particularly mason floors, windows, glass block, skeleton frame construction, etc the 4 in. unit of measurement has been found the most wo able basis for coordinating building design and constructi This 4 in. dimension is based more on existing constructi practice than it is on a theory of ideal proportions of bui ings. It is largely established on the already set sizes of certa construction details (notably brickwork, the 16 in. stud, a the 12 in. footrule, all of which can be broken down into 4 units, and from this all sorts of other multiples built up Architectural design has always been established on so sort of dimensioning, and this work is an effort to simpli and standardize the confused, wasteful, conflicting practic already in use, rather than to set up a new system. Acco ingly, it is more applicable to existing conventional practi and materials than to the most advanced design. It must pointed out, however, that improvisation and experimentati often depend on rearrangement of known materials; thus, understanding of this grid system of dimensioning should almost as valuable in the development of—say—a new syste of prefabrication as in conventional planning.

It is impressive to note in the foreword that a great numb of manufacturers have already changed their building pro ucts to sizes based on this 4 in. unit: " . . . most producers masonry products, including brick, structural tile, structur facing tile, and concrete masonry units, . . . glass block, . solid-section steel windows, double-hung steel window double-hung wood windows . . . wood framing, wallboard insulation, and many finish materials."

The introduction gives a very brief explanation of the theo of modular coordination based on the 4 in. unit—which is nominal, rather than an actual, measurement (an 8 in. bric for example, usually measures less than 8 in., so this 4 in. ba is a *unit-with-joint*, thus allowing for considerable flexibili in combining parts). There is a chapter-by-chapter present tion of the dimensioning in various fields of construction- e.g., masonry detailing, with careful drawings explaining t various methods of using the 4 in. grid for such details. Muc space is given to masonry because this field of modular coo dination was pioneered by an early member of the committe and because brickwork is readily adapted to the system. Mo of the following chapters present similar detail drawings f other building parts—the conclusions of the different co mittees working in these fields. *(Continued on page 15*

# HOW TRANE EQUIPMENT CREATES *Weather Magic* FOR AIRCRAFT ENGINE LABORATORIES

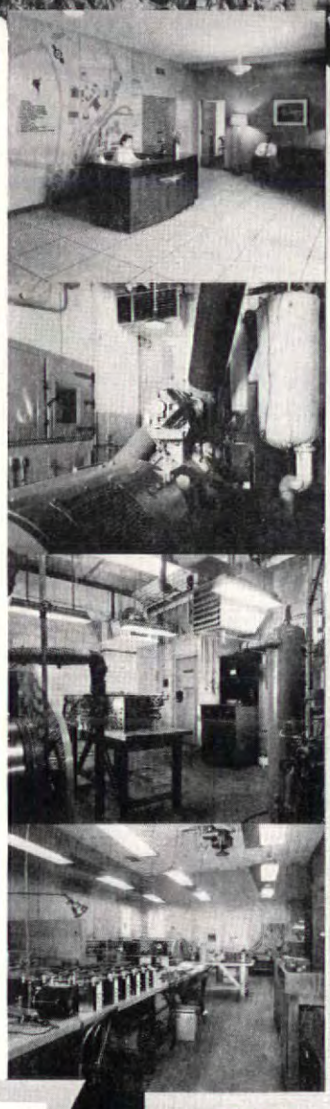
## One Line of Matched Products Solved the Problem of Heating and Air Conditioning Sixty New Laboratories

The new Aircraft Engine Research Laboratory of the National Advisory Committee of Aeronautics contributes an enormous share toward the advancement of flight. Actually the "Laboratory" comprises more than 60 experimental and testing workrooms in a number of modern functional buildings, and heating and air conditioning all of them properly presented a major problem to the builders of the project.

