

Y 1949

ARCHITECTURAL

# forum

MAGAZINE OF BUILDING

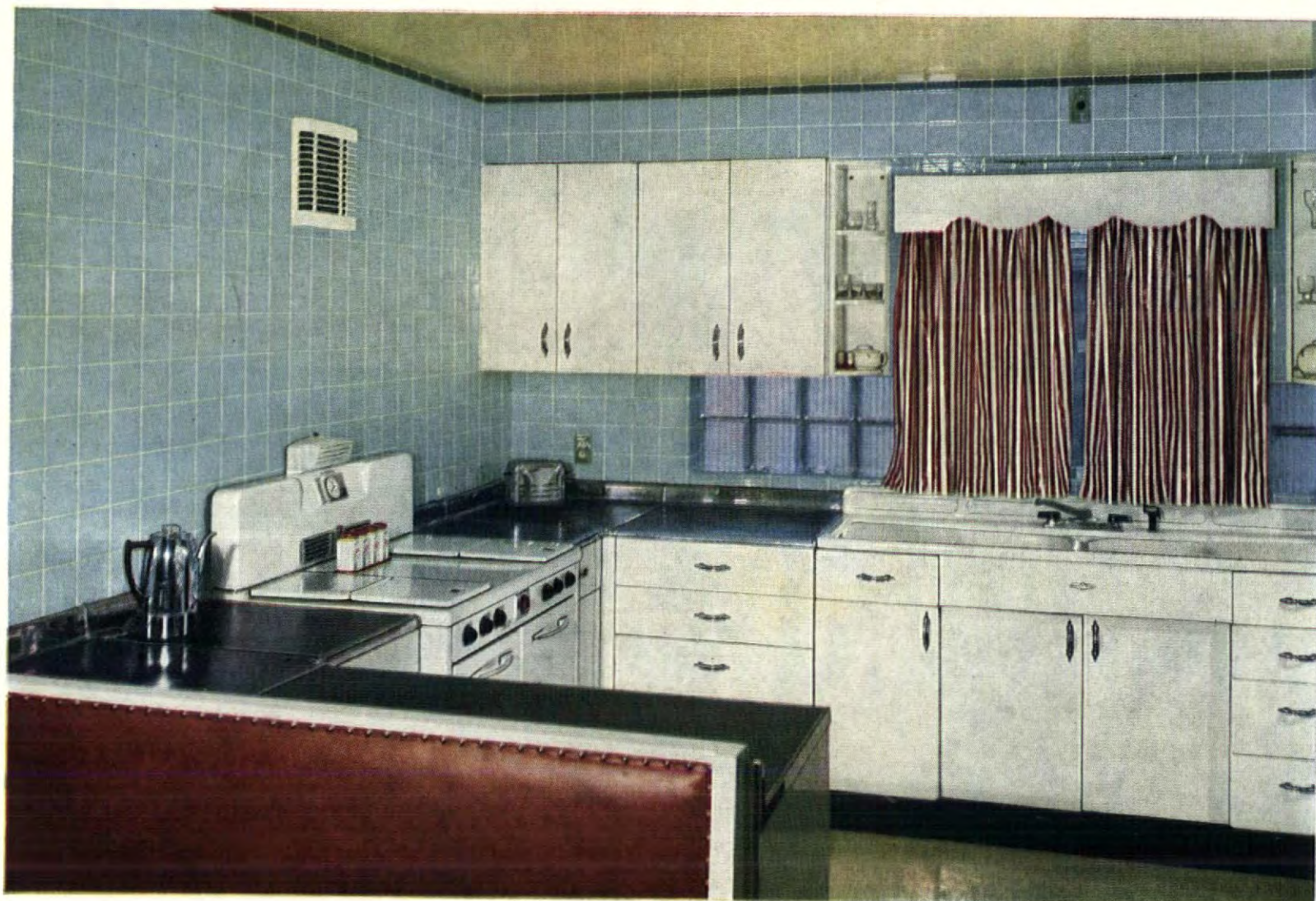




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Detail Quality at Stock Door Prices

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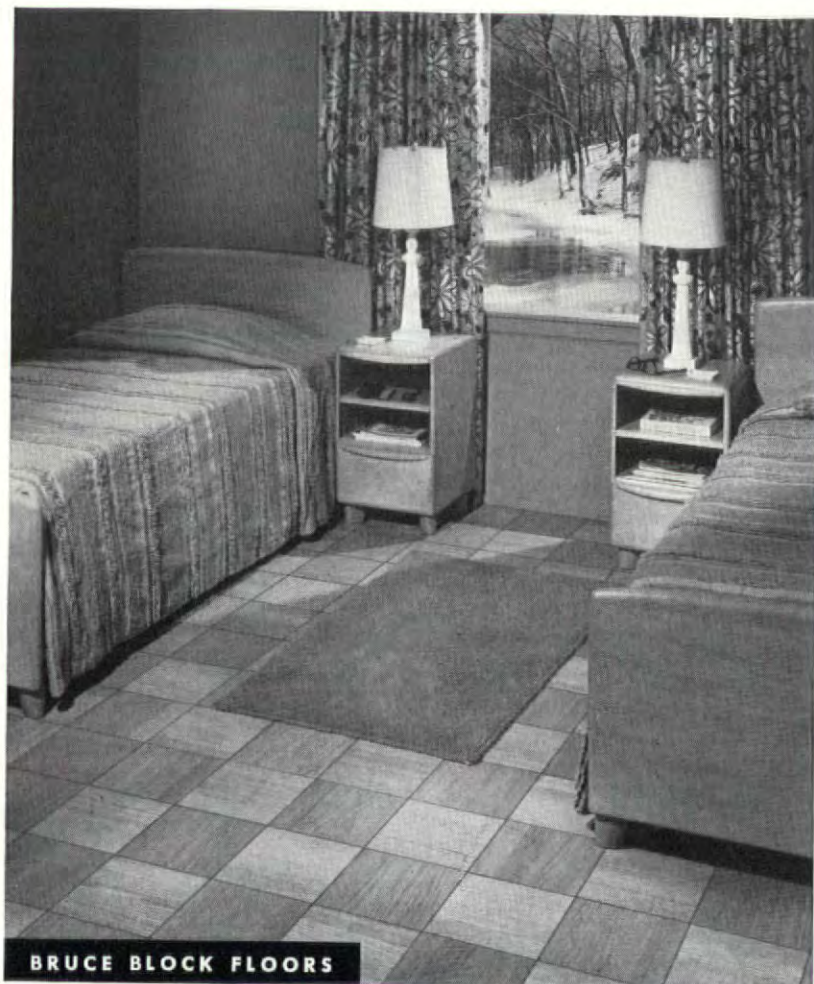


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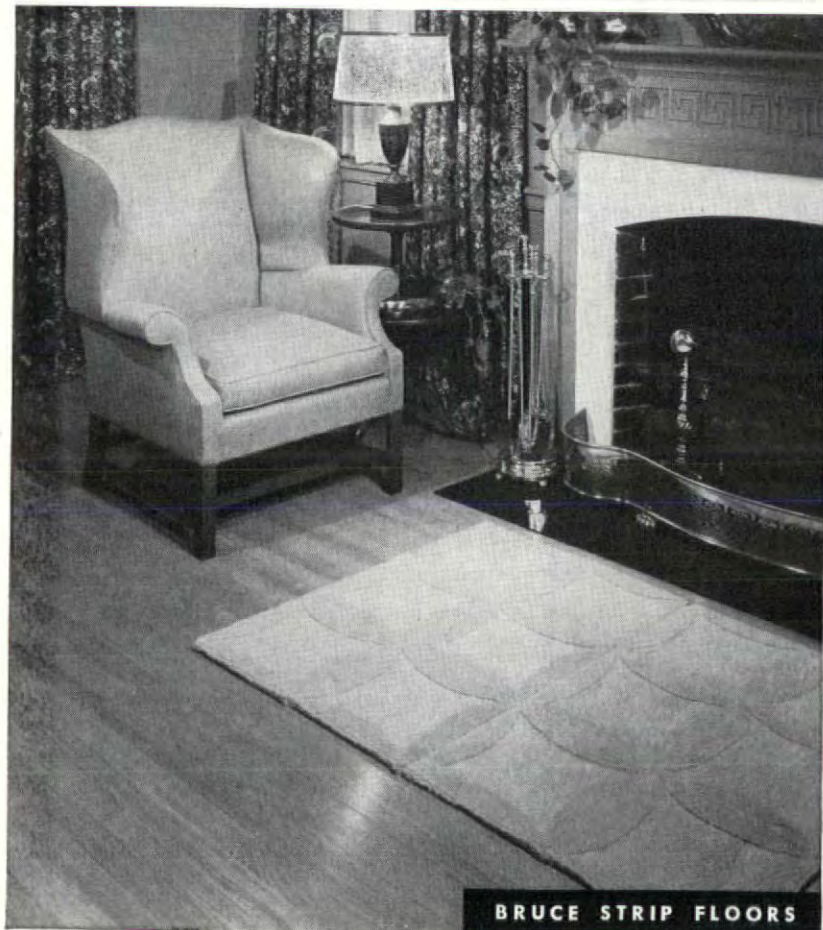
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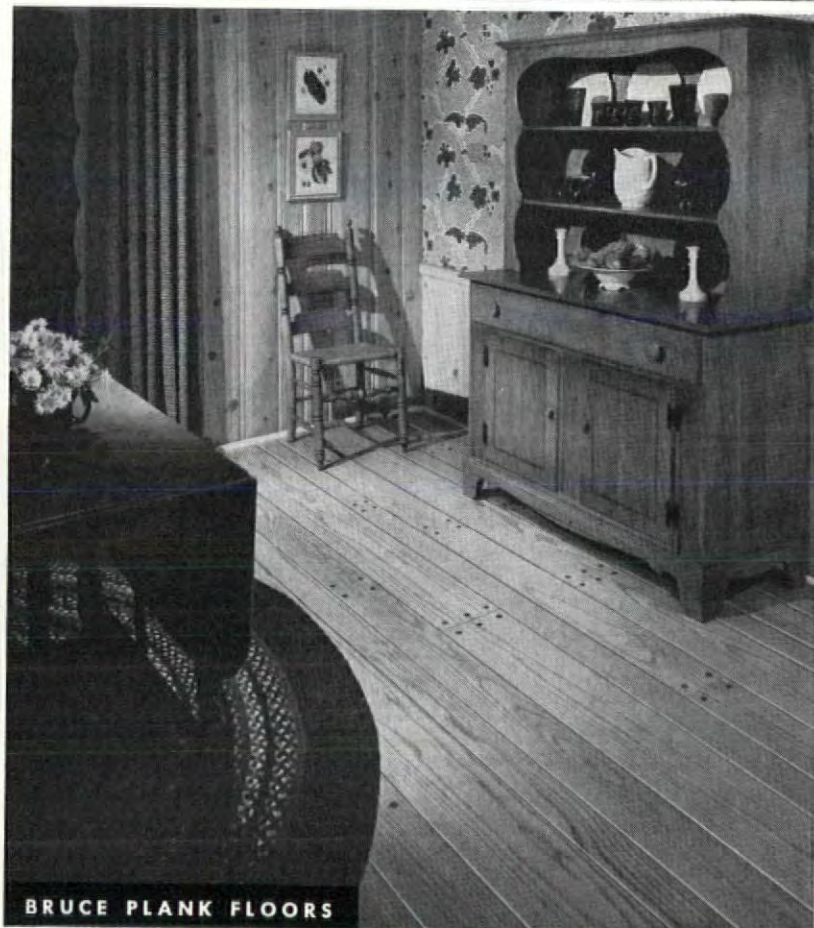
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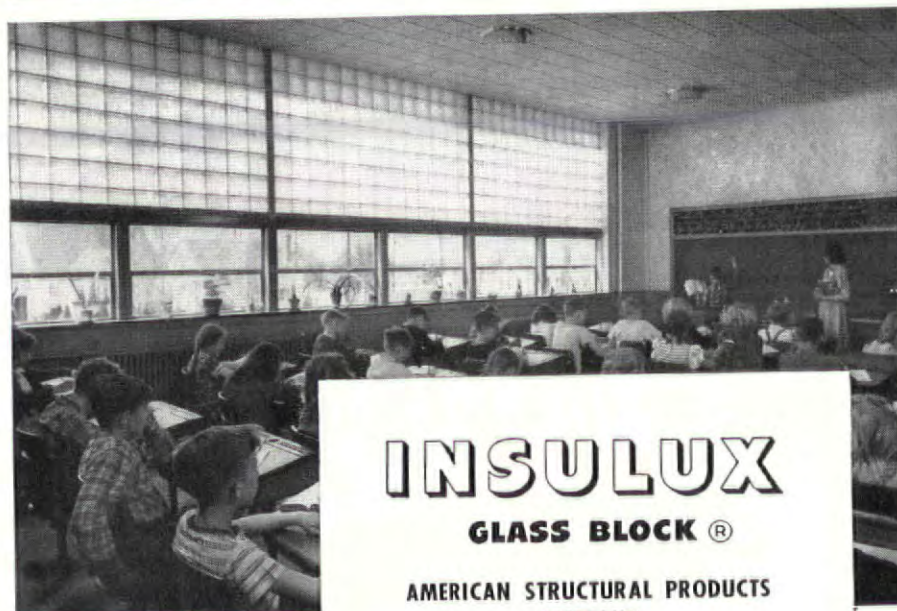
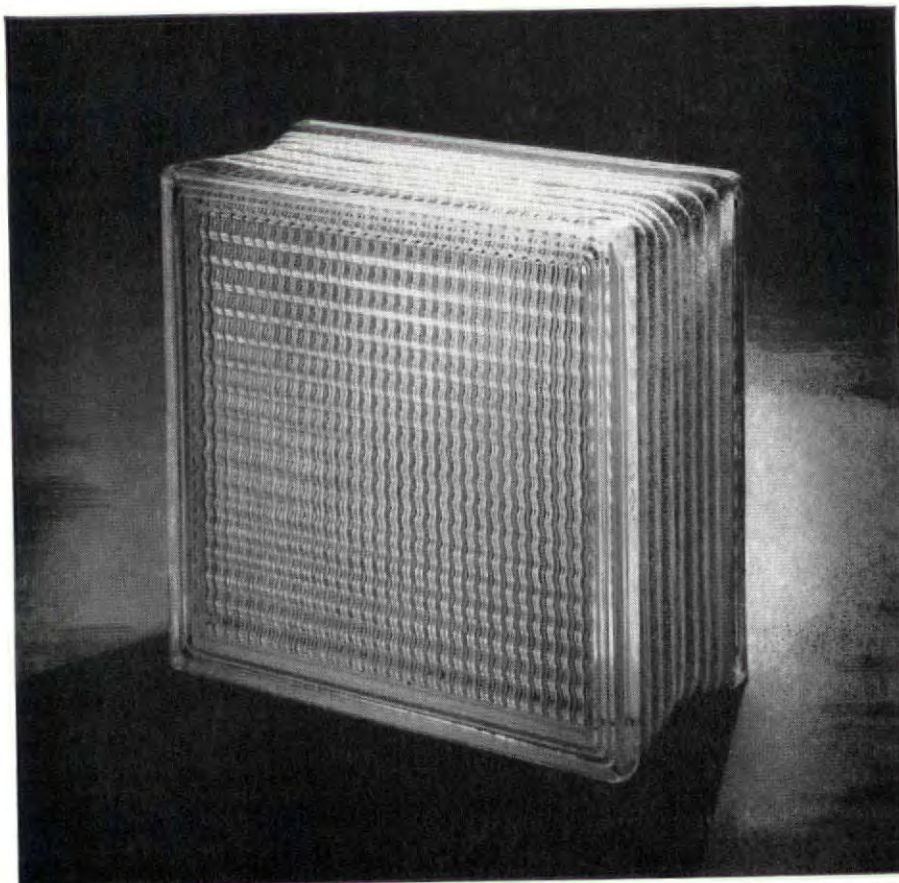
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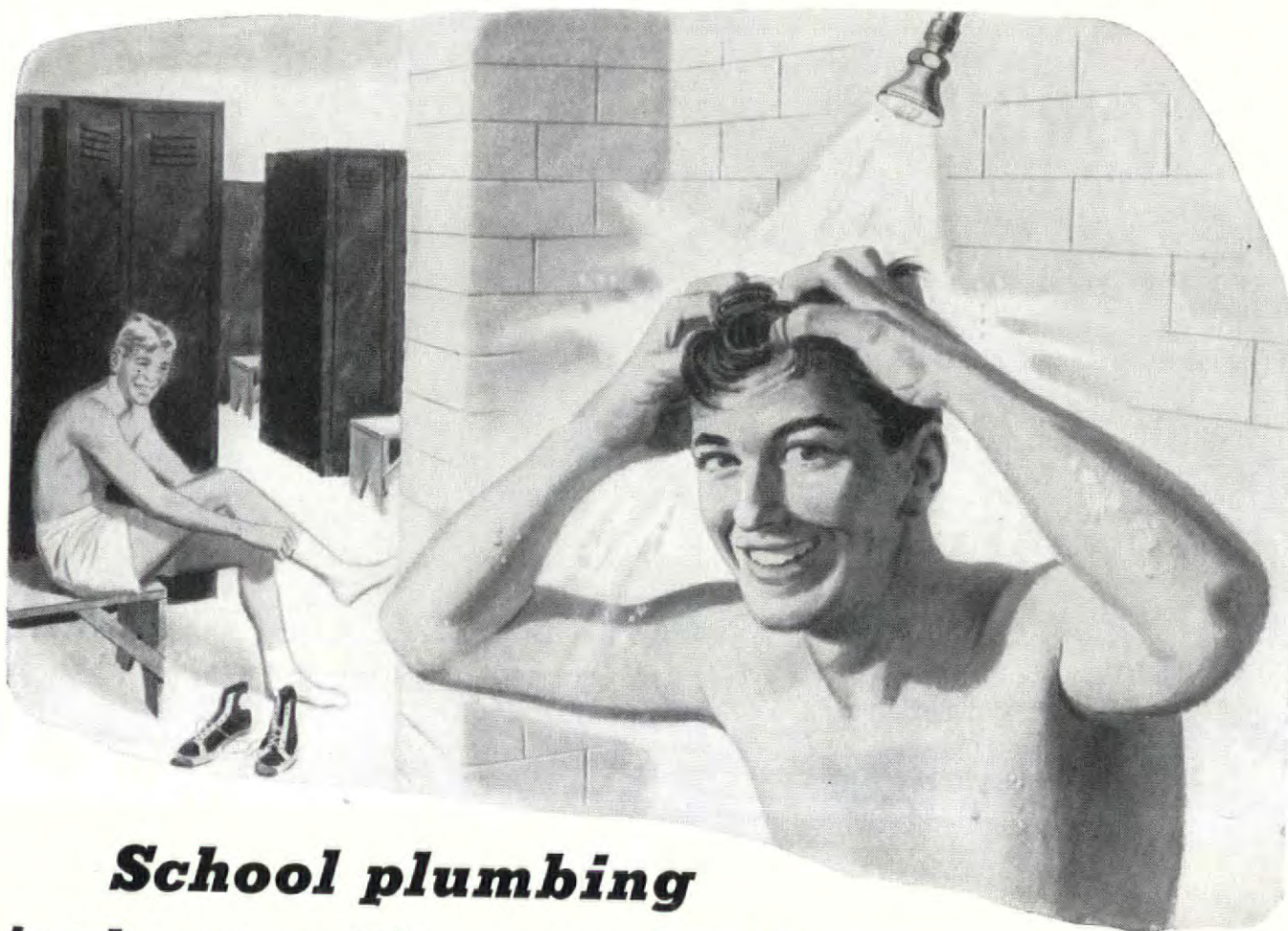
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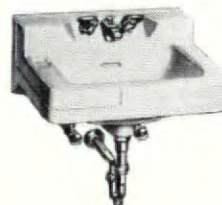
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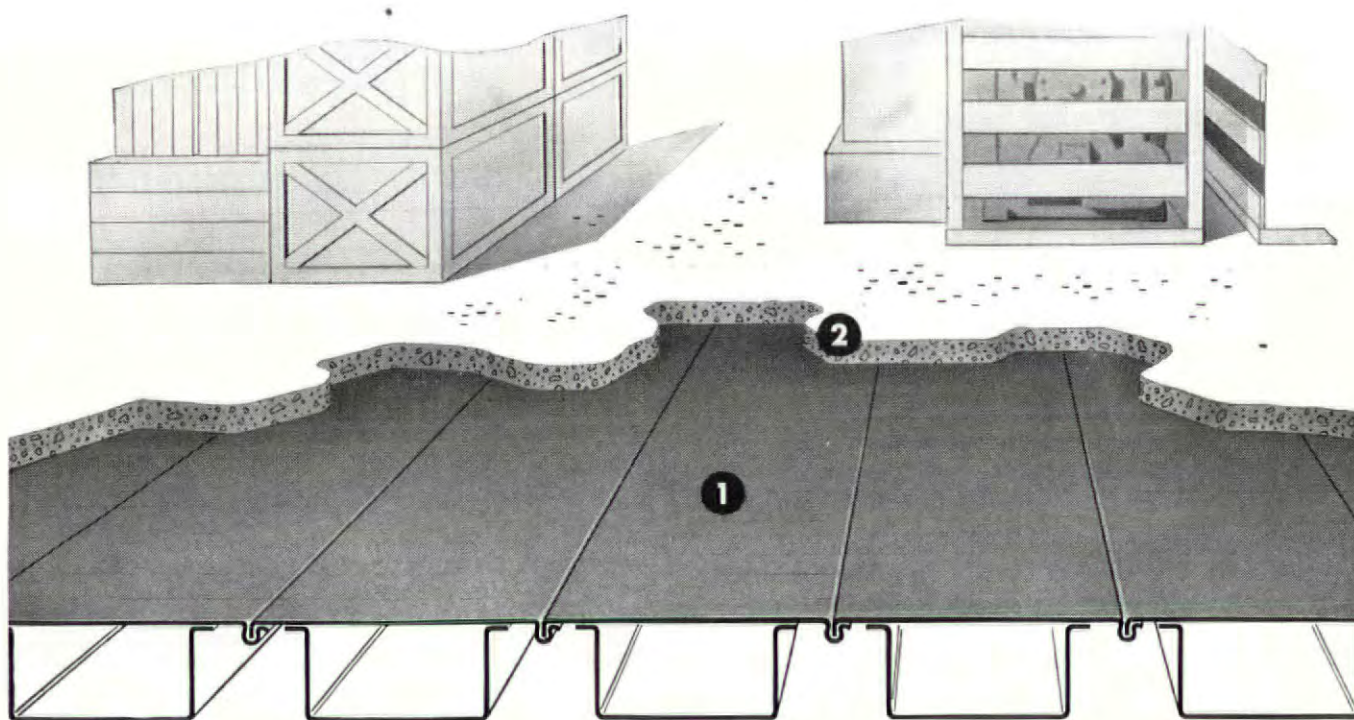
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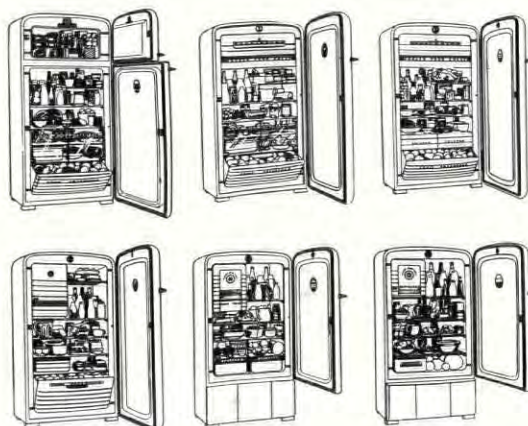
# How to get the MOST into a small kitchen!

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## BUILDING SCENE, clouded by price adjustments and consumer hesitancy, shows up brighter than the pessimists have been predicting

As the Building Industry—and the nation—moved into the mid-portion of a year of economic adjustment, it also moved closer to a question it would one day soon have to face: what was the industry prepared to do to forestall the recession it feared? For many months it had uneasily witnessed the usual signs of a set-back: slackening employment, falling prices and mounting consumer resistance.

Despite small, heartening late-April changes in employment and price trends, there were still uneasy indications that a black cloud of pessimism was settling over the industry. So far it had touched only the top levels, but, if not dispelled, it would soon seep down to all the lower echelons. Then the recession would be an established fact. Indications of pessimism weren't many, nor clear enough to form a pattern, but the prophets of doom already pointed to retrenchment by building materials manufacturers and predicted that it would be no time at all until the builders—and the general public—would begin running in panic.

**Shot in the arm.** Those who observed, with alarm, this growing pessimism felt that what the industry needed more than anything else, as it moved cautiously through this uneasy year, was a confident leader or spokesman, a strong pep talk or a shot in the arm—or perhaps just an old fashioned revival of faith in its product. It needed to be convinced—or to convince itself—of many things: 1) that the market for its product was still big enough to permit every U. S. builder, and every materials producer, and every lender a reasonable profit on his investment; 2) that whatever other discouraging factors the prophets could turn up, the public had the money to buy the industry's commodity—if they were satisfied with it; 3) that a price decline was not necessarily a discouraging factor—it also meant availability of materials once in short supply; 4) that the present atmosphere of careful buying was a much more healthful environment than the exotic, wild seller's market which had characterized the last few years. It was better for the architect, the contractor, the investor and the public. It meant, as no wild market could ever mean: easier, more accurate cost estimates, the likelihood of a project being completed within its cost estimate, the ability to make a firm bid, the elimination of contingency fees, and a lower cost for the consumer.

**Hovering specter.** The industry needed also to understand that any relaxation of effort on its part—at any level—would quickly bring about the very setback it feared, and that without relaxation no recession was likely.

And it needed, perhaps, a reminder that the specter of public housing, which it had come to hate, waited to fill the void which the industry could create by failing to build enough houses to fill the nation's needs. Public construction would then be the only thing which could possibly fill the void, and it would change for all time the character of the free and uncontrolled U. S. construction industry. Each project built by private enterprise this year would be one over which the government would have no control. And each house left unbuilt by private industry would be one the government would feel compelled to erect.

## WASHINGTON

### PUBLIC HOUSING approved by Senate, now awaits House disposition

When the Senate came back from its Easter recess, it took in a ball game (see page 15), then took up the public housing legislation which had been headline matter since November.

Republican leader Robert Taft had

*Reni photos*



given the bill its final assurance of success by labeling Republican opposition to it as political suicide for the party. Some Democrats had given it its final dash of drama by escorting a group of senators through Washington's slums.

For almost a week the Senate toyed around with the bill. But when the opposition resorted to delaying tactics, proponents got serious. Rapidly the Senate discarded all but two of the restricting amendments (including one offered by Ohio's John Bricker which would forbid segregation in government-built houses), accepted a compromise escalator clause (permitting the construction of no more than 200,000 units in any one year), and in one night session, passed—with a 57 to 13 vote—legislation which would authorize the construction of 810,000 public housing units in the U. S. during the next six years, at a potential cost to the taxpayer of \$16 billion. After so many months of fiery give-and-take, the passage seemed anti-climatic to gallery observers—and even to the bill's elated sponsors and weary opponents.

The House Banking Committee had just begun its hearing on public housing when the legislation got to the Senate floor. In the first two weeks of its hearings, the House Committee received the approval of the American Legion and the Veterans of Foreign Wars, and recorded the Administration's endorsement, presented by HHFA Administrator Raymond Foley and John T. Egan, Commissioner of the Public Housing Administration. No one expected any trouble this year from the House Committee, which since before the war has been the chief bottleneck of public housing legislation.



**PUBLIC HOUSING LEGISLATION** was endorsed by John T. Egan, Commissioner of the Public Housing Administration, and HHFA Administrator Raymond Foley (left) before House Banking Committee members Hugh B. Mitchell and Barratt O'Hara (right).





**EARTHQUAKE DAMAGE:** Traditions fell in heaps of neo-classic rubble over the State Insurance Building in Olympia, Wash., when tremors hit the Pacific Northwest last month. The most violent quake in the region's history, it left a damage total of \$15 billion, eight dead. Most damaged buildings, however, did no more than lose their cornices and spray the streets with dislodged brick.

*Life: Allan Grant*

*Roger Sturtevant*

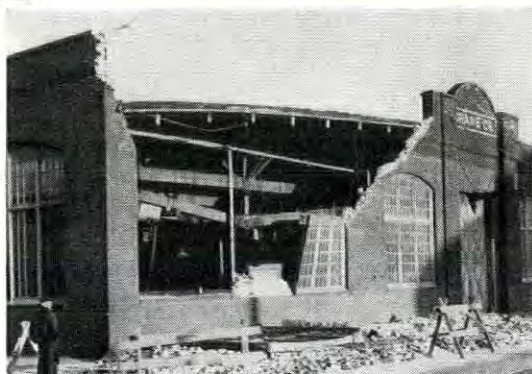


**Equitable Building** by Pietro Belluschi in Portland, Ore. (above) swayed with earth's movement but suffered no cracks or glass breakage. Equitable President Ralph Cake called it "conclusive proof of practicability of this type of building and construction." It was no surprise to Belluschi. Said Cake: "He didn't even lose his color during the quake. His confidence was superb."



*Sturdy Photo Shop*

**State School for Boys** at Chehalis, Wash. (above) suffered crumbled bearing wall just after boys living on top floor had left for ball game. Walls of boiler and radiator shop in Seattle (below) fell outward, saving workmen inside.



## HOOVER HATCHETMEN spare housing tree, would add more branches

As Herbert Hoover's pathfinders pushed methodically ahead at their task of hacking a road through the jungle of bureaucratic waste and red tape, marking branches and sometimes whole trees for removal, housing men wondered how the 40 agencies which control the No. 1 industry would fare.

The Hoover Commission had already set part of the industry—the contractors—howling by recommending the transfer of the Army Corps of Engineers to the Department of the Interior; but in view of the fact that the housing agencies had been reorganized only two years ago on a broad scale, it seemed virtually certain that the commission would suggest no other major changes.

**More branches.** When the hatchetmen stopped before the housing tree last month, the prophets knew they had been right. The commission's recommendations were mild. Not only was it content to let the wide-spread Housing & Home Finance Agency keep all its branches, but it even suggested giving it a few more: the home loan guarantee function of the Veterans' Administration, the Office of the Housing Expediter, and RFC's Federal National Mortgage Association. In addition, the commission indicated that it was in favor of the creation of a brand new branch: a system of National Mortgage Discount Banks for all private lending agencies over the entire real property field.

Debating the worth of these recommendations was more of an academic exercise than anything else, for no one believed they stood much chance of being adopted. But those who felt in need of exercise let their opinions be known.

**Nothing good.** HHFA, although happy at the negative kind of approval the commission had given it, saw nothing good in the prospects of taking over the substantial headaches inherent in both rent control and VA loan guarantees. Private builders, for their part, were sure that if HHFA took over Fannie May, it would be tempted to look upon the mortgage association primarily as a method of financing its own crusading plans.

Critics were kinder to the commission's second recommendation: Building Money has long been convinced of the soundness of creating a central mortgage pool against which debentures would be



issued. In the central mortgage discount bank envisioned by the Hoover Commission, the original capital would be put up by the government. The bank would offer to purchase mortgages from any type of institution that held them. Against the pool of mortgages thus acquired it would issue low interest bearing debentures. Building Money would find a lot of shade if this branch were added to the Housing tree.

## **BARS TO MODERN are relaxed, but in FHA's same old mumbo-jumbo**

Many housebuilders, and a considerable section of the house-buying public, have have sputtered in helpless exasperation during the last 15 years over FHA's refusal to insure the mortgages on houses of modern design. No one has ever been able to get a clear-cut reason. The most FHA was willing to give was a vague contention that such a house was "unsuitable" for a neighborhood—an unsatisfactory answer at best; clothed in FHA's special brand of gobbledegook, it became impossible to understand.

Last month, FHA reversed its obsolete judgment—but not its language. The reversal itself was hidden in the same mumbo-jumbo which characterized all the previous rulings. Said FHA, in a letter to directors and chief underwriters of its field offices: "In the processing of future applications, no consideration of the probable effect of the subject property on other properties shall be reflected."

**Apparent ruling.** At the same time, and in the same language, it outlawed (or seemed to outlaw) the practice of refusing insurance to Negroes building in white neighborhoods. "In the future," said the letter, "mortgage insurance shall not be precluded (1) because of a different type of occupancy regardless of whether or not it is in violation of a restrictive covenant, (2) nor shall such insurance be precluded on the ground that the introduction of a different occupancy type may affect the values of other properties in the area."

Translated into the plain language of the builder who will now build these newly-approved homes and the consumer who will buy them (both of whom might easily have missed the significance of the directive), FHA's new order means:

► A modern house cannot be denied insurance simply because the surrounding property is of more conventional design.

► In the case of rental or sale housing, a

development cannot be rejected by FHA solely because its price or rent level is lower than that for the neighborhood.

► Mortgage insurance cannot be refused in the case of a Negro buying or leasing a house in a restricted neighborhood.

## HOUSES

### **STATE HOUSING LOANS proposed by New Jersey's governor**

When New Jersey's Governor Alfred E. Driscoll addressed the state legislature last January, one matter highest on his mind was the condition of the state's housing. Said he, then: "Our citizens do not want explanations. They want adequate homes." Before the legislature recessed last month, he called both houses together and told them that he had meant business. To prove it, he outlined what he termed the "most comprehensive housing program in the U. S."

Governor Driscoll stated the problem clearly: there was a "continuing need for low cost housing" for low-income families which could not be satisfied because builders were unable to get the necessary financing. "We have been assured," said the Governor, "that a reduction in interest rates from the normal 4½ per cent to 2 per cent will accomplish substantial reductions in rents and carrying charges." (Carrying charges on a \$500,000 project would drop \$12,500 a year.)

**State's task.** There remained, he said, only one thing for the state to do: take it upon itself to grant enough 2 per cent construction loans to get 45,000 units built. The units would rent for \$30 to \$50 a month. If private builders, thus encouraged, still could not build them (although the governor had been assured "by responsible builders that they can do the job and are most anxious to do it"), the state would turn the task over to local housing authorities and municipalities for public projects. In all, the program would involve in the neighborhood of \$100 million of state money.

Governor Driscoll assured private financing institutions that the state was not going into competition with them, and would restrict the use of its funds to promote low cost rental housing. Nor was the state eager to get directly into the housing business. "The state's role," said the governor, "will be that of prod-der and stimulator . . . our plan is to challenge and help private enterprise do the job wherever possible."

**"Vicious program."** Political opponents charged: "unsound." Said Joseph Brownlee, a candidate for the legislature: "The vicious part of the program is that the housing authority bonds will be issued to raise this money, backed only by the property built at high cost. Of what value to the purchaser will they be when property values decline?"

The New Jersey legislature, however, was impressed. Before adjournment, it passed three of the five bills which would implement the program proposed by Governor Driscoll, and the governor himself confidently looked for passage of the other two before summer.

### **MILITARY HOUSING by private builders gets boost from FHA**

Military authorities trying to build up a volunteer army have been made painfully aware that one powerful deterrent to their plans is the lack of adequate housing for married service personnel. Soldiers who must house their families in hovels have shown themselves quite unwilling, at the end of their enlistment periods, to sign up for another hitch of living in squalor. The high brass has lamented the fact, but has been able to afford little else. The three services know they stand very small chance of getting any more than the \$15 billion allotted to them this year—and if they did, they

*Life: Lisa Larsen*

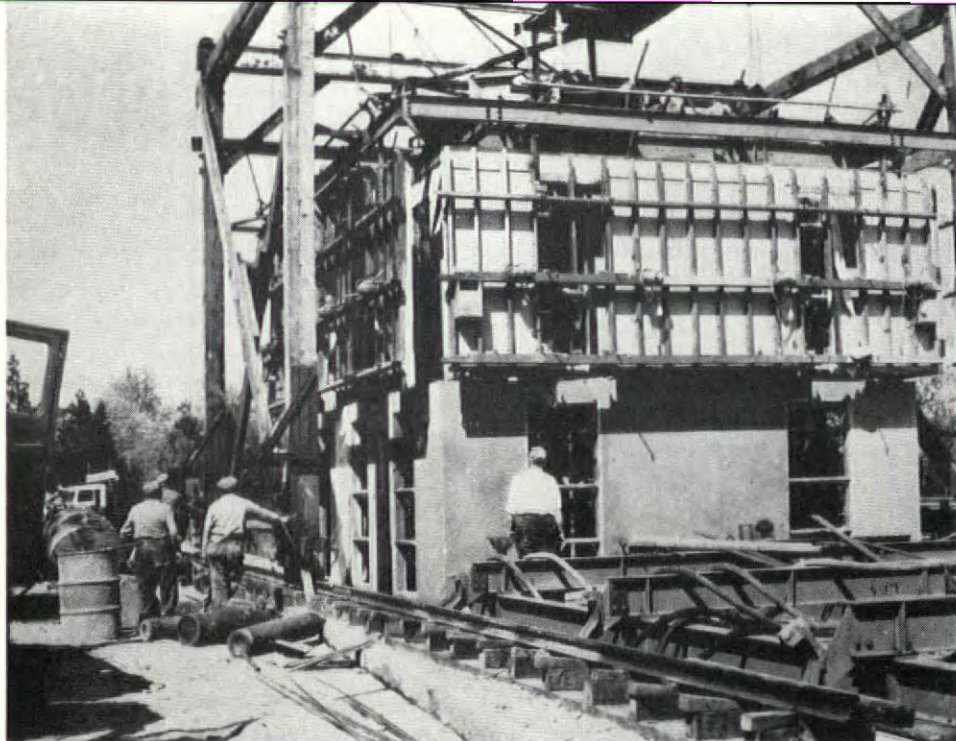


**Ft. Dix soldier's family** lives in 8 x 14 ft. Quonset-type structure.

would feel obliged to use the money for fighting equipment. In all, they have \$200 million among them to use for housing construction, and it will scarcely scratch the surface.

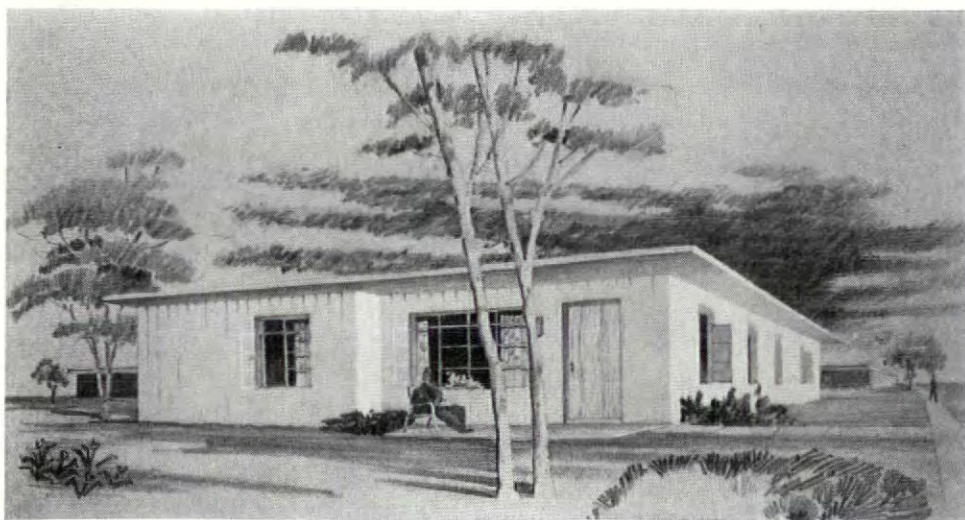
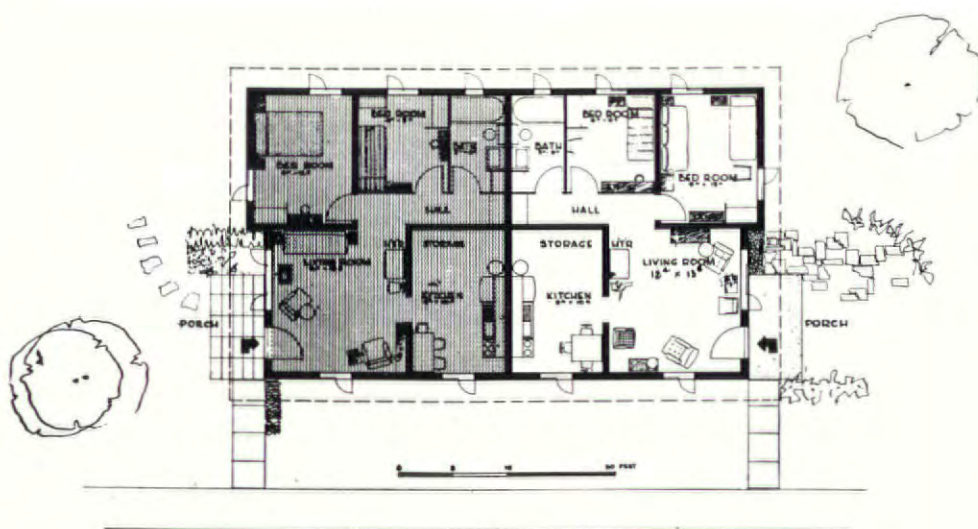
Last month, three senators—Wherry of Nebraska, Maybank of South Carolina, and Tydings of Maryland—set about enticing private industry to do the job with FHA incentives. The legislation they introduced would authorize a special FHA program to handle mortgage insurance on construction on or near military bases—specifically, \$1 billion





**NEW TECHNIQUE** developed by IBEC Housing Corp. is one of pouring concrete houses with standard road building equipment. Concrete slabs of uniform size are laid in a continuous row. A crane places a mechanized wall form over each alternate block, and pours the 8 in. walls (above). A vacuum lifting mechanism then raises the intermediary slabs into roof position over completed walls. Below is shown the house which IBEC

will build at Norfolk, Va. The 204-unit development will consist of semi-detached houses, each having two back-to-back units of 24 x 28 ft. With IBEC's technique, two units will be finished in a single operation, at the rate of one operation a day. The four-room houses which will rent for \$45 a month, will be equipped with gas ranges, electric refrigerators, gas hot water heaters and oil space heaters. (Additional details: col. 3.)



worth of construction, all of it in rental units at an average cost of \$9,000.