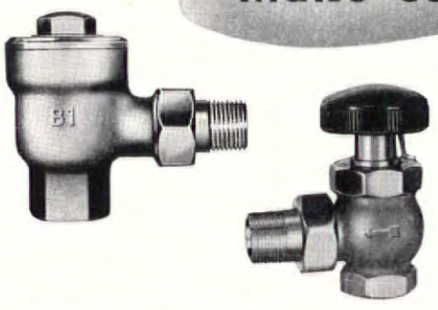
To the design engineers, the actual comfort heating and cooling for the project was a small matter compared with the problems of maintaining the accurate temperature and humidity conditions necessary for exacting aircraft engine tests.

To solve the many problems, the designers were called upon to create a host of individual systems—each to perform its own job. In this new project are tiny Trane Radiator Valves, Blast Heaters, Cooling Coils, Unit Heaters and Fans. All are from the single Trane line of matched products—products that are designed and built together for service together.

More than 200 Trane Field Engineers in principal cities all over the country cooperate with architects, engineers, and contractors in the application of Trane products and systems—the utilization of Trane Weather Magic.



## TRANE Heating Specialties Make Complete *Systems* Possible

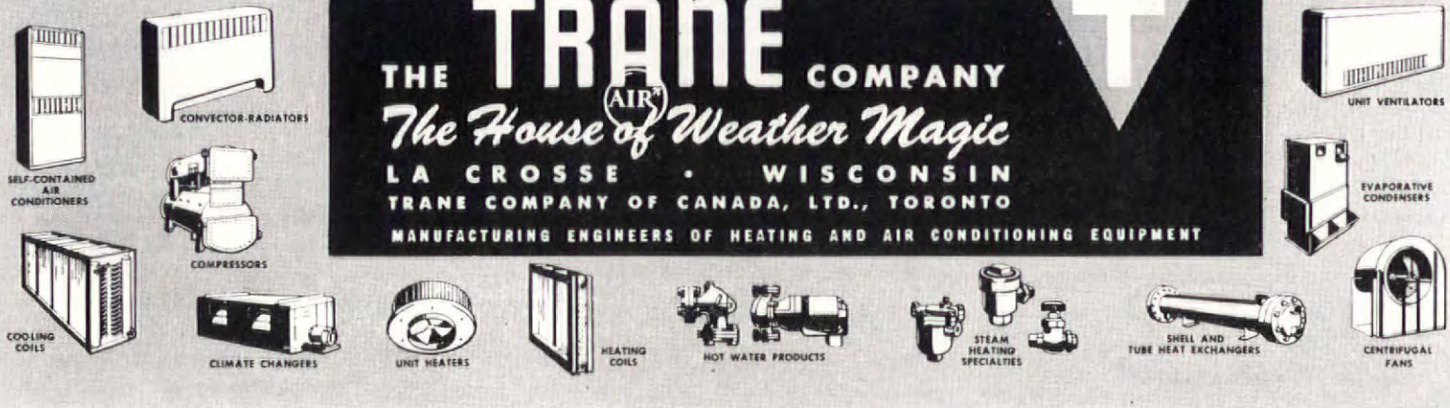


*These Trane products are designed to be carried in local distributors' stocks.*

Trane Steam Heating Specialties round out the wide Trane line of products, so that any Trane installation can truly be a Trane system, with every part in the system but the boiler and piping a product of Trane.

Most of the 118 types and sizes of Trane Steam Heating Specialties are now available from stock.

Illustrated are the Trane Lifetime Valve, a truly hermetic valve that is guaranteed against steam leakage at the stem, and the Trane Thermostatic Trap that features the famed Trane seamless bellows.




THE TRANE COMPANY

*The House of Weather Magic*

LA CROSSE • WISCONSIN

TRANE COMPANY OF CANADA, LTD., TORONTO

MANUFACTURING ENGINEERS OF HEATING AND AIR CONDITIONING EQUIPMENT

And, finally, a complete building project is worked out on the 4 in. grid basis, showing its application to a large hospital.

A word of praise is due for the excellent typographical design (which has been as meticulously laid out as on a grid system) and for the committee members who worked so many years compiling the vast amount of data in this book. Last, but not least, a word for the early founders of the modular system—particularly Albert Farwell Bemis, whose sponsorship helped make possible the work of these committees. As Mr. Bemis pointed out in the third volume of his book "The Evolving House" (FORUM, Sept. '36); the building industry then stood "at the lowest rung of the industrial ladder; . . . it is only slightly mechanized; it is not integrated; it is non-cooperative as to standards for its product; and it pays practically no attention to distribution." Even with the impetus given to modular coordination under the urgenc of war construction, these basic conditions have changed l little to date, and publication of this manual is a big first st in the right direction. E.B.



## REQUESTS FOR LITERATURE

JAY I. ENGLISH, architect, Odeon Theatres of Canada, Ltd., King St. West, Toronto, Ontario, Canada.

ARTHUR A. FRIMET, designer, 1450 Jesup Ave., Bronx 52, N. Y.

ALFRED WATTS GRANT, architect, Midland Savings Buildin Denver 2, Colo.

LLOYD E. HEGGENBERGER, architect, 219 Delaware St., Denver Colo.

BERNARD J. HEIN, architect, 316 Hyde Bldg., Albert Lea, Minn.

JOSEPH L. KIKTAVI, architectural designer, 1249 W. 82nd S Los Angeles 44, Calif.

J. M. LITTLE & ASSOCIATES, industrial design-engineering, 8 Security Building, Toledo 4, Ohio.

J. A. LJUBENKO, architectural student, 4 Sh. Kantaret el Dekk Cairo, Egypt.

FRANCIS A. LOCKWOOD, architect, 5499 Coliseum St., L Angeles 16, Calif.

R. CHARLES MARTINI, architect, 7652 S. Jeffery, Chicago, Ill.

LEONARD MARX, JR., 31 Oxford Rd., Scarsdale, N. Y.

JOHN F. McMAHON, architect, Design Service Co., 4614 Prospe Ave., Cleveland, Ohio.

ROBERT MUELKE, design, 480 Woodland Drive, Devon, Conn.

DON MUNTZ, draftsman, 5542 East Second St., Long Branch Calif.

NUGENT NATIONAL STORES, INC., Att.: Sidney S. Sladon, Co struction Manager, 370 West 35th St., New York 1, N. Y.

ALVES D. O'KEEFE, architect & consulting engineer, 401 Eas Jefferson St., Plymouth, Ind.

J. H. POWELL, architectural student, 219 E. Ross Ave. Wausau, Wis.

MRS. BUTCHER RUSSELL, artist, 434 Royal Palm Way, Palm Beach, Fla.

EDW. D. SLATER, architect, Suite 203, O'Gwynn Bldg., 18½ S Conception St., Mobile, Ala.

HERBERT H. SMITH, architect, 2716 Hyde Park Ave., Cincinnati 9 Ohio.

J. J. SPEIJERS, 8 Walker St., Sydenham, Port Elizabeth, South Africa.

EATON W. TARBELL & ASSOCIATES, architects, 84 Harlow St. Bangor, Maine.

TEXAS PLAN CO., design specialist, 704 Guadalupe, Austin, Tex.

DEPT. OF ARCHITECTURE, THE UNIVERSITY OF BRITISH COLUMBIA, Vancouver, Canada.

JOHN M. WALTON & ASSOCIATES, architects, Radio Building, 2030 Sixteenth St., North Arlington, Va.

SIDNEY G. WARNER, product designer, Ithaca, N. Y.

LUTHER ORVILLE WILLIS, architect, 210 Westover Bldg., Kansas City 3, Mo.