Virtually assured of Senate approval because of the position of its bi-partisan sponsors (Wherry is Republican whip; Maybank is chairman of the Banking Committee; Tydings is chairman of the Armed Services committee), the bill would go a long way toward relieving the services of one of their most painful headaches. But the 100,000 units thus provided would still fall short of the 250,000-300,000 houses which military men say they need.

### **ALASKAN HOUSING PLAN bolsters U. S. defense, but worries moneymen**

FHA liberalization was to be the spark for construction elsewhere—in vital and underhoused Alaska, where, as one Interior Department spokesman put it, "a common dwelling in even the more populated areas is a tar paper shack without running water or sanitary facilities."

With meteoric speed, Congress authorized FHA to raise its present loan limits by one-third and waive its economic soundness requirement, in order to get housing in Alaska started. Moreover, the Federal National Mortgage Association, which is limited to 50 per cent of a lender's portfolio normally, will be able to purchase as many FHA insured Alaskan loans as necessary. If private capital, thus encouraged, still cannot build the houses Alaska needs, the Housing & Home Finance Agency will be permitted to loan \$15 billion to the Alaskan Housing Authority.

General awareness of Alaska's strategic position in America's defense kept criticism of the legislation down. But some segments of the Industry—the lenders, particularly—felt that they had something to watch closely in the direct loan provision. The distance between Nome and Washington is relatively short. Some loan-seekers might get the idea that the congressional distance between a direct housing loan in Alaska and one in the U. S. is just as short, and just as easily traveled.

### **ROADBUILDING EQUIPMENT erects concrete houses quickly and cheaply**

In 1946, a full two years before President Truman outlined his "bold new program" to disseminate American techniques and skills throughout the world, Nelson Rockefeller set up the International Basic Economy Corp. Its avowed purpose was to help raise living stand-



ards in various parts of the world as a U. S. business enterprise, and its first area of interest was to be Latin America. IBEC learned soon enough that the living standard there most desperately in need of raising was housing. So it established a subsidiary housing corporation and named Architect Wallace K. Harrison (already head of another IBEC component known as IBEC Technical Services) as chairman of its board.

Like many another U. S. architect, Harrison had been long aware of the need for a good low cost house. With George Dudley, a young architect he pulled out of his own architectural office to head IBEC housing, and a nucleus of experts, Harrison developed a new technique for building low cost concrete houses which promised to go far toward easing Latin America's No. 1 need. IBEC began negotiating last fall with the Venezuelan government, which wanted it to build a 600-house development on the outskirts of Caracas. A revolution cut the negotiations short. In the meantime, IBEC decided its system should work as well for the U. S. as for Latin America. It found a chance to test that theory in Norfolk, Va. (Photos, left.)

**Theory tested.** If the theory works, 204 of Norfolk's low income families will soon be able to rent 4-room houses for \$45 a month. (IBEC estimates that the same houses would sell for as low as \$5,500.) Last month the new housing corporation began clearing land in Norfolk for a \$1 million rental project, which it will build under contract to Henry C. Hofheimer—a backer of Solite, a light-weight aggregate which will be used in the houses.

**Spreading technique.** Harrison and Dudley are confident of the soundness of their scheme. They tried it out on two test houses last winter near Harrison's Huntington, Long Island, home, and reported complete success. Last month the Norfolk project received FHA blessing.

After Norfolk, IBEC has other projects in mind. It has resumed negotiations with Venezuela—this time with the new government, which wants to up the Caracas development to 800 houses. And IBEC's officers think their new house-building technique can spread from Norfolk to many other parts of the U. S. Said Harrison: "The IBEC technique is considered particularly adapted to areas where speed is essential or where labor is scarce," or "for localities where land costs are low enough to permit one-story structures."

## LABOR

### NO RAISE for New York bricklayers

The month brought at least one heartening indication that Building's attempt to stabilize itself would not be stymied by another round of wage increases: in New York City, six weeks before the expiration of their present contract, 7,000 bricklayers signed a new contract for another year at no increase in pay (which is \$3.20 an hour).

## MARKET

### FAMILY FORMATIONS decline, underline need for lower prices

Charts were jumping all over the offices of the government chroniclers. The Bureau of Labor Statistics recorded a rise in house starts from February's 46,000 to 62,000 in March. FHA field offices were swamped with applications for mortgage insurance—many offices said it was the biggest volume business they had ever handled.

Those statistics could be tempered. The March starts were still 19 per cent under March of last year. And at least part of FHA's onrush of applications could indicate a more cautious attitude on the part of lenders. FHA always gets

a higher percentage of the total volume of mortgage financing in periods of increasing financial risks. Nonetheless, builders took encouragement from the figures. The familiar sight of a normal spring upsurge was somehow heartening, and there was a good chance that the flurry of FHA requests would show up as housing starts on the chroniclers' charts in the next few months.

Another factor bound to have an influence on builders' future activity was the trend of family formation. After the bride-and-groom boom of the war and postwar years, the rate of marriages was going down—from 1946's peak of 2,291,000 to 1,815,000 for 1948 and an estimated 1,547,000 for 1949. Over the same period another factor in the builders' measurable demand was diminishing. While the number of families living doubled up was 2,764,000 in 1947, by the end of 1949, government statisticians think it will slip to 1,500,000. And by 1950, the only families in the country living doubled up might well be the 1,300,000 who want to live that way. The interesting relationship between the rate of net family formation (influenced not only by marriages but also by a decreasing death rate and a stabilizing divorce rate) and the rate of house building is charted in column two.

## MISCELLANY

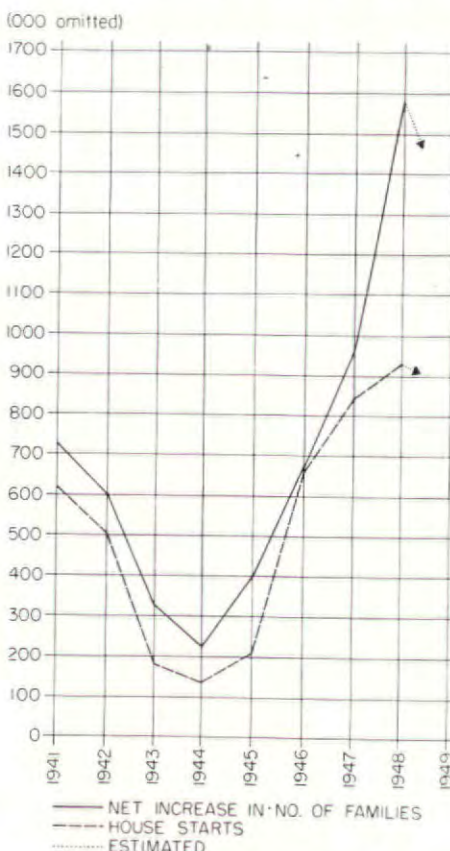
### Play Ball

Spring was formally ushered in with the New York *Herald Tribune's* Building-headline-of-the-month (see cut).



### Sales Resistance

Jersey City Realtor Fred Greenberg learned at first hand that the returned buyer's market is not without vengeance. He was treated for minor cuts and bruises after a dissatisfied customer tried to stab him. (Continued on page 16)



**FAMILY FORMATION RATE** reached peak in 1948; current decline indicates the present level of house production will be maintained only if sales prices are tailored to market.



## High Low

San Francisco set a distinction of a kind for itself during March. Its residential building permits amounted to \$25,090,292—a postwar high. Of this, however, \$24,228,442 would go into a Metropolitan Life Insurance Co. project of 1,694 units, leaving only 95 permits for the rest of the city—a postwar low.

## The Good Fight

New Orleans citizens, angered at plans to raze one of the Crescent City's old mansions, organized the Society for the Preservation of Louisiana Antiquities.

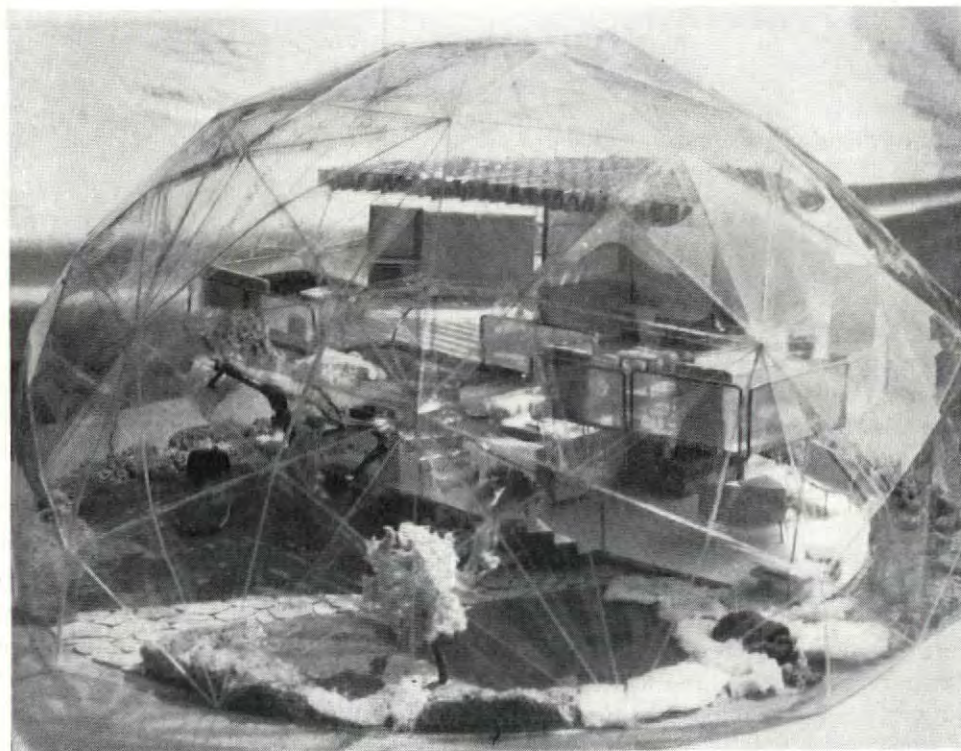
## DESIGN

### ANN ARBOR CONFERENCE calls today the "Time for Change"

Conceiving the approach of mid-century as "Time for Change," some two hundred architects plus most of Michigan University's architectural students met last month in the hat-box-shaped Rackham Auditorium for the seventh Ann Arbor Conference, on invitation of architectural dean Wells I. Bennett.

Biggest lift was given by ever-ebullient inventor-philosopher Buckminster Fuller. To escape from "anchored dwelling systems" limited to the 40-mi. radius of effectiveness of daily commuting, he proposed a system of super-tents, to be carried by car and trailer, set up anywhere, operated "autonomously," increasing the radius of effectiveness (with aid of helicopters, television) to 120 miles.

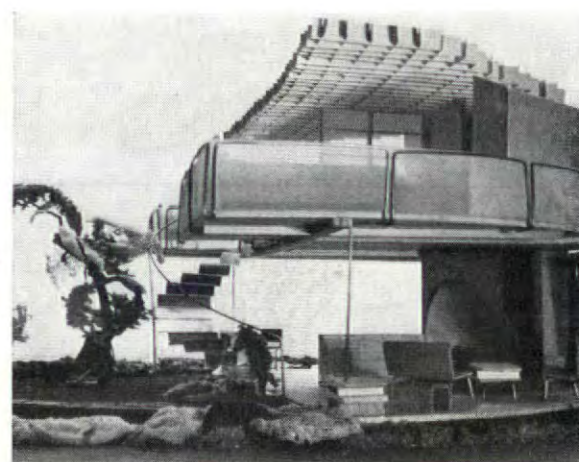
Among the other speakers: Holmes Perkins, chairman of the Department of Regional Planning, Harvard (and chairman of next year's Ann Arbor Conference): "Social conformity dictated by good architecture is no better than any other dictatorship." Also, "In free America by common consent we are gradually depriving the individual of the power to stand in the way of renewal of communities." Turpin Bannister, new head, Department of Architecture, Illinois: "We must provide 88,000,000 man-hours annually of architectural education; 12,400 architectural recruits must be trained in 1948-60." Douglas Haskell, new architectural editor, FORUM: "Heating research during the first half of the century has opened the way for architects to begin 'designing with heat' not just for 'comfort' but for joy of life."



"omni-directional clear"



Buckminster Fuller



"omni-directional translucent"

### FULLER'S NEW SUPER-TENT

"Autonomous living," as proposed by Buckminster Fuller to architects at Ann Arbor (see Col. 1), would be carried on under hurricaneproof hemispherical enclosures of 50 ft. diameter shielding a platform of 864 sq. ft. with all modern appurtenances and controls and, in addition, 986 sq. ft. of protected garden. In "Bucky" language, "this is now feasible at well below the present cost of bare miniature mansions (i.e., low cost houses) sewered and paved together in 'Siamese twinness.'"

Top photograph shows Fuller's "Autonomous Geodesic Structure" with its transparent shielding of plastic material set at "omni-directional clear" (by means as yet

undisclosed) so as to show the interior. This is a "roadable package" of equipment giving all controls plus "every comfort and facility known to modern man."

Smaller photograph shows this package as seen from within the enclosure. It is assumed here that controls are set at "omni-directional translucent" so that there is privacy from prying as if the interior were "shrouded by sunlit mist."

Buckminster Fuller has often been dismissed by casual critics as a "visionary" but with equal frequency has been studied, even in those excursions which might seem the most fantastic ones, by hard-headed pioneers in industrialized housing.



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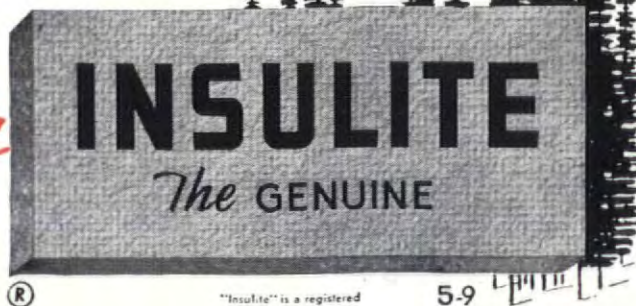


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Refer to Sweet's File,  
Architectural Section 10a/9  
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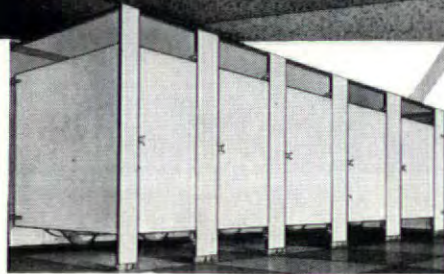
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## Sanymetal "PORCENA" (Porcelain on Steel) TOILET COMPARTMENTS



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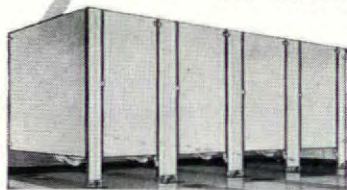


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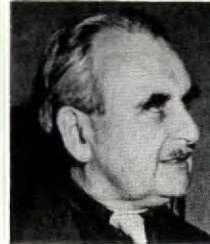
Van der Rohe, Neutra and Delano made members

The Royal Institute of British Architects included three Americans among those to receive its highest award to foreign architects—honorary corresponding membership. Ludwig

Ben Schnall



Otto Hagel



Pirie MacDonald



Mies van der Rohe, Richard Neutra and William Adams Delano are the three so honored. Van der Rohe, who heads the department of architecture at Illinois Institute of Technology, is now at work developing the buildings on its 100-acre campus; Neutra is noted for his planning as well as distinguished house design on four continents; Delano has specialized in the design of school and government buildings, is also designer of LaGuardia Airport and Pan American stations in Miami and the Pacific.

## JURY PICKS BEST REGIONAL HOUSES

House and Garden magazine contest seeks expression of climate in architecture

The recent house contest sponsored by *House and Garden* magazine stressed the relation between architecture and climate. Awards were made to houses in the U. S. which most adequately expressed the needs of their locale—South, East, West or Midwest. In the South both prizes were won by Ralph S. Twitchell and his associate Paul M. Rudolph of Sarasota, Fla. First prize in the East went to a house designed by William N. Breger and Stanley R. Salzmann of New York;

Michtmann—Vogue Studios

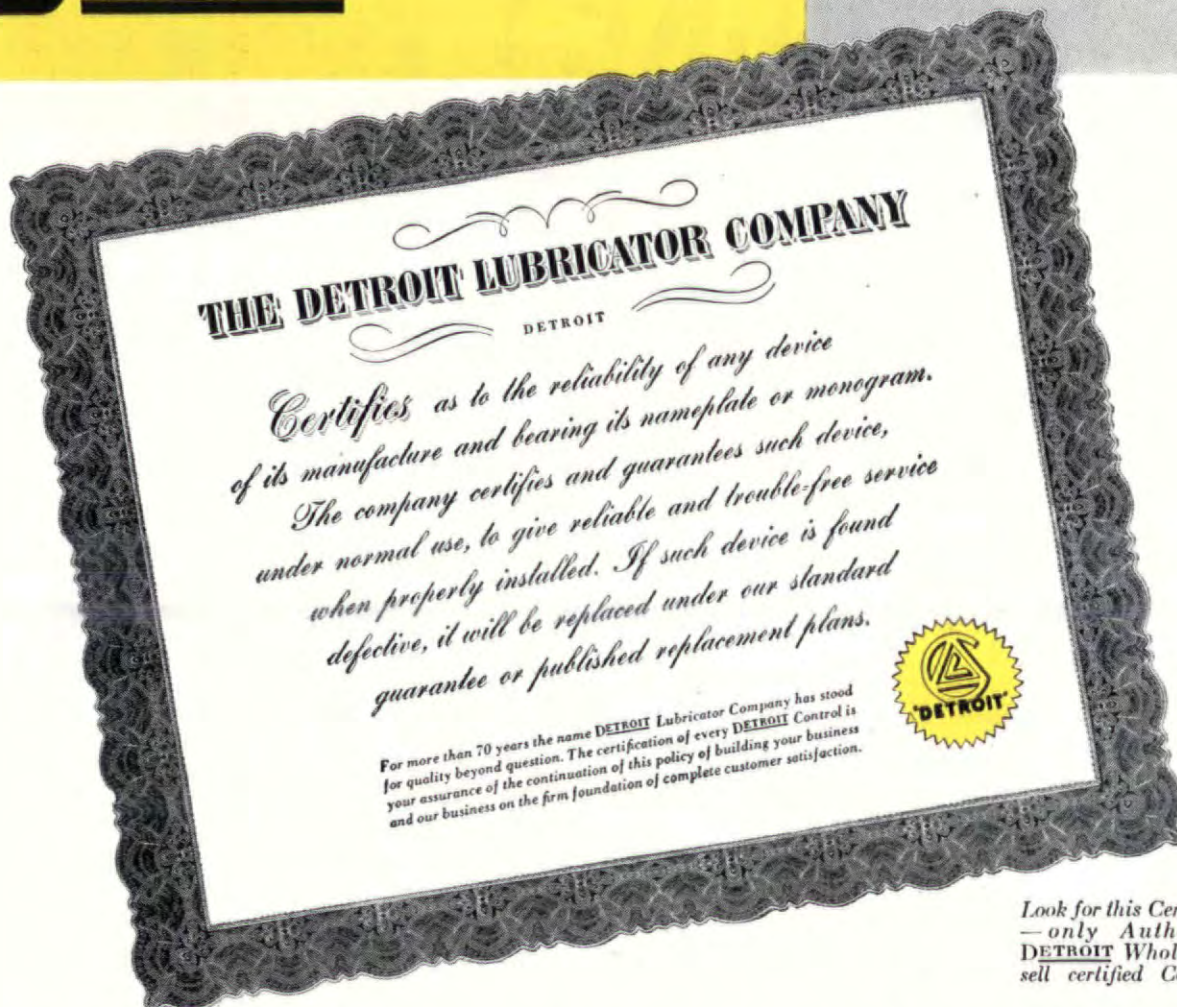


the second to one by Carl Koch & Associates of Belmont, Mass. California architects won the two western awards—Carl Louis Maston of Beverly Hills and William F. Hempel of Palo Alto. Best Midwestern houses were designed by Wischmeyer & Lorenz of St. Louis, Mo., and Max Mercer of Yellow Springs, Ohio.

The jury who selected the winning houses was regionally representative too. As seen above with *House and Garden* editor Katherine Ford, (Continued on page 20)



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its members were: Marcel Breuer, New York; Fred MacKie, Texas; Eero Saarinen, Michigan; Harwell Hamilton Harris, California; and Joseph Hudnut, Massachusetts.

### ROME PRIZE WINNERS

**Veterans Daltas and Jova receive 1949 Architectural Fellowships for Study in Europe**

The Rome Prize Committee has announced the chosen few to share in a year's travel and study in Europe under the terms of its fellowship awards. This year's Prix de Rome winners



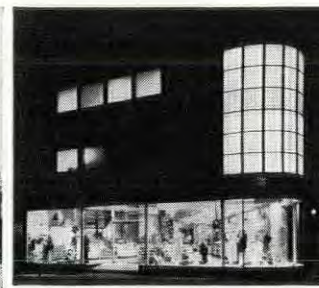
in architecture are two ex-service men, Spero P. Daltas and Henri V. Jova. Former naval gunner Daltas received his Master's Degree in Architecture last year from the Massachusetts Institute of Technology, got

his B. A. in '43 from the University of Minnesota. Ex-GI Jova will graduate this term from Cornell University. This year's award in Landscape Architecture goes to George Patton, North Carolina State College, 1948. Artist winners include sculptor Peter Abate and painters Stephen Greene and Mitchell Siporin.

### STORE REMODELERS TO MEET

**Modernization contest and clinics aim to interest all factors in this billion dollar field**

The Store Modernization Show at New York City's Grand Central Palace, June 19-24, follows a trusty, showman's formula—something for everybody. During the past two years, Director John W. H. Evans has proved the effectiveness of well planned and carried-out sideshows in luring to his five-day meeting the moneyed factors that make up this billion dollar field. One of the most effective of these side features is the contest open to Chambers of Commerce and civic groups throughout the country for the "Best Modernized Store of



the Year." The pleasures of beating the experts and winning prizes that total \$500 are offered to local business groups. (Any group wishing to enter—only one may be registered from a city—must notify the Director at 40 E. 49th Street, New York City, of his intention by June 1st. Entries are limited to a single sheet, 30 in. x 40 in. See last year's winner above.)

Clinic-forums are scheduled for each day of the show. All current problems in the field of store redesign from layout to budgeting are discussed in the prepared speeches and question-and-answer sessions. A cross-section of this year's varied experts includes: Architect Morris Ketchum, Jr., Business Consultant William Pilat and John Paddi, in charge of Small Business Loan Department for the Manufacturer's Trust Co.

Hans Krusa of New York University's School of Retailing will take on the chairmanship of the sessions.





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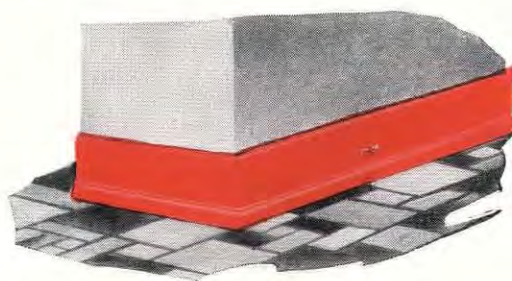
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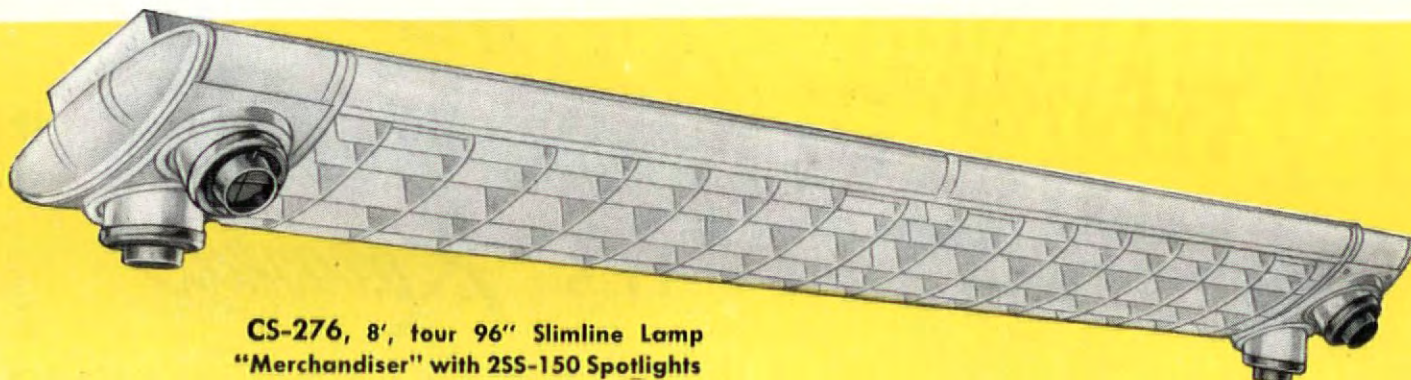
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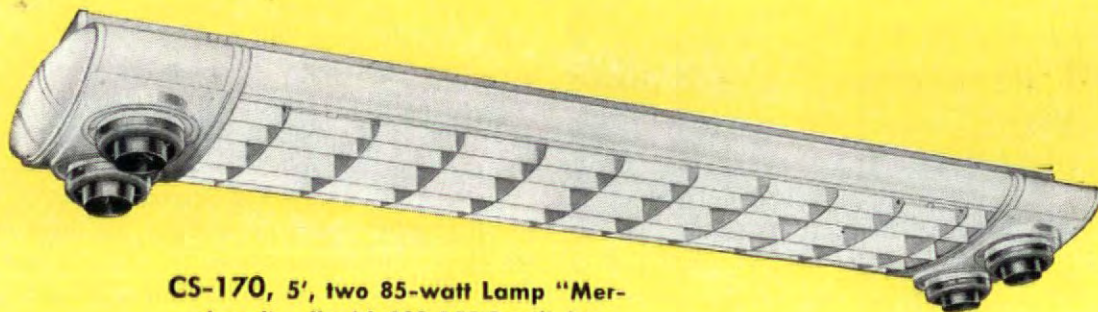




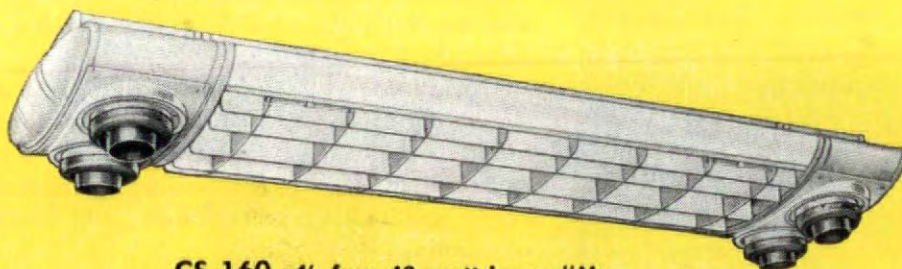
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**Westinghouse**



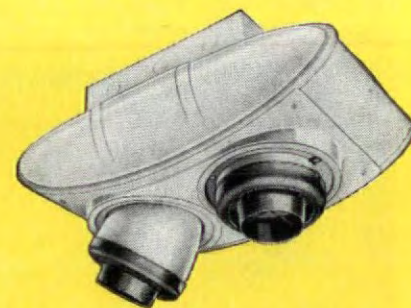
CS-276, 8', four 96" Slimline Lamp  
 "Merchandiser" with 2SS-150 Spotlights



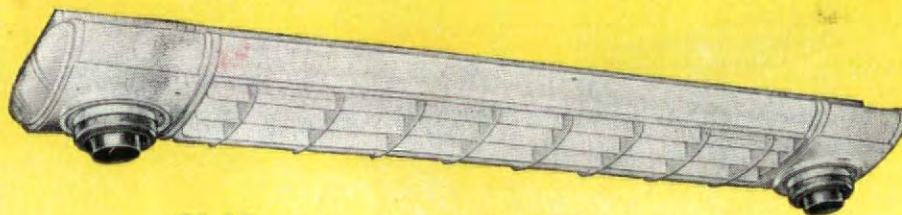
CS-170, 5', two 85-watt Lamp "Mer-  
 chandiser" with 2SS-150 Spotlights



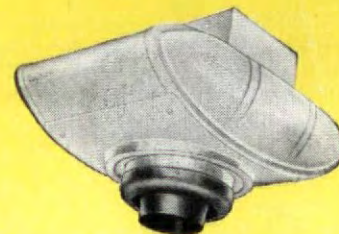
CS-160, 4', four 40-watt Lamp "Mer-  
 chandiser" with 2SS-150 Spotlights



2SS-150, for Two PAR-38 Spot or  
 Flood Lamp



CS-80, 4', two 40-watt Lamp "Mer-  
 chandiser" with SS-150 Spotlights



SS-150, for One PAR-38 Spot or Flood  
 Lamp



# THE MERCHANDISERS

... Standard Units That Provide

## "CUSTOM LIGHTING" FOR ANY STORE

**Flexibility of Installation**—The "Merchandisers" provide greatest flexibility to meet varying conditions. The different sizes and types are shown at left. Both the fluorescent and incandescent sections may be used individually, in groups, or in continuous rows. Spotlights may be combined with fluorescent sections in whatever arrangement is most suitable for your customers' needs. Swiveling feature permits both horizontal and vertical adjustments.

**Easy to Install and Maintain**—The lightweight housing may be quickly attached on the ceiling. Then it's an easy job to hang the ballast and reflector assembly in place. Cleaning, too, is simplified because there is little space for dust and dirt to accumulate. The louver may be easily removed for an occasional bath and lamps are readily accessible for replacement or cleaning simply by swinging down the louver from either side.

A Westinghouse Lighting Sales Engineer will gladly co-operate with you in planning lighting installations for your store customers. Call your local Westinghouse Distributor today.

J-04219

Free booklet B-4076 tells story of how to light store areas with the "Merchandiser". Send for it today. No obligation, of course. Write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna.



**Westinghouse**  
**PLANNED LIGHTING**  
**PAYS**



## LETTERS



for  
well-  
built  
venetian  
blinds  
specify

*Flexalum*<sup>®</sup>

Here's an aluminum slat that won't budge one inch from its high beauty standards...won't sag or warp out of shape...won't relax at route holes...refuses to rust, break, crack or chip! Whenever superior quality is essential—for large or small installations—leading architects specify FLEXALUM.

*The Shamrock in Houston—America's newest, most luxurious hotel—is equipped throughout with venetian blinds of Flexalum.*



*Venetian blinds custom-made of Flexalum in 14 colors by reputable manufacturers only.*

**HUNTER DOUGLAS CORPORATION**  
150 Broadway, New York • Riverside, Calif.



This quality identification on every slat!



### BUILDERS' FORUM



• Famed cartoonist Robert Osborn fills in the empty space on FORUM's January cover—Ed.

#### HIGH DUDGEON IN LEVITTOWN

Forum:

In the April issue, on page 140, in discussing the Webb job at Tuscon, Ariz., you say "a record yet to be beaten even by the notorious Levitt."

There are two objections to that sentence. The first is the use of the word notorious. I have one dictionary which defines the word as "subject of comment, usually in bad sense, as a notorious criminal." Neither my brother, my father nor I have ever spent a single minute in any duly authorized jail or penitentiary. I admit that a great many of our competitors have secretly, and sometimes not-so-secretly, issued indictment after indictment against us. I also admit that a great many of them pray nightly for some sort of incarceration or exile to be visited upon us, but so far their prayers have not been answered.

I cannot think that the FORUM is a party to such pious hopes and I think your reporter perhaps used a different dictionary from the one we employed. Plagiarizing Owen Wister, I think that you should instruct whoever wrote the phrase to "smile when you say that, mister."

The other point, used in connection with the quoted phrase above, is that you infer that the price structure of the Webb homes represents greater dollar value than that offered by Levitt. Most of your own argument you refute on p. 142, but suppose I list a few questions that your reporter should have answered before he went out on a limb.

Does the Webb community have 30 ft.  
(Continued on page 28)



HOSPITALS & INSTITUTIONS



SCHOOLS & LABORATORIES



HOMES & APARTMENTS

FOR • Safety  
• Accuracy  
• Comfort

**DORAN**  
*Thermostatic*  
WATER MIXING VALVE  
ACCURATE CONTROL ON ANY  
70° RANGE



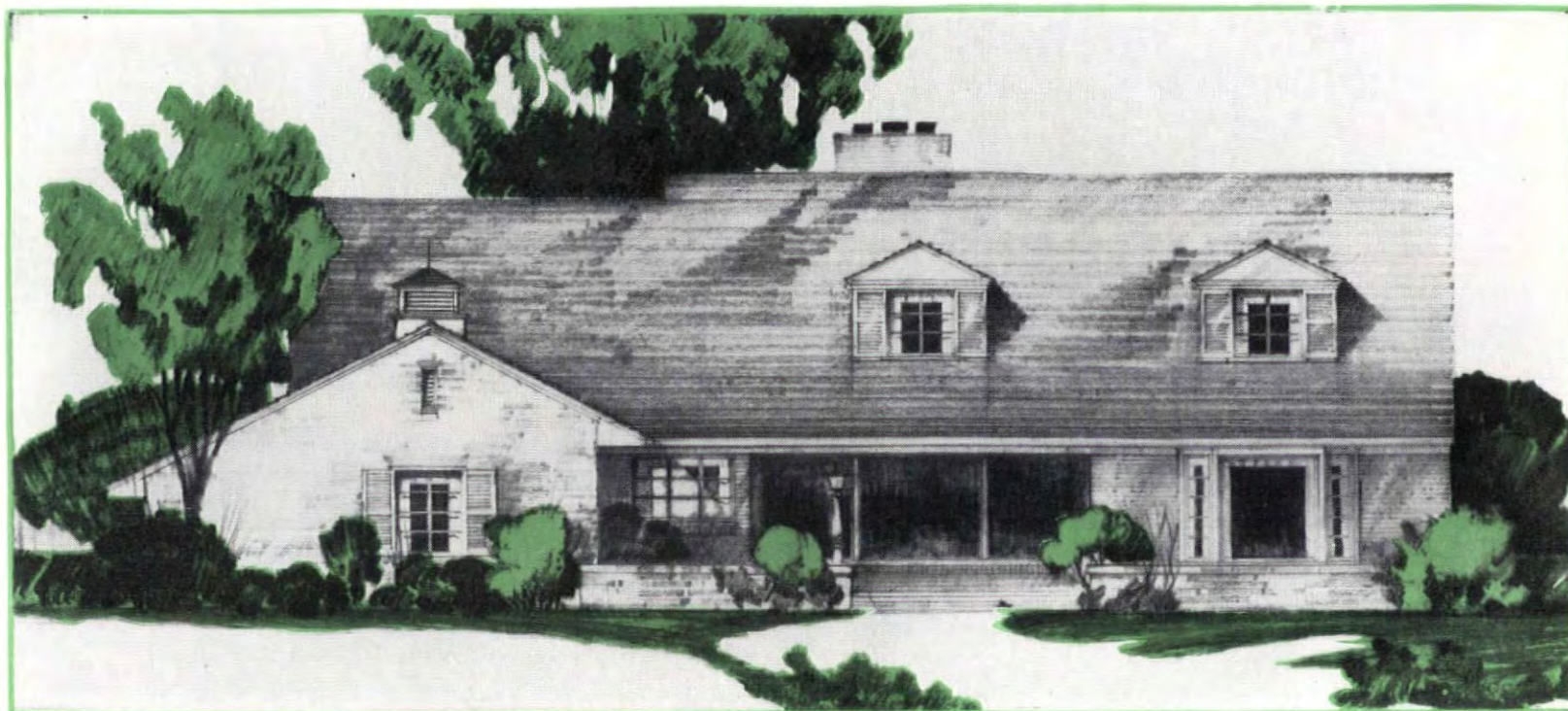
DORAN thermostatic water mixing

- valves have been proved by 15
- years satisfactory operation in a
- wide range of uses. Sizes from 2½
- to 120 gallons per minute. Avail-
- able through wholesale plumbing
- supply firms. CATALOG AVAILABLE.

MANUFACTURED BY THE  
**CUNNINGHAM**  
MANUFACTURING  
COMPANY

4200 West Marginal Way  
Seattle 6, Washington





## FIBERGLAS—THE 2-IN-1 INSULATION THAT COSTS NO MORE

### 1. Inorganic—Ageless glass wool

- Fiberglas\*, the most efficient mineral wool, can't rot, burn or absorb moisture.
- Feather light; never packs down in walls.
- Permanently efficient barrier to heat.
- Provides no food for insects or vermin.

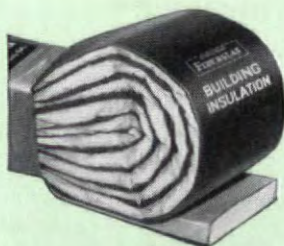
### 2. Enclosed roll blanket—Continuous vapor barrier

- Superior moisture protection. Continuous vapor barrier on the warm side.
- One-piece installation from floor to ceiling.
- Easy for workmen to apply correctly.
- The only mineral wool roll blanket on the market.

Owens-Corning Fiberglas Corporation, Dept. 830,  
Toledo 1, Ohio. In Canada: Fiberglas Canada Ltd.,  
Toronto, Ontario.

OWENS-CORNING  
**FIBERGLAS**  
TRA. REG. U.S. PAT. OFF.

**BUILDING  
INSULATION**



#### FORMS:

**1. Roll Blanket.** Asphalted, vapor-resistant paper on one side, perforated, vapor-permeable paper on the other.

**2. Batt Blanket.** Same type construction as the Roll Blanket.

**3. Utility Batts.** Made of Fiberglas PF Insulation.

**4. Pouring Wool.** For pouring or hand packing.



#### PROPERTIES:

Only FIBERGLAS Building Insulation gives you all these important features.

- **Low "k" factor.** Fiberglas Building Insulation has extremely low heat conductivity. The "k" factor of the wool is .27.
- **Firesafety.** Fiberglas wool does not support combustion. Properly installed, Fiberglas Insulation retards the transmission of flame through areas in which it is installed.
- **Low moisture pickup.** The fibers are non-absorptive and will pick up less than 1% by weight of moisture from the air.
- **Choice of types.** Available in Roll Blankets, Batt Blankets, Utility Batts and Pouring Wool. A type for every job. Various thicknesses for different climatic requirements.
- **Complete data available.** If your files do not contain complete data on Fiberglas Building Insulation ask for A.I.A. File No. 37-B.

\*FIBERGLAS is the trademark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for a variety of products made of or with glass fibers.

**WHERE TO BUY:** Fiberglas Building Insulation is distributed nationally by Armstrong<sup>®</sup> Cork, Certain-teed, Flintkote, Insulite and Kelley Island



# Roddiscraft Cupboard Door Stock

## made in sizes to fit every need...



***DON'T* pay for waste!**

Roddiscraft cupboard door stock is designed especially to eliminate wasteful cutting. This sturdy  $\frac{3}{4}$ " panel is manufactured in widths of 12", 14", 16", 18", 20", 22", 24" and 26"; and in lengths of 48", 54", 60", 66", 72", 78", 84" and 96". All Roddiscraft warehouses carry a complete line of cupboard door stock. Order the sizes which will cut most economically for your installations. Prompt delivery to any location.

Roddiscraft cupboard door stock is a quality product in the well-known Roddiscraft tradition. Full length edge strips of Aspen or Yellow Poplar are bonded to a well-seasoned staved Aspen core. Hardwood  $\frac{1}{20}$ " crossbands and sound Birch  $\frac{1}{20}$ " faces complete the five-ply assembly which is bonded with water resistant resin glue by the most modern hot plate press methods. All stock is belt sanded to a smooth finish at the factory.

### Roddiscraft Warehouses From Coast to Coast

Quality Economy  
Dependable Service

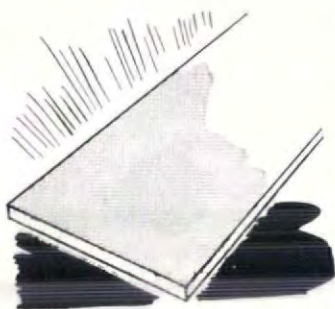
Cambridge 39, Mass. . . . . 229 Vassar St.  
Charlotte, N. C. . . . . 123 E. 27th St.  
Chicago 8, Ill. . . . . 1440 W. Cermak Rd.  
Cincinnati 2, Ohio . . . . . 457 E. Sixth St.  
Dallas 10, Texas . . . . . 2800 Medill St.  
Detroit 14, Mich. . . . . 11855 E. Jefferson St.  
Kansas City 3, Kan. . . . . 35-53 Southwest Blvd.  
L. I. City, N. Y. . . . . Review & Greenpoint Ave.  
Los Angeles 11, Calif. . . . . 2860 E. 54th St.  
Louisville 10, Ky. . . . . 1201-5 S. 15th St.  
Marshfield, Wis. . . . . 115 S. Palmetto St.  
Milwaukee 8, Wis. . . . . 4601 W. State St.  
New York 55, N. Y. . . . . 920 E. 149th St.  
Port Newark 5, N. J. . . . . 103 Marsh St.  
St. Louis, Mo. . . . . 4453 Duncan Ave.  
San Antonio, Texas . . . . . 727 N. Cherry St.  
San Francisco 24, Cal. . . . . 345 Williams Ave.