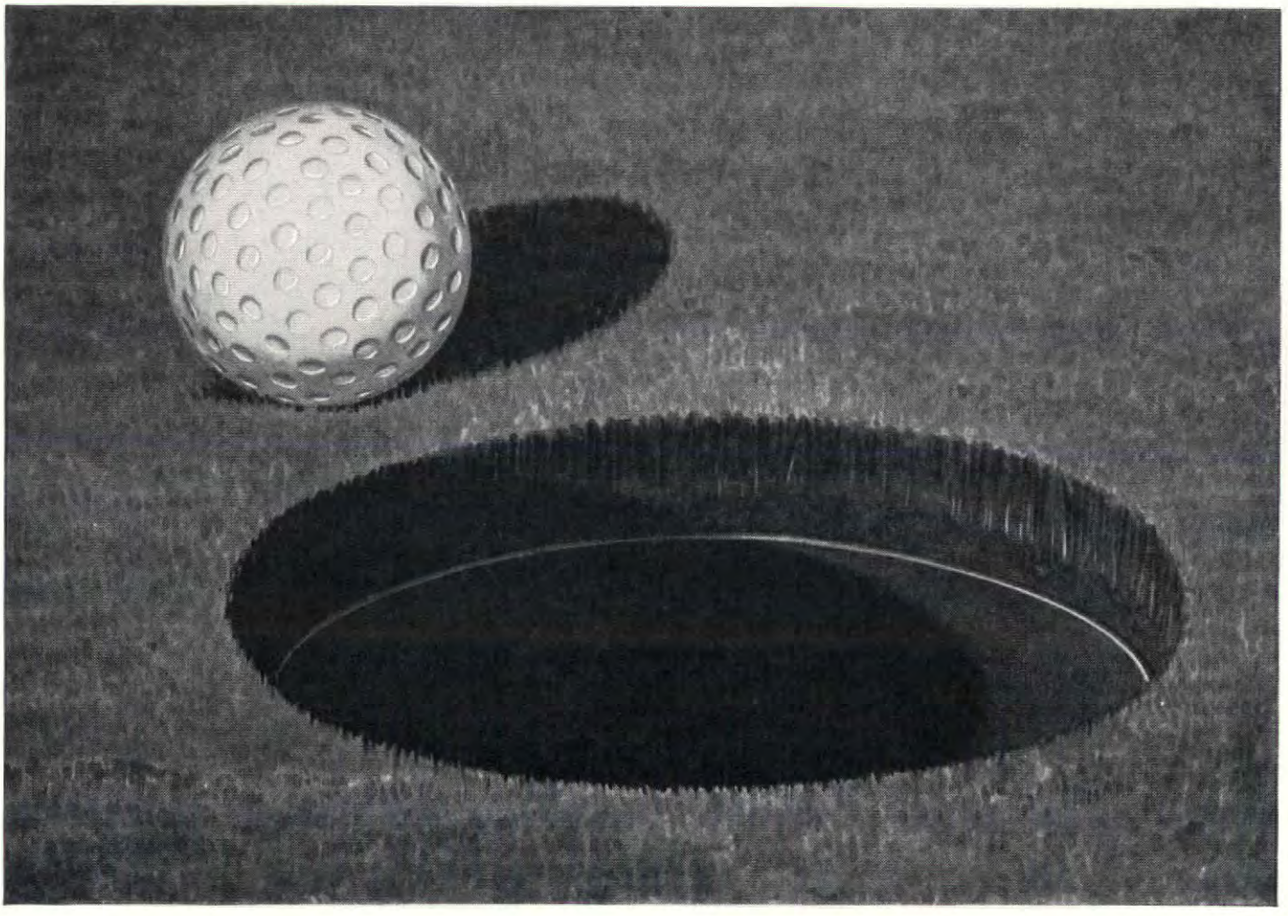
HARRY L. YOUNGKIN, 1542 Cherry St., Denver, Colo.

## REQUESTS FOR INFORMATION

WALTER E. BEDKE, civil engineer, 843 Artson St., San Gabriel, Calif. requests literature on structural design of buildings.

BELL CONSTRUCTION CO., engineers & contractors, P. O. Box 52, 153 Roebuck St., Bridgetown, Barbados, B. W. 1, desires information on building products for export.

JOHN E. MERTES, The University of Oklahoma, Norman, Oklahoma desires information pertaining to shopping centers and retail store design such as fronts, interiors, lighting, etc.

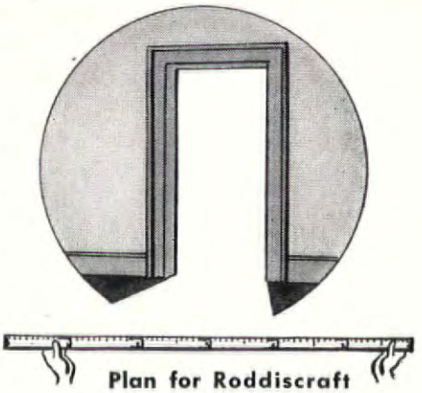


# When a Couple of Inches Mean a Lot...

YOU need doors and plywood. Our ability to meet your needs largely hangs on a couple of inches in the width of the doors and plywood you specify.

The production of stock sizes means multiplied production — more doors and plywood for more customers. On the other hand, odd-size doors and plywood mean manpower wasted — production slowed — orders unfilled.

So plan for stock sizes only and we'll plan to meet your needs.



Plan for Roddiscraft doors and plywood in stock sizes—

**Roddiscraft WAREHOUSES:**

CAMBRIDGE 39, MASS.....229 Vassar Street
CHICAGO 8, ILL.....1440 W. Cermak Road
CINCINNATI 2, OHIO.....457 E. Sixth Street
DALLAS 10, TEXAS.....2800 Madill Street
DETROIT, MICH.....11855 E. Jefferson Ave.
KANSAS CITY 8, MO.....2729 Southwest Blvd.
LOUISVILLE 10, KENTUCKY...1201-5 S. 15th Street
LOND ISLAND CITY, N. Y...Review & Greenpoint Ave.
MARSHFIELD .....WISCONSIN
MILWAUKEE 8, WIS.....4601 W. State Street
NEW YORK CITY, N. Y.....920 E. 149th Street
SAN ANTONIO, TEXAS.....727 N. Cherry Street

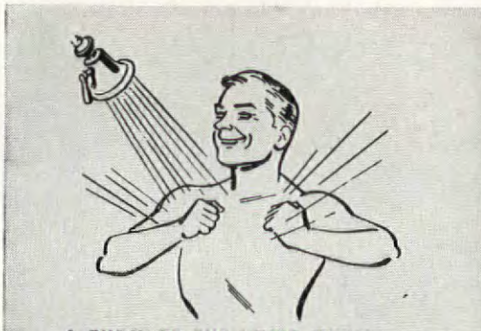
DEALERS IN ALL PRINCIPAL CITIES

**Roddiscraft**

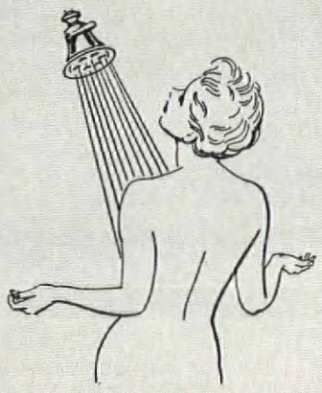
*Roddis Lumber & Veneer Co.*

MARSHFIELD, WISCONSIN

Roddiscraft warehouses, located at strategic points throughout the country, have been set up to save you time and serve you better — by making stock size doors and plywood available when and where you want them. Roddiscraft warehouse service is based on production and stocking of doors and plywood in stock sizes. Only by limiting ourselves to stock sizes can we give you the additional value of "on hand" service at convenient locations.



**A TURN OF THE LEVER GIVES . . .**
Needle spray *for stimulation!*



Normal spray
*for relaxation!*

Flood spray
*for no-splash rinse.*

*Never this!—*
The Anystream
is self-cleaning.

## SPEAKMAN ANYSTREAM SHOWER HEADS

# *save hot water*

## . . . ALWAYS PROVIDE FULL-PATTERN SHOWER

In hotels, clubs, schools, institutions, and in homes and apartments—wherever hot water is a supply problem or a major cost item, the Anystream Shower Head is a real money saver. The figures below show how the Anystream saves up to 58% on hot water consumption.

| Water Pressure Pounds | 30 | 40 | 50 | 60 |
|---|---|---|---|---|
| Ordinary 4" shower head<br>Gallons per minute | 9¼ | 11½ | 13½ | 15 |
| Anystream Self-Cleaning Shower Head | | | | |
| G.p.m. Normal spray | 6¼ | 7¼ | 8 | 9 |
| G.p.m. Needle spray | 3⅞ | 5 | 6⅛ | 6⅝ |

### MAINTENANCE SAVINGS, TOO

Anystream Shower Heads are heavily constructed for long wear with low maintenance. Even in areas where alkali and other impurities in the water cause clogging in ordinary showers, the Anystream's self-cleaning feature keeps this head in perfect working condition. All that is required is an occasional turn of the adjustment lever to flood position to flush out foreign matter.