# Roddiscraft

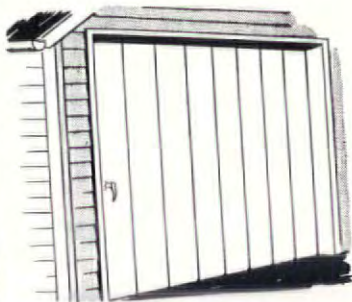
**RODDIS PLYWOOD CORPORATION**  
MARSHFIELD, WISCONSIN



# WHY GALVANITE IS THE BUILDER'S STEEL



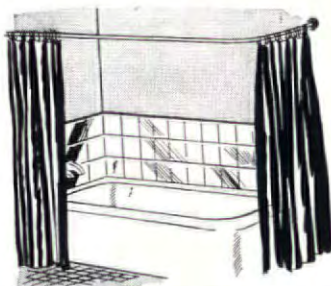
**ZINC COATED** — Galvanite is a special zinc coated product. The protective Galvanite coating is perfectly bonded with the quality Sharon strip steel that forms the base.



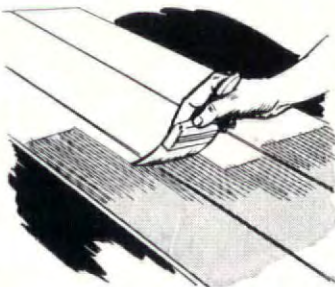
**GALVANITE LIKES THE WEATHER TOUGH** — Rain, snow — sleet and slush cannot penetrate the bonded zinc coating — and the strong steel base offers a lifetime of wear even under the hardest usage.



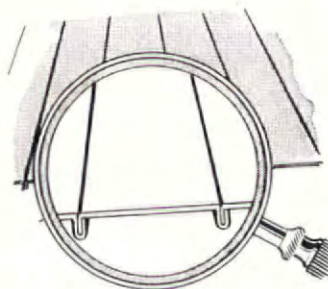
**APPROVED BY LEADING CODES** — Galvanite has been given the green light under the strictest of building codes. A recent test in an area plagued with oceanic salt spray proved Galvanite resistant to salt corrosion.



**WHERE DAMPNESS PREVAILS** — Where water and dampness are an every hour occasion Galvanite can't be beat. And products made of Galvanite can be produced at lower costs — because Galvanite — for all its advantages — is truly inexpensive.



**IDEAL FOR PAINTING** — Galvanite provides an ideal "mat" base for painting, and baked enameling. It withstands temperatures up to 750° without deteriorating.



**SEVERE FORMING and DRAWING** — Galvanite will not peel, flake or powder during difficult fabrication. It is especially suitable where a coated strip must withstand severe forming and drawing.

**SHARONSTEEL**

**SHARON STEEL CORPORATION**  
*Sharon, Pennsylvania*

PRODUCTS OF SHARON STEEL CORPORATION AND SUBSIDIARIES: THE NILES ROLLING MILL COMPANY, NILES, OHIO; DETROIT TUBE AND STEEL COMPANY, DETROIT, MICHIGAN; BRAINARD STEEL COMPANY, WARREN, OHIO; SHARONSTEEL PRODUCTS COMPANY, DETROIT, MICHIGAN, AND FARRELL, PENNA.; CARPENTERTOWN COAL & COKE CO., MT. PLEASANT, PENNA.; FAIRMONT COKE WORKS, FAIRMONT, W. VA.; MORGANTOWN COKE WORKS, MORGANTOWN, W. VA. Hot and Cold Rolled Stainless Strip Steel—Alloy Strip Steel—High Carbon Strip Steel—Galvanite Special Coated Products—Cooperage Hoop—Electrical Steel Sheets—Hot Rolled Annealed and Deoxidized Sheets—Galvanized Sheets—Enameling Grade Steel—Welded Tubing—Galvanized and Fabricated Steel Strip—Steel Strapping, Tools and Accessories.

DISTRICT SALES OFFICES: Chicago, Ill., Cincinnati, O., Cleveland, O., Dayton, O., Detroit, Mich., Indianapolis, Ind., Milwaukee, Wis., New York, N. Y., Philadelphia, Penna., Rochester, N. Y., Los Angeles, Calif., San Francisco, Calif., St. Louis, Mo., Montreal, Que., Toronto, Ont.



## LETTERS

# Revolutionary *New* RADIANT HEATING SYSTEM

**Lower in First Cost —  
Lower in Operating Cost  
Than ANY OTHER Form  
of Automatic Heat**

### The MOST SIMPLE AND EFFECTIVE System Ever Devised

Automatically balances itself and heats ALL rooms evenly. No cold floors — no cold spots. If a cold wind is blowing on one side of the house, those rooms heat up quickly, while rooms on the sunny side do not over-heat. Automatically puts the heat where it is needed.

Can be installed in EXISTING buildings without alterations, as well as in any type of new construction.

Here is today's greatest opportunity to satisfy the demand for the modern comfort of radiant heating — at low cost.

Why put up with cold floors, air stratification, drafty, dust moving, inadequate, out-of-date systems, when you can get *Perfect Radiant Heating* in ceilings, walls and hardwood floors, at *Lower Cost?*

IT'S SENSATIONAL. Thoroughly tested through 8 years of research and proven by 300 installations. Built by Scott-Newcomb (established 1917), pioneers of automatic heat.

Write for booklet — come and see display houses in Saint Louis area.



**SCOTT-NEWCOMB, Inc.**  
1449 South Boyle Avenue  
Saint Louis, Missouri

Some Scott-Newcomb territories are now open and are being assigned. You may be eligible. Phone, wire or write today.

paved roads of the specifications of Levittown?

Does the Webb community have a complete water distribution system paid for by him and reflected in the price of his houses?

Does the Webb community produce its own water from giant wells paid for by him and reflected in the price of his houses?

Does the Webb community have a swimming pool for each 1,000 families, costing \$175,000, paid for by him and reflected in the price of his houses?

Does the Webb house have a hot water radiant heating system?

Does the Webb house have a General Electric refrigerator?

Does the Webb house have a General Electric range?

Does the Webb house have all-steel kitchen cabinets, with a stainless steel sink and double drain boards?

Does the Webb house have a Bendix deluxe laundry with stainless steel cover?

Does the Webb house make liberal use of Thermopane?

Does the Webb house have aluminum venetian blinds throughout?

Does the Webb house contain a log-burning fireplace?

Does the Webb price include complete financing charges and all recording fees?

Does the Webb price include all tax adjustments and a free insurance policy for one year?

I have left out such obvious things as the cost of land in the New York area as against Arizona, the general salary and wage levels of workmen and administrative personnel in New York versus Arizona, etc. I have also left out a large unfinished attic with a permanent stairway and a lot of other things that I can't even remember.

Just for the record, based on the information shown in your article, Levitt can produce the three Webb houses here in the New York area for at least \$1,000 apiece less than the prices quoted on p. 140.

WILLIAM J. LEVITT, President  
Levitt & Sons Builders

Manhasset, N. Y.

• 1. FORUM, never one of those who "pray nightly for incarceration or exile" of the Levitt brothers, apologizes for using a word fraught with criminal undertones.

2. FORUM's article states that Del Webb's houses cost less than Levitt's, goes on to explain why: cheap land; city subsidized gas, power, sewage and transportation; state subsidized highway; simple design; mild climate.

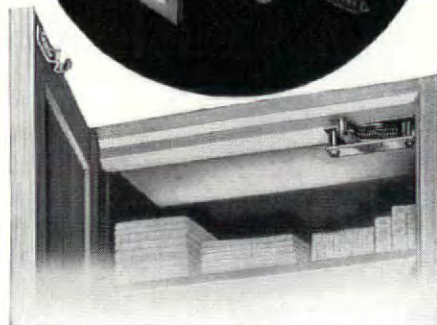
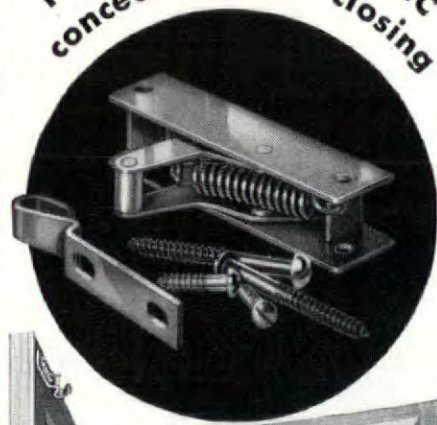
3. Del Webb would undoubtedly have to answer "no" to most of Levitt's questions, but might ask a few in return:

Does the Levitt house have a carport?

Does the Levitt house have a patio for private outdoor living?

(Continued on page 32)

**POSITIVE-AUTOMATIC  
concealed door-closing**

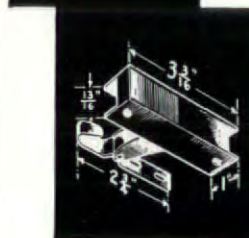


Win-Dor Snuggers and Top-Closers work so well, are installed so easily and cost so little that you can detail them for all cabinet, cupboard and closet doors. These little automatic "hands" actually reach out, grab the door and close it without rebound. Surprising power closes even warped doors and keeps them closed. Surface installation at top, bottom or side. (For complete information see Win-Dor catalog 17B in Sweet's Arch. File).



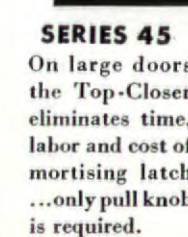
#### SERIES 47

This small Snugger has a four pound pull, is reversible and provides automatic closing.



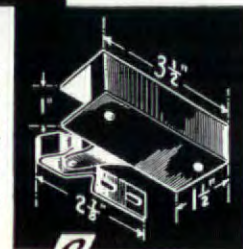
#### SERIES 48

For closing intermediate size doors this Snugger has no equal in convenience and economy.



#### SERIES 45

On large doors the Top-Closer eliminates time, labor and cost of mortising latch ... only pull knob is required.



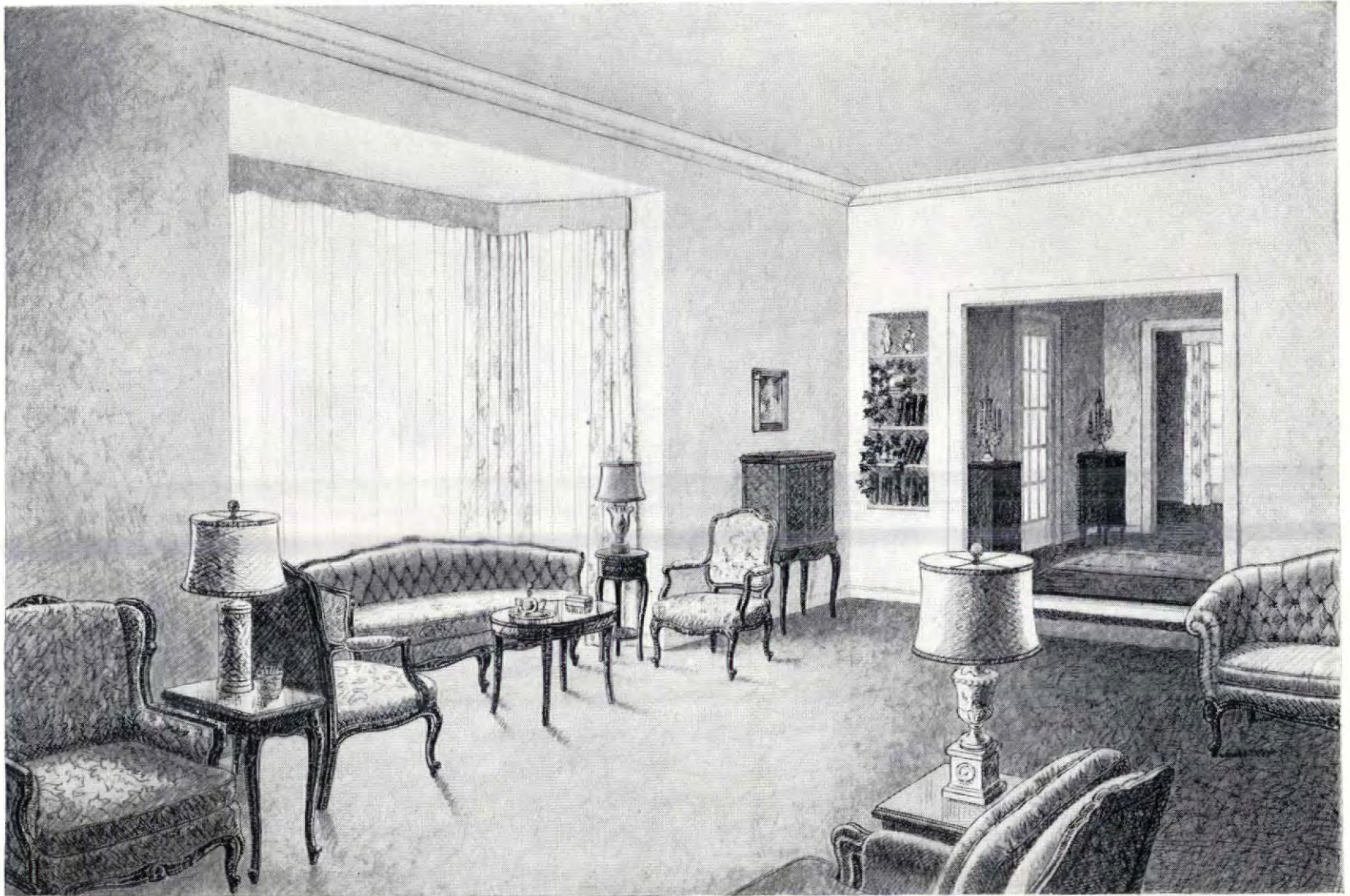
**WIN-DOR Snugger**  
PULLS DOORS SNUG!

A PRODUCT OF  
**The Casement Hardware Co.**  
405 N. WOOD ST., DEPT. H, CHICAGO 22, ILLINOIS  
Ask Your Builder's Hardware Dealer



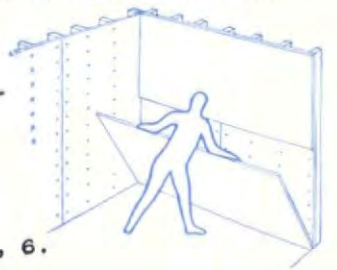
# SHEETROCK

*has entered the Mansion Market*



Residence of Mr. and Mrs. Larry Cain. Architect, G. Mallory Collins

FOR MANY YEARS, ARCHITECTS HAVE USED SHEETROCK IN AMERICA'S FINEST HOMES. TODAY THERE IS EVEN MORE REASON FOR THIS NATION-WIDE ACCEPTANCE — — THE NEW LAMINATED SHEETROCK WALLBOARD, A DOUBLE WALL SYSTEM. TRULY, HERE IS THE ULTIMATE IN DRY-WALL CONSTRUCTION. IT OFFERS FLAT OR GRACEFULLY-CURVING WALLS AND CEILINGS THAT ARE EXTREMELY RIGID, STRONG, AND FIRE-RESISTANT. AND, IT MAKES IT POSSIBLE TO BUILD AND DECORATE THEM IN DAYS INSTEAD OF WEEKS! WRITE FOR DETAILS, CHICAGO, 6.



## SHEETROCK

T.M. REG. U.S. PAT. OFF.

THE FIREPROOF GYPSUM WALLBOARD



## United States Gypsum

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint

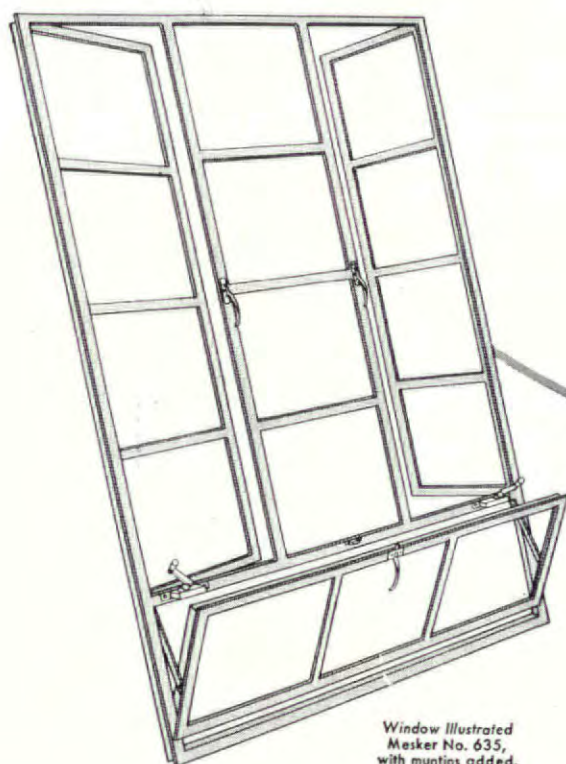


# Mesker Steel Windows



BOYS' DORMITORY  
STATE TEACHERS COLLEGE  
LIVINGSTON, ALABAMA

Architect  
Raymond Sizemore, Montgomery, Ala.  
General Contractor  
Jones & Hardy, Montevallo, Ala.  
Mesker Sales Engineers  
Lenray Glass & Materials Co., Meridian, Miss.



Window Illustrated  
Mesker No. 635,  
with muntins added.

Controlled, draftless ventilation . . . a flood of natural light . . . pleasing architectural effects . . . low initial cost, potentially low maintenance . . . these are a few reasons why Mesker Steel Windows are the choice of so many architects today. No matter what your requirements, Mesker can meet them—capably, promptly, at a competitive price. Next time you face a window problem, consult your Mesker Sales Engineer. He's worked on jobs similar to yours and may prove of real help in suggesting savings that actually *enhance* the design and quality of your finished job!

## MESKER INTERMEDIATE COMBINATION WINDOWS

These popular steel windows have been installed in some of the country's leading schools, banks, factory offices, stores and public buildings. Members 1 $\frac{3}{4}$ " deep are extra heavy, extra strong. Available with and without hopper ventilators in a wide range of heights and widths. See the Mesker Catalog in Sweet's, or write for detailed data sheets.

MESKER BROTHERS, METAL WINDOWS • 4336 GERALDINE AVENUE • ST. LOUIS 15, MISSOURI





## GLEN OAKS VILLAGE

(Initial Group)

### ... 576 families kept comfortable with **B & G Hydro-Flo HEATING**

Here is a striking example of modern, large-scale housing. Glen Oaks Village, at 149th Street and Union Turnpike, Queens, New York, houses 576 families and is the forerunner of an even larger development.

The heating system is a B & G Hydro-Flo System with single main piping equipped with B & G Monoflo Fittings. 24-hour circulation is provided by *quiet operating* B & G Universal Pumps, controlled by indoor-outdoor bulbs. Sixteen boilers, located in eight boiler rooms are required to handle the 95,000 sq. ft. of cast iron, free-standing radiation.

Hot water for domestic use is furnished by B & G Unitem Heaters in semi-tankless type installations, equipped with bronze-bodied B & G Boosters to assure temperature control and proper circulation of hot water to the fixtures.

#### Equipped throughout with B & G Hydro-Flo Products

The following B & G Hydro-Flo products were required to make the heating installation in Glen Oaks Village:

**35 Universal Pumps • 2850 Monoflo Fittings • 32 Compression Tanks • 32 Airtrol Tank Fittings • 8 Airtrol Boiler Fittings • 16 No. 12 Reducing Valves • 16 Relief Valves • 80 Automatic Air Vents • 14 Bronze-bodied Boosters • 28 Flo-Control Valves • 32 Unitem Water Heaters.**



# BELL & GOSSETT

Dept. AZ-10, Morton Grove, Ill.

\*Reg. U. S. Pat. Off.

**Builders:**  
Gross Morton, Jamaica, N. Y.  
**Architect:**  
Benjamin Braunstein, Jamaica, N. Y.  
**Engineer:**  
Wm. H. Dusenbury, New York City  
**Plumbing & Heating Contractor:**  
Louis Light, Rosedale, N. Y.





## LETTERS

# a new Universal-Rundle recipe

TO HELP YOU VISUALIZE  
UNIVERSAL-RUNDLE FOR CLIENT HOMES



● Use this sparkling, four-color booklet to assist clients in selecting their appointments. The presentation leads customers step by step to choices of Universal-Rundle fixtures for bathrooms, lavatories, powder rooms, and basements. Sinks and laundry plumbing equipment, too, are staged to suggest ideas for the kitchen.

Universal-Rundle promotional materials, backed by traditionally fine products, are designed to aid Architects, Builders and Contractors to make time-saving presentations and easy acceptance.

Mail the attached coupon today.



*Fine Bathroom Fixtures  
and Kitchen Equipment*

UNIVERSAL-RUNDLE CORPORATION  
NEW CASTLE, PENNSYLVANIA

PLANTS IN New Castle, Pa.; Camden, N. J.; Milwaukee, Wis.; Redlands, Calif.

UNIVERSAL-RUNDLE CORPORATION  
NEW CASTLE, PENNSYLVANIA

Please send me a copy of your new booklet 249-C

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_  
Firm \_\_\_\_\_

Does Levitt offer four sizes of houses in one development?

Does the Levitt house have the best in contemporary design?

Does the Levitt community provide builder paid-for schools, churches and movie theaters in addition to a shopping center?—Ed.

### CAPE COD KUDOS

Forum:

How refreshing to read your Design Analysis of the Cape Cod Cottage

If today we would only follow the same procedure, the products surely would not be Cape Cod or the "Cocktail Museum" type.

Why do we have to get so complicated in designing living space for a family? If architects would only let the old forms die naturally and if others could only profit by what gave those forms life—then I believe we would be making progress.

Of this I am very sure—the forms that will live will be as self evident as the Cape Cod box.

PAUL d'ENTREMONT, Architect  
Feasterville, Pa.

Forum:

We are very enthusiastic about the two articles on the Cape Cod House . . . These would make good reading for many of our students here at Northwestern. Is there any way we can obtain reprints of these articles?

THOMAS M. FOLDS, Chairman  
Department of Art  
Northwestern University  
Evanston, Ill.

Forum:

We would very much appreciate your permission to distribute to State Department missions in continental Europe, Latin America, the Middle East, the Far East, and Africa; also to Germany, Austria, Trieste, Japan and Korea "The Cape Cod Cottage."

ROYCE MOCH  
Chief, Magazine Liaison Section  
U. S. Department of State  
New York, N. Y.

### ALLEN'S ALLEY

Forum:

A very pleasant and intelligent young man from your research department bought my lunch the other day and asked me to fill him in on the building picture in Grand Rapids. Will you kindly tell him I forgot one valuable hint. I had proposed to say, impressively, "The progress of domestic architecture in the U. S.: from few windows to view windows."

(Continued on page 36)

LOW-COST  
**RADIANT PANEL  
HEATING**  
IS HERE!



**B & G  
WARM-AIRE  
HEATING**

Sensationally different! A new development in Radiant Panel Heating using forced circulation hot water . . . priced for universal application.

**WATCH FOR  
ANNOUNCEMENT**

**BELL & GOSSETT COMPANY**  
Morton Grove, Illinois



Plywood fortified with

**Kimpreg**  
REG. U.S. PAT. OFF.  
PLASTIC SURFACING

Ideal for concrete forms.  
Excellent for many general  
industrial and residential  
building uses.

Write for free booklet and names of  
plywood manufacturers who can supply  
Kimpreg surfaced plywood.

**Kimberly-Clark Corporation**  
Plastics Division • Neenah, Wis.





Model Number  
NHC-480-F

*Leader*  
**LEADS AGAIN!**

*No Increase  
in Surface Brightness!*

*Lower  
Maintenance Cost!*

*It Lasts  
Longer!*

*New!  
Revolutionary!*

*Greater  
Economy!*

*Terrific!*

*Leader*  
**New Horizon**  
75 Watt - 425 Milliamperes

The louvered type fixtures, as illustrated above, feature molded plastic louvers and plastic side panels. The plastic has been de-staticized to prevent electrostatic attraction, and will not warp or discolor. The New Horizon model is available in 2-lamp style, NHC-280-F; 3-lamp style, NHC-380-F; and 4-lamp style, NHC-480-F. The open-type fixture comes in 2-lamp style, NHO-280-F; 3-lamp style, NHO-380-F; and 4-lamp style NHO-480-F.

● Now LEADER engineers offer the NEW HORIZON Fluorescent Fixture jam-packed with light—brilliance without precedent! . . . Larger diameter lamps, of 425 milliamperes, achieve a new high in intense illumination without any increase in surface brilliance.

When you seek the best in fixtures—choose LEADER . . . When you want the latest in lighting progress—choose LEADER . . . When you are looking for the most for your dollars—choose LEADER! LEADER Fluorescent Fixtures—sold and installed only by the better electrical wholesalers and contractors.

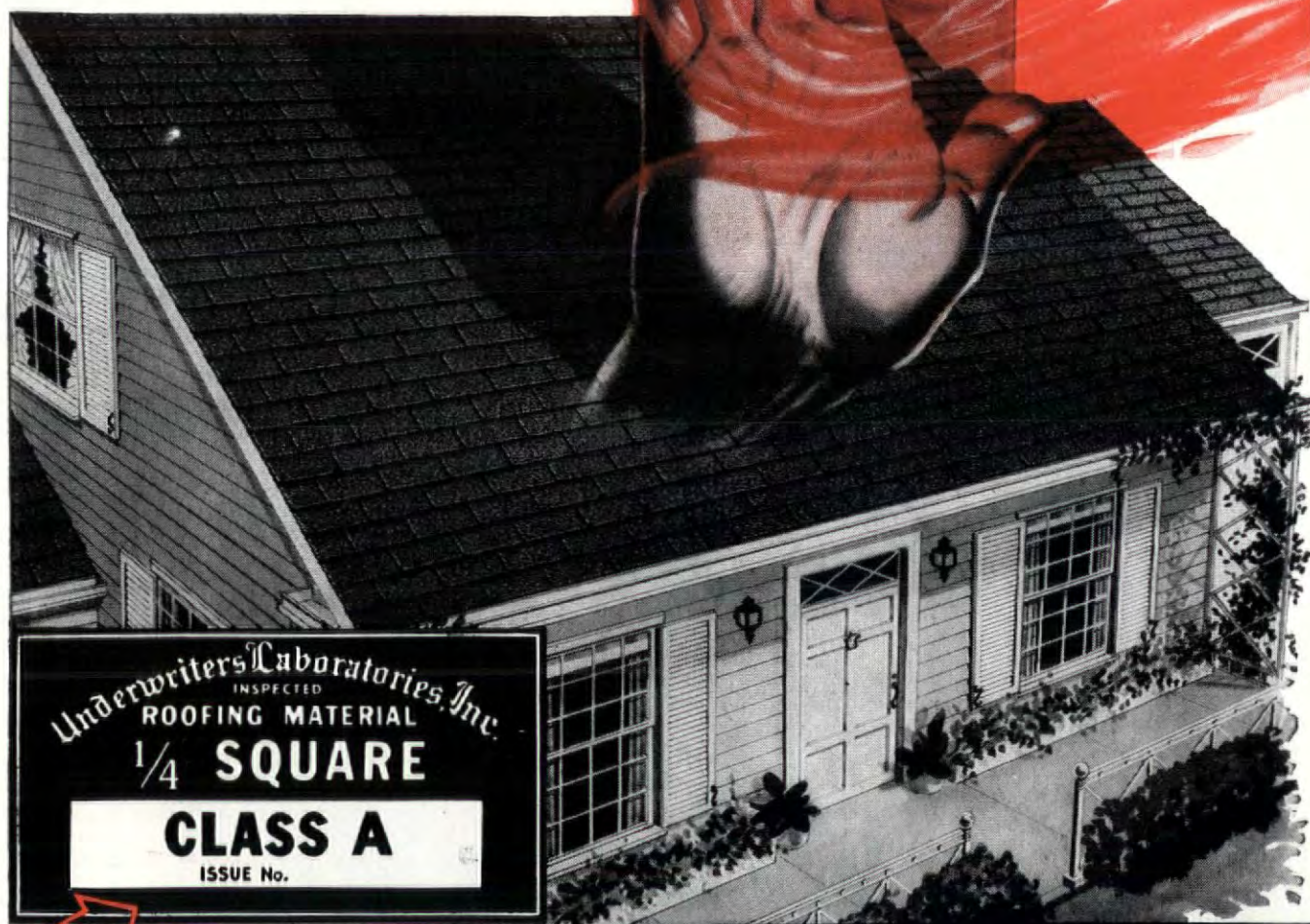


Send for mechanical details—today!

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WEST COAST FACTORY • 2040 LIVINGSTON • OAKLAND 6, CALIFORNIA



# NOW! An asphalt shingle with **FIRE-CHEX**



Underwriters Laboratories, Inc.  
INSPECTED  
ROOFING MATERIAL  
**1/4 SQUARE**  
**CLASS A**  
ISSUE No.

THIS LABEL HAS  
***Selling Power***

**Be sure it is on the  
shingles you sell!**

## **SPECIFICATIONS**

12" x 36" • Square Butt 3 Tab • 2" Headlap  
5" Exposure • Weight 325# per Square; 80 Shingles  
per Square—4 Bundles • Colors Available; Blue-  
Black and Chocolate Brown—Blends Available Shortly



# highest fire-protective rating! **BY CAREY!**

Carey FIRE-CHEX First and Only Asphalt Shingle  
ever awarded Underwriters' Laboratories, Inc.

Highest fire-protective rating — "Class A"!

**Y**OU'LL be seeing a lot of FIRE-CHEX on homes everywhere. And for good reasons. FIRE-CHEX, made only by Carey, offer fire-resistance, beauty and durability never before available in any asphalt composition shingle. For dealers, FIRE-CHEX mean easier selling, better profits, greater customer satisfaction. For architects and builders, a material of greater permanence and "eye appealing" beauty. For owners, priceless fire-protection for families and investments—as well as fresh new beauty and housetime durability.

## NEW COLOR-STYLED BEAUTY



Carey FIRE-CHEX are *color-styled* to blend harmoniously with any architectural plan. They are at home with modern or classical designs; come in a wide variety of pleasing colors and blends that are the last word in smartness and beauty. And an exclusive new manufacturing process, developed by Carey, gives these superb new shingles the desirable "deep shadow line" and thick appearance of costlier slate or tile—at a fraction of their cost.



## ACCLAIMED BY FIRE PREVENTION OFFICIALS

Yes—fire prevention officials cheer Carey FIRE-CHEX! And no wonder! Many residential fires start when flying embers ignite the roof. *But even a four-pound flaming brand can't burn through Carey FIRE-CHEX Shingles!* No other asphalt shingle gives this amazing protection. That's why Carey FIRE-CHEX can be used even in areas requiring a rigid "Class A" fire-protective rating.

## SEE AMAZING NEW FIRE-CHEX SHINGLES AT YOUR CAREY DEALER'S!

Get an eyeful of their fresh, new, lasting colors and extra overall-thick construction. See them at your Carey Dealer's today—or write direct to Carey for full information. Address:

Dept. AF5B, The Philip Carey Manufacturing Co.,  
Cincinnati 15, Ohio.

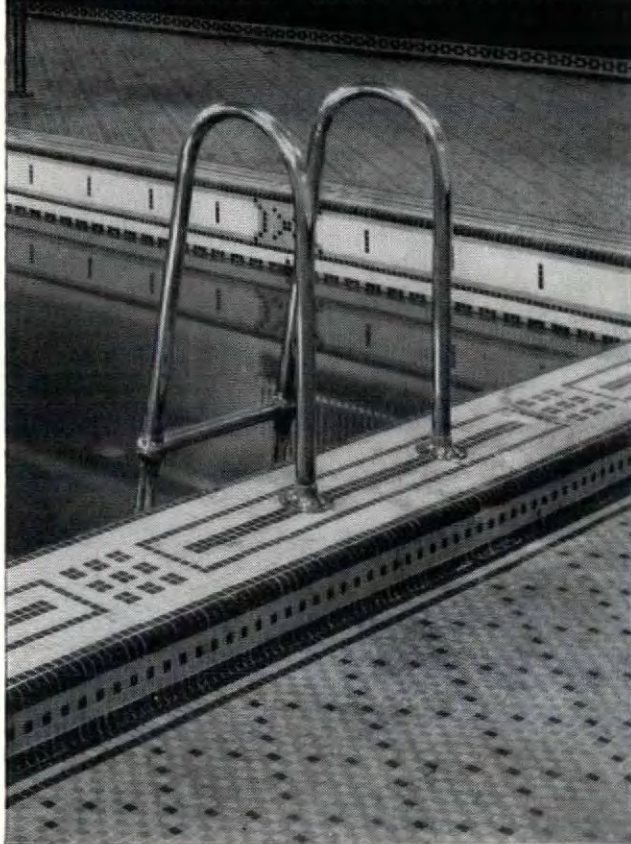
# Carey

# Fire-Chex Shingles



## LETTERS

### Where Attractiveness Combines with SAFETY



**A**ROUND this swimming pool an important safety factor has been added to the attractiveness of mosaic by the use of Alundum ceramic mosaic tile. This tile guarantees positive, permanent non-slip protection, *even when wet*. Because of the comprehensive selection of shapes, sizes and colors, it is adaptable to a wide variety of designs and color combinations.

Other applications include: entrance vestibules; lobbies, corridors; showers, lavatories, washrooms; soda fountains and restaurants where wet floors are a hazard.

See our Catalog in Sweet's

NORTON COMPANY, Worcester 6, Mass.



This happens to be a quote from my forthcoming volume, *Witty Retorts and Humorous Apophthegms Current During the Administration of Rutherford B. Hayes*. I am writing this to while away my old age, which set in last Tuesday.

Frankly, it was the fact that I am writing this book that induced me to break my silence. It has been a long time since I wrote a letter to the FORUM. You never had it so good. Now that I am about to startle publishing circles with this great opus I naturally want to get you all smoothed up, so that *Time*, *Life*, *Fortune*, FORUM and the *Mears News*, in case you buy out Swift Lathers, will speak highly of my work. In fact, I would be glad to write the reviews myself if I could remember how to spell "mediocre."

It is not that I did not love the FORUM, in a nice way. It was just a kind of jungle fever; I was trapped in the Underwood. I got so the sight of a typewriter maddened me. I turned out so much copy I had to build a new house to hold the carbons.

I have just been reading that next month's *Interiors* will have a review by George Nelson of the movie version of Ayn Rand's *The Fountainhead*. In case any readers have missed seeing photos of Miss Rand, I may point out that she is no relation to Rand-McNally: different kind of map entirely. Very nice, too. It is just her books I do not care for. Last year through no fault of my own, I appeared in a Civic Players production of "The Night of January 16th," in a small but loud part, and you could have knocked me over with the casting director when I learned that this play, one of those "who killed who and what of it" clambakes, was by Ayn Rand.

What I object to in *The Fountainhead* is the theory that architects are irresistible to women. I am afraid of the effect this will have when it gets around. Not the effect on women, you understand; the effect on architects. Personally, I think the idea is full of holes; I have never noticed any large number of beautiful women taking up bricklaying so they could be near architects. I myself know a male bricklayer who is irresistible to women, because one of the women he was irresistible to came right into a job shanty and hit him in the eye while I was standing there. He was pretty put out about it; he said she had no business hitting him in the eye as she was not even his wife.

I seem to have wandered from my thesis that the progress of domestic architecture in the U. S. is from few windows to view windows. Whatever happened to that line, by the way?

ROGER ALLEN, Architect

Grand Rapids, Mich.

(Continued on page 40)

**TO KEEP OUT WATER  
—THOSE WALLS NEED  
CRYSTAL** *Silicone*  
WATER-REPELLENT



**ONE APPLICATION—  
NOT A COATING—  
IT PENETRATES**

Brick, stucco, concrete blocks, pre-cast stone is rendered lastingly water-repellent by one application of Crystal. Low cost —

Quickly flushed on with "stucco" brush or with low pressure spray. One gallon covers 100 to 200 square feet.

Send for literature suggested specifications and prices for Crystal...

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## CONVENIENCE AND ECONOMY

Saving workmen's time is today's sure way of saving money. Nesbitt Model U (universal) Convectors cut way down on the time required for the heating installation in your homes, apartments, offices and commercial buildings. Besides giving you clean, modern, uniform heat by convection . . . and a more pleasing decor.



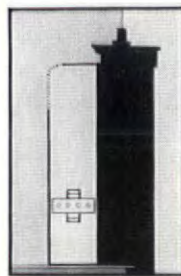
Nesbitt Model U Convectors are mass-produced to quality standards at low cost. The twenty stock sizes meet all normal needs. (Heights, 20" and 24"; lengths, 20" to 64"; capacities, 18.5 to 71 e.d.r.) Assembled; packaged; light to handle; easy to install.

The Nesbitt fin-and-tube heating element—for two-pipe steam or forced or gravity hot water—requires two simple connections which may be made without removing the element from the casing.

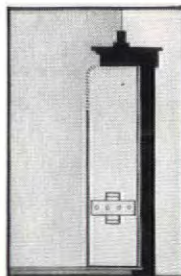
The metal cabinet—of classic design and finished in durable prime gray—may be installed free-standing or semi-recessed.

The curve-top grille is exclusive with Nesbitt. It gives more flue action, greater heating capacity. Damper supplied if desired.

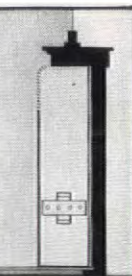
The modern home deserves better than old-fashioned radiators, in performance as well as appearance. Nesbitt Convectors match both needs. Send for Publication 252. John J. Nesbitt, Inc., State Road and Rhawn Street, Philadelphia 36, Pa.



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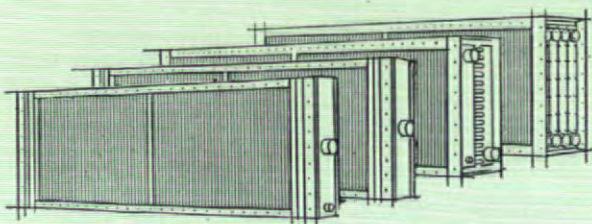
ONE CABINET



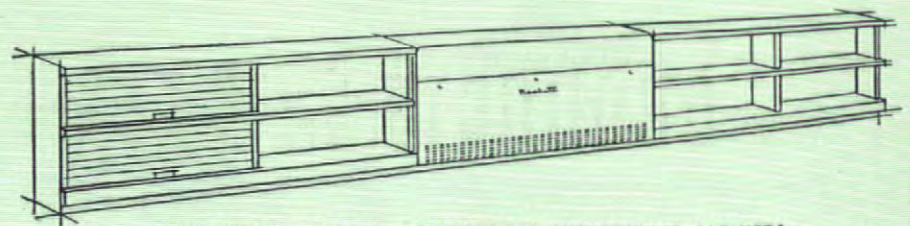
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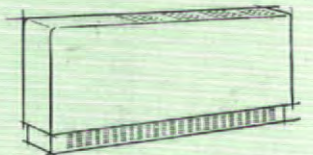


THE NESBITT PACKAGE — SYNCRETIZER AND STORAGE CABINETS

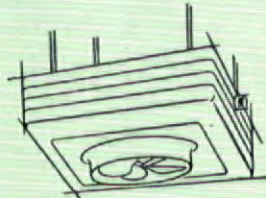
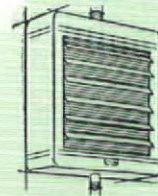
## NESBITT Convectors PACKAGED UNITS FOR MODERN HEATING BY CONVECTION—RADIATION



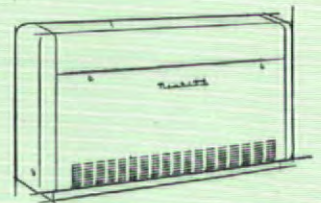
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WEBSTER-NESBITT SERIES R HEATERS



W-N STANDARD AND LITTLE GIANT UNIT HEATERS



NESBITT SYNCRETIZER UNIT VENTILATORS





## FOUND! a way to *lower* building costs!

**T**he architect and builder gave costs a double-barreled jolt in remodeling this inviting restaurant. By using rugged Masonite brand hardboards, they made significant savings in both material and labor expense. And the result is quality construction that can't fail to attract new clients to their door.

The old walls were quickly transformed with smooth, handsome Panelwood, selected expressly for this purpose. For the wainscoting, the architect utilized the exciting new Masonite Leatherwood—with the feel and appearance of finely worked Spanish-grain leather. To match the wainscoting, sturdy Leatherwood panels are used also for flush doors and booths. Strong, scuff-proof, moisture-resistant Masonite Tempered

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**MASONITE**  
  
**PRODUCTS**

STANDARD PRESWOOD  
TEMPERED PRESWOOD  
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QUARTRBOARD

*Presdwood, Temptrile, Panelwood and Quatrboard are registered trade-marks. "Masonite" signifies that Masonite Corporation is the source of the product.*

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Firm and Title

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1

## PERMANENCY

Every Raymond Concrete Pile is a permanent achievement, accomplished by a series of carefully planned steps which assure a safe subsurface support.

2

## GREATER CARRYING CAPACITY

The use of rugged equipment and heavy hammers permits driving to high carrying capacities, and the soil pressures developed during driving are fully maintained.

3

## UNIFORM BEARING CAPACITY

Regardless of variations in subsoil conditions, Raymond piles can be driven to any depth required to attain uniform bearing capacity for the whole foundation.

4

## ENGINEERED FOR THE JOB

Raymond can provide the type of pile specifically adapted for your job.

5

## SAVING IN CONSTRUCTION COST

Raymond's long experience on all kinds of jobs, the ready availability of equipment and the relatively shorter lengths of Raymond piles compared to some types, assure genuine economy in foundation costs.

6

## COMPLETE SATISFACTION

By the satisfactory completion of over 14,000 contracts, involving more than 50 million feet of piling, Raymond has established a world-wide record of achievement.

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PILE CO.

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### THE SCOPE OF RAYMOND'S ACTIVITIES

Includes every recognized type of pile foundation—concrete, composite, precast, steel, pipe and wood. Also caissons, underpinning, construction involving shore protection, shipbuilding facilities, harbor and river improvements and borings for soil investigation.



## LETTERS

**WASCO**  
*Does It Again!*



### The House in The Museum Garden

designed by Marcel Breuer, represents the latest advancement in low cost housing for middle-income families. Only those materials giving maximum performance at a minimum cost were used in the construction of this durable, economical house. That Wasco Copper-Fabric Flashing was used is indicative of its ability to do a thorough job at a saving far greater than that of similar flashings.

Here's a proven way, then, for you to keep construction costs *down* and workmanship *up*. Specify Wasco Copper-Fabric Flashing.

See Sweets 8d6. Write for file folder and sample.

**WASCO** COPPER-FABRIC FLASHING

**WASCO FLASHING COMPANY**  
Cambridge, Massachusetts

### MARKETS IN THE MEADOWS

Forum:

You deserve much credit for the splendid presentation, "Markets in the Meadows," (Mar. '49, p. 114). This issue should prove very popular due to the broadening interest in suburban shopping centers.

DAVID D. BOHANNON  
Community Developer

San Mateo, Calif.

Forum:

... I have taken the liberty of mentioning this article in my talk in Oklahoma City before the National Citizens' Conference on Community Planning.

KENNETH C. WELCH, Architect  
Grand Rapids, Mich.

Forum:

... A well done piece of work. Our Community Builders Council has given a tremendous amount of thoughtful consideration to this new method of doing retail business. We feel that it is surrounded with pitfalls for the unwary, and that the greatest care should be exercised in connection with these developments. They can be eminent successes or tragic failures, depending not on chance but on the degree of knowledge coming from experience that is applied to them at the time of their initiation.

WALTER S. SCHMIDT, Builder  
Cincinnati, Ohio

Forum:

Your article on shopping centers is very interesting. But one of the most interesting in the country was missed and that is the Town & Country Shopping Center, Sacramento, Calif. Jere Strizek is the developer and he built a 60-shop center in the middle of an unpopulated area, using old telephone poles and old timbers from mines to secure as interesting a group of California ranch type stores as there is in California. It has been very successful financially, and architecturally it is very interesting and colorful, largely due to Strizek's wife, who is an interior decorator. I found a lot to learn in looking the project over when I was in California ten days ago.

SEWARD H. MOTT, Executive Director  
The Urban Land Institute  
Washington, D. C.

Forum:

I notice a photograph of the recessed store front in the village center at Dallas, Texas (FORUM, p. 117).

This building was designed and erected by the Wm. G. Farrington Co. for my brother, J. Edward Farrington, Owner, and  
(Continued on page 44)

*Automatic*  
**REZNOR**  
*gas fired unit heaters*



### ENJOY A REZNOR THIS SUMMER

Fan circulation for hot days and gas heat any day. You get both by installing Reznor heaters now—it's easy. Avoid disappointment and delays which accompany fall orders. More Reznors in use than any other. Catalog U-45 shows special features... write today.

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ALUMINIZED STEEL INTERIOR UNIT

**REZNOR MANUFACTURING CO.**

20 UNION ST. • MERCER, PENNA.  
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# Despite today's high cost of labor AIR FILTERING COSTS HAVE COME

# DOWN!

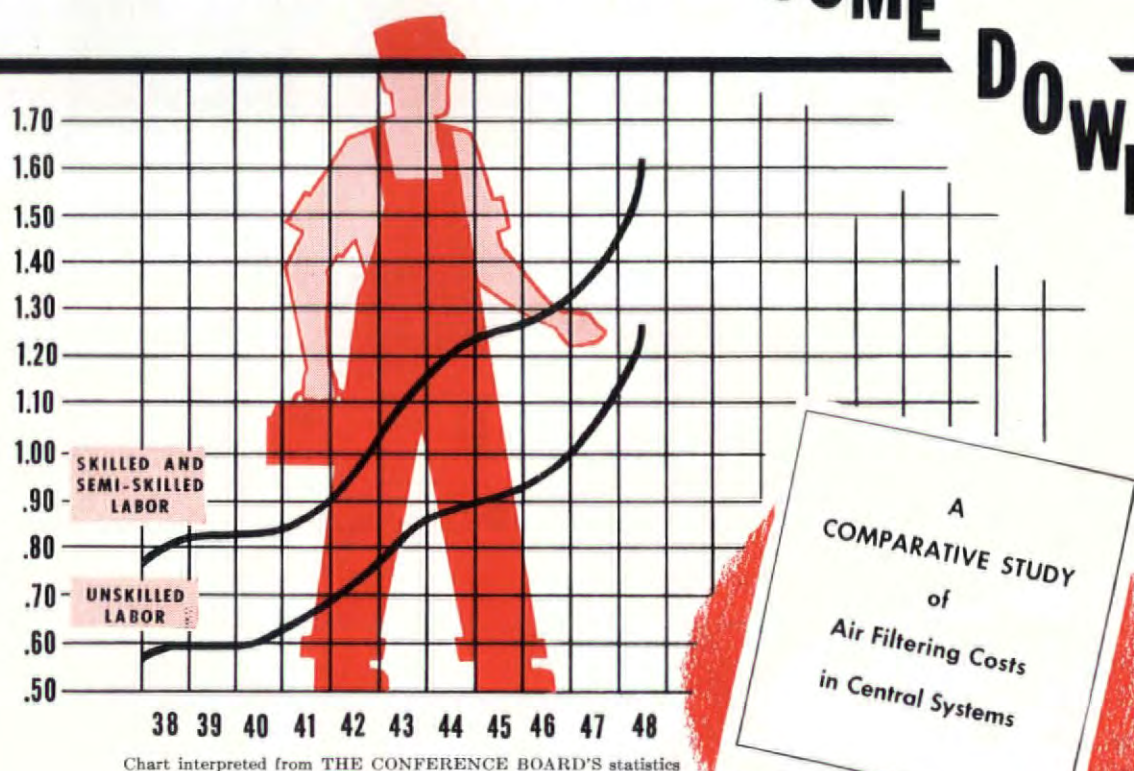
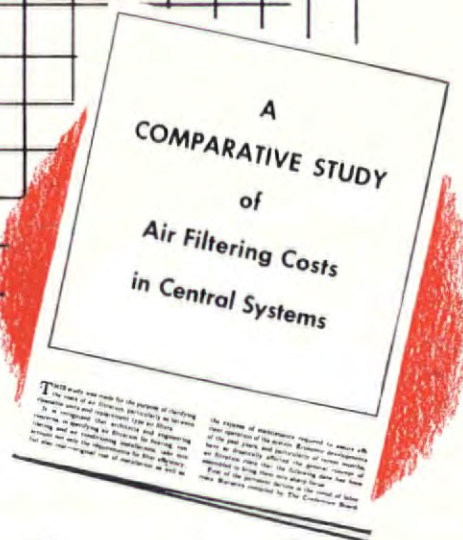


Chart interpreted from THE CONFERENCE BOARD'S statistics

With construction and maintenance costs at high levels, it's important that every practical economy be effected in planning new projects—such savings as are possible in air filtering systems.

Efficient DUST-STOP\* Replacement-Type Filters save money two ways. Installed at a fraction of the price of most comparable systems, they also eliminate costly maintenance operations. No manual cleaning and reoiling! No need for expensive equipment!

The cost of using DUST-STOP Filters, themselves, has come down, too. Wide use of 1" filters has cut central system filtering costs. The rotation-replacement plan, using two or four 1" filters per cell, has further slashed maintenance bills.



## Prove the Facts YOURSELF

Write for your FREE copy of "A COMPARATIVE STUDY OF AIR FILTERING COSTS"

This study gives you the facts and provides a work sheet on which to insert your own figures. In a few minutes, you can prove for yourself which type of air filter is most economical for any central system. Write Owens-Corning Fiberglas Corporation, Dept. 830, Toledo 1, Ohio. In Canada, Fiberglas Canada Ltd., Toronto, Ontario. Cable address: "FIBERGLAS" Toledo, Ohio, U.S.A.

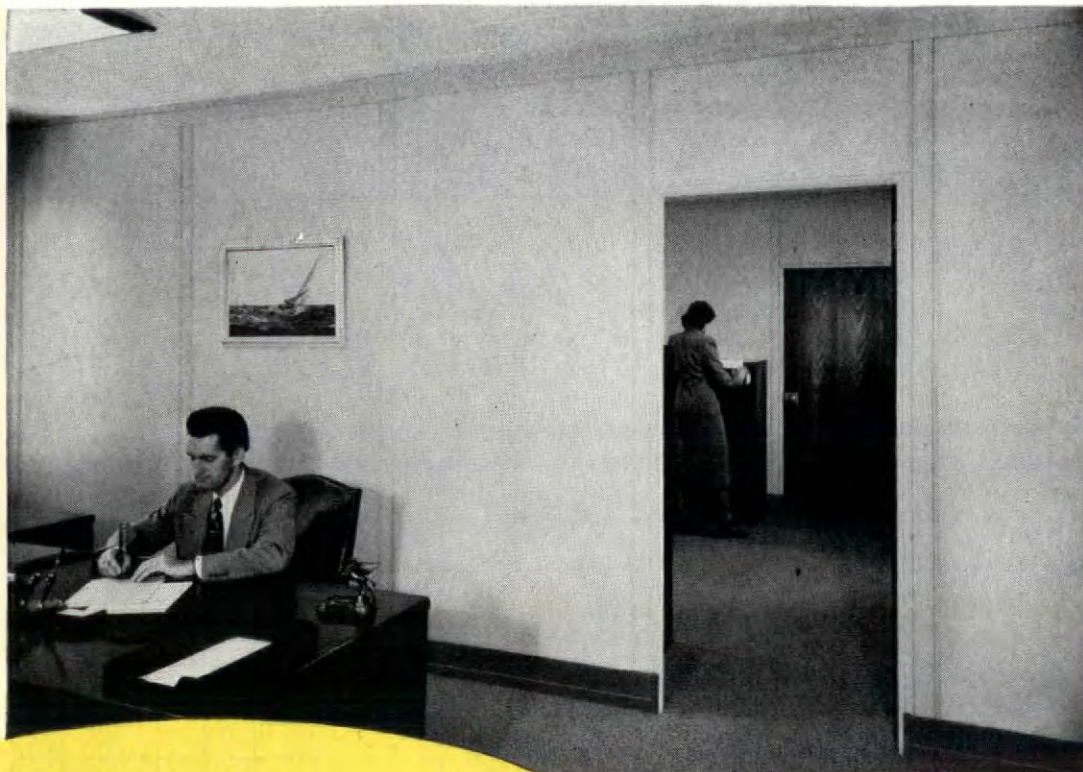
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## AIR FILTERS —a Fiberglas\* product





*Hauserman Movable Steel Walls are used throughout new General Petroleum Building, Los Angeles.*

## *Another* **HAUSERMAN** **Movable Steel Interior... another Quiet Building!**



*Receptionist's Enclosure by Hauserman in the new General Petroleum Building, Los Angeles.*

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**Specialists in Service . . .** We assume undivided responsibility for complete interiors . . . shop drawings, building measurements and installation. We supply all products complete with hardware, wiring raceways and all accessories. Our experienced erection crews are on call for alterations and additions. Our engineers are always at your service.



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Superior sound control is another one of the many advantages of Hauserman *Movable Steel Interiors*. They assure welcome quietness to you and your employees . . . welcome quietness that speeds work and reduces errors. Hauserman *Movable Steel Interiors* minimize noises caused by clattering machines, jangling telephones and other sounds that interrupt work.

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There are many reasons why Hauserman *Movable Steel Interiors* are used in the smaller as well as the larger buildings all over America. Among these advantages are: Rock-bottom Maintenance Costs—60 Beautiful Colors and Authentic Wood Grain Reproductions—Rigid Construction—Earlier Occupancy—Incombustible Materials—Ease of Adding Wires and Outlets—Ease of Servicing Utilities—Superior Sound Control—Easy to Move. Let us help you with your interior wall and ceiling problems.

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## **MOVABLE STEEL INTERIORS**

**WALLS • WAINSCOT • RAILINGS**  
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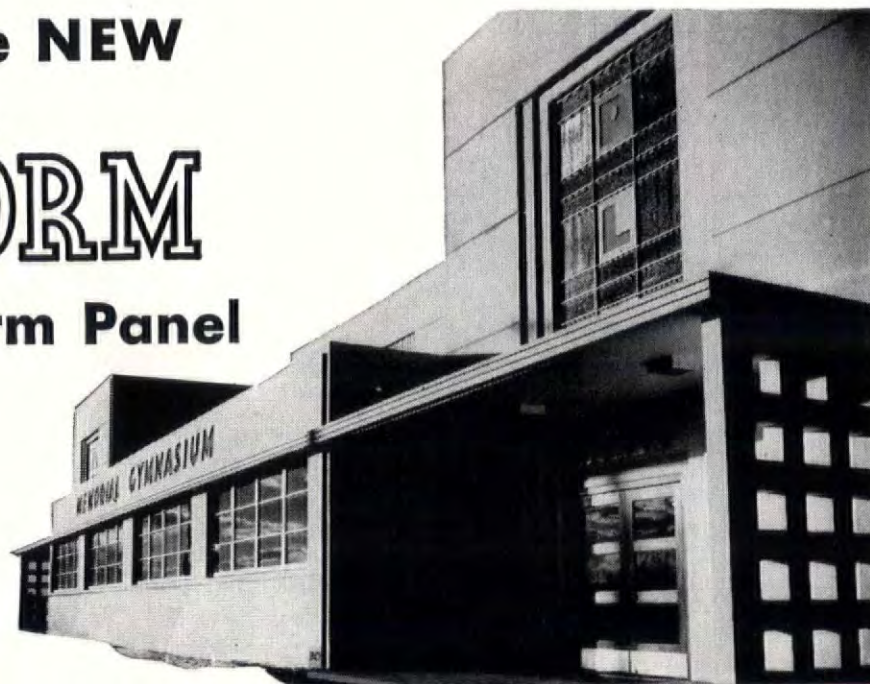
*For every commercial, industrial and institutional need*



# Specify the NEW

# PLYFORM

## Concrete Form Panel



## ... for Smooth, Fin-Free Concrete Surfaces

\*The highly moisture-resistant (but not waterproof) glues used in PlyForm permit multiple re-use of panels (as many as 10 to 15 are not unusual). For the greatest possible panel re-use, however, specify Exterior-type Concrete Form grade of Douglas fir plywood—bonded with completely waterproof phenolic resin adhesive. For special architectural concrete, requiring the highest possible finish, the architect or contractor may specify Exterior-type or Interior-type Douglas fir plywood in grades having "A" (Sound) face veneer—or one of the new plastic-surfaced panels.

**PLYFORM**—the multiple re-use concrete form panel of Douglas fir plywood—is now manufactured in strict accordance with the new grade specifications set forth in U. S. Commercial Standard CS45-48. Both faces are of B (Solid) veneer—smooth and firm, meeting virtually all concrete requirements.\*

### Outstanding advantages offered by the NEW PlyForm include:

- PlyForm forms may be re-used again and again; they're more economical.
- PlyForm produces smooth surfaces, reducing finishing time and cost.
- PlyForm panels are strong, rigid—yet light and easy to handle.
- PlyForm's large panel size covers quickly, economically.
- PlyForm forms are puncture-proof, water and mortar tight.
- PlyForm offers superior nail-holding qualities.
- PlyForm is easy to work by hand or with power tools.
- PlyForm provides form sheathing and lining in one material.\*



### BOOKLETS FOR YOU!

Two booklets: "The New PlyForm" and "Concrete Forms of Douglas Fir Plywood" are now available. They will help you gain the full advantages offered by Douglas fir plywood concrete form panels. Write the Douglas Fir Plywood Association office nearest you: Tacoma Building, Tacoma 2, Washington; 1232 Shoreham Building, Washington 5, D. C.; 848 Daily News Building, Chicago 6; The 500 Fifth Avenue Building, New York City 18.

## Douglas Fir

## PLYWOOD

LARGE,  
LIGHT,  
STRONG

*Real Wood*  
**Panels**





## LETTERS



BY **TOCH**

**R.I.W.**  
SINCE 1848

**DAMPPROOFING**  
**WATERPROOFING**  
**FLOOR TREATMENTS**  
**PROTECTIVE COATINGS**  
**TECHNICAL PAINTS**

For over a century R.I.W. protective products have met the exacting requirements of leading architects, builders and contractors. Wherever you go, you will find world-famous buildings that stand protected against the wear of time and weather by R.I.W. When specifying or ordering, remember the name R.I.W., made by Toch Bros.

\*Toch City is a composite of many well-known buildings throughout the country that have been protected through the years by Toch Bros.' R.I.W. products.

**TOCH BROTHERS, INC.**  
NEW YORK CHICAGO

is situated in the Village Center, *Houston*. I regret the error but to give Dallas credit, the mistake is unforgivable.

I am pleased, however, that the building merits attention by FORUM . . .

WM. G. FARRINGTON, Builder  
*Houston, Tex.*

• FORUM hastens to apologize for raising the hackles of home-proud Texans—Ed.

### BRIDGE BEAT

Forum:

"The first all-aluminum bridge in the world . . ." (FORUM, Jan. '49, p. 16).

I have pleasure in enclosing herewith a cutting from the *Architect's Journal* published December 2nd, 1948 in England

*British Information Service*



giving details of an all-aluminum bridge at Sunderland, England.

MARCELLE P. HALKYARD, A.R.I.B.A.  
*Long Beach, Calif.*

### ART TOWARD PAINTING

Forum:

On p. 178 of the March issue you refer to our book as *Art Toward Architecture* by Henry-Russell Hitchcock. The name of this book is *Painting Toward Architecture* . . .

H. L. HARRISON  
The Miller Co.

*Meriden, Conn.*

### MATHSSON UNLIMITED

Forum:

We wish to amend the information given in the March FORUM that Bonniers is at present the only U. S. agent for Mathsson furniture. Baldwin Kingrey celebrated its first shipment of Mathsson furniture February 1st, in its Chicago store at an opening at which the designer himself demonstrated his 7½ in. extension table . . .

KITTY BALDWIN WEESE

*Chicago, Ill.*

Forum:

For eight years I have pioneered for contemporary design . . . For many years I have imported Bruno Mathsson. We have

(Continued on page 48)

## How to Capture the Weathered Charm of Old New England



Architect: R. H. Dana, New Rochelle, N. Y.

**Cabot's** weathering brown and gray Creosote Stains produce the charming appearance of old New England houses, within six months after application! These stains penetrate deeply, bring out all the natural beauty of the wood . . . give a mellow weather-beaten effect after a short exposure to the elements!

**WRITE TODAY** for color card and complete information!

Besides weathering grays and browns, Cabot's Stains come in a variety of brilliant hues which maintain their true color, even after long exposure. Cabot's Creosote Stains are inexpensive . . . cost only *one-third* as much as good paint!

**SAMUEL CABOT, INC.**  
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**CABOT'S**  
**CREOSOTE STAINS**



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*Speed Memorial Church, Speed,  
Indiana  
Architects: Nevlin, Wischmeyer  
and Morgan  
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poration  
Brixment used exclusively for ex-  
terior stucco and interior plaster.*

**T**his beautiful little church was stuccoed and plastered with *Brixment* — in 1924!

Today, 25 years later, the *Brixment* plaster and stucco are still in perfect condition.

*Brixment* has just as many advantages for *stucco and plaster* as for *masonry*. It works smoother and easier, has a more convenient hardening time, resists moisture and weathering. Since the great plasticity of *Brixment*

permits leaner mixes, it eliminates or greatly reduces hair-checking and crazing. It is mixed and applied like Portland-cement stucco *except that no lime is required.*

If you are one of the thousands who know and prefer *Brixment* for *masonry*, we enthusiastically recommend *Brixment* to you, for *stucco and plaster*. Ask your dealer, or write us direct, for a copy of the handbook, "*Brixment for Stucco and Plaster.*"

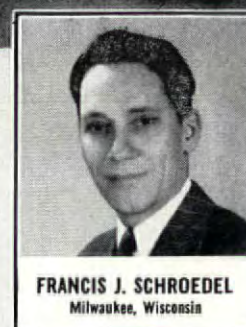
**LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY**





*Builder Francis J. Schroedel Says...*

**"HOTPOINT All-Electric Kitchens**  
*are my best insurance against 'for rent' signs!"*



FRANCIS J. SCHROEDEL  
Milwaukee, Wisconsin



"SURE, tenants are easy to get today," says Francis J. Schroedel, prominent Milwaukee, Wisconsin builder and apartment house owner. "But will they be tomorrow?"

TO ASSURE FUTURE DEMAND for his beautiful new Estabrook Estates, Mr. Schroedel is equipping each of its 200 apartments with a complete Hotpoint All-Electric Kitchen. For average rents of approximately \$100 a month, future residents will enjoy the advantages of a Hotpoint Automatic Electric Dishwasher, Hotpoint Electric Disposall® Unit, full-size

Hotpoint Automatic Range, brilliant Hotpoint Refrigerator and matching Hotpoint wall and base cabinets.

**BUILDERS AND ARCHITECTS** interested in making new homes most attractive to today's value-wise buyers are likewise taking advantage of the extra sales appeal of Hotpoint All-Electric Kitchens. Why not investigate this profit-making opportunity now? See your Hotpoint distributor or dealer... or write to Hotpoint Inc. (A General Electric Affiliate) 5600 West Taylor Street, Chicago 44, Illinois.

Everybody's Pointing To

# Hotpoint

PIONEER OF THE  
ALL-ELECTRIC KITCHEN

RANGES • REFRIGERATORS • WATER HEATERS • FREEZERS • DISHWASHERS • DISPOSALLS® • CLOTHES WASHERS • DRYERS • IRONERS • CABINETS & SINKS





## Your clients will appreciate this counsel

• Unless they're counselled wisely, far too many home builders make a costly mistake. They overlook the ever-increasing trend toward "better electrical living." Consequently, they fail to provide for an electrical system that will handle the electrical appliances they want now—to say nothing of the ones they'll want in the future.

When you recommend adequate wiring and Multi-breaker protection, you are making sure that your clients can take full advantage of "better electrical living." There will be no overloaded circuits, no unnecessary service interruptions, no replacing of burned-out parts.

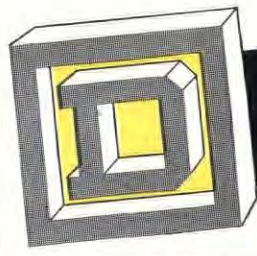
It costs them very little more to get the right electrical system at the time they build. They'll be faced with a major and costly re-wiring job, if they do it later. You'll generate a lot of client enthusiasm by giving them these down-to-earth facts.

### SQUARE D's *Coilless* Thermal- $\wedge$ Magnetic MULTI-BREAKERS

Give Complete Circuit Protection  
and Customer Satisfaction

#### ...because they

- hold harmless momentary overloads but trip on continuous overcurrents before wire insulation is damaged.
- trip quickly on "shorts" to localize damage.
- give repeat protection. No parts burn out—nothing to replace.
- are non-tamperable. Factory test-tripped and sealed.
- are safe. No live parts exposed. Anyone can operate them.
- include switching means as well as circuit protection.
- are compact. Room for expansion without excessive space.
- are attractive. Can be installed in most convenient location.



# SQUARE D COMPANY

DETROIT • MILWAUKEE • LOS ANGELES

SQUARE D COMPANY CANADA LTD., TORONTO • SQUARE D de MEXICO, S.A., MEXICO CITY, D.F.



## LETTERS

### GENEVA makes your Kitchen Planning easy!



#### QUALITY FEATURES



**INVISIBLE PROTECTION.** Double-walled door and drawer fronts enameled inside for extra protection against rust! Heavy insulation eliminates rattles.



**DRAWER SLIDE.** Exclusive Geneva design. Heavy steel channels prevent warping, sticking. Roller type interlocking slides. Long-lasting nylon rollers.



**DRAWN RADIUS EDGES.** Clean rounded edges add beauty, eliminate sharp corners, permit smooth, even flow of enamel during finishing process.



**SUPER FINISH.** Cabinets Bonderized, followed by rust-inhibiting primer, finished with a heavy coat of chip-proof, easy-to-clean, baked-on enamel.

**PLUS**—open-view wire shelves; semi-concealed hinges; coved bottom drawers; special cabinets and accessories; stainless steel sinks; welded construction.

No trick at all to give your clients the smart, work-saving kitchens they want. Simply specify Geneva Kitchens in chip-proof enameled steel. Geneva's wide range of sink and cabinet sizes makes it easy to plan a time-saving, step-saving arrangement in any size or shape space.

Sleek, simple lines, finest materials, skilled craftsmanship and lasting quality throughout. Priced to fit even modest budgets. Expert planning assistance available through Geneva distributors.

GENEVA MODERN KITCHENS, Geneva, Illinois



*Personalized Kitchens*

200 Mathsson in stock and we received the first shipment after the war, on the first boat.



#### THE NON-EXCLUSIVE CHAIR

In your March issue you say that the firm Bonniers is the first and only distributor of Mathsson in U. S. A. This is not true as we stock all Mathsson pieces and sold them long before Bonniers.

STEN JACOBSSON

Detroit, Mich.

• As Bonniers said, "Oh!"—Ed.

#### 4,000,000 MISSING HOUSES

Forum:

In FORUM for February, an article appeared on p. 12 which we feel calls for a correction. The article referred to a *Wall Street Journal* story claiming that there were 4,000,000 more habitable housing units in existence than were taken into account in the government's program and need estimates. The article also makes reference to a "suppressed census" on housing made by the Bureau of the Census in 1947 as the basis for this claim.

Both of these statements are erroneous. Government and congressional estimates of housing need have taken into account all types of housing in the existing supply. They have, as a matter of fact, been based on the very 1947 census survey which the FORUM describes as "suppressed," but which has been well known and widely used since its release a year and a half ago.

This agency, at the request of Senator Flanders, filed a statement with the Senate Banking and Currency Committee on February 3 explaining why the *Wall Street Journal* report was incorrect.

The statement points out that the *Wall Street Journal's* claimed "discovery" of 4,000,000 missing units was based on the

(Continued on page 54)

## WELBILT

first choice of builders



*Meets Specifications for Price and Quality*

## WELBILT

*Equi-Thermal*

### GAS RANGE

INSTALLED IN HUNDREDS OF LEADING DEVELOPMENTS

Glen Oaks, Bellerose, L. I., N. Y.  
Trump, Marine Park, Brooklyn, N. Y.  
N. Y. Life Ins. Co., Fresh Meadows, L. I.  
E. Texas State Teacher's Coll.  
Algernon Blair, Oglethorpe, Ga.



the features customers demand . . . full quantity, on-schedule delivery . . . priced to help hold costs down . . .



MAIL THIS NOW!

WELBILT STOVE CO., INC.

Maspeth, L. I., N. Y.

Attn.: New Building Div.

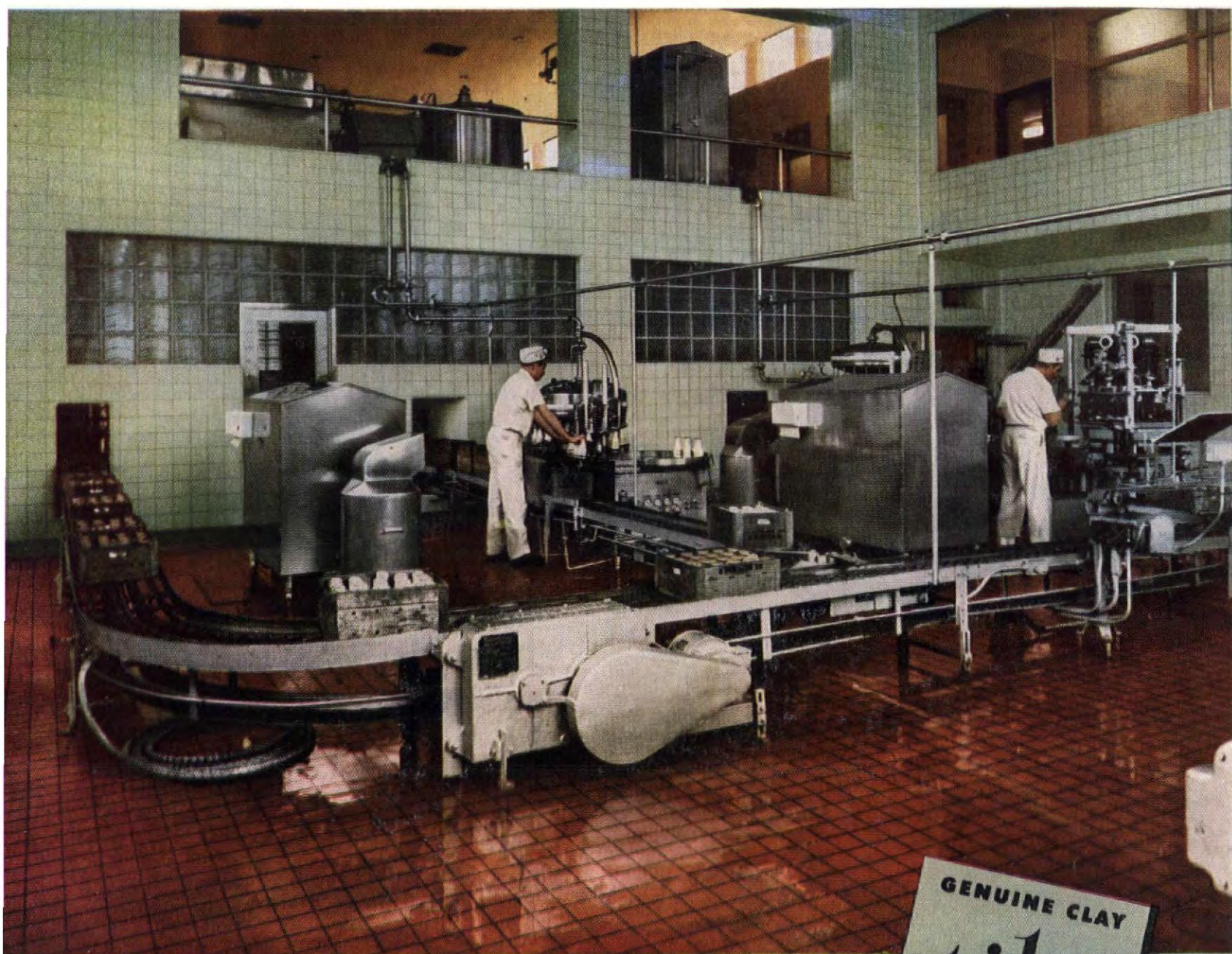
Please send me complete range specifications and the name of my nearest Welbilt representative.

Name \_\_\_\_\_

Company \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_





for top *efficiency* and cleanliness  
walls and floors are . . .



**This bottling plant**—like countless other projects—has a competitive edge today, thanks to those sparkling walls and floor of genuine clay tile.

**Walls like this** keep their fresh, spic-and-span appearance for a lifetime . . . can be cleaned and kept clean as easily as a china dish. Colors won't fade or darken because they are fired in.

**And there's never** a worry about water on a clay tile floor—it rolls off without leaving stubborn, streaky blemishes. Soaps,

acids and greases leave clay tile's finish unimpaired.

**Best of all**, clay tile eliminates painting, polishing and refinishing. With no recurring charges for maintenance or replacement, clay tile means long-range economy, lower overall costs.

For specific information regarding available types, sizes and colors, see *Sweets Architectural or A-E-C File*. THE TILE COUNCIL OF AMERICA, Room 3401: 10 East 40th Street, New York 16, New York. Room 433: 727 West Seventh Street, Los Angeles, California.

The Tile Council of America was formed in January, 1945 to provide a central source of information about floor and wall tile, and to sponsor research and development projects designed to increase the usefulness of tile in all types of private and public building.

**PARTICIPATING COMPANIES:** American Encaustic Tiling Co. • Architectural Tiling Co., Inc. • Atlantic Tile Manufacturing Co. • B. Mifflin Hood Co. • Cambridge Tile Manufacturing Co. • Carlyle Tile Co. • General Tile Corp. • Gladding, McBean & Co. • Mosaic Tile Co. • Murray Tile Co., Inc. • National Tile & Manufacturing Co. • Olean Tile Co. • Pacific Clay Products • Pacific Tile and Porcelain Co. • Pomona Tile Manufacturing Co. • Robertson Manufacturing Co. • Sparta Ceramic Co. • Summitville Face Brick Co. • United States Quarry Tile Co.

**THE MODERN STYLE IS CLAY TILE**



*Briggs*  
*presents*

A NEW  
**BRIGGS**  
VITREOUS  
*At New*

**NEW, NEW, NEW!** A complete line of *vitreous china* lavatories by Briggs to add to the already outstanding line of Briggs Beautyware plumbing fixtures and brass fittings!

**SMART, SMART, SMART!** A wide variety of fixtures and fittings to harmonize with any decorative scheme for new homes or modernization work! **DIFFERENT, DIFFERENT, DIFFERENT!**

Yes . . . full of design features you'll find in no other lavatories! **COLOR,**

**COLOR, COLOR!** Sandstone . . . sky blue . . . sea green . . . ivory. **FOUR** exciting colors, plus white, moderately priced to fit every building budget.



**The new Briggs Beautyware lavatories are:**

- 1 THE WHITTIER** (B-3210 HT), 19" x 17", shelf back, wall pattern, with chromium towel bars. Also available with chromium plated legs.
- 2 THE WHITMAN** (B-3310 HT), 20" x 18", ledge back, wall pattern, with chromium towel bars and soap depression. Also available with chromium plated legs.

- 3 THE LONGFELLOW** (B-3280 H), 22" x 14", shelf back, wall pattern, with soap depression. A great space saver due to its narrow front-to-back dimensions.
- 4 THE WHITMAN** (B-3370 H), 24" x 20", ledge back, with chromium legs and towel bars, soap depression.
- 5 THE WHITTIER** (B-3270 HT), 22" x 18", shelf back, chromium legs and towel bars, soap depression.



# LINE OF

# Beautyware CHINA LAVATORIES Low Prices!

## Points of superiority in Briggs Beautyware vitreous china lavatories:

- Ample shelf space—"beaded ends and back"—prevent side soiling.
- Double front corner concealed overflows with smooth underbowl front—no unsightly bulge—installation made easier—no cramped quarters.
- Deep anti-splash rim—non-splash with valves open.
- Deep bowl—greater water capacity.
- Special safety-wall-locking feature—"fixture cannot come off hangers".
- No-slip hexagonal towel bars—attached to lavatory, front and back.
- Special easy-fastening methods for towel bars and legs.
- Attractive fittings—hug the back—black index supply handles—quick opening valves.
- Priced right—smaller premium for color.



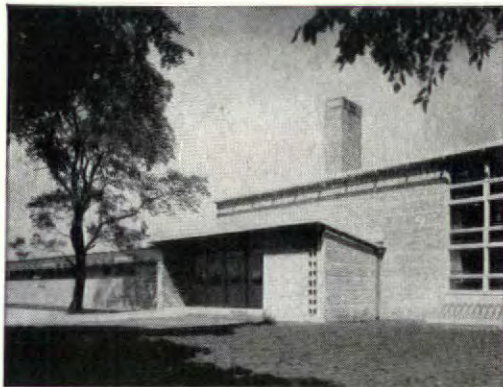
Copyright 1949, Briggs Manufacturing Co.

Write for complete details to  
BRIGGS MANUFACTURING CO.  
3023-e Miller Avenue, Detroit 11, Mich.

# BRIGGS Beautyware

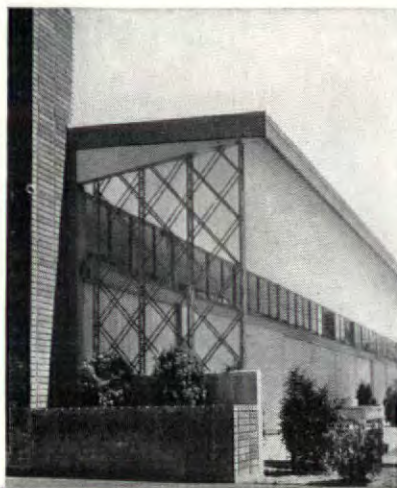


# In the first A.I.A. competition for distinguished design...



Award of Merit: Rugen Elementary School, Glenview, Ill. Architects, Perkins & Will, Chicago. Photograph, Hedrich-Blessing.

## Schools and homes of **Brick and Tile** win more than half of the merit awards



Award of Merit: Elementary School, Alascadero, Calif., Architects, Daniel, Mann & Johnson, Los Angeles. Photograph, Snyder-Bell.

You may have noticed the prominence of brick and tile among the top entries in the recent design competition sponsored by the A.I.A.

More than half of the Awards of Merit went to buildings of structural clay!

We are proud to point this out, of course. We think this success of our products is especially significant.

It shows that you can rely on brick and tile (perhaps more than on any other materials) to give you *both* the structural values and the functional beauty demanded in modern design. It promises you versatility that can translate your most imaginative ideas into buildings of outstanding merit.

To all of you award winners, who have designed just such buildings, SCPI offers its congratulations. To all of you we promise to continue our research, and to expand it, so that you will be able to build still better with brick and tile in the future.



Award of Merit: Residence, Tucson, Ariz., Architect, Arthur T. Brown, Tucson.

## award winners:

Award of Merit: General Elementary School, Texarkana, Texas. Architect, George L. Dahl, Dallas.



### FIRST HONOR AWARDS

#### FOR SCHOOLS:

Corona Del Mar, Calif. School; Architects, Marsh, Smith & Powell, Los Angeles.

#### FOR RESIDENCES:

Residence, Marin County, Calif. Architect, Frederick L. Langhorst, San Francisco.

### OTHER AWARDS OF MERIT

#### FOR RESIDENCES:

Wurster, Bernardi and Emmons, San Francisco, Calif., for a house in Carmel, Calif.  
Thornton Abell, Santa Monica, Calif., for a house in San Gabriel, Calif.

Mario Corbett, San Francisco, Calif., for his own home in Sausalito, Calif.

Francis E. Lloyd, San Francisco, Calif., for a weekend home at Carmel Valley, Calif.

Robert M. Little, Miami Beach, Fla., for a home in Fort Lauderdale, Fla.

L. Morgan Yost, Kenilworth, Illinois, for a home in Highland Park, Ill.

Carl Koch and Associates, Belmont, Mass., for a model of a prefabricated house in Concord, Mass.

#### FOR SCHOOLS:

John Lyon Reid, San Francisco, Calif., for the Fairfax, Calif., Elementary School.

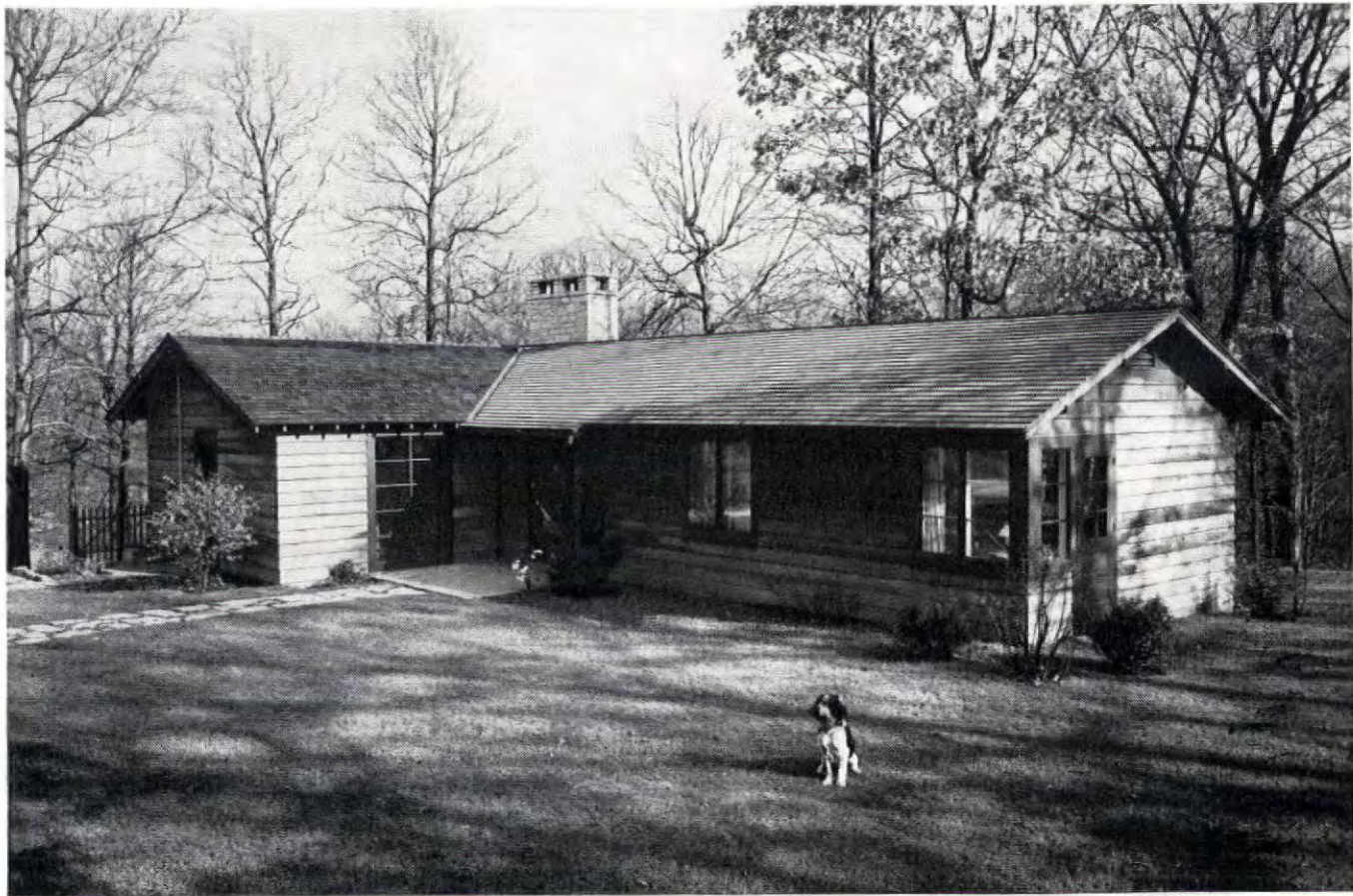
Maynard Lyndon, Los Angeles, Calif., for the Apperson Street School in Los Angeles.

O'Dell, Hewlett and Luckenbach, Detroit, Mich., for the Wing Lake School in Bloomfield Hills, Mich.

Donald Barthelme, Houston, Texas, for St. Rose of Lima School in Houston.

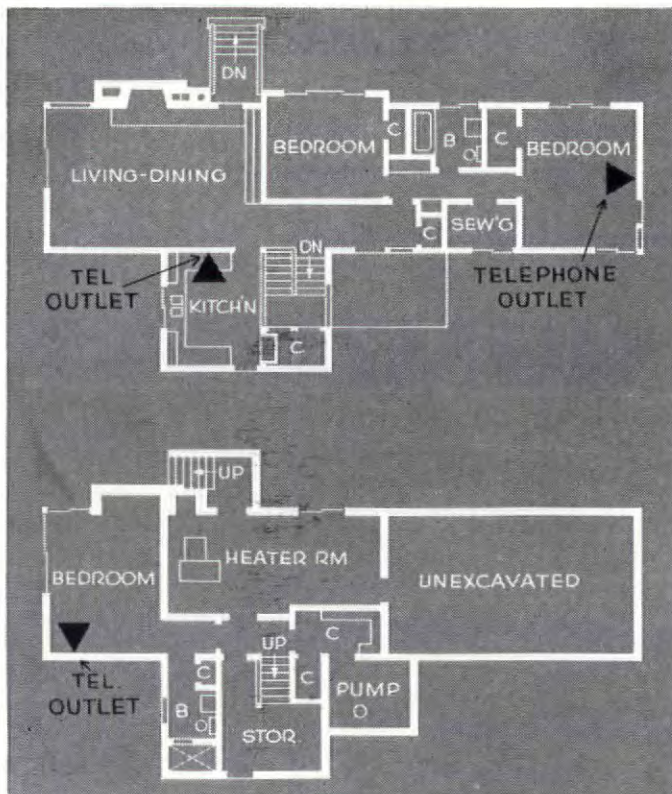
*Structural Clay Products Institute • 1756 K Street, N.W., Washington 6, D.C.*





*Perkins & Will and Edwin H. Mittelbush, Architects*

## TELEPHONE RACEWAYS FIT INTO THE SCHEME OF THINGS



Most new homes today are a blend of beauty and utility — everything in its proper place. And the proper place for telephone wires is out of sight.

It's a simple job to conceal telephone wires within walls. A few lengths of pipe or tubing, installed during construction, will keep them from being exposed on walls and woodwork. All that shows are neat telephone outlets, located where they will be most convenient for the owner.

For homes of any size, your Bell Telephone Company will be glad to help you plan modern telephone arrangements. Just call your Telephone Business Office and ask for "Architects and Builders Service."



**BELL TELEPHONE SYSTEM**



## Do You Know YOU CAN INCREASE QUALITY AND REDUCE HOUSING COSTS by specifying all three SISALKRAFT PRODUCTS

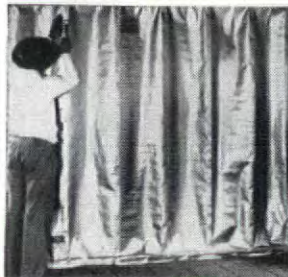
### 1. SISALKRAFT Reinforced Building Paper

SISALKRAFT is the best sheathing paper that money can buy! Costs very little more than ordinary tar paper . . . but it costs less to apply. Use SISALKRAFT for OUTER WALLS over sheathing . . . for INTERIOR WALLS, as a vapor-barrier (FHA-approved) . . . UNDER WOOD FLOORING . . . UNDER RUBBER TILE for "on-grade" floors . . . OVER SUB-FILL (under concrete slabs) . . . under radiant heated floor slabs.



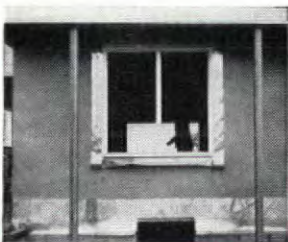
### 2. SISALATION Reinforced Reflective Insulation

At about \$25 per 1000 sq. ft., SISALATION saves 50% or more, compared with bulk or blanket-type insulation. SISALATION also costs less to apply. Provides BOTH sidewall insulation and vapor-barrier (FHA-approved). Lining attics with SISALATION makes them more livable and attractive. • SISALATION and SISALKRAFT, used together, provide modern DRY WALL construction . . . SISALATION for effective insulation and vapor-sealing from the inside . . . SISALKRAFT for weather-sealing from the outside. Highest QUALITY construction at low cost!



### 3. COPPER ARMORED SISALKRAFT

For about 75¢ per window or door opening, you can get this pure copper flashing. Highest quality, low-cost, enduring protection . . . for flashing door and window openings, foundation damp-coursing, ridge roll and other flashing, waterproofing shower stalls . . . and other concealed flashing uses.



See Sisalkraft Insert in  
Sweet's BUILDERS' File

Specify all three



products for  
quality housing  
at low cost

The SISALKRAFT Co., Dept. AF, 205 W. Wacker Dr., Chicago 6, Ill.

I am ☐ ARCHITECT ☐ CONTRACTOR ☐ OTHER  
Please send data on all three Sisalkraft products and tell me where I can buy them.

Name.....

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assumption that the 1947 Census survey was ignored and that government estimates were arrived at on the basis of 1940 Census figures, brought up to date by the use of statistics on new non-farm housing construction reported monthly by the Bureau of Labor Statistics. On this basis, the *Journal* pointed out, the estimates failed to include housing added through conversions of existing structures, through temporary units such as trailers, through farm construction, and through units brought up to standard requirements by repairs and remodeling.

The *Journal's* basic premise, however, was contrary to the fact. Estimates of housing need, both those made by the Joint Congressional Committee on Housing in its report on March 15, 1948, and the more recent estimates presented by this Agency in the hearings before the Senate Banking and Currency Committee, are derived directly from the 1947 census figures. They take fully into account the supply and condition of housing as reported in that survey, and therefore include all types of housing as well as any improvements in the condition of the housing supply.

. . . Even on this basis, we will need to provide an average of approximately 1,500,000 dwelling units, either through new construction or through conversion or remodeling of existing structures between now and 1960 if we are to meet the expanding need for new families and replace or rehabilitate units that are now substandard or will become so during that period.

RAYMOND M. FOLEY, Administrator  
Housing & Home Finance Agency

Washington, D. C.

• Emerging from a tangle of statistics put out by a variety of sources, FORUM stands corrected, looks hopefully toward a Utopian day when the Building Industry will have a single, independent source for all its vital statistics rather than its present half-dozen conflicting organizations—Ed.

### LUSH LANGUAGE

Forum:

In the article on the Beverly-Carlton Hotel (FORUM, Feb. '49, p. 105) mention is made of an "enclosed" patio. I do not believe a patio could be so called unless enclosed.

The plan shows a "lanai" room. Isn't a lanai essentially a porch or veranda open as least at one end?

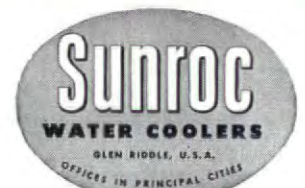
And then the dressing rooms mis-called "cabanas"—a cabana is a small detached structure, originally of light construction—never a part of a larger building.

(Continued on page 58)



At approximately the same initial cost as standard water coolers, SUNROC offers vastly superior models for every purpose.

77 percent of the big buyers listed on the national stock exchanges enjoy the numerous advantages that only SUNROC can offer. For full information and a survey of your water cooler needs, annual service contract (all makes), or rental plan, write Dept. AF-5, Sunroc Refrigeration Company, Glen Riddle, Pa.



"SUNROC SERVES THE WORLD...a cool drink of water"

A cordial invitation  
is extended to  
ARCHITECTS AND ENGINEERS  
to attend the  
NATIONAL OIL HEAT EXPOSITION  
AT MECHANICS' HALL  
and  
26TH OHI ANNUAL CONVENTION  
AT THE STATLER HOTEL  
BOSTON

May 16 through 20, 1949

ARCHITECTS AND  
ENGINEERING DAY

Friday, May 20

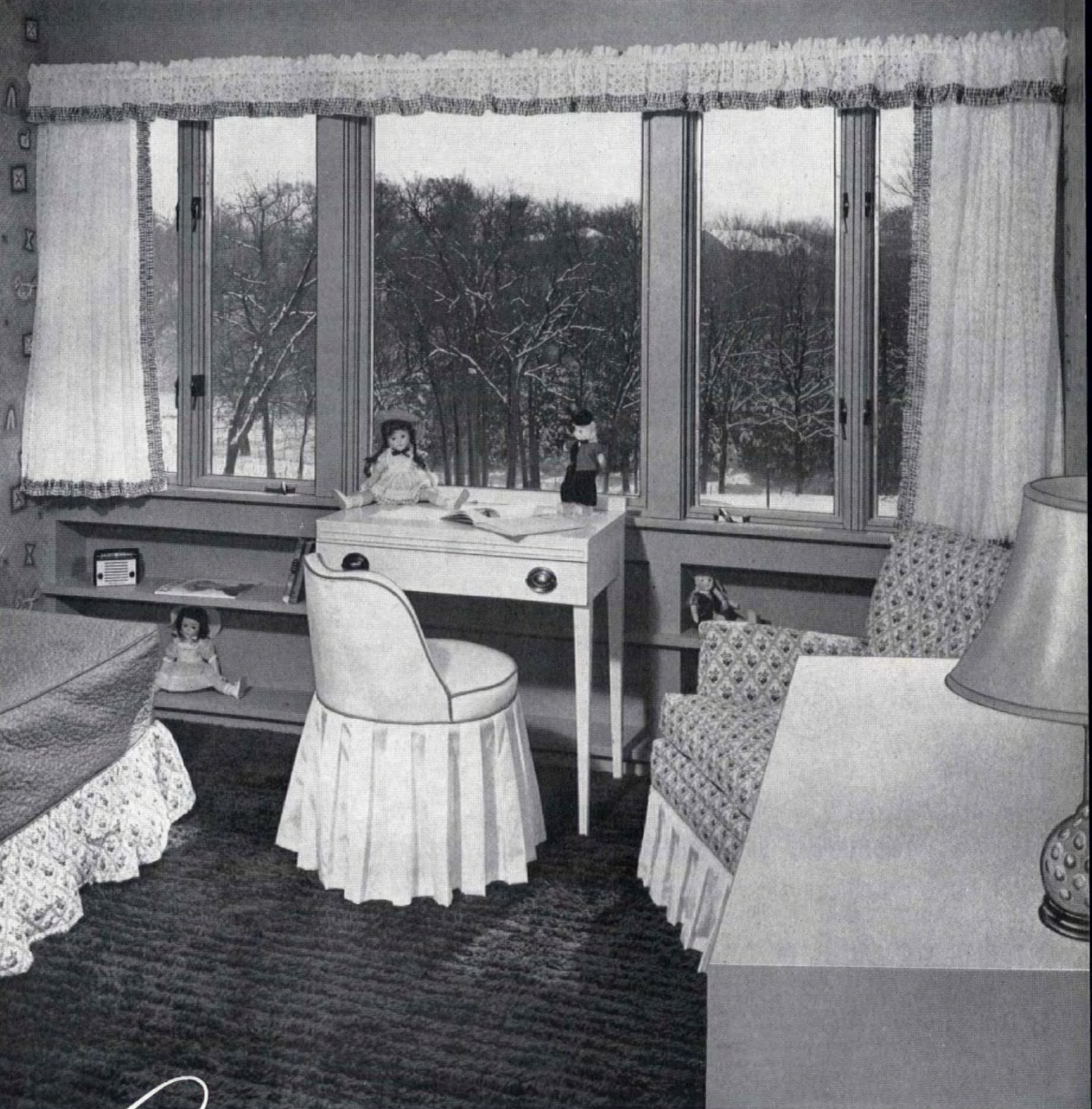
10 A.M.—Convention Session  
Statler Hotel

Guest speaker: Mr. Henry Wright  
of New York

1 P.M.—Products Exposition  
Mechanics' Hall—5 P.M.

OIL-HEAT INSTITUTE OF AMERICA  
6 East 39th Street, New York 16





LIONS CLUB HOME, ROBERT CERNY, *Architect*

# ANDERSEN *Windowalls* \*

**YOUNG LADY'S BOUDOIR** has one entire wall of Andersen Stock Casement Window Units combined to form an attractive WINDOWALL.

These wood windows admit sunlight, help the younger generation get away from that "cooped up" feeling, frame a view—and all the while they perform their function as a

wall, barring drafts and chilly air. They are truly WINDOWALLS—doing the jobs both of a window and a wall.

Specification data on ANDERSEN WINDOWALLS is in Sweet's Architectural and Builders' Catalogs, or will be sent by us upon request. See your local lumber or millwork dealer for further information.

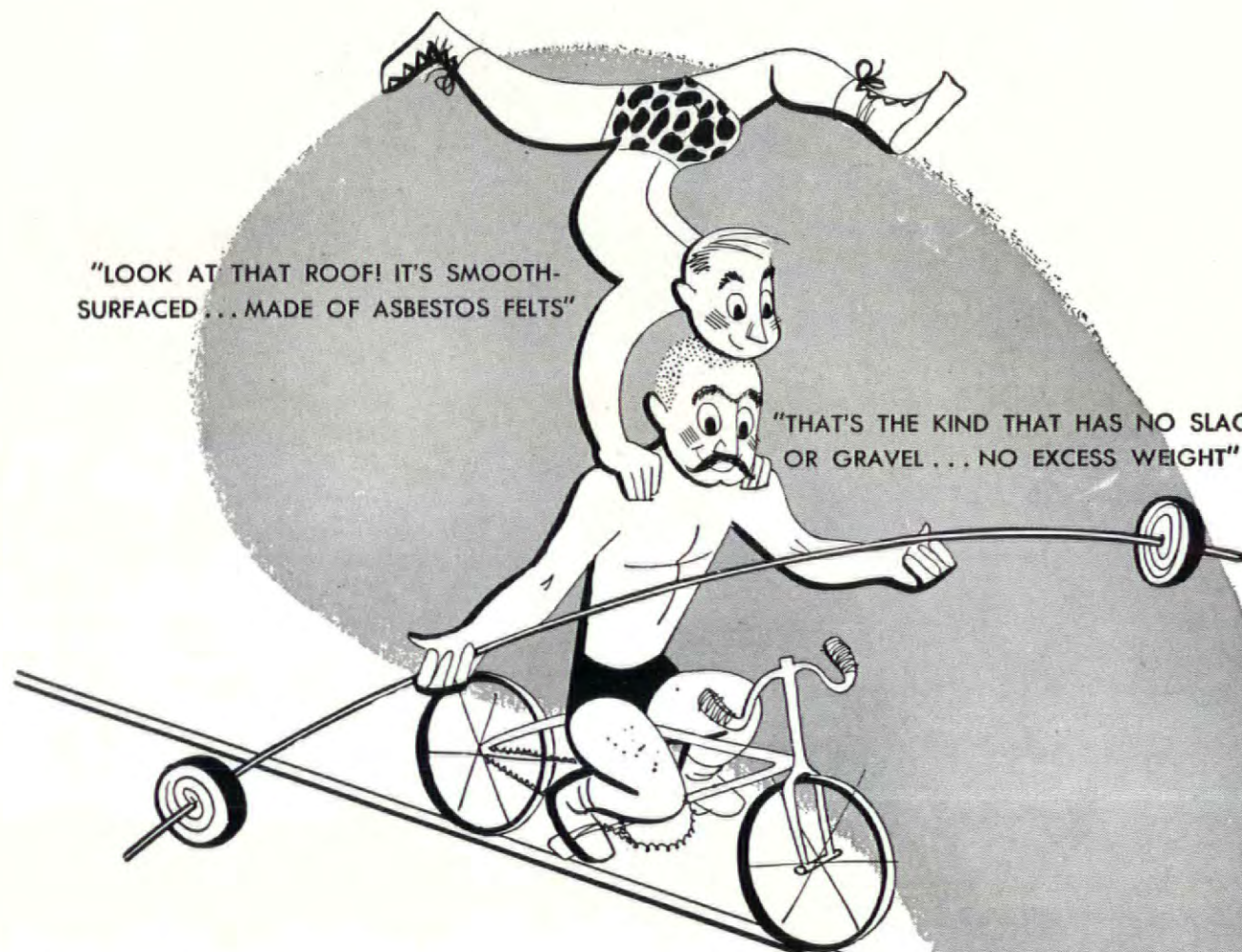
\*TRADEMARK OF ANDERSEN CORPORATION

*Andersen Corporation*  
BAYPORT • MINNESOTA



"LOOK AT THAT ROOF! IT'S SMOOTH-SURFACED...MADE OF ASBESTOS FELTS"

"THAT'S THE KIND THAT HAS NO SLAG OR GRAVEL...NO EXCESS WEIGHT"



## Yes-it's Flexstone\*

Each ply is a flexible covering of stone!

"AND THESE PERFORATED ASBESTOS FELTS ARE FIREPROOF, ROTPROOF, WEATHERPROOF"

• The secret of a Johns-Manville Flexstone Roof is in the *felts*. They're made of fireproof, rotproof, enduring *asbestos*.

Flexstone Built-Up Roofs won't dry out from the sun... need no periodic coating. They're *smooth-surfaced*, too—permit thorough drainage... make any damage easy to locate and repair. They are engineered to each job... applied only by J-M Approved Roofers.

J-M Asbestos felts are perforated to make application easier... give you a smoother job and conform better to irregularities in the roof deck.

Send for Flexstone brochure BU-51A. Contains complete specifications. Address: Johns-Manville, Box 290, New York 16, N. Y. \*Reg. U.S. Pat. Off.



Made of ASBESTOS

# Johns-Manville FLEXSTONE\* Built-Up Roofs

CORRUGATED TRANSITE\* • ACOUSTICAL CEILINGS

DECORATIVE FLOORS • \*TRANSITE WALLS • ETC.



# A new lease on life for aging buildings



**A** BUILDING is only as old as its tenants feel it is, so no modernization program can afford to overlook air conditioning.

It increases the profitable span of a building's life by keeping old tenants from moving and by attracting new ones. Time and again it has proved a sound investment in all types of buildings — commercial structures, office and loft buildings, hotels, department and retail stores, hospitals and others.

The best investment, of course, is an installation that can be adapted to a building at the lowest cost consistent with efficient operation. For this purpose, you can depend on a Carrier system as being one engineered for the most effective, most economical answer. Pioneer and leader in the field, Carrier provides the right choice of several systems developed through practical experience that deliver year-round air conditioning at its best — proper temperature, humidity, circulation, ventilation and freedom from traffic dust, smoke and street noises.

For years Carrier engineers have teamed up with architects and consulting engineers to bring modern, efficient air conditioning to all types of buildings. Their know-how is invaluable, and they are glad to place it at your service, whether your problem involves air conditioning a few floors or all floors of an aging or new building. For an illustrated booklet describing Carrier's five different systems, write for Catalog AC173. Carrier Corporation, Syracuse, New York.

**Carrier**

AIR CONDITIONING • REFRIGERATION • INDUSTRIAL HEATING



## LETTERS

Compare the tile  
you're now using  
with  
Robertson's  
PURE WHITE TILE...

**snowwhite**

If you've never used Snowwhite, or if you've forgotten how *really white* a tile can be, you're probably perfectly happy with your present tile. Before you do another job, however, get your free samples of Snowwhite, lay them side by side with ordinary tile and compare them for color, shape and finish.

Remember, Robertson's Snowwhite is the tile which came out of 14 years' laboratory research devoted to developing a product of the highest quality. Rather than impair that quality, we stopped manufacturing Snowwhite during the war, when we couldn't get the right basic materials.

Now, Snowwhite is in production again. Its quality... its pure whiteness; its egg-shell finish that will not craze; its perfect size and shape... remains unchanged. And, for all its quality, it is not being sold at a premium, but at our current white tile prices.

Send for your free samples today. Write on your business letterhead.

**ROBERTSON**  
MANUFACTURING COMPANY  
TILE DIVISION  
TRENTON 5, NEW JERSEY

Isn't there any chance for resistance to the phony influences emanating from the areas of the idle rich and their hangers-on?

A. J. NOERAGER, Architect

Palo Alto, Calif.

• Our Hollywood and Vine correspondent reports that one need be neither idle nor rich to be extravagant in Southern California—Ed.

### OVERLOOKED PHYSICIST

Forum:

In your February issue, on p. 14, under the heading "Furniture Design," there is mentioned in the second column the \$2,500 prize for the best research report in the recent International Furniture Competition.

This prize-winning report was co-authored by Mr. Prestini and the undersigned, although your article overlooked my name in this instance.

It will be appreciated if some recognition could be given me since the report is attracting widespread attention.

ROBERT E. LEWIS, Associate Physicist  
Armour Research Foundation

Chicago, Ill.

### REQUESTS FROM GERMANY

Forum:

I would like to correspond with a student of architecture, if possible in the German language. I am a student of architecture myself, 20-years old and I would like to know what is being built in the world.

HERBERT BACHMANN

Hochschule fuer Bildende Kuenste  
Kaiserallee 57-58  
Berlin-Wilmersdorf  
Germany, British Zone

Forum:

By calling I am an architect, but now, being disabled by the war, I am employed in a carpentry firm.

I am interested in editions of your magazine or of similar magazines... but I don't know how to obtain them. Perhaps it would be possible to start a correspondence with a young American. In this way I could send him (or her) in return some German technical material.

I am 26 years old and I should be very grateful to you if you could help me in this matter. Naturally I should like to correspond with someone of my own age and in German.

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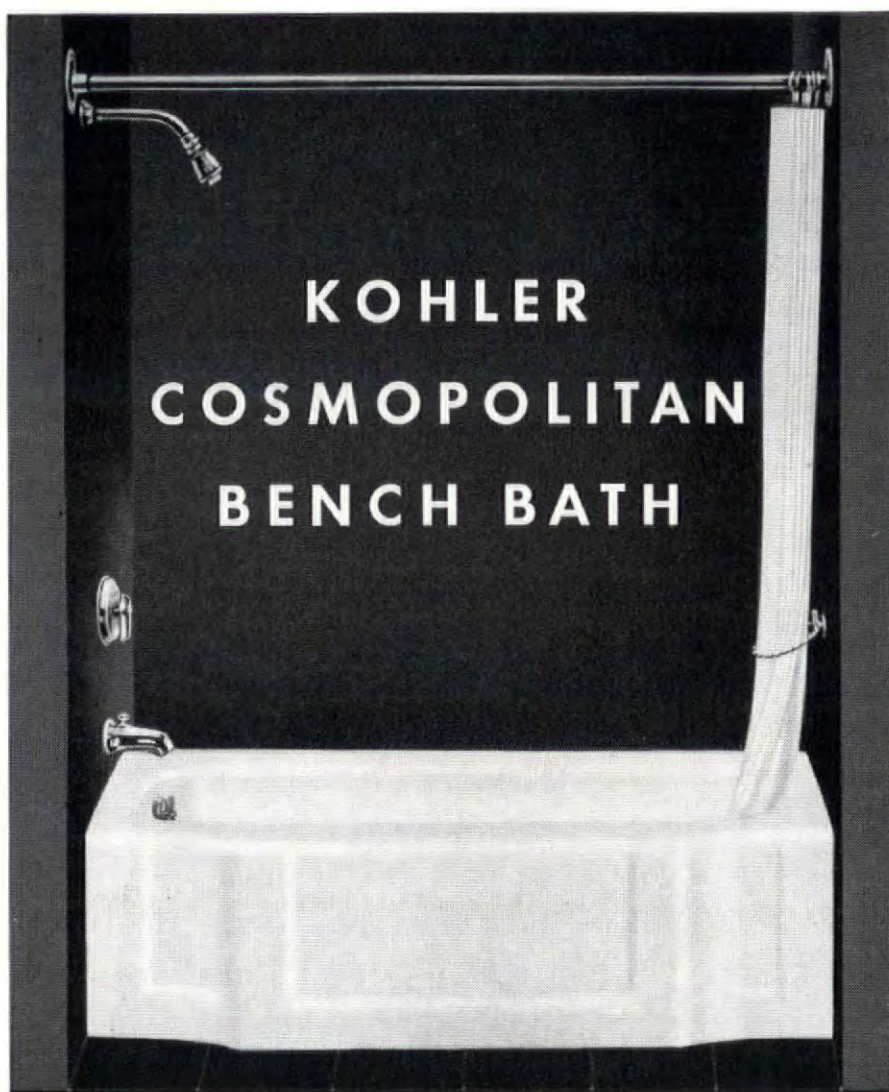
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triple play in building is the magazine  
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## KOHLER ENAMEL OVER NON-FLEXING IRON . . .

### CAST FOR RUGGED STRENGTH AND RIGIDITY

The Kohler bath, with its time-tested base of iron, has the proper weight and solidity to assure a firm, tight installation. The Kohler enamel fuses securely to the iron surface, forming a smooth, lustrous coat that is acid-resisting, easy to clean and extremely durable. The fact that the iron base is non-flexing minimizes danger of cracking and crazing. Home owners appreciate the freedom



from noise and the sturdiness of Kohler baths. Kohler fixtures and fittings have a quality reputation confirmed by 76 years of outstanding satisfaction in American homes and institutions. Every Kohler product is made of thoroughly tested materials—and designed and manufactured to give practical, reliable service. Kohler Co., Dept. 6-H, Kohler, Wisconsin.

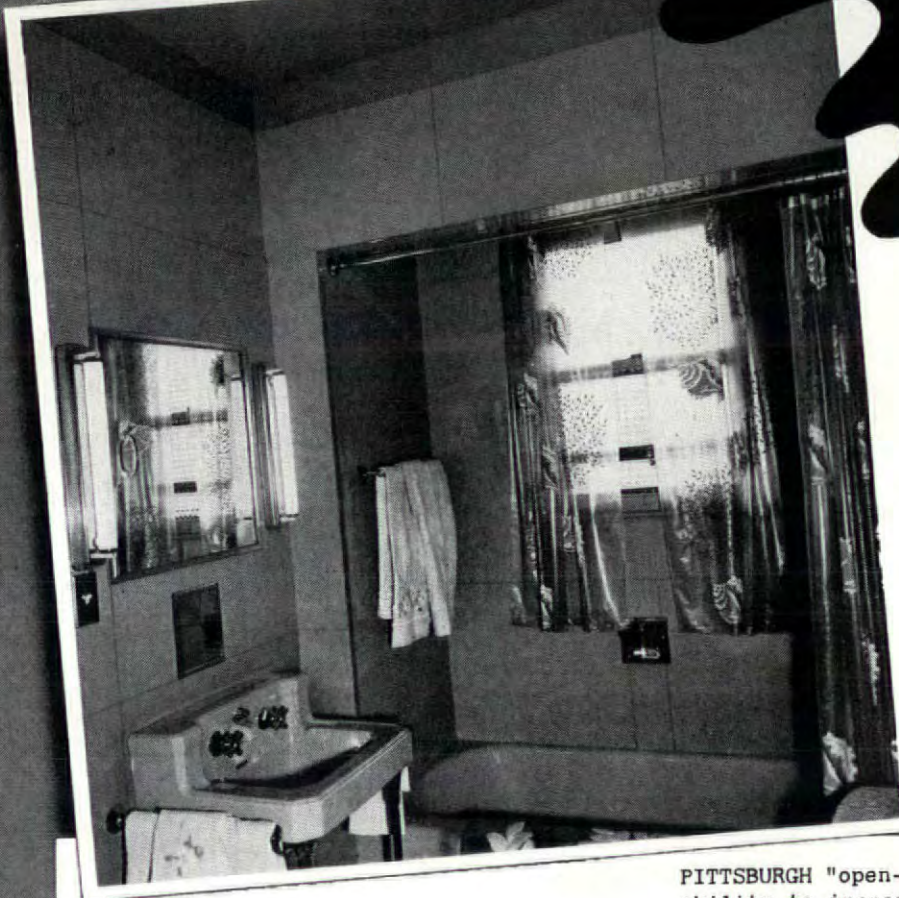
# KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS



# More Glass means

*here's proof  
from  
"Pittsburgh"*



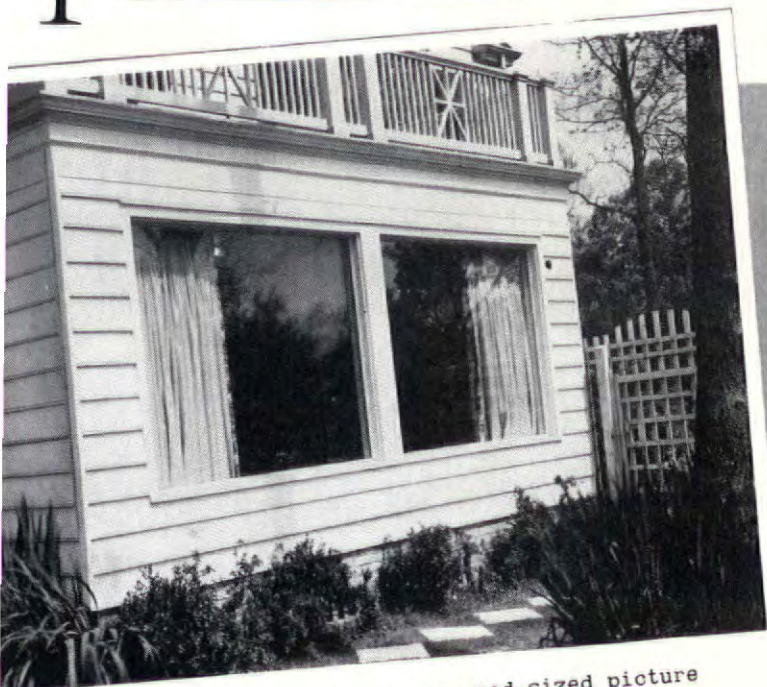
FOR THE WALLS of bathrooms and kitchens, Carrara Structural Glass is not only extremely good-looking, but highly practical as well. It won't craze, check, fade or absorb odors. It is easily cleaned by merely wiping it with a damp cloth. It's impervious to moisture, chemicals, pencil marks. Available in 10 attractive colors.

PITTSBURGH "open-vision" store fronts have proved their ability to increase sales, to widen trading areas, to boost profits for progressive merchants everywhere. And the name "Pittsburgh" is well-known as the leader in such store work. So when you talk "Pittsburgh" glass and metal to remodeling prospects—they're already half-sold!

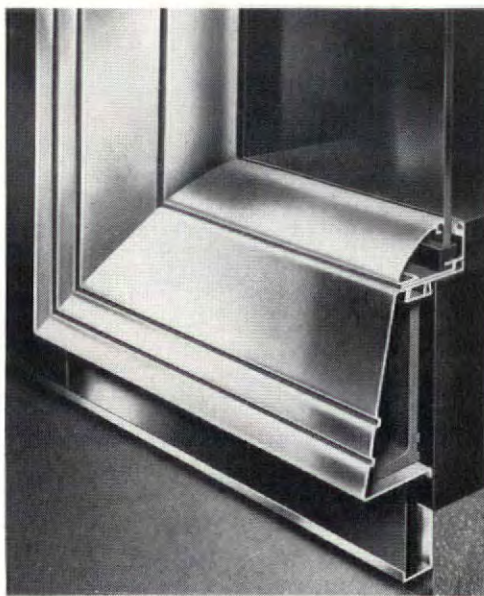




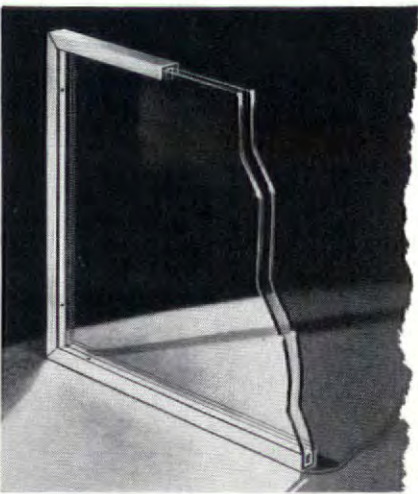
# practical buildings



EVERY HOMEOWNER WANTS at least one good-sized picture window. Pittsburgh Polished Plate Glass makes an ideal picture window under normal conditions. When insulated windows are required, you'll find Twindow, "Pittsburgh's" window with built-in insulation, will do the job.



IN THIS NEW Pittco DeLuxe sill-sash combination, sill and sash are separate members, designed to be used together. Because they are installed separately, they reduce glass breakage. The Carrara Glass bulkhead is recessed, thus providing toe room and protection against breakage. This versatile new combination is invertible—may be combined effectively with any of the sashes in the Pittco DeLuxe line.



THE STAINLESS STEEL CHANNEL around each double-glazed Twindow unit protects the unit against breakage and edge damage in the field . . . simplifies handling . . . makes it easier and safer to install. This development is typical of the work being done in "Pittsburgh" laboratories to improve the performance and quality of all "Pittsburgh" products.

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No electric lines or air compressors! RAMSET is self-powered, carried in one hand from job to job, always ready to set, instantly, pins and threaded studs up to 6" long and  $\frac{5}{8}$ " diameter. On continuous work, any good workman can "RAMSET" up to 50 fasteners per hour.

Ask for a 15-minute RAMSET demonstration. You'll see why it breaks all records for speed and economy on fastening jobs, pays a profit on every setting.

**Ramset**  
FASTENING SYSTEM

Stemco Corporation,  
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River), Ohio.

In Canada—Globe Machine  
Tools, Batawa, Ontario.

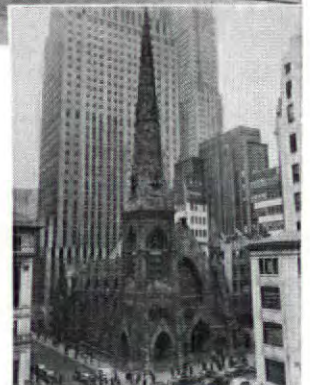
Stemco Corporation,  
Cleveland 16 (Rocky River), Ohio  
Please send RAMSET MANUAL and arrange for demonstration  
of RAMSET FASTENING SYSTEM.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_



## INSURANCE BUILDING squares off Rockefeller Center

Manhattan's Rockefeller Center group, whose open planning made it unique in a city which put skyscrapers on every available acre of land, will be squared off into a box shape with a \$7 million, 21-story building, which the Massachusetts Mutual Life Insurance Co. will erect as investment property at the Center's southeast corner. Although the new building will not formally be part of Rockefeller Center, it will, like the Esso Building constructed last year (FORUM, Aug. '48), repeat the Center's original architecture and materials. Like that building also, it will be designed by Carson & Lundin, Staff Architects for the Center, who drew the pre-



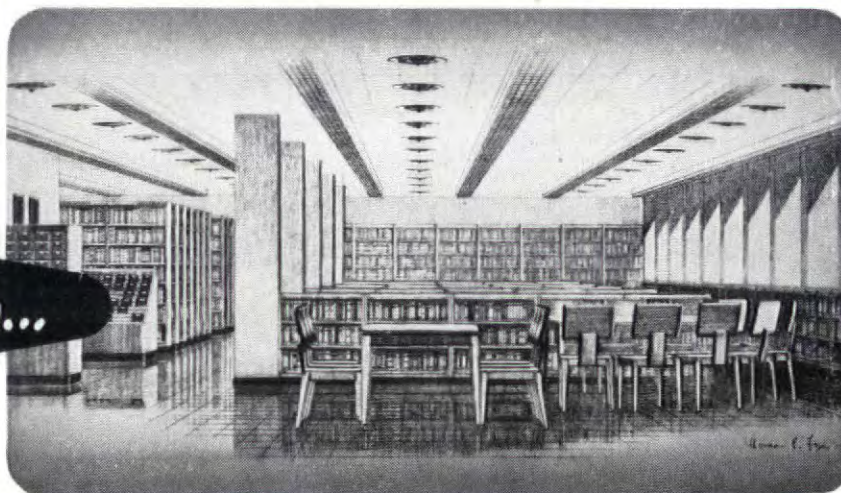
International News Photo

liminary sketch above. In addition to its corner wing on 48th St., the building will form an L-shape running through to 49th St. adjacent to the Time & Life building. A wide setback on both north and west sides will permit the windows to overlook the central sunken plaza. The basement will open on the underground concourse of the Center and use the Center delivery system through the sub-basement. Construction will begin by late summer or early fall. It will displace

(Continued on page 66)



for Appearance...



Washington State College Library; John W. Maloney, Architect

for Performance

architects specify  
**KNO-DRAFT**  
the completely  
adjustable  
air diffusers



Kitchen of Terrace Plaza Hotel, Cincinnati; Skidmore, Owings and Merrill, Architects

According to architects who have specified them, Kno-Draft Adjustable Air Diffusers help solve problems in both form and function.

The simple design of the units enables them to blend with any interior. In their original aluminum, they furnish an interesting and unobtrusive decorative accent. When painted to match the ceiling, they become self-effacing.

With their precise adjustment for air volume, direction and throw, Kno-Draft Diffusers create

"custom-made" air movement patterns to suit the functions of an area.

They help solve air distribution problems ranging from relatively simple ones such as that represented by the high ceilinged rooms of the Washington State College Library to the complexities presented by the kitchen of the Terrace Plaza Hotel with its hot spots, cold spots, low ceiling, high heat gain and its exacting requirements of food quality control and personnel health.

**FREE HANDBOOK:** Send for your FREE copy of our new handbook on air diffusion. It contains complete information on Kno-Draft Adjustable Diffusers and all the necessary engineering data to enable you to create "custom-made" air patterns and get top efficiency from any air conditioning system. Just fill in and mail the coupon.

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Des Plaines, Illinois, builders have demonstrated to Chicago the advantages of site fabrication, expert architectural advice, labor cooperation and LUMITE screening, in mass producing houses that exceed the local average in everything but price.

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**"We chose LUMITE screening because buyers recognize the value of screening that is immune to rust, rot and corrosion . . . a screening that will not stain or discolor paint under windows . . . a screening that will resist children's rough handling without sagging or bulging."**

M. E. Smith  
SMITH and HILL, INC.  
Des Plaines, Illinois

### Facts for Architects and Builders

**EFFECTS OF ACIDS, ALKALIES AND SOLVENTS—**Essentially none.

**NON-INFLAMMABLE — LUMITE** will not support combustion . . . is self-extinguishing. Softening point 240°F.

**TENSILE STRENGTH, ULTIMATE** (of filament)—Up to 40,000 lbs. per square inch.

**IMPACT STRENGTH —**Greater than conventional screening.

**INSTALLATION—**Cut with ordinary scissors. Fold cut edges under 1/2". Tack or staple the screening smoothly and evenly every 1 1/2". Because of inherent characteristics, LUMITE will gradually draw itself into a snug, firm fit.

Architects and builders everywhere specify LUMITE screening knowing that it provides years and years of care-free, dependable service. They've learned that LUMITE is a screening that can take it—that can stand up against every enemy known to conventional screening.

Yes, when you do the job with LUMITE you know it's done right. It's rustproof . . . can never stain walls. It lasts longer and costs far less than any other quality screening—11 1/2 to 12¢ per square foot, retail. Give your clients the benefit of this new plastic screening. Ask your building supply dealer about LUMITE today.

Sold through hardware, lumber and building supply dealers and screen manufacturers.

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# LUMITE

woven saran screening

For further information consult Sweet's File or write Dept. AF-3, LUMITE DIVISION, Chicopee Manufacturing Corporation of Georgia, 47 Worth Street, New York 13, N. Y.

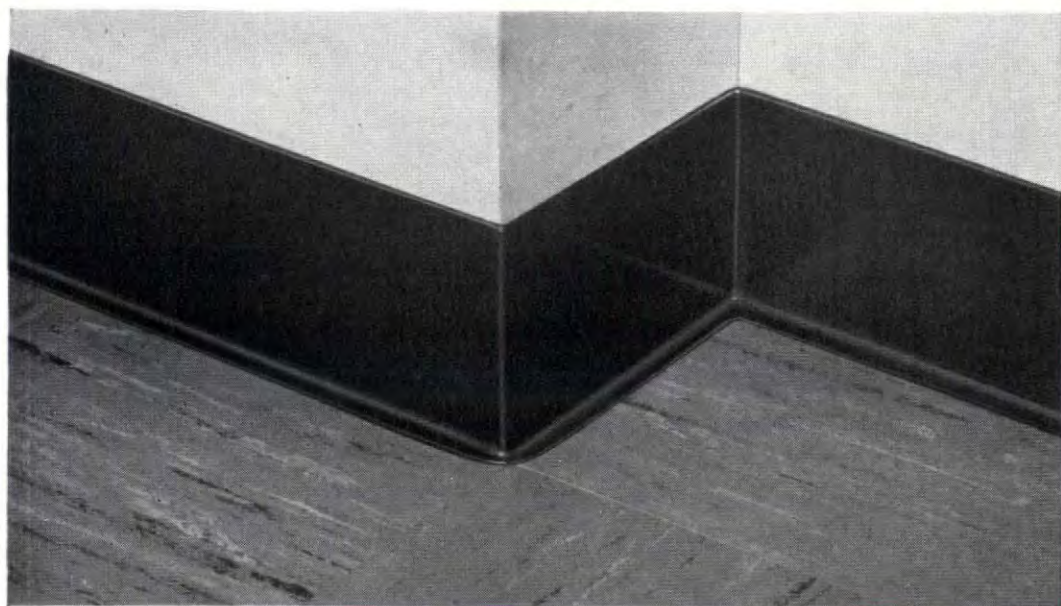


# ANNOUNCING a New and

# Improved KENBASE

(A WALLBASE)

IN FOUR COLORS: BLACK,  
RED, GREEN AND TAN



New Flexibility...New Finish...New Colors...New 24-inch Length

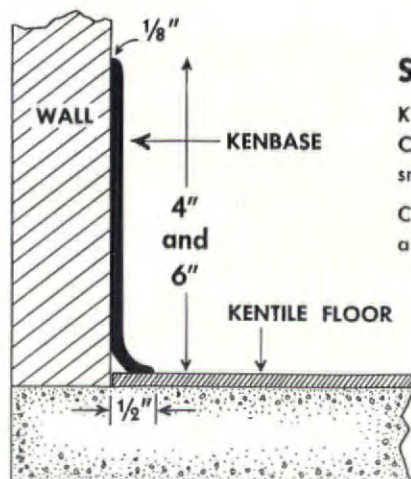
#### FLEXIBLE KENBASE "MOLDS" INTO PLACE. CAN'T SPRING OUT OF POSITION.

Kenbase is thermoplastic, compounded with special properties that not only give it greater flexibility... but also make it hold the shape it's given when heated and applied around corners. Once it cools, Kenbase "sets" firmly—won't spring or pull out of position as some materials do. Dirt cannot get between Kenbase and the wall.

#### KENBASE SMOOTHER FINISH ENHANCES APPEARANCE...easier to clean.

The smoother surface of the new Kenbase creates a luxurious, custom-built effect...and its finer texture harmonizes pleasantly with both floor and walls. It's also easier to clean—another feature your clients will appreciate.

**KENBASE NEVER NEEDS PAINTING...**resists scuffing, won't show mop marks. Available in four colors which can't wear off. Kenbase is built to withstand rough usage, holds its smooth finish and handsome appearance throughout its long lifetime.



#### SPECIFICATIONS

KENBASE NEEDS NO "GROUNDS."  
Can be applied directly against any smooth wall.

Colors: BLACK, RED, GREEN  
and TAN.



**KENBASE IS QUICKER TO INSTALL...**with fewer joints. Note how use of the pre-molded corners means mechanic must make *four* individual corner installations...then install additional base in the intervening spaces indicated by arrows—*seven* different operations in all. But in this same space two lengths of Kenbase do the job...saving time...eliminating unnecessary joints.

KENBASE IS MADE BY THE MAKERS OF

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The Permanently Beautiful  
Asphalt Tile



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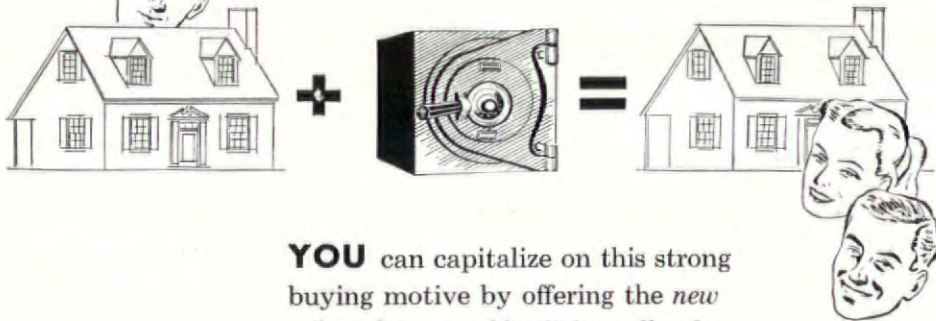


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**Mosler  
Wall  
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offer ample protection against burglars. They are easy and economical to install—and the extra advantages they offer prospective owners far outweigh their modest price. Available in a variety of sizes to fit any requirements.

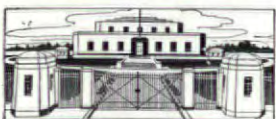
## *Public Buildings, Factories, Institutions*

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Please send me your free booklet "Mosler Safes and Vaults"

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City ..... Zone ..... State .....

the famous brownstone Collegiate Church of St. Nicholas, which for 77 years has stood at the corner of Fifth Ave. and 48th Street and successfully ward off all previous attempts to uproot it.

## **MANHATTAN APARTMENT** is set well back from the street, and its lobby is opened to the outside

Construction of New York Life Insurance Co.'s 19-story apartment development on Manhattan's east side (FORUM, Jan. '48) will get underway immediately, now that a construction contract (for more than \$10 million) has been awarded to the Cauldwell-Wingate Co. Departing from the usual plan of apartment units situated around a court, the white brick and glass building will be confined to the center strip of the block. It is set back at the base to the city's legal minimum,  
(Continued on page 70)

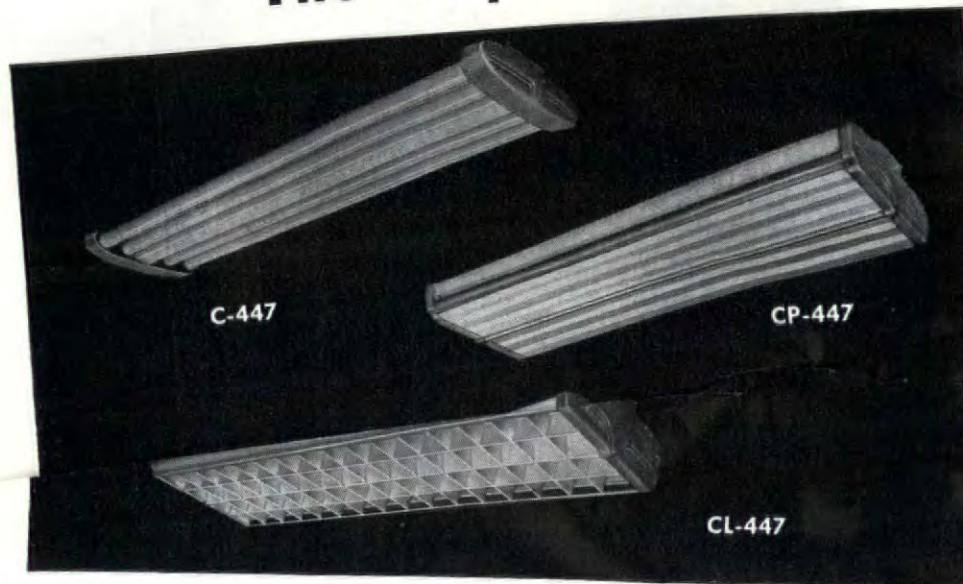


Birdseye view above shows how each unit will get air and light even though the development is not built around a court. Closeup below illustrates the three parallel drives in front.





# NOW! 3 New 4-Lamp Fixtures to MATCH Sylvania's C-247 Two-Lamp Units!



**EASY TO INSTALL** — These three new 4-lamp fluorescent units, designed to match in styling and construction the popular 2-lamp C-247 line, are just as easy to install! As in all Sylvania fixtures, special knockouts and wiring arrangements are carefully worked out to make installation jobs the easiest and quickest ever known.

**EASY TO MAINTAIN**—No worry about nuts, bolts, or screws—none is required to hold shielding assemblies of the plastic shielded and louvered units . . . while the basic chassis fixture—the C-447—is so designed that lamps and starters can be readily replaced by a very simple removal of the end caps, which are held in position by knurled thumb screws. Cleaning is especially simple, since the one-piece top-housing and the reflector can be very readily dusted or washed.

**INTERCHANGEABLE BASIC CHASSIS** — The C-447 and C-247 are the basic chassis of the plastic shielded (CP-447, CP-247) and louvered (CL-447, CL-247) fixtures. From the basic chassis, you can convert to these shielded models simply by ordering the proper conversion sets.

**LUMINOUS SIDE SHIELDING** — Luminous metal side shields are a feature of both the CL-447 and the CP-447. These shields pick

up light directly from the enclosed lamps and reflect it from their white Miracoat finish. This eliminates glass and plastic along the sides, insuring greater rigidity of the shielding assembly as well as reducing the possibility of breakage.

**ALL METAL CONSTRUCTION** — All metal construction is an important factor for greater durability and long life. Sylvania fixtures are noted for their "new look" even after years of outstanding service.

**COMPLETE PACKAGES OF LIGHT** — Complete packages of light means that these new fixtures come complete, ready to install, without fussing for lamps or starters. Your clients get the finest fixture housings equipped with the finest lamps, starters, lampholders, and ballasts!

**MIRACON FINISH** — Reflectors finished in Sylvania's easy-to-clean, Miracoat white, affording a reflection factor of not less than 86%. Chassis and end caps finished in Sylvania's high temperature, scuff-proof aluminum baking enamel to reduce brightness contrast with the ceiling.

**ONE-YEAR GUARANTEE**—Sylvania's one-year guarantee includes lamps, ballasts, and starters. This guarantee covers 25 or more fixtures ordered for a single installation.

## SYLVANIA ELECTRIC

mail  
coupon  
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Sylvania Electric Products Inc.  
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500 Fifth Ave., New York 18, N. Y.  
Gentlemen: Send full details on new C-447 line (Engineering Bulletin O-75).

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FLUORESCENT LAMPS, FIXTURES, WIRING DEVICES; ELECTRIC LIGHT BULBS; PHOTOLAMPS; RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES

permitting it to rise in a straight line. The 40-ft. area in : was turned back to the city to be developed, along with 60 ft. street, into a wide mall, divided into a through tr street, a secondary road for local traffic, and two porte-coch entrances to the apartment building. Another notable featu of the building, which was designed by Mayer & Whittles and Skidmore, Owings & Merrill: a glass walled central lobi on the ground floor, which in the summer can be opened to i tegrate the lobby with the garden space flanking it. Apar. ments above the fifth floor will have balconies opening from room-width windows. Rentals of the 582 apartments will average from \$55 to \$60 per room. Underground parking space will provide for 175 automobiles. The project is sched- uled to be completed by autumn of 1950.

### BUS TERMINAL to reduce New York City Traffic

For the past ten years New York City authorities have been trying to untangle the snarl on Manhattan's west side caused by the daily passage of 164,000 commuters to and from New Jersey. Over half their number are unloaded in small terminals scattered hit-or-miss along the crowded hotel and theater district. The \$20,000,000 terminal which will soon cover the full block between Eighth and Ninth Avenues, from 40th to 41st Streets, will coordinate all these small units and represent the first major step towards a solution.



Ramp (above) leads directly from the terminal to the Lincoln Tunnel. It also has access (below) to roof parking area.



Port of New York Authority

This four-story brick-and-steel structure designed by the New York Port Authority is not apt to win any building beauty contests. It is, however, a carefully thought-out answer to both internal and external traffic-routing problems—motor and pedestrian. Its two platform floors will regulate the loading and landing of 2,500 buses a day. These platforms are designed for a peak capacity—per hour—of 750 arrivals with an equal number of departures.

The main entrance has been placed on Eighth Ave. at street level. Here, on a large concourse, the information desk and ticket counters will be surrounded by restaurants, shops and service booths—

(Continued on page 74)



*Why divide  
responsibility  
for a boiler?*



*Specify* **PREFERRED...**

**THERE'S NO NEED** to divide responsibility for a boiler between a half dozen different men. That kind of operation often wastes time, creates confusion, raises costs. That's why more and more architects and consulting engineers look to Preferred. They get *one* unit that's fully coordinated and equipped... *one* unit that's ready to generate steam economically.

What's more, they've found that Preferred Unit Steam Generators come through every test with flying colors...

**COST OF OPERATION?**—These units cut fuel bills as much as 40%... and they keep repair bills low.

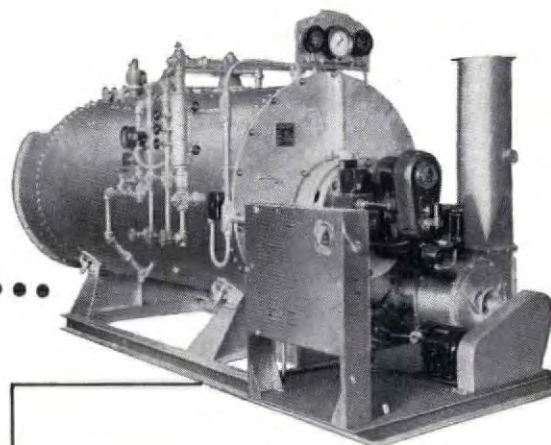
**FULLY AUTOMATIC?** Yes,—Even with No. 6 oil, including the new catalytic residuals.

**NEED AN EXPENSIVE UGLY STACK?**

—No, only a simple vent to the outside is required.

**COMPACT?** Preferred units occupy about half the space needed by ordinary boilers of equivalent output. Headroom requirements are low—saves costly excavations. So you play safe when you specify a Preferred Unit Steam Generator. This factory-completed unit not only simplifies and expedites installation, but also gives you a trouble-free, economical source of steam.

Write on your business letterhead for folder containing full engineering data. It's especially prepared for architects.



**ADDITIONAL PREFERRED FEATURES**

1. Induced (Pull-through) Draft, a distinctive feature. Only a simple vent to the outside air required. No escape of products of combustion into the boiler room.

2. Preferred Oil Burner—built especially for this unit.

3. Four-Pass Gas Travel results in maximum heat absorption.

4. 80% Minimum Thermal Efficiency proved and guaranteed.

5. Low Maintenance—the result of over 27 years of combustion engineering experience.

6. Full Range of Sizes—from 20 to 500 hp. and pressures of 15 to 200 lb. Two-pass units in 20 and 30 hp. with pressure of 15 lb.

Four-pass units also available in all sizes for higher pressures on special order.

Write for complete details of these special units.

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No need to pay extra design and fabrication costs for specially constructed sash for individual projects. You can now get ready-made stock sash for *Thermopane*\*. It comes to the job complete, either glazed or ready for glazing with *Thermopane*, ready to install in the same way as regular single-glazed sash. In wood or metal:

DOUBLE-HUNG  
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PICTURE WINDOW  
AND OTHER COMMON TYPES

The availability of this sash makes it easier for you to fill the growing demand for *Thermopane* for windows of all types.

More than 60 manufacturers are now making standard sash for *Thermopane* in a wide range of stock sizes. More will be in production soon.

If your supplier does not yet have ready-made sash for *Thermopane*, urge him to stock it. Or write us for a list of sash manufacturers.

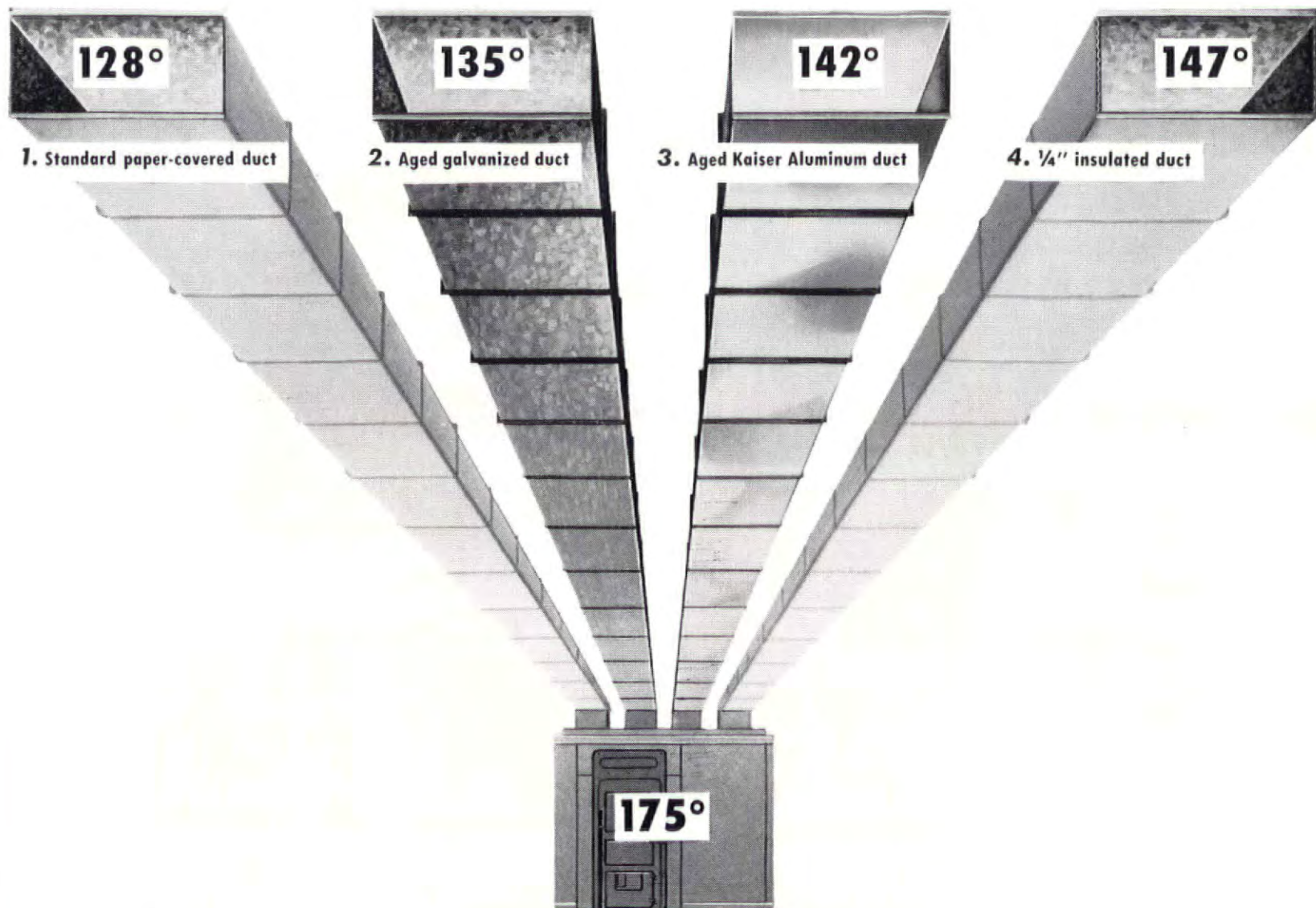
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*Thermopane*

MADE ONLY BY LIBBEY-OWENS-FORD GLASS COMPANY  
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(and retain desired B. T. U. delivery)

*Simply specify Kaiser Aluminum for all heating ducts!*

The above illustration is a simple example. It is a comparison of materials in ducts of a specific size, operating under identical conditions.

Note what happens to the initial air temperature of 175°: At the end of 100 feet, delivered air temperature actually varies from 128° to 147°.

Why? Because of different radiation losses from the surface of the ducts.

These comparisons were proved by actual tests conducted by Aladdin Heating Corp., under the direction of B. F. Raber, Professor of Mechanical Engineering, and

Mr. J. T. Gier, Research Engineer (name of university on request).

With such proved facts, it's easy to see how duct systems of light, strong Kaiser Aluminum can be more economical! Only duct with 1/4" insulation can deliver more heat—but it costs far more.

Because bare Kaiser Aluminum radiates less heat, installation savings are possible through elimination of insulation. And fuel consumption is cut because of lower required B.T.U. input.

So, to cut duct costs and fuel costs—always specify ducts of Kaiser Aluminum!

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PRODUCER OF

# *Kaiser Aluminum*

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- ① Because of the knowledge and skill acquired through 20 years of specialization in this field by trained, intelligent personnel.
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- ③ Architects' and designers' specifications rigidly adhered to.
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- ⑦ Competitive Prices • Superior Quality • Rapid Deliveries.
- ⑧ A management that is mindful of the help and cooperation of the customers we have served for so many years and whose consideration we hope to merit for many, many more years.

*Write today for catalogue showing application and current jobs or send for a 12" x 12" sample of a shaped part in terra cotta finish.*

### SEAPORCEL METALS, INC.

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# Seaporcel

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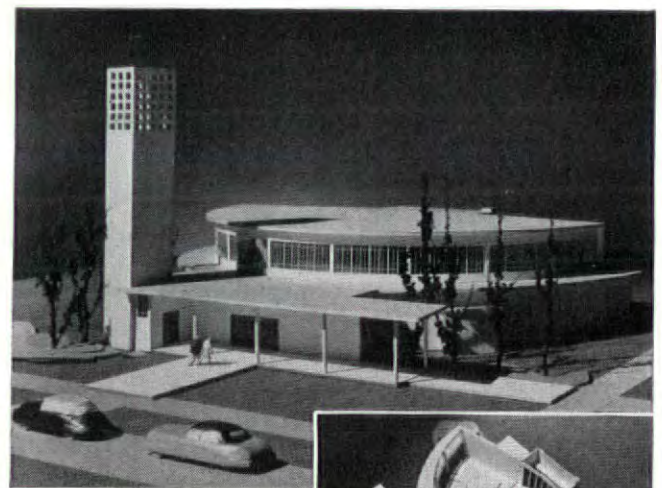
*The background illustration is a Seaporcel Architectural Shaped Part.*

concessions that are expected to subsidize building and maintenance costs. Even a newsreel theater and bank will be included in this self-sustaining shopping center. A series of 15 moving stairs will carry passengers for "long-haul" buses down from this level to the lower platform, where buses leave and return through Ninth Avenue passages. Above the main concourse is a short-run suburban concourse which leads in turn (by 14 moving stairways and 16 flights of stairs) to the upper bus-loading level. An overhead ramp allows buses to go directly from this third level to the Lincoln Tunnel, through which 75 per cent of the Jersey traffic now passes. Another spur of the ramp leads to a roof parking area with space for 450 cars. The new terminal will be connected directly with Times Square and, in turn, with all west side subways.

Assembling this large piece of land in New York City is a problem which still keeps the Port Authority busy. The housing shortage, still acute, made it necessary to provide for dispossessed families by the purchase and rehabilitation of vacant dwellings in other parts of the city. Even so, the Eighth Avenue section has been cleared already and foundations have been set in this area. With this pushing of schedule, the terminal should be in action before the end of 1950.

### SEATTLE CHURCH adopts Fan-Shape

St. Anthony's Church in Seattle, Wash. has been designed by architect Paul Thiry to bring the congregation close to the altar—none of its 550 seats is over 50 ft. away. The



*The model of Thiry's church shows generous entry porch (above) and semi-circular seating arrangement (right).*

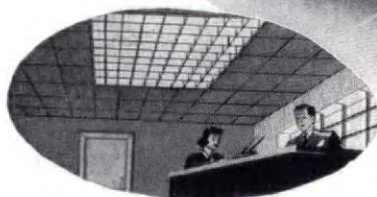
Chas. R. Pearson

reinforced concrete construction requires no intermediary columns to interfere with sight lines. High clerestory windows around the perimeter of the church are of leaded stained glass which diffuses the generous admittance of light; artificial lighting is provided by indirect tubular fixtures. Decoration has been restricted, somewhat rigorously, to the altar. The broad wall surfaces are acoustically treated. In the lower part of the bell tower a baptismal room is set, which has direct access to the outside, protecting porch. A modern refinement of this room is its use of soundproofing—which also makes it a possible refuge for mothers with crying children. Construction by the Austin Co. began in April.



## NEW! Day-Brite's FOUR-BY-FOUR unit

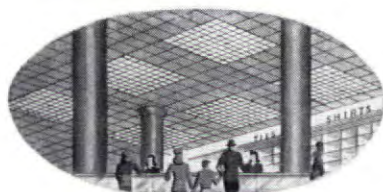
*Incorporating the most advanced principles of integrated lighting... offering new architectural possibilities*



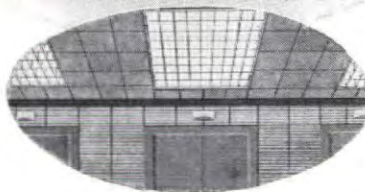
**FOR OFFICES**



**SMALL RETAIL STORES**

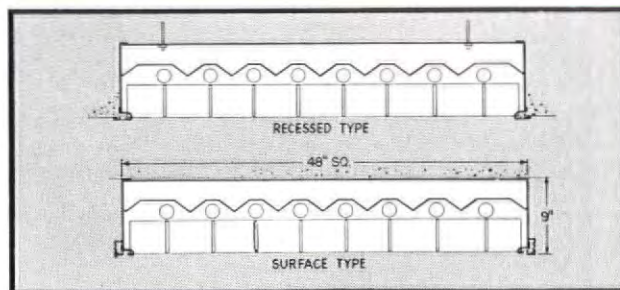


**LARGE DEPARTMENT STORES**



**ENTRANCES, LOBBIES**

**Day-Brite's Four-by-Fours** are engineered for both recessed and surface mounted applications. They can be used with 6, 8, and 10 40-watt fluorescent lamps. Knockouts are provided for feed connections. Plaster frames are available for use when fixtures are recessed.



**Separable hinges** on both sides of louvers allow hinging from either side for easy servicing. Exclusive Day-Brite BOXCO louver assembly has double-wall louvers interlocked for extreme strength and rigidity. Fixtures are rust-inhibited and finished in Hot-Bonded Super-White enamel throughout.

IT'S EASY TO SEE WHEN IT'S

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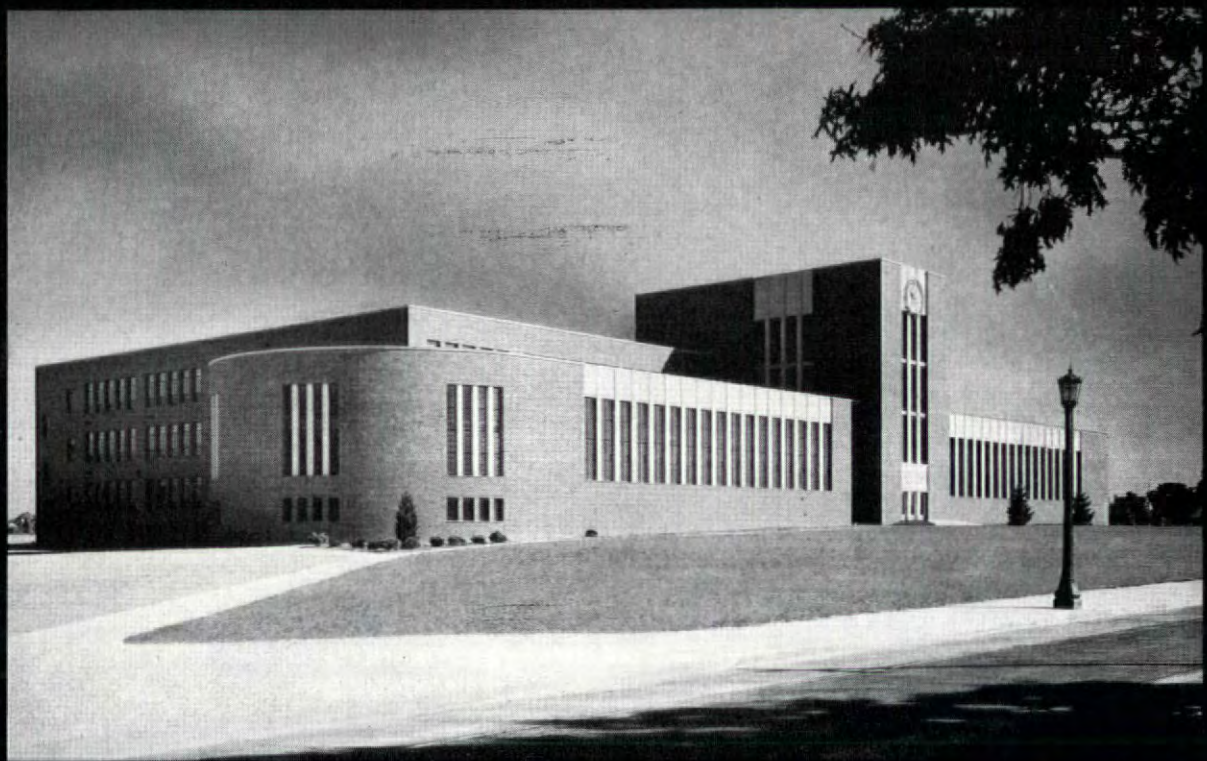
Write NOW for descriptive Bulletin 20-C

Day-Brite Lighting, Inc., 5471 Bulwer Avenue,  
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# 1818 HOPE'S 1949 SCHOOL WINDOWS



*Wellington C. Mepham Central High School, North Belmore, L. I., New York  
Frederic P. Wiedersum, Architect*

● The satisfaction enjoyed by a community from the possession of a fine school building derives from the architect's skill in combining the desired exterior impression with practical features that meet the needs of an exacting duty. Hope's School Windows assist in both respects. Their versatility in layout helps the designer to obtain the effect he desires; the practical features of these durable steel windows assure such advantages as maximum daylight for the size of window openings, draftless but invigorating ventilation, winter-defying weather-tightness, and lifetime convenience of operation.

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Your specification of oak floors is bound to earn you the praise of clients who realize in their daily living those satisfactions you told them they would discover.

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**SUBJECT: Flooring FOR LOW COST HOUSING**

Now, you can give the low cost homes you design the plus values of oak, and, at the same time keep building costs down. The supply of common grades of oak flooring—once scarce, is now plentiful. It is no longer necessary to "cut corners" for the flooring you specify for low cost housing.

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**MARCEL BREUER** was born in Hungary in 1902, relinquished his boyhood ambition to become a painter when he entered Germany's Bauhaus, then under the direction of Walter Gropius. He turned instead to architecture and furniture design. By 1925, the 23-year-old architect had created his famed tubular steel chair and within the next 12 years his executed designs appeared all over Europe. In 1937 he crossed the ocean to join Walter Gropius at Harvard, remained there for nine years, in practice with Gropius for four. Breuer has had a design office in New York City since 1945, has been dotting the landscape with distinguished examples of modern architecture (p. 96).



**GORDON BUNSHAFT** of Skidmore, Owings & Merrill has a master's degree bearing the imprint of Massachusetts Institute of Technology. Following school and two years of travel in Europe and North Africa under the Rotch Traveling Fellowship, he joined Skidmore, Owings & Merrill in 1937. From 1939 to 1942, he was chief of design for their Chicago office. Following a wartime hitch in the Corps of Engineers, he returned to Skidmore as partner in charge of design for the New York branch. Currently on the boards: the H. J. Heinz Co.'s \$15 million building program (p. 102).



**ROBERT F. BISHOP** and **JOHN W. WRIGHT, JR.**, designers of the Swarthmore Apartments (p. 115), started their architectural office in Philadelphia in 1946. Bishop graduated from Swarthmore College in 1930, served a three year apprenticeship with Frank Lloyd Wright at Taliesin and worked in several Philadelphia design offices before striking out on his own in 1945. Wright studied architecture at the University of Pennsylvania (class of '36), has helped design schools for Philadelphia and defense housing for Newport, R. I., in his varied career. The firm's work is half residential, half commercial, a ratio it "would be happy to continue."



**EATON TARBELL**, designer of the Dryden Terrace apartments (p. 118), is a down-easterner by birth (Merrill, Me.), education (Bowdoin College), and architectural practice (Bangor). He left Maine to study architecture at Harvard and work for Stone & Webster in Boston until 1942. Following that, he was assistant superintendent for a contractor building Army housing. Since establishing his own practice in 1944, he has turned out some 150 buildings, including schools, houses, theaters, even prison camps. His design for the Maine State Office Building Competition in March, 1946 was premiated.



**EMIL SCHMIDLIN**, New Jersey architect, is a native of Basel, Switzerland, and a resident of the U. S. since 1922. After his student days at Columbia University and the Beaux Arts Institute, he made his architectural debut in New Jersey, at the very depths of the depression, specializing in multiple dwelling design. Since the beginning of World War II, his office has turned out close to 60 multi-family housing projects throughout the east (p. 122). These constitute but a fraction of his work, which encompasses schools and churches, stores and banks, a shopping center and a country club.



**WILLIAM A. GANSTER** and **ARTHUR HENNIGHAUSEN**, architects of the Greenwood School (p. 124), have been partners since 1937 in an architectural practice devoted largely to institutional buildings. Ganster was born in a suburb of Chicago not 50 miles from his present office along Lake Michigan, at Waukegan. Schooled in architecture at the University of Illinois, he taught there for seven years before joining Hennighausen. The latter hails from Wisconsin, studied architecture at the University of Illinois, spent two years in Europe under the Edward Ryerson Fellowship.



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*The New and Improved* **RUSSELL PATENTED**

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*Thermopane*

**PICTURE WINDOWS**



**PATENTED THERMOLOK® Closure Frame** eliminates expansion, contraction and settlement problems . . . permits wider use of standard stock sizes of Thermopane and other types of dual glazing for picture windows . . . simplifies installation

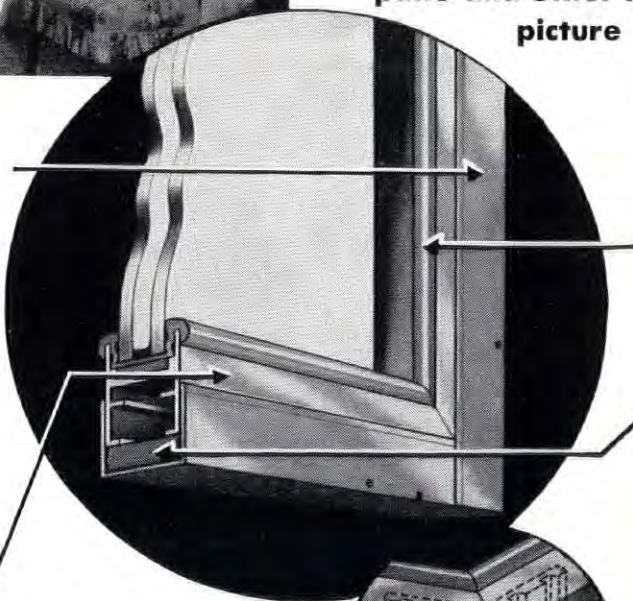
**Patented Thermolok Closure Frame**

. . . This well-known feature of the famous F. C. Russell Company combination window permits the sash to "float" within the closure frame—provides automatic and continuous adjustment for expansion, contraction and settlement—weatherproofs the entire window opening. Grips the sash securely . . . makes possible perfect installation on "out-of-line" openings. Greater use of standard sizes of picture windows is possible because the "floating" feature provides for variations of up to 1" in width and 1" in height.

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. . . Unique construction provides maximum strength at minimum weight . . . provides insulating, dead-air space within the frame.

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Architect: Howard T. Fisher and Associates

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enduring homes at  
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In a series of smashing 2-page spreads in *The Saturday Evening Post*, *Better Homes and Gardens*, and other leading magazines — Celotex is telling millions of Americans that *now* is the time to build, because they *can* build a beautiful, livable home like the one shown above, at sensible cost. Even in these days of higher prices for everything!

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Recently, dirt and grime were removed in order to inspect the weathering resistance of the finish. The photographs below show the roof before and after cleaning. In spite of a nearby coalyard, a heavily traveled intersection and a railroad, *the shingles were not very dirty!* The self-cleaning properties of Porcelain enamel maintained the original color, gloss and attractiveness. After the removal of dirt that had not washed away in rainy weather—it was only a morning's work by a window cleaning company—the

roof was inspected, checked carefully, and not *one sign of deterioration could be found!*

Today, as a result of continuous laboratory research, added improvements and new developments, Porcelain enamels engineered to fit specific jobs are available. The benefits of enamels that resist quick thermal shock... thinner coatings... new low-temperature enamels, with colors that cover the entire range of the rainbow, are today enjoyed by many people. Store fronts, restaurants, homes, almost every place you look today you find many examples of this beautiful, decorative, and practical *life-time finish*.

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Before 1948 Washing



After 1948 Washing



A Dependable Guide to New Developments in *LifeTime Finishes*



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# How You Can S-T-R-E-T-C-H YOUR FLOORING BUDGET...



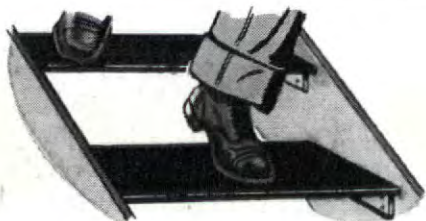
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Wherever you need a heavy duty utility floor, specify industrial asphalt mastic floors made with **FLINTKOTE FLOORING EMULSIONS**. Here are a few of the many advantages of this rugged, economical flooring:

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In offices and other areas using decorative flooring, particularly over a wood base where flexibility is essential, insure satisfactory results with **FLINTKOTE PERMAKOTE UNDERLAYMENT**. This lightweight mastic mix with a neoprene binder is

especially designed for above grade floors... wood, concrete or steel. You get greatly increased resilience. And the sound-damping, shock-absorbing qualities of Permakote increase efficiency of personnel... add to service life of floors.



Be sure you choose the proper adhesive for fastening asphalt tile, wood block or other types of unit flooring to prepared bases. Often-times special conditions call for

special cements. The Flintkote Company produces a full line of **TILE CEMENTS**... with special formulae to meet above and below grade conditions, and other requirements.

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And there are other Flintkote Flooring Products to help you stretch your flooring budget. Premix Mastic, ready mixed, ready to use for patching holes and breaks in concrete floors... **Flintseal\***, the hot-poured, rubber-asphalt compound for positive sealing of joints and cracks against water-infiltration.



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## FLINTKOTE *Products for Industry*



ARCHITECTURAL

# forum

MAGAZINE OF BUILDING



LONG SWEEP OF SUN-  
SHADES IS DRAMATI-  
CALLY SET AGAINST  
THE BLANK WALL  
OF SERVICE TOWER

*Julius Shulman*



## Flyweight Buildings Skyscraper Architects Trim Construction Costs With Lighter Materials

Substituting Airy Aggregates  
For Heavy Concrete Pares  
Expense on Steel Supports  
for Houses, Apartments, Too

BY LEWIS B. HOCHSTRASSER  
Correspondent of THE WALL STREET JOURNAL  
LOS ANGELES—Buildings here

## Fabulous Building Has Movable Walls, a Boon To Office Rejugglers

General Petroleum Dedicating  
New Structure With Fins for  
Shade, Death Ray for Germs

BY ROBERT J. SULLIVAN  
Staff Correspondent of THE WALL STREET JOURNAL  
LOS ANGELES—An office building with  
an interior as flexible as a movie set will be  
dedicated here today.

Photos: Julius Shulman

**PETROLEUM BUILDING** covers almost every available inch of a one-acre site in downtown Los Angeles. Its horizontal lines are broken by vertical sunshades.



# TWO OFFICE BUILDINGS in Los Angeles

WURDEMAN & BECKET, Architects  
MURRAY ERICK, Structural Engineer

Behind all the "fabulous" and "fly-weight" hoopdedo surrounding the new Prudential and General Petroleum Buildings in Los Angeles lies the solid achievement of two very interesting office buildings—highly dramatic, thoughtfully conceived, carefully planned. They are the two biggest office buildings in Southern California, both just over 500,000 sq. ft., including the stores. The General Petroleum Building cost roughly \$11,000,000 (see page 90) and has since been sold to and leased back from the New York Life Insurance Co. The Prudential Building cost roughly \$8,000,000.

In many ways the two buildings are almost diametrically different. Prudential was planned for open clerical spaces, Petroleum, for executive offices. Prudential, free to spread out over two city blocks, is a special product of sprawling Los Angeles. Petroleum, like most city office buildings, compromises with a downtown acre. Prudential makes the most of its length; Petroleum, of its compactness. Prudential is completely contemporary. Petroleum takes advantage of today's lighting and air-conditioning to revive yesterday's interior court.

Yet both buildings bear so clearly the imprint of their architects, Walter Wurdeman and Welton Becket, and both buildings were so strongly influenced by their structural engineer, Murray Erick, that their differences serve rather to point up the directness of the designers' approach to different problems.

Both buildings manifest the same willingness—almost eagerness—to try something new. Both buildings make dramatic gestures out of features ostensibly adopted for purely functional reasons. Under Erick's influence, both have gone so far in the reduction of dead-weight by the use of light-weight materials that their construction must be reviewed as important field experiments in the use of pumice, vermiculite and other light-weight aggregates (see page 91).

## Neither slab nor loft

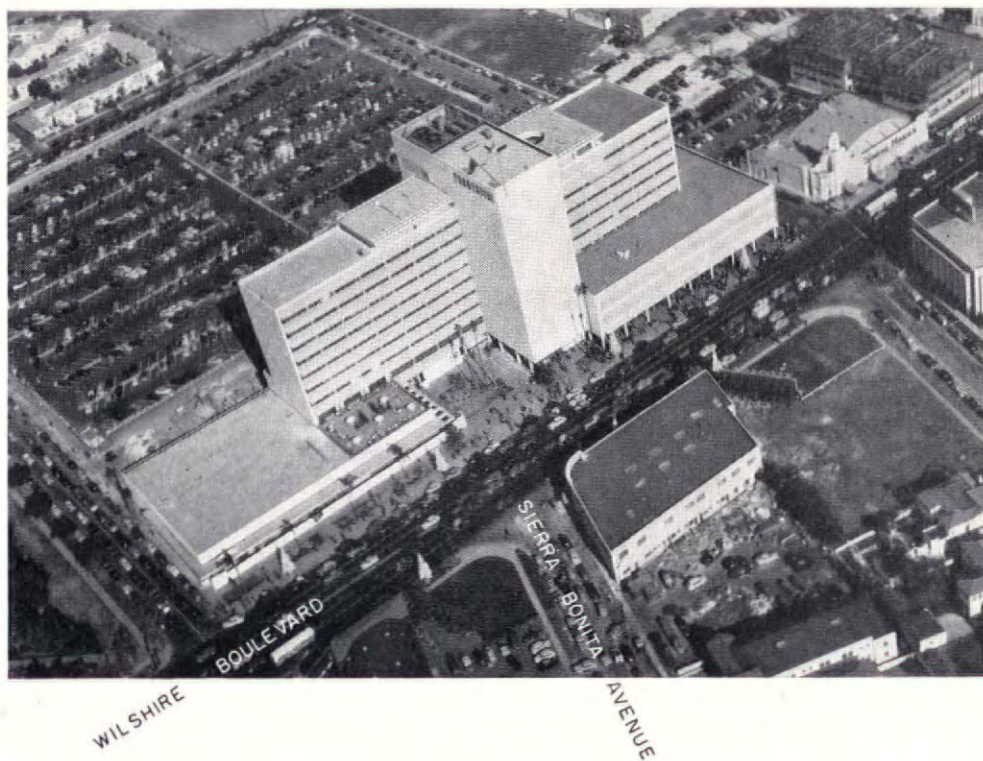
And in an age whose new office buildings too often offer a somewhat Procrustean choice between the thinness of the now fashionable slab and the fatness of the glorified loft-with-air-conditioning, these two buildings offer repeated evidence that it pays to have a thoughtful and resourceful architect study the uses to which a building will be put and tailor the plans in detail to meet the actual requirements of the client's operations and the economics of his lot.

Because the Petroleum building was planned for a valuable downtown site, it fills every available inch permitted inside the city's earthquake-dictated height limitation of 150 ft., except for two light courts and four small corner terraces outside the top floor executive offices. Because it was designed for the administrative headquarters of a big company whose vari-



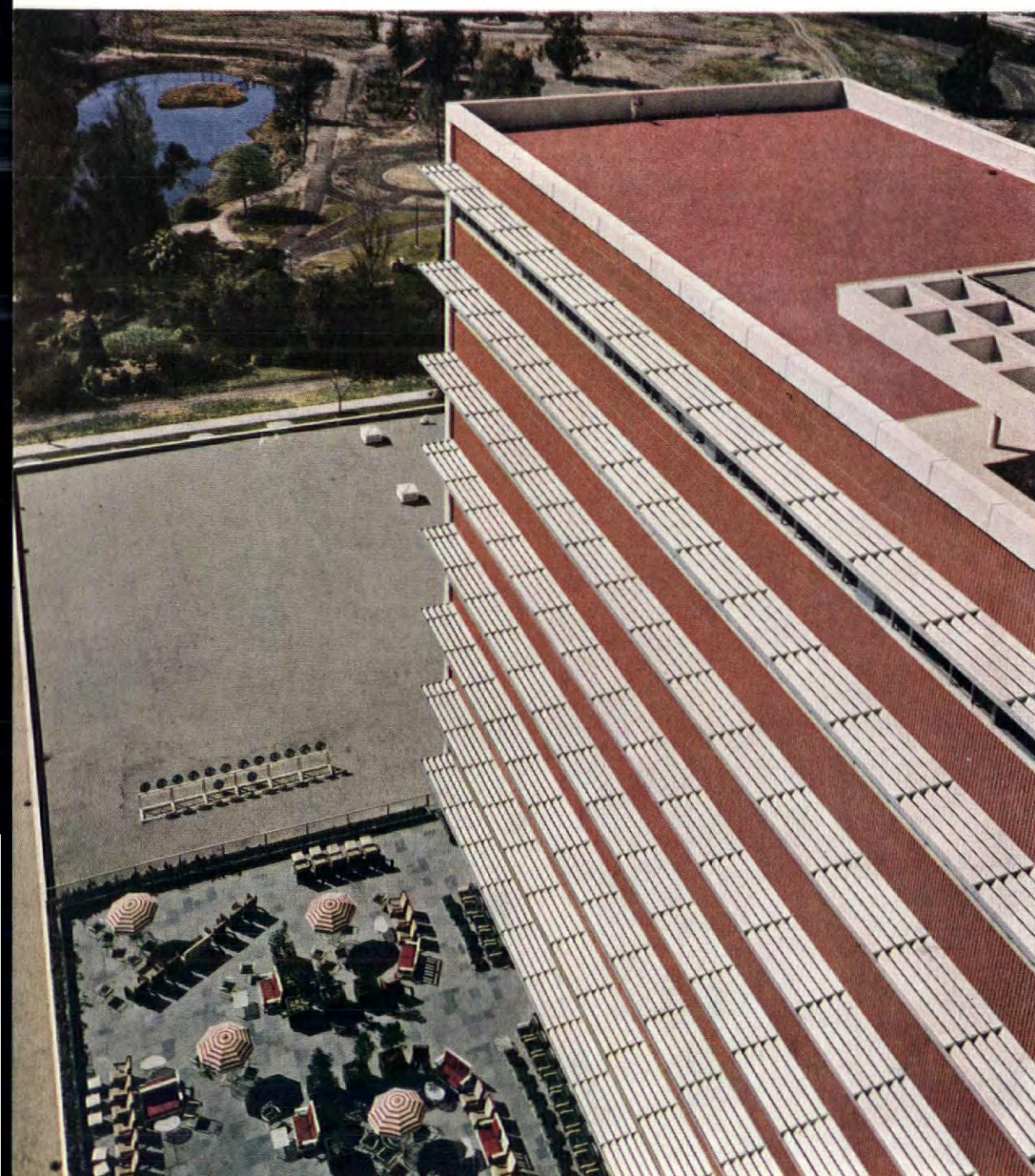
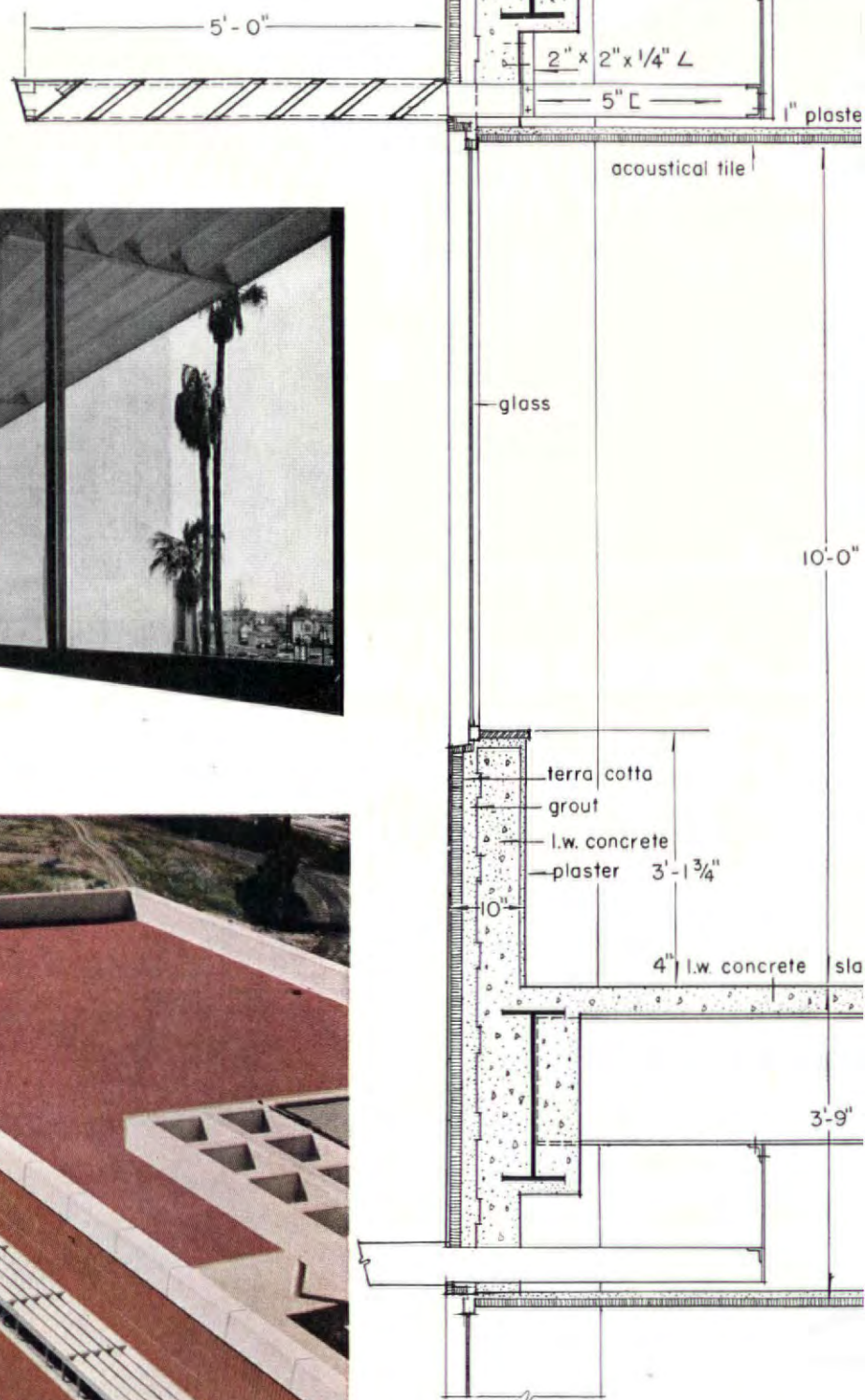
are dramatically designed, cannily constructed, full of new techniques

**PRUDENTIAL BUILDING** has big eleven-acre site (made possible by the city's closing of the bisecting street) which gave the architects plenty of space to design the building as they felt it should be—with ample room for ground floor stores, parking space for 1,000 cars and a chance to add a third wing later behind the central tower. But, the lot lies so near the famous La Brea tar pits (where prehistoric animals were trapped and preserved) that test borings showed only 17 ft. of good firm soil. Consequently, the building had to be erected without a basement on spread footings instead of piles.



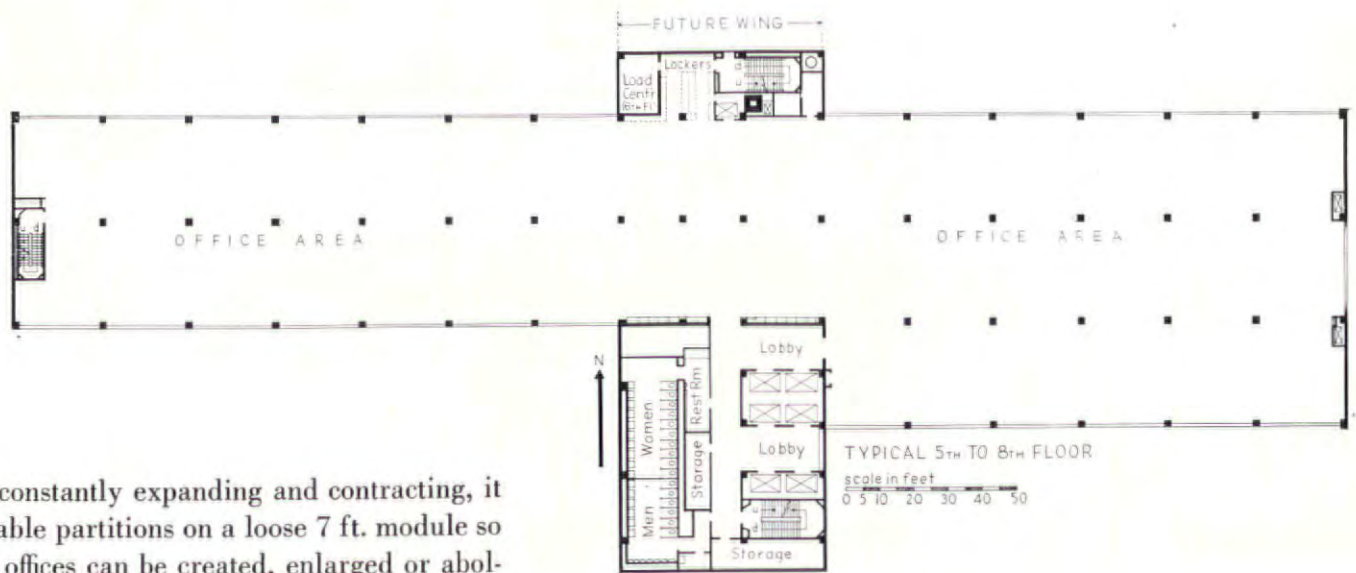


# PRUDENTIAL BUILDING



**DINING TERRACE**, viewed from atop Prudential Building's service tower, opens off second-floor employees' cafeteria and lounge, makes use of roof over Wilshire Boulevard stores. Louvered sunshades of aluminum (details above) contrast with vertically fluted terra-cotta tile finish of office wing's poured concrete spandrels. Despite the sunshades, glare has proved a problem at certain times, so draw curtains will be installed at the south windows.





ous departments are constantly expanding and contracting, it was planned for movable partitions on a loose 7 ft. module so well worked out that offices can be created, enlarged or abolished in a matter of hours without the heavy expense of going into the overall acoustical ceiling to make any change in the lighting or the air distribution.

Because space was valuable and height was restricted, Petroleum's floor-to-floor height was held down to 11 ft. 6 in., thereby providing two more working floors than would have been possible if the floor-to-floor height had been allowed to run up to Prudential's easier 13 ft. 9 in., and at least one more floor than would have been possible with the floor-to-floor height of any other important air-conditioned building erected since the war.

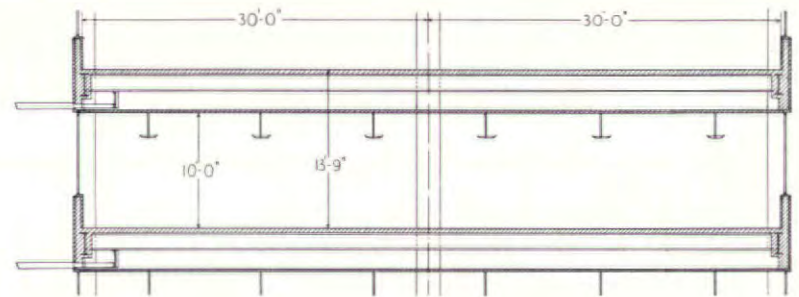
The Prudential Building, on the other hand, occupies only a small part of its 11 acre lot five miles out Wilshire Boulevard and achieved its 517,000 sq. ft. area by increasing its length rather than by compressing its ceilings. Similarly, Prudential needed no module-and-movable-partition system, since it was assumed that all floors except the penthouse would be open space for clerical help. On the other hand, it raised its window heights to the maximum to admit as much daylight as possible to the open areas and took advantage of its high ceilings to substitute an excellent almost glareless system of continuous semi-indirect fluorescent light (ten miles of it) for the ceiling troffers used at Petroleum.

### Every third column gone

At Petroleum, the relatively low 8 ft. 10 in. ceilings make the individual offices look larger. At Prudential, the 10 ft. ceilings suit the large open areas and let the daylight in. At Petroleum, the columns could be closely spaced on economical 21 ft. centers, since all the interior columns were hidden in the fixed corridor walls. At Prudential, with large open areas, a third of the columns were eliminated by spacing them on 25 ft. and 30 ft. centers. At Petroleum, planned for individual offices, all the interior columns are wet. At Prudential, the only pipes outside the central service core carry water to drinking fountains in the center of each wing.

At Petroleum the windows were spaced 2 ft. apart to give flexibility to the module. At Prudential, the windows run uninterrupted from column to column. (In both buildings folding casement windows were used so that they can be washed from the inside. The Prudential sandwiches two fixed panes between three folding casements in each bay.)

**PRUDENTIAL BUILDING'S PLAN**, with all utilities concentrated in the front of the windowless central tower, provides more than 27,000 ft. of open office space on each floor, running from end to end of the 385 ft. building. Movable partitions separate men's from women's toilets, can be shifted to fit change in ratios between the sexes. Six 4,000 pound, 800 ft. elevators have center opening doors and extra wide platforms, 9 x 5½ ft., for quick loading, serve only one floor per trip at quitting time.



**INDIRECT FLUORESCENT LIGHTING SYSTEM** delights Prudential employees with its lack of glare. Ten miles of tubes spaced in pairs 10 ft. apart hang 2 ft. below the ceiling and are never turned off during working hours, add 30 foot-candles to the daylight on the desk below. Building is wired for 2½ watts for illumination plus 1 watt for office machines. Seen from the outside, the long lines of lighting fixtures, parallel to windows, conform very effectively to the basic design of the long horizontal structure. Outside rows of light are kept going until midnight for advertising purposes—cost \$4.56 a night. Exterior flood lighting costs \$2.23 per night.

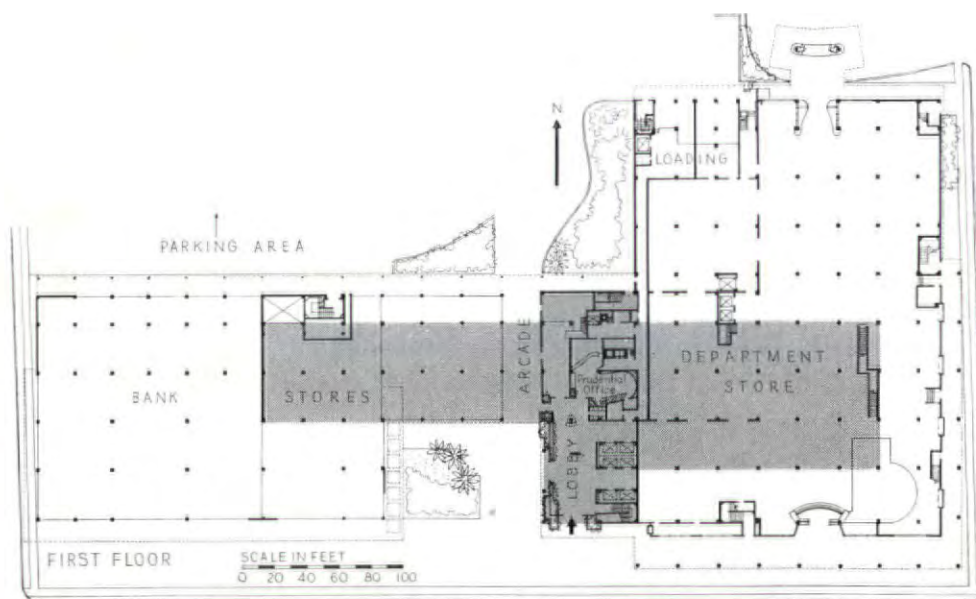
*Juhus Shulman*







**ORHBACH'S DEPARTMENT STORE**, occupies three lower floors under east wing, with second and third floors arcaded over the sidewalk.



**PRUDENTIAL'S GROUND FLOOR** plan provides no space at all for the insurance company, except a small policy holders' information office behind the elevator lobby. Shaded area indicates office building structure.



**OUTDOOR FEELING** is carried into the lobby by glass walls on two sides, with planting on inside and out.





At Petroleum the air-conditioning is a double duct system with 48 separate fan rooms and some 500 individual controls, so that different quantities of warm and cool air can be blended for each and every separate office. At Prudential, on the other hand, only the executive penthouse has a double duct system with individual controls. All the open floors are just divided into four zones, and supplied with air from one big fan room on the roof.

The fact that both buildings are air-conditioned in itself makes them almost unique in climate-happy California. And perhaps their most conspicuous feature is the manner each in its separate way reflects the architects' straining to reduce the sun load on the cooling system. At Prudential, this was done by eliminating all windows from the west and two thirds of the windows from the east ends of the wings, by blacking out all four sides of the central service core, and by running deep horizontal sun shades the entire length of the south side windows. The sun shades dramatize the 325 ft. sweep of the windows, while the blank walls at the ends and in the central tower offer an effective contrast with the long rows of windows.

### No layer cake here

The Petroleum Building, 130 ft. shorter but four stories taller, presented a different design problem. Most continuous window office buildings erected to any such proportions since the war have achieved about as little architectural charm as a 26-layer Napoleon slice. Consequently, instead of emphasizing their 26 horizontal lines with *brise soleil*, the architects adorned the structure with vertical sun shades, placing aluminum fins 130 ft. tall and 3½ ft. deep between all the windows on the three street exposures. Once again, the result is highly dramatic, and on the long northwest side it is functionally successful in eliminating almost the entire heat load of the afternoon sun.\*

The integration of the lighting system with the basic design of both buildings is notably successful. In contrast to almost all other postwar office structures whose continuous windows have exposed to the passerby a disturbing crazy quilt of bright fluorescent troffers, Wurdeman & Becket arranged the lighting of the Petroleum Building so that the vertical lines of its fins and windows are carried back into the building by fluorescent troffers running normal to the exterior wall behind the center of every window. And at Prudential, whose essential lines are horizontal, they have handled the lighting with six or nine continuous lines of suspended fluorescent tubes running parallel to the windows so that once again the dominant lines of the exterior are repeated and emphasized by the lines of the lighting fixtures visible through the windows. When the building is viewed from a distance, at twilight, these long parallel rows of lights behind the windows achieve a jeweled effect which is very remarkable.

\* On the north side, the fins are admittedly only for decoration. On the back of the building to the southeast they would have served so little purpose that they were merely simulated with poured concrete stubs. On the southwest side they are only partially functional. The fins cost \$178,000 in place. The refrigeration for 1,000 tons of cooling cost \$197,000, so the saving of 100 to 200 tons of refrigeration claimed for the fins was much less than their cost.

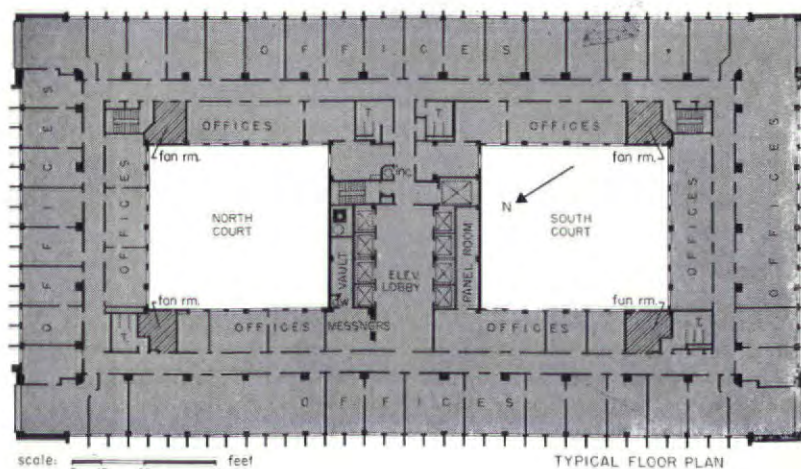


"Dick" Whittington and Art Streib Studio

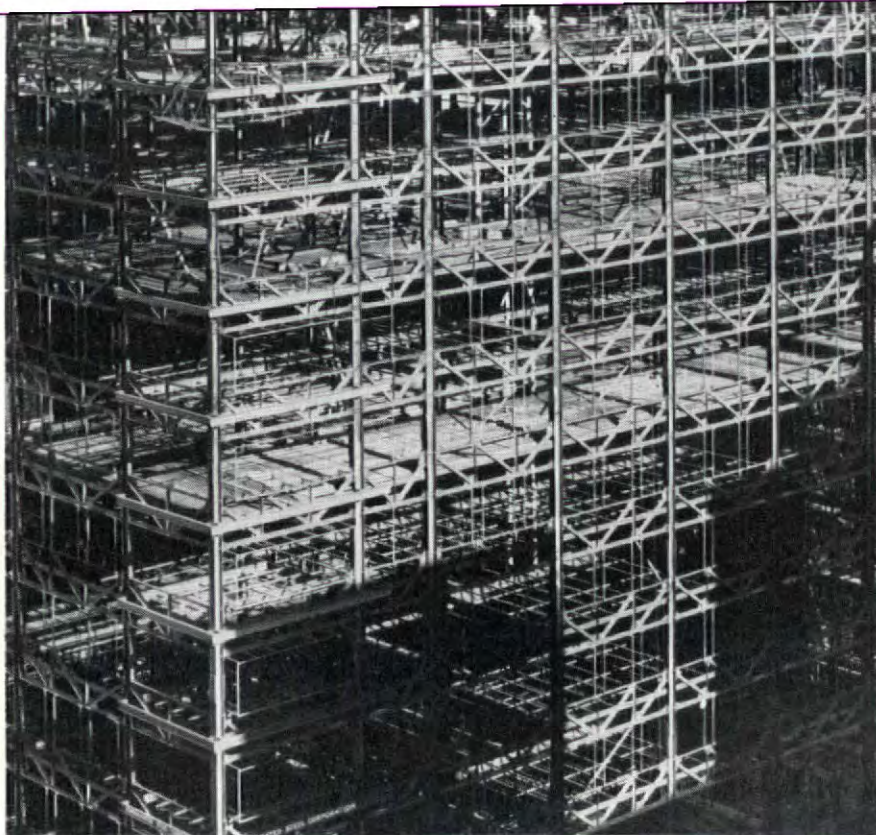


**MINUS SUNSHADES**, earlier photograph (insert) gives an idea what the Petroleum Building would look like if architects had left off the fins and had not blacked out all windows on second floor and west windows of corner offices to make a frame for their fin design.

**FLOOR PLAN** shows two interior courts and how most of the inside corners were filled with fan rooms, toilets and other services. Corridors were located so outside offices are 21 ft. deep, inside offices only 14 ft. deep. Architects proposed taking advantage of air conditioning to fill in the light courts, but client found employees opposed to completely windowless offices. Inside offices on four floors not occupied by General Petroleum have been rented at \$4 a ft., compared with \$4.50 and \$5 for outside offices.

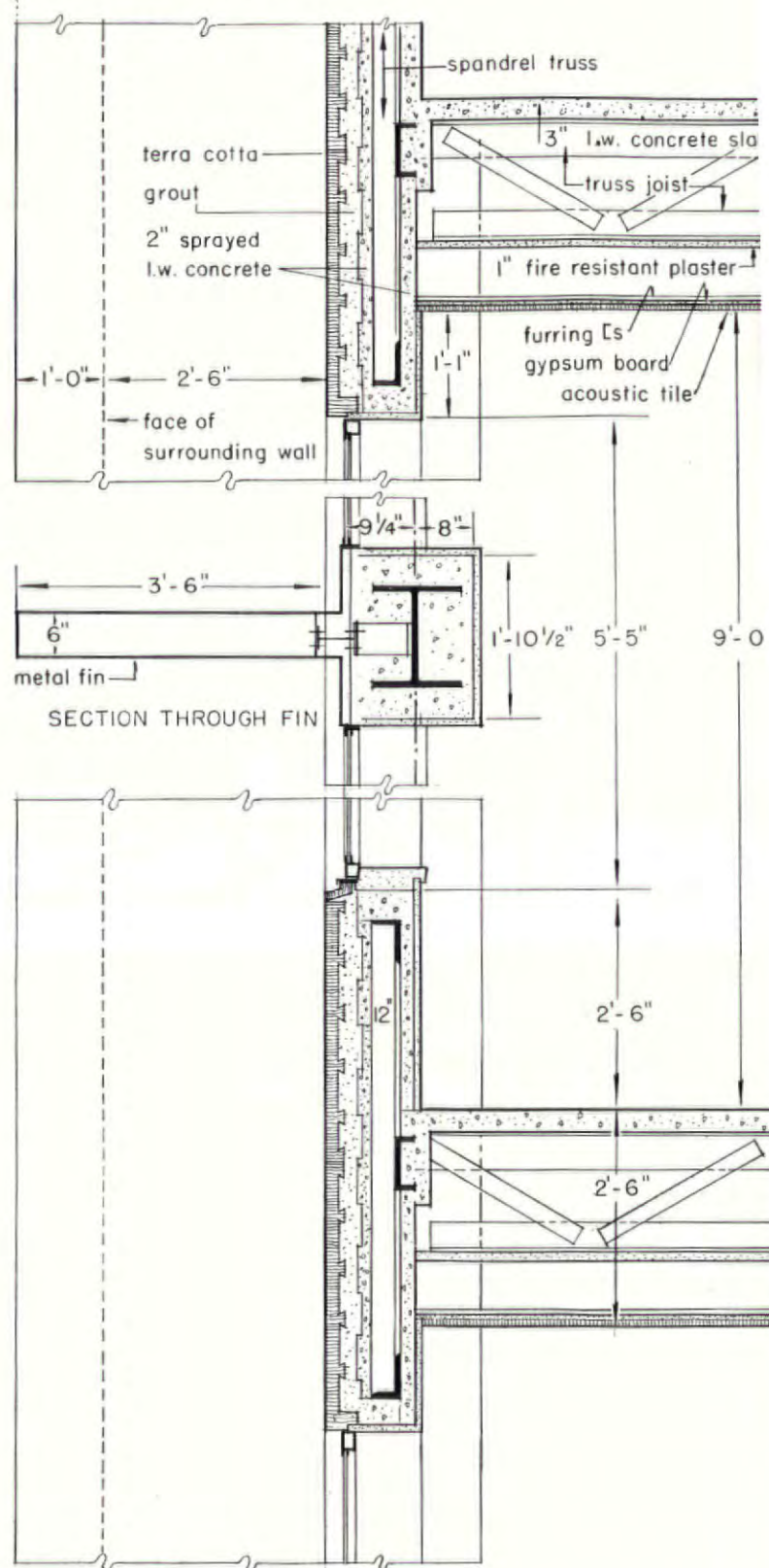






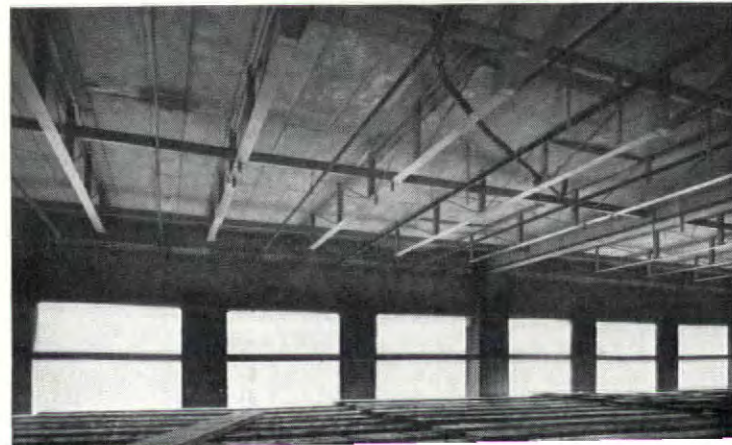
Art Streib Studio

## PETROLEUM BUILDING



TRUSSES ready for hung ceiling

"Dick" Whittington



### COST BREAKDOWN

Total cost of the General Petroleum Building was \$9,152,000; exclusive of architects' fees and \$938,000 budgeted to cover future tenant changes in rented offices and interior finishing of ground floor stores. Cubage is 7,492,070 cu. ft.

Principal sub-contracts were as follows:

Excavation .....	\$ 41,000
Structural steel* .....	993,000
Reinforcing steel .....	38,000
Lathing and plastering .....	593,000
Terra Cotta (material) .....	166,000
Granite work .....	62,000
Aluminum sash (1,500 windows plus stores) .....	212,000
Aluminum fins installed .....	178,000
Millwork .....	255,000
Marble and tile .....	62,000
Acoustical treatment .....	259,000
Movable partitions .....	181,000
Finish hardware .....	112,000
Elevators .....	412,000
Miscellaneous and ornamental iron .....	141,000
Painting .....	126,000
Plumbing .....	688,000

#### Electrical contract\*\*

Lighting fixtures .....	\$265,000
Additional special fixtures .....	40,000
Floor distribution .....	161,000
Transformer rooms .....	26,700
Bus bars installed .....	41,000
Other .....	283,300

817,000

#### Ventilating and air conditioning\*\*\*

Refrigeration cycle (1,000 tons) .....	197,000
Duct work .....	275,000
Individual controls .....	111,000
Equipment for 48 separate fan rooms .....	67,000
Other .....	109,000

759,000

\* 3,220 tons of steel plus 570 tons of joists.

\*\* Electrical distribution system uses bus bars to carry current at 480 volts from basement to smaller transformer rooms on third, sixth, ninth and twelfth floors.

\*\*\* Air conditioning cost was held down by dryness of Los Angeles summer—in New York or Chicago 50 per cent more cooling capacity would have been needed to handle humidity. Mild winters make window heating units unnecessary.



## Light-weight aggregates and trick framing cut the two buildings' weight by 28,700 tons

Some 13,100 tons of deadweight were designed out of the General Petroleum Building and 15,600 tons out of Prudential, making them the lightest office buildings of their size ever erected. The deadweight of Petroleum was reduced to 25,800 tons for a design live load of 8,300 tons, or about three to one; that of Prudential, to 32,000 tons for a design live load of 14,300 tons, little more than two to one. In each case, about 1,000 tons of structural steel was saved by the light-weight construction.

In Los Angeles such deadweight saving is more important than elsewhere, since deadweight is a major factor in seismic stresses.

In both buildings, the principal saving was achieved 1) by the use of a rich mixture of pumice concrete at 2,650 pounds per cu. yd. instead of sand concrete at 4,000 pounds and 2) by the use of vermiculite plaster at about 25 pounds per running foot to fireproof some of the steel instead of poured concrete at 225 pounds. Pumice concrete cost \$5 a cubic yard more, took a total premium of \$61,000 for 12,200 cubic yards used. On the other hand, wrapped vermiculite fire-proofing turned in a direct dollar saving on top of the weight saving, cost \$3 a lineal foot on a typical 18 in. W. F. 50 beam against \$4.70 for poured pumice concrete.

There were many differences in the way the two buildings were framed and the light-weight material used.

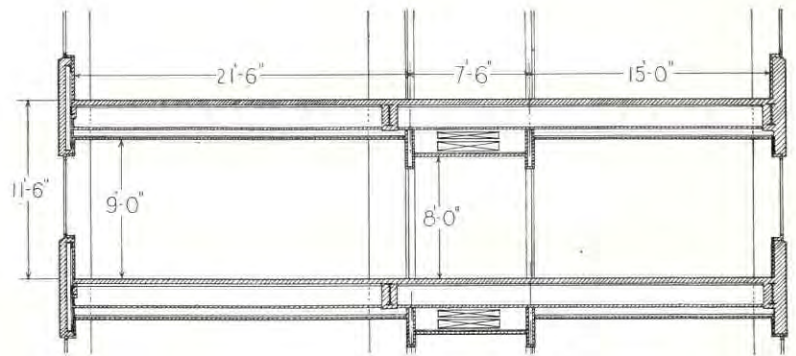
General Petroleum shows much the more complicated system, for in order to reduce the thickness of the slab to 3 in. it is supported every 31½ ft. by light steel joist trusses 18 in. deep. To avoid fireproofing so many trusses separately, a hung ceiling of wire lath and 1 in. of vermiculite plaster was suspended under them at a cost of \$4.85 a sq. yd., or some \$250,000 in all. And the building ended up with a second overall hung ceiling to conceal the air conditioning ducts. (This was not contemplated in the original plans, which called for introducing fresh air into the offices through louvers in the corridor walls instead of through center outlets in the ceiling.)

### Deep trusses for spandrels

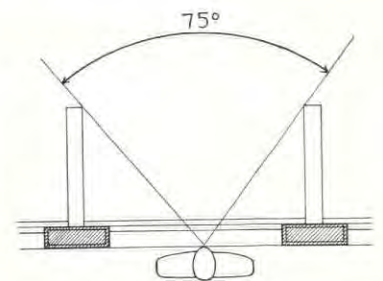
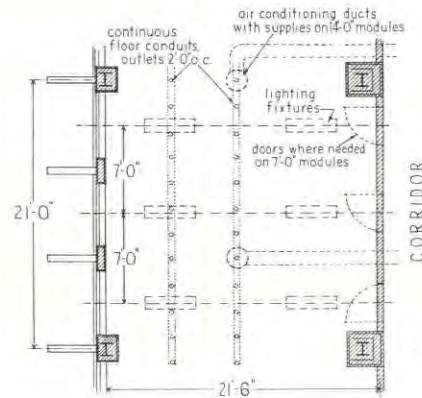
Another unusual feature is that General Petroleum has neither sheer walls nor spandrel beams. Instead, there are deep trusses filling the entire spandrel height, and their hollow fireproofing of gunite 2 in. and 4 in. thick is the only wall behind the 2 in. terra cotta facing. The trusses weigh only 67 pounds per lineal foot and help reduce the steel in the columns by cutting their unsupported story height in half. The use of light aggregate reduced the weight of the gunite by a third. Total weight savings at Petroleum were 8,300 tons from the use of pumice concrete, 1,000 tons from the use of vermiculite fireproofing, 2,800 tons from the hollow wall construction and 1,000 tons of structural steel.

At Prudential, the pumice concrete floor slab is 4 in. thick, since it is supported only every 8 ft., and the spandrel walls are poured pumice concrete 6 in. thick. The main beams and girders in both buildings are fireproofed in poured pumice concrete, and the intermediate beams in vermiculite plaster. And at Prudential, thanks to a special amendment in the building code, the columns are also fireproofed only with vermiculite plaster. Total weight savings at Prudential were 9,800 tons from the use of lightweight concrete, 4,900 tons from the use of vermiculite fireproofing, 900 tons from the use of pre-cast pumice concrete facing, and 1,000 tons of structural steel.

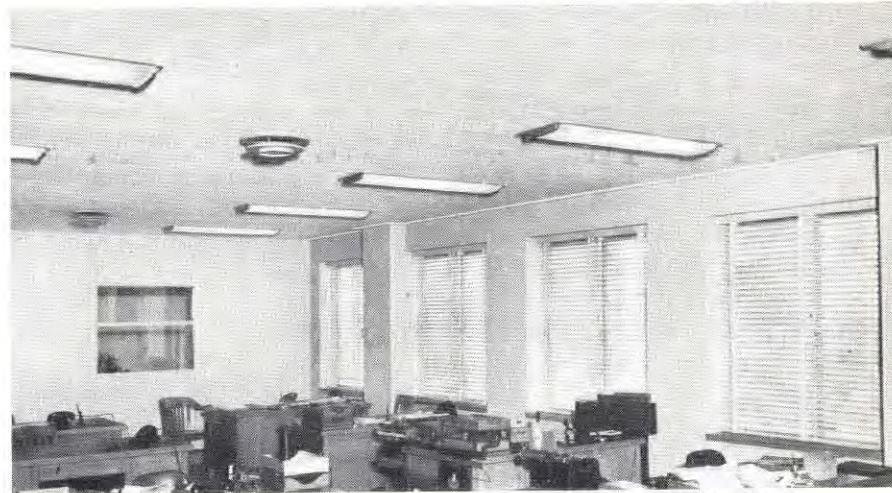
Asked what they would do differently another time, the architects said, if they were planning Prudential all over again, they would design the fireproofing exactly as they did, but if they were presented with the problem of concealing air ducts they would use intermediate beams instead of bar joists at Petroleum to eliminate the need of a second hung ceiling.



SECTION AND PLAN showing modular layout of Petroleum Building



SHUNSHADES reduce window view to 75°



**MODULAR SYSTEM AT GENERAL PETROLEUM** provides window and light troffers every 7 ft., air conditioning outlet with individual controls (costing \$111,000) every 14 ft., wash basin every 21 ft., acoustic ceiling everywhere. Wide mullions between windows give some flexibility to plan. The 7 ft. module was adopted after a study of other buildings in Los Angeles showed that offices 14 ft. x 21 ft. suffered least vacancies in bad times and commanded highest average rents. Outside offices are 21 ft. deep, court offices, only 14 ft. Corridor location is frozen by low ceiling (7 ft., 11½ in.) under air conditioning ducts, so corridor walls are permanent, all other partitions except in top-floor executive offices can be shifted quickly without any change in lighting, acoustics, or air conditioning. Three sizes of coat closets are carried in stock for big, medium and small offices. They may also enclose a lavatory (below).





## CORKSCREW PARKING for Petroleum Building is one-floor garage six stories high



Art Streib Studio

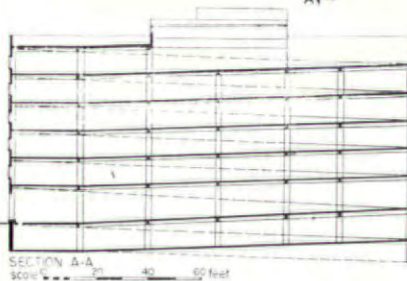
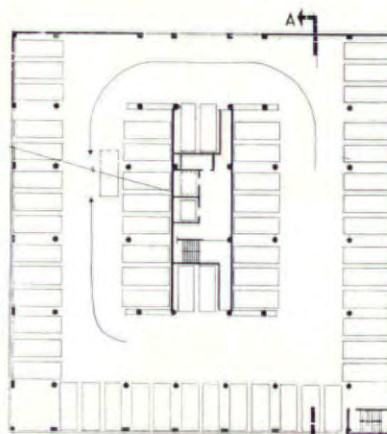
Whereas Prudential, because of lower land costs, could afford to park its employees' cars on the ground (p. 85), Petroleum's parking lot was forced to take to the air. After experimenting unhappily with a traditional level-floor design (below), Architects Wurdeman & Becket came up with a continuous-ramp garage and the boast that it would cost 30 per cent less, park 30 per cent more cars and reduce operating pay-rolls and maintenance bills. This unusual building consists of a single continuous ramp, 60 ft. wide, winding up and around a rectangular utility core in a square spiral at a 4 per cent grade. As many as 477 cars can be parked one deep directly on the ramp at right angles to the two-way traffic aisle.

Owners park and "pick up" their own cars; thus, a minimum staff of attendants is needed to turn the cars around during the day. Service and washing facilities were put on the roof to minimize ground-floor congestion. Omission of windows made ventilating and sprinkler equipment unnecessary. Total area, 169,500 sq. ft.; cubage, 1,625,000 cu. ft.; cost, \$1,030,000.

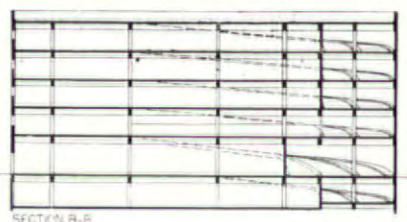
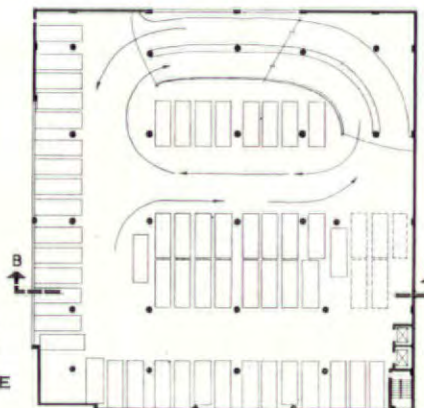
### The first idea

A conventional level-floor ramp garage designed for the same 145 x 152 ft. lot would accommodate 117 less cars, due principally to allocation of the entire ground floor to more elaborate service and washing facilities and to a reduction of 1,800 sq. ft. in sub-grade floor area. (The spiral ramp garage—above—bores  $11\frac{1}{4}$  stories into the ground.) A typical upper floor would accommodate 60 cars—four less than the spiral floor as built. Total area: 155,558 sq. ft. This design was discarded in favor of the continuous ramp garage described above.

SPIRAL  
RAMP  
GARAGE



LEVEL  
FLOOR  
GARAGE

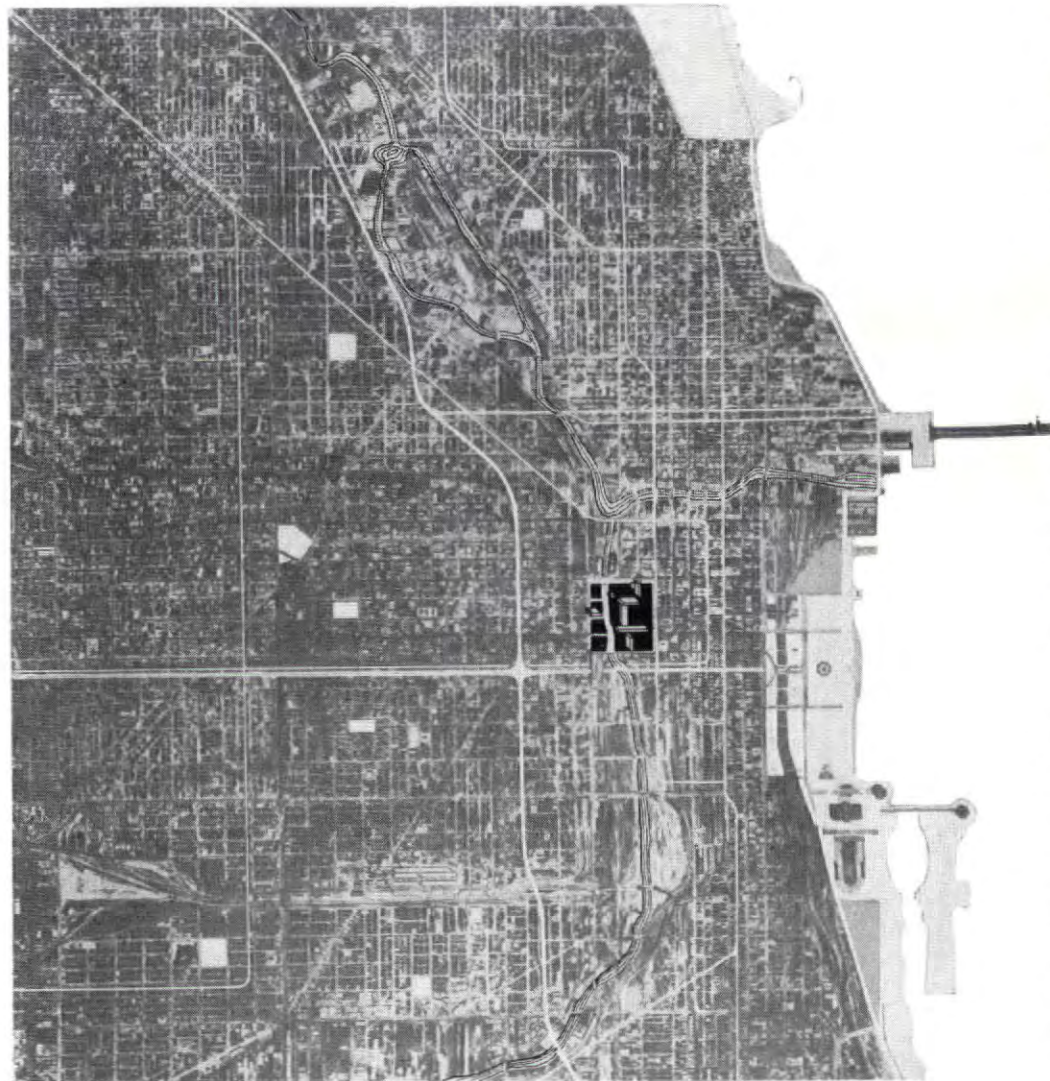


**CONSTRUCTION OUTLINE** (Prudential Building). General Contractor—William Simpson Construction Co. Exterior walls—terra cotta tile, Gladding-McBean & Co., grout, reinforced lightweight concrete spandrels. Also, precast architectural concrete panels, Wales Bageman, Inc. and Otto Buehner & Co. Structural steel—Bethlehem Steel Co. **ROOFING**—Pioneer Flintkote Co. **INSULATION**: Roofs—Fiberglas, Owens-Corning Fiberglas Corp. Sound insulation—National Gypsum Co. **WINDOWS**: Sash—Browne type aluminum, Universal Corp. Glass—Libbey-Owens-Ford Glass Co. **ELEVATORS**—Otis Elevator Co. and Westinghouse Electric Corp. Escalators (department store)—Otis Elevator Co. **FINISH FLOORING**—asphalt tile, Armstrong Cork Co., Kentile, David E. Kennedy Co. **EXTERIOR DOORS**—Tuflex, Libbey-Owens-Ford Glass Co.; others, Kawneer Co. **HARDWARE**—P. & F. Corbin. **ELECTRICAL FIXTURES**—Westinghouse Electric Co. **PLUMBING FIXTURES**—Kohler Co. Closet connections—Zurn Mfg. Co. **WARM AIR HEATING AND AIR CONDITIONING**—Chilled water system, York Corp. Boilers and water heater—Fitzgibbons Boiler Co. Aero-fuse outlets—Tuttle & Bailey, Inc. Regulators—Minneapolis-Honeywell Regulator Co. Incinerator—Morse Boulger Destructor Co. Special equipment: Vertical Mail Conveyers—Standard Conveyor Co.

**CONSTRUCTION OUTLINE** (General Petroleum Building) General Contractor—P. J. Walker Co. Waterproofing—Pioneer Flintkote Co. **STRUCTURE**: Exterior walls—steel trusses, pumice concrete, Desert Materials Corp., gunite rocklite and vermiculite and terra cotta facing, Gladding, McBean & Co. Interior partitions—lath and plaster, plywood, glass or aluminum. Movable partitions—E. F. Hauserman Co. Ceilings—mirror tiles or Acousti-Celotex, Celotex Corp. **ROOFING**—Pioneer-Flintkote Co. and Armstrong Cork Co. **SOUND INSULATION**—Acousti-Celotex, Celotex Corp. **WINDOWS**: Sash—Browne type folding casement, Universal Corp. Glass—Libbey-Owens-Ford Glass Co. **ELEVATORS**—Otis Elevator Co. **DOORS**: Exterior—Tuflex, Libbey-Owens-Ford Glass Co. Interior—Pacific Manufacturing Co. **HARDWARE**—Russell & Erwin Mfg. Co. **ELECTRICAL INSTALLATION**: Switches—Arrow-Hart & Hegeman Electric Co. Fixtures—utility, General Electric Co., fluorescent, Sunbeam Lighting Co. Intercommunication system—Dictograph Products Corp. Switchboard, etc.—Westinghouse Electric Co. Bus ducts—Square D Co. Conduit—National Electric Products. **PLUMBING FIXTURES**—American Radiator-Standard Sanitary Corp. Drains and fittings—Zurn Mfg. Co. Closet fittings—Blake Mfg. Co. Pumps—Chicago Pump Co. and Worthington Pump & Machinery Corp. Shower Stalls—Fiat Metal Mfg. Co. Partitions—Sanymetal Products Co. Pipes—Mueller Co. and Alabama Pipe Co. Water softeners—Permutit Co. Tanks—Consolidated Steel Co. Fire protection equipment—Walter Kidde & Co. **AIR CONDITIONING**—Worthington Pump & Machinery Corp. Ceiling outlets—Venturi-Flo, Barber-Colman. Grilles—Barber-Colman and Air Devices, Inc. Thermostats—Johnson Service Co. Pumps—Wienman Pump Co. and Chicago Pump Co. Cooling towers—J. S. Pritchard Co. Fans—B. F. Sturtevant Co. and Westinghouse Electric Corp.



# CHICAGO CIVIC CENTER, proposed by Plan Commission, will consolidate government offices in a midtown park



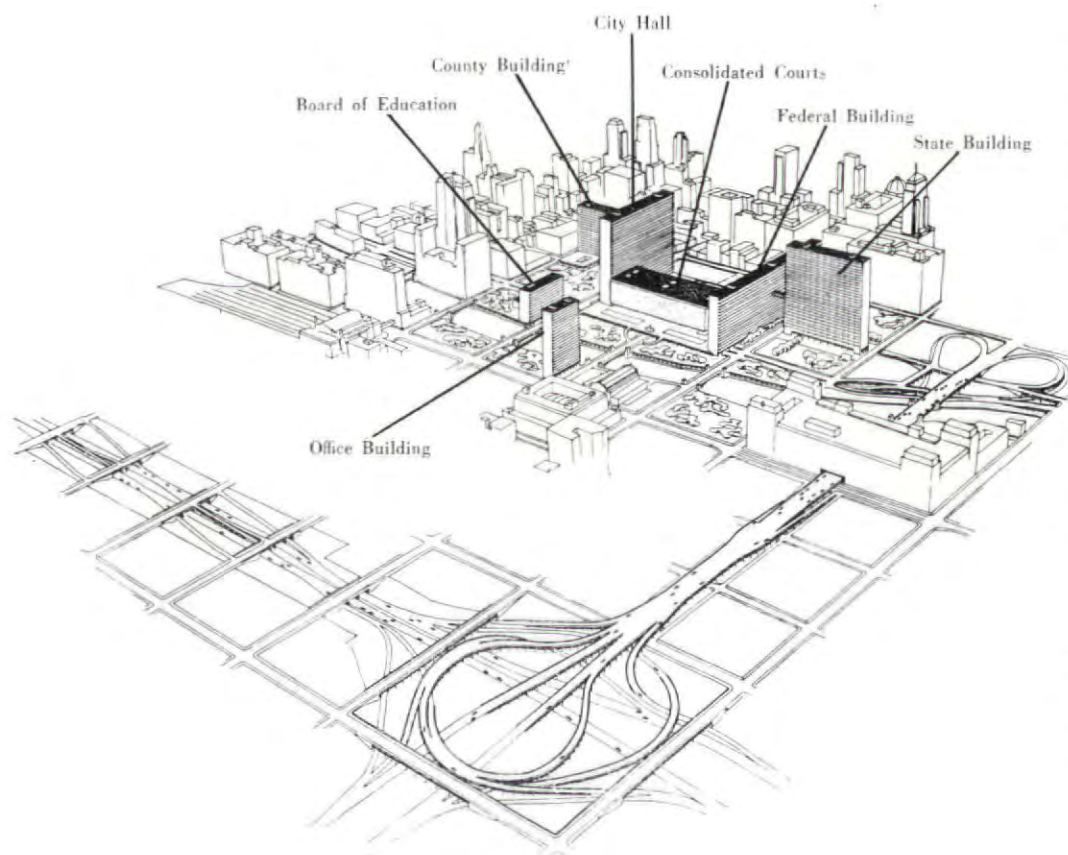
Since 1909 when Chicago got its famous Burnham Plan for the future development of the city, little has been done toward effective realization. Last month, however, the Chicago Plan Commission, chair-manned by Architect Nathaniel A. Owings and spark-plugged by its elder statesman, Architect John Root, produced plans for a far-sighted but realistic civic center to replace eight blocks of miscellaneous real estate straddling the Chicago River in the heart of the city.

Today, Chicago's various governmental agencies are inefficiently scattered all over town in buildings which are old, if not obsolete. The Federal Government is spread thinly over 35 locations; state offices occupy 20 more; the county, 10; the city, 15. They are over-crowded in 1,500,000 sq. ft. of publicly owned buildings and 3,500,000 sq. ft. of rented space which costs taxpayers \$7,250,000 per year. Some agencies are even now forced to plan new independent buildings, further decentralization, and, therefore, increased lost motion and operating costs.

The plan commission's studies indicated that 3,000,000 sq. ft. of these governmental offices could profitably be consolidated in a new civic center (Federal Government operations conducted in some 2,000,000 sq. ft. of rented space could not). After consideration of five sites, the Commission recommended the midtown area bounded by Wells, Van Buren, Canal and Madison Streets. This is near the center of the business population but not in the Loop (where it might hamper business growth); it is near transportation arteries and terminals (the Union Station is actually within the site), and includes the already proposed Congress Street and Northwest expressways (drawing, left). The ground is covered, not by relatively new, high-valued skyscrapers, but by buildings which Chicago wouldn't miss and whose value is low enough to make purchase feasible and tax loss, small. The larger, 41 acre tract east of the river is for the project proper; the area west of the river is for future expansion.

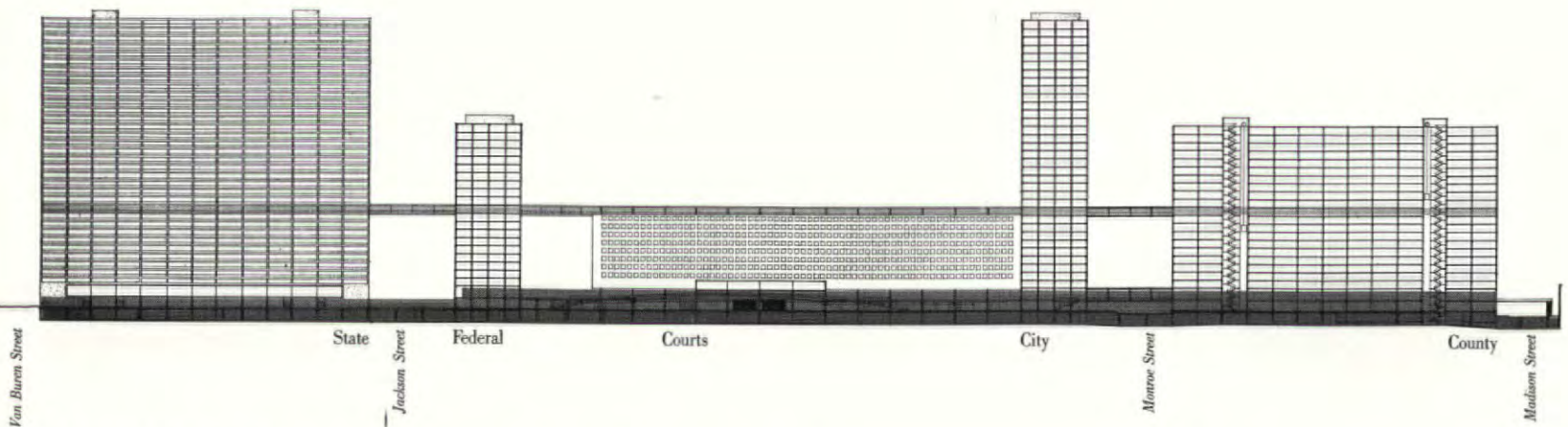
Conceived as a unit with emphasis on flexibility, daylight and intercommunication, the project consists of seven buildings occupying less than half the site. The balance is devoted to park areas which would give the urban development a green and open suburban feeling. Produced by a long list of relatively young architects under the guidance of two leaders of the profession (Nat Owings and John Root), the preliminary design of the group of buildings is fresh and well composed, even though it does not display the grace and variety which may be expected as the studies progress toward final form.

Since land and site improvements alone would cost an estimated \$49,000,000, it is proposed that development progress in phases. Phase No. 1 would involve acquisition of only four acres of land for the five main buildings, plus four acres for a central plaza. Including the deck over the bisecting street, land and improvement costs for this initial phase would approximate \$25,500,000. As to the Center's future, a resolution recommending an ordinance to establish the area is now before the City Council. Next step: creation of an agency with power to promote, plan and manage the Center. Its financing would be borne by the Governments concerned.





## CHICAGO CIVIC CENTER



**PROPOSED CIVIC CENTER** would bring redevelopment of a large area on either side of the Chicago River, near the heart of the city's central business area. The massing represents a clear division of the constituent structures: municipal, county, state, and federal

work space. Project is a logical extension of Chicago's Master Plan of 1909, which produced the Lake Front parks. In the first stages of the planned development, only the buildings east of the river, toward the lake, would rise. Elevation (above) is viewed from east.

- Connecting concourse
- Plaza level and Street level
- Below-ground parking level

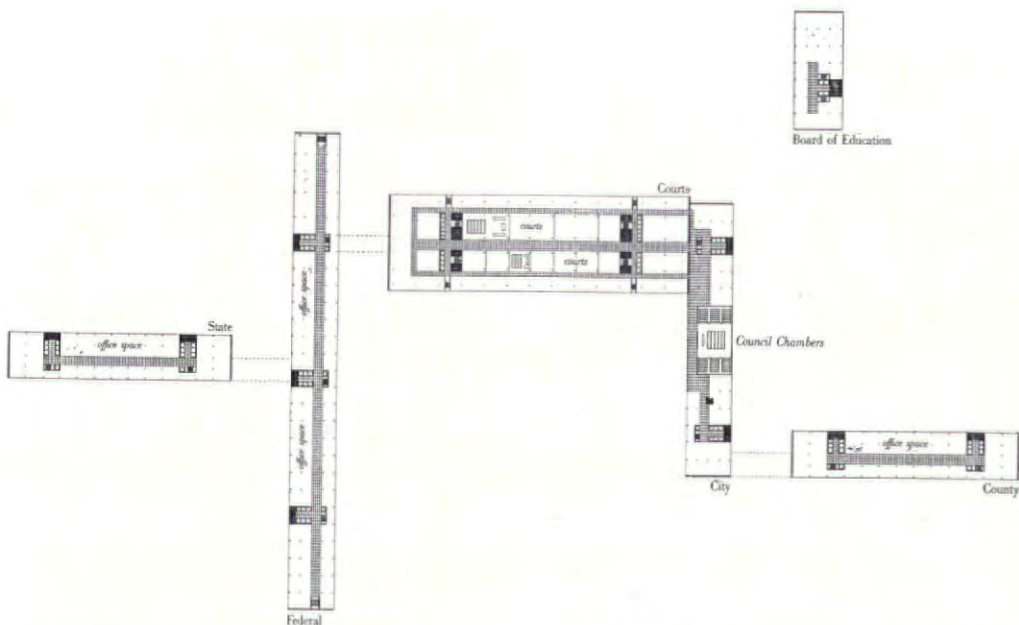
Photo: Chicago Aerial Survey Co.; Model, Hedrich-Blessing





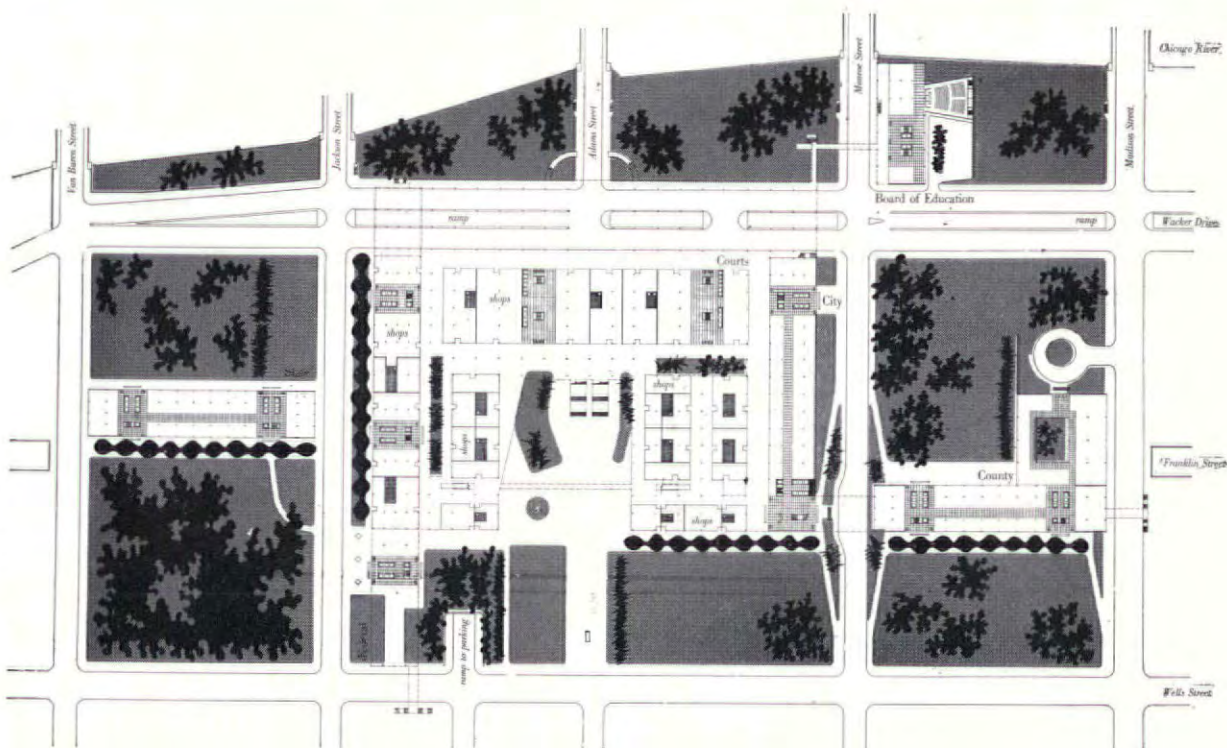
## TYPICAL FLOOR

Typical plan shape is long and lean, with courts building the lowest and stoutest. Interior areas are arranged for flexible use and interchange of space, from court rooms and council chambers to offices. Ground coverage is held to a minimum.



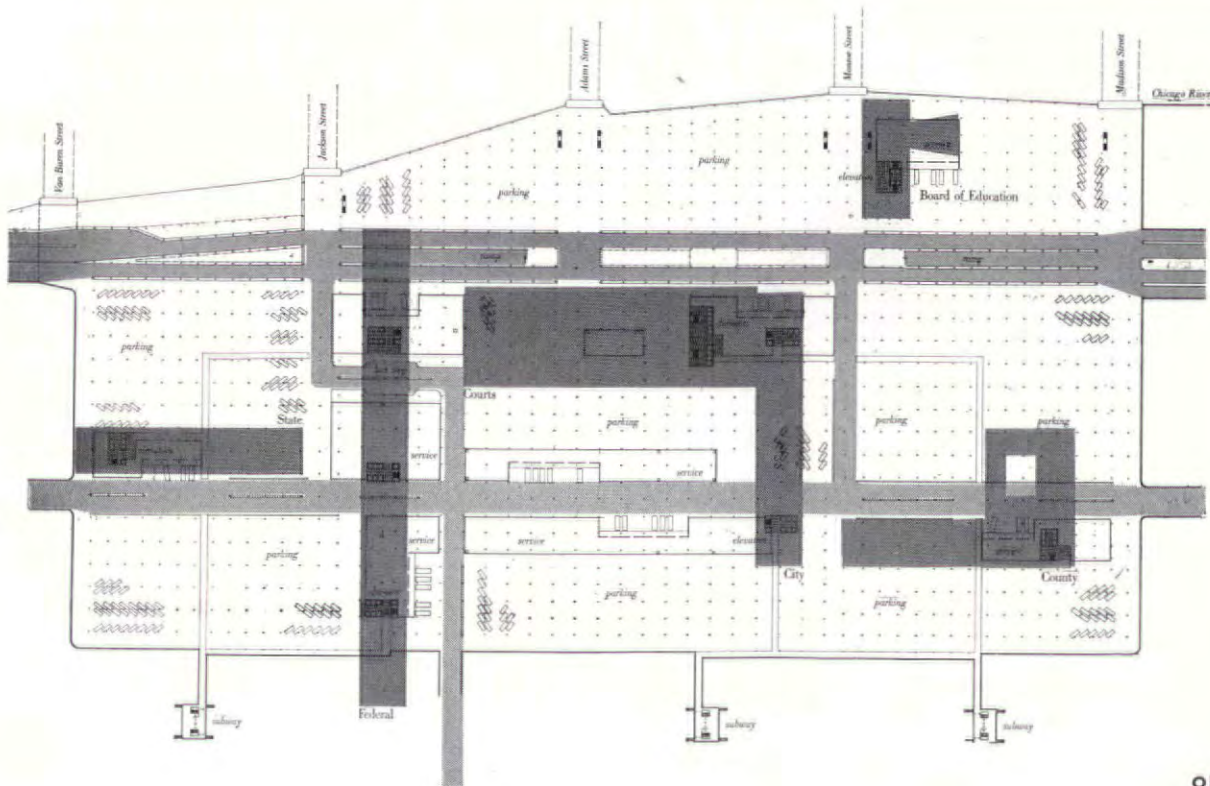
## STREET LEVEL

Through traffic along important streets is unhampered in Civic Center plan. An elevated plaza, enclosed by the three central buildings, connects all government structures. Street level is shopping, service, and green space.

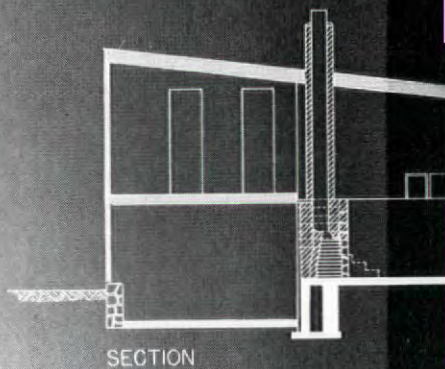


## PARKING LEVEL

Vast cellar is planned for development as a major parking facility, with easy access from main thoroughfares, and a capacity of approximately 3,000 cars to help provide income for the group. It also serves as a link to subways.



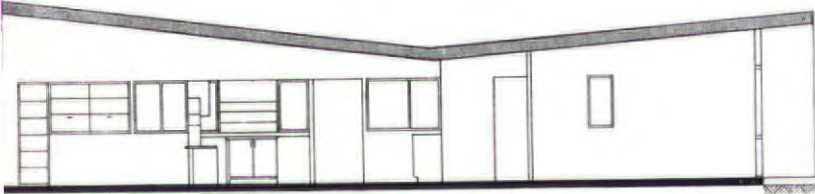






# HOUSE FOR THE GROWING FAMILY

MARCEL BREUER, Architect



In a corner of the sculpture garden at Manhattan's Museum of Modern Art, almost overshadowed by the monumental facades of a half dozen neighboring brownstones, stands a small house whose purity of line and precision of detail place it among the best contemporary architecture in America. It is the Museum's newest project: a house designed by the internationally known architect, Marcel Breuer, specifically to the Museum's qualifications. The problem given to Mr. Breuer by the Museum was to produce "a moderately priced house for a man who works in a large city and commutes to a so-called 'dormitory town' on its outskirts where he lives with his family." Accordingly, Mr. Breuer has planned the house for children and for servantless living. Even more important, he has made it an expansible structure which can follow the two major phases of typical family life. As seen at the Museum, the house is in its final form with children's bedroom wing at one end of the living quarters and parents' suite atop a garage-storage area at the other. In its earlier phase, the house is minus parents' suite and garage, one of the subsequent children's bedrooms serving as the parents' room. This is an excellent arrangement since, when children are young, the parents must be near them, but as they grow older and the house is expanded, privacy is a prime objective.

An outstanding characteristic of the design, and one which is linked with its expansion, is the "butterfly" pitch of the roof. Two planes, a short one over the children's wing and a longer one over the living room and parents' quarters, slope downward toward the center. This arrangement allows space for the two-story section at the highest end. In addition, it eliminates the necessity for gutters and drains at the edge of the roof. A single drain at the center passes down through the house (beside the bathroom plumbing stack), thus eliminating the winter problem of frozen pipes. The sloping ceiling adds a sense of interior spaciousness. Few partitions meet the ceiling and thus one never gets the feeling of being enclosed in a tight, rectangular box. Even the second floor parents' suite is left open, adding much to the spaciousness of both living room and bedroom (see cut left) except when the curtain is drawn for privacy.

Ezra Stoller: Pictorial Services, Inc.



*Separation of small bedroom wing from the rest of the house is forthrightly expressed by change in roof pitch. Delicately railed stairs give private access to upper bedroom suite through a small balcony. Below: service yard and entrance patio separated by free-standing louvered partitions.*

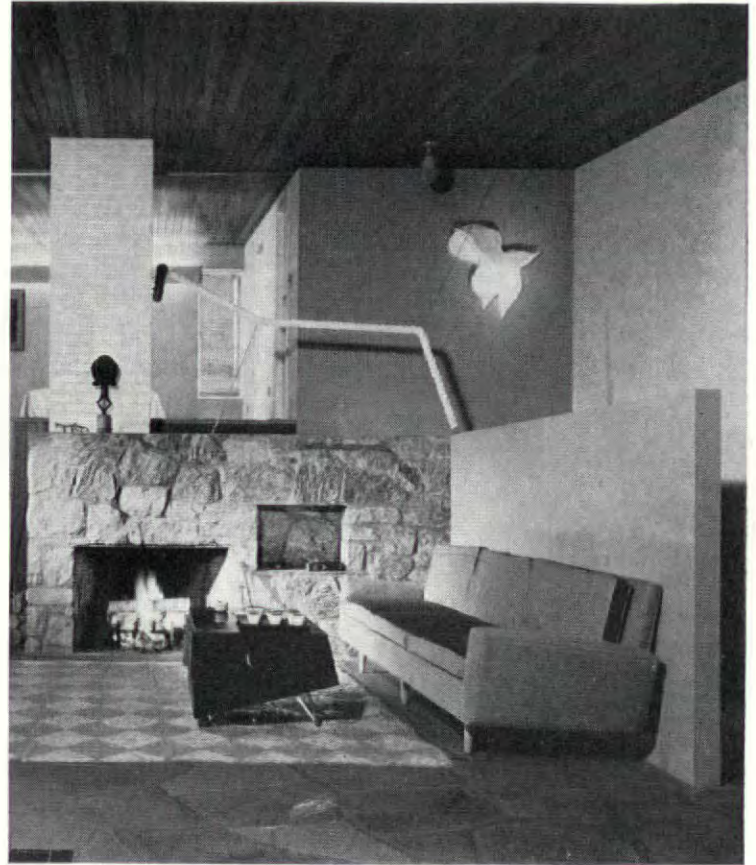




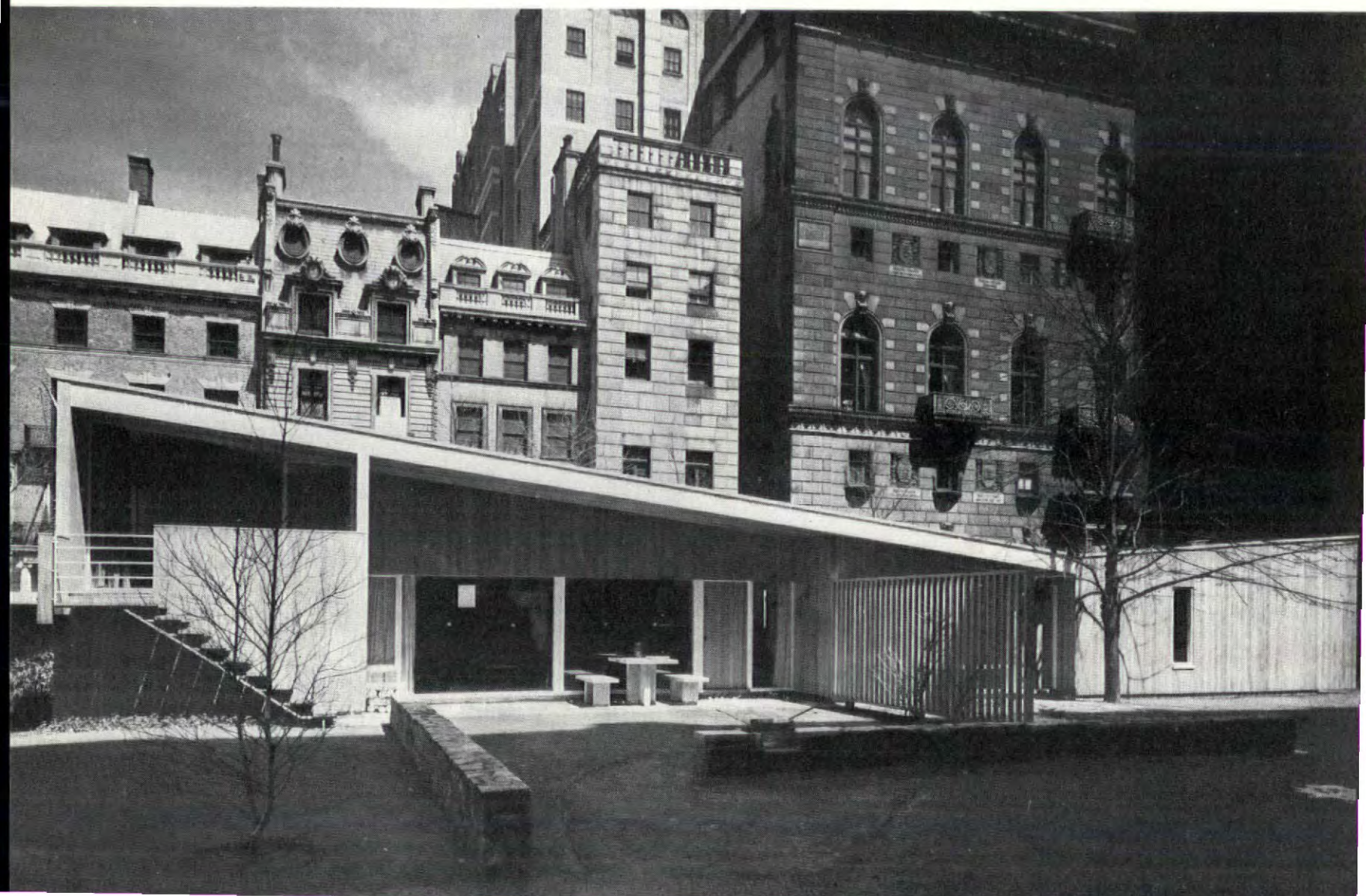
MARCEL BREUER, Architect

The plan of this house bespeaks a family man, fully aware of the every-day problems connected with raising children. One of the most important features is the utility room which should perhaps be re-named the "mud room." Direct access from the out-of-doors makes it the logical place for removing galoshes and snowy playsuits without tracking through the rest of the house. The location of the playroom next to the child's bedroom is another excellent arrangement. In case of measles or mumps, one bed can be moved into the playroom and quarantine easily established. As the family grows and the parents move into the bedroom at the opposite end of the house, the children gain a private suite. The former parents' room can be used for over-night guests and the playroom becomes a party room where teen-agers can entertain without disturbing mother and father. Thus, it becomes obvious that this house (which will be acclaimed by many for its fine design, but criticized by the unthinking as arty) actually has one of the most logical, thoughtful and practical plans to be found in any home. In addition it displays a trimness and cleanness seldom encountered in even the best contemporary design.

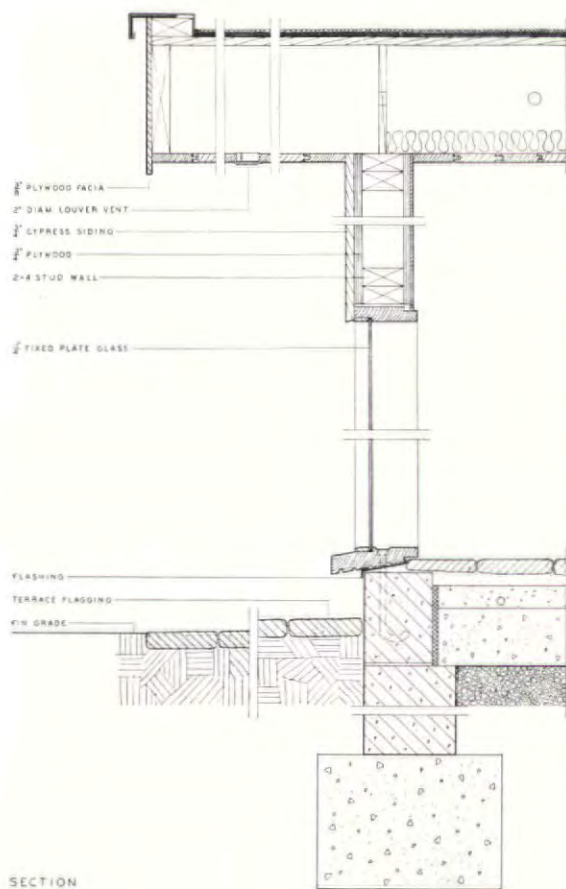
Breuer is perhaps best known for his exquisite detailing and this house, like his others, shows a craftsman's concern for fine joinery. Note the precise joints of wall and ceiling trim; flagstone floor and window sill; upper sash and interior wall trim; and the difficult up-slant of exterior boarding above the window which prevents rain-rotting of the exposed end. Also typical of Breuer's meticulous concern for detail is the steel angle used under the copper flashing to assure a straight, clean roof line.



*Stair and balcony railing between living room and parents' bedroom is heavy rope held in place by wire cables. Floors, suitable for radiant heating are bluestone. Sculpture is by Jean Arp.*



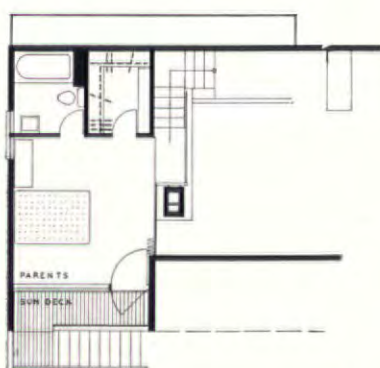




SECTION

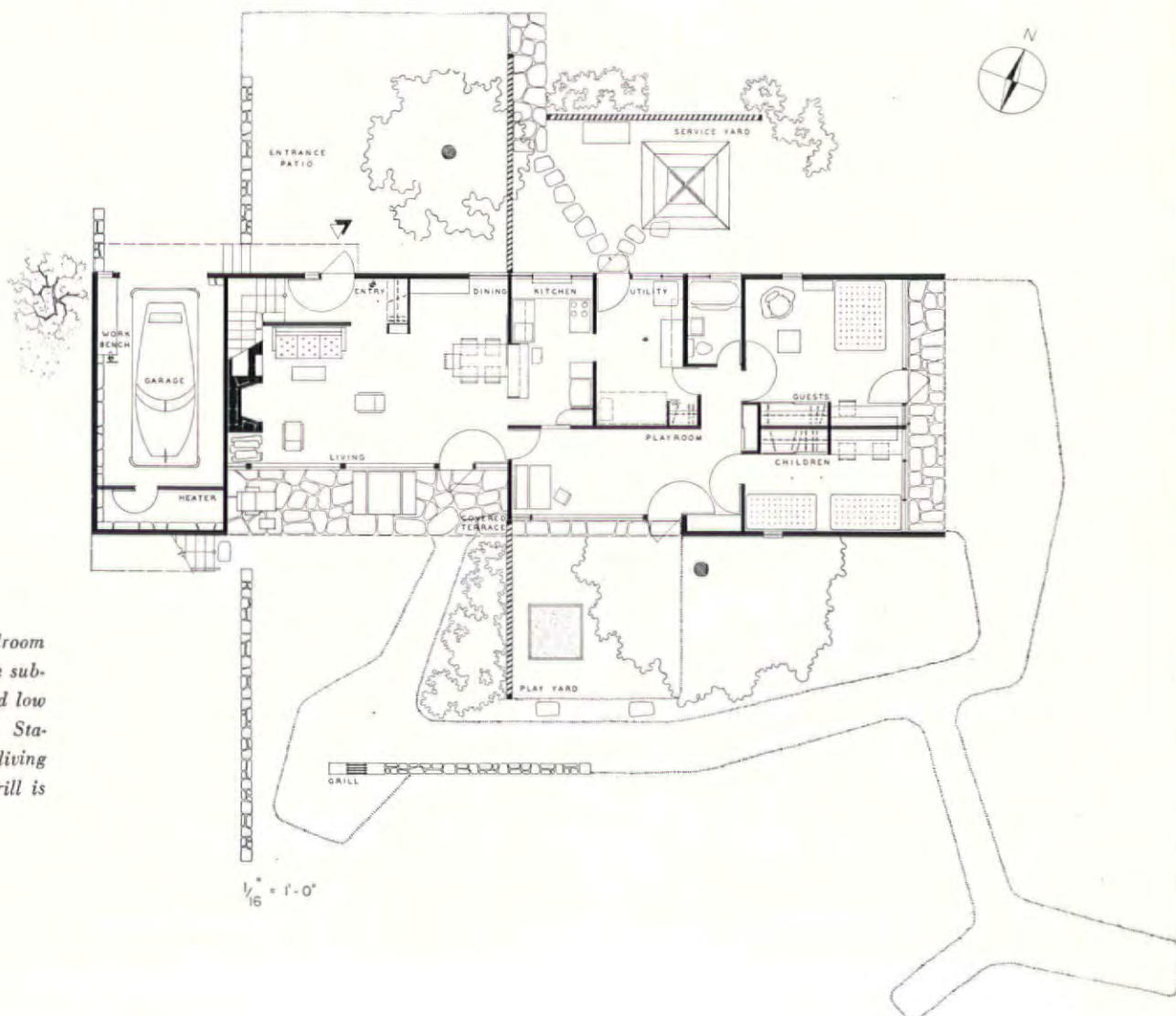


Living room with view of terrace. Radio-television-phonograph is designed as two units. The one containing switches and controls, within reach of couch, doubles as a coffee table and magazine rack.



SECOND FLOOR

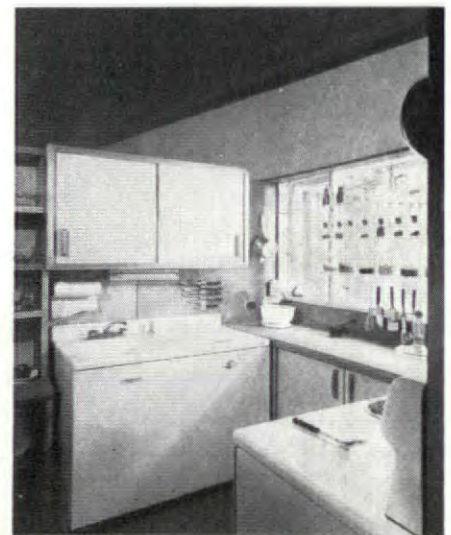