Distributed nationally through plumbing supply dealers and plumbing contractors.

**AVAILABLE FOR IMMEDIATE SHIPMENT**

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**SHOWERS AND FIXTURES**

***"The best in brass since 1869"***

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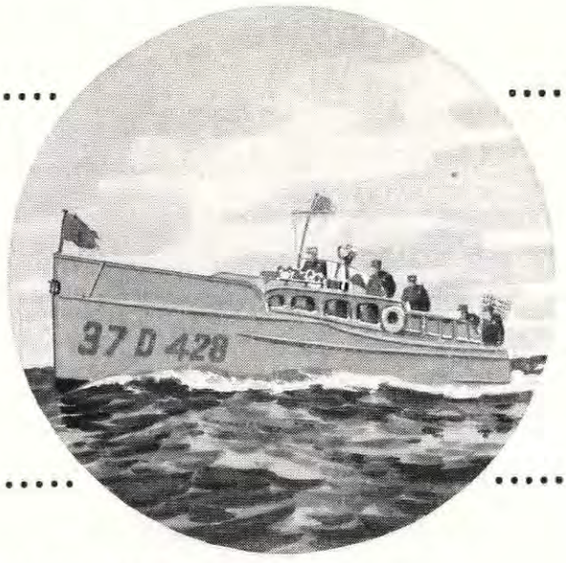
**ADDS NEW BEAUTY.** Kimpreg is a plastic surfacing fused to plywood in manufacture. Produces an attractive finish . . . a surface smooth as glass. It's stain-proof . . . water resistant. With Kimpreg, plywood acquires a new, enduring beauty.

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A PRODUCT OF Kimberly Clark RESEARCH

# SPECIFICATION AN

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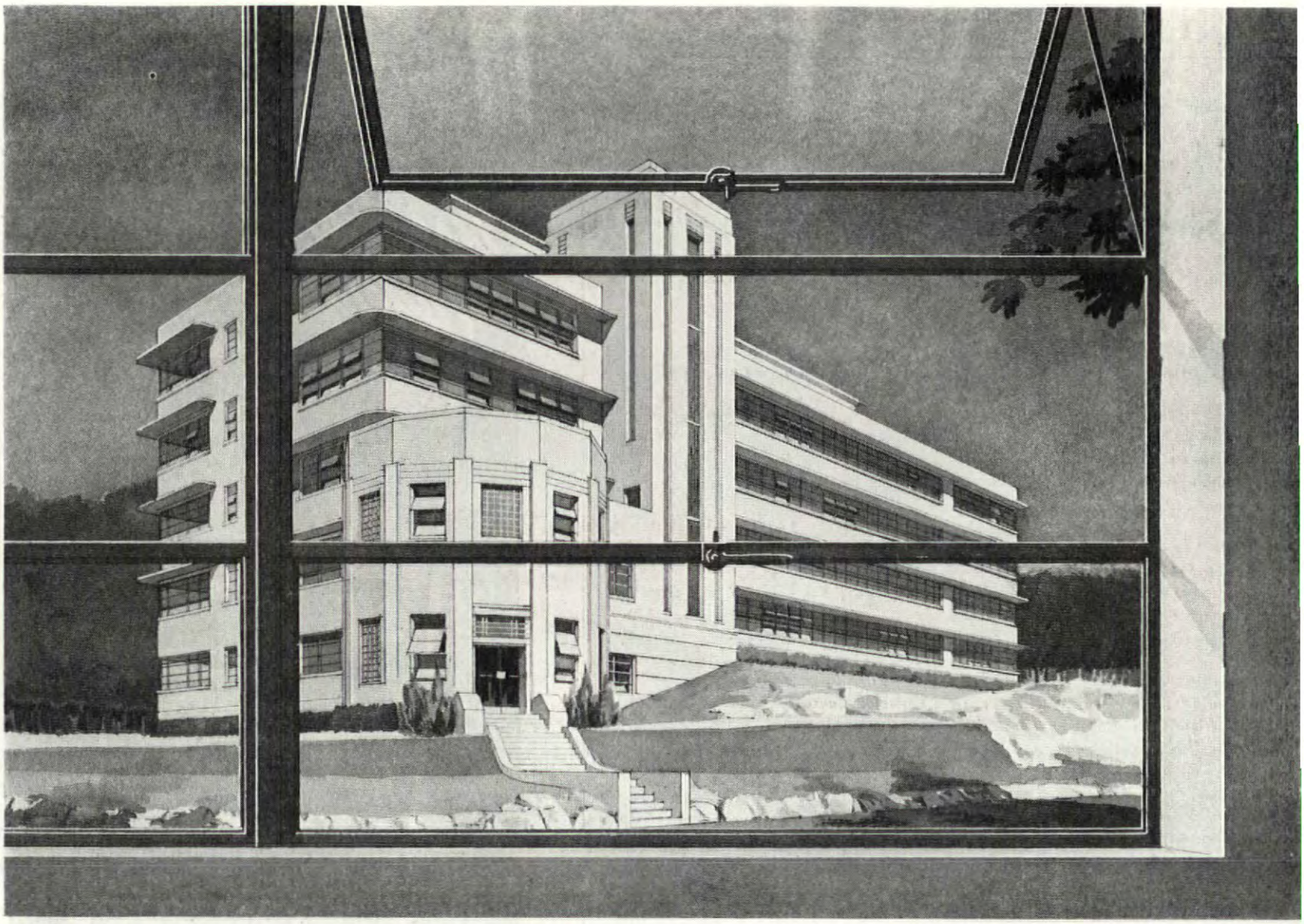

Research Laboratory at Norwalk, Conn. for Remington-Rand, Inc. Architects and Engineers: Fletcher-Thompson, Inc., New York and Bridgeport, Conn. Contractor: The E & F Construction Co., Inc., Bridgeport, Conn.

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# METAL WINDOWS

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more and more plumbing prospects

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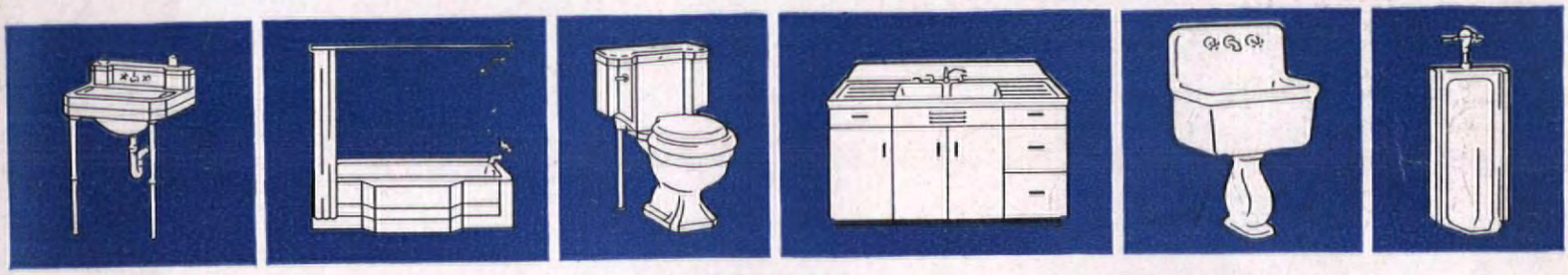
hear about and talk about

# ELJER FIXTURES



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1947

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TRADE MARK
WITH THE
MIRACLE WEDGE

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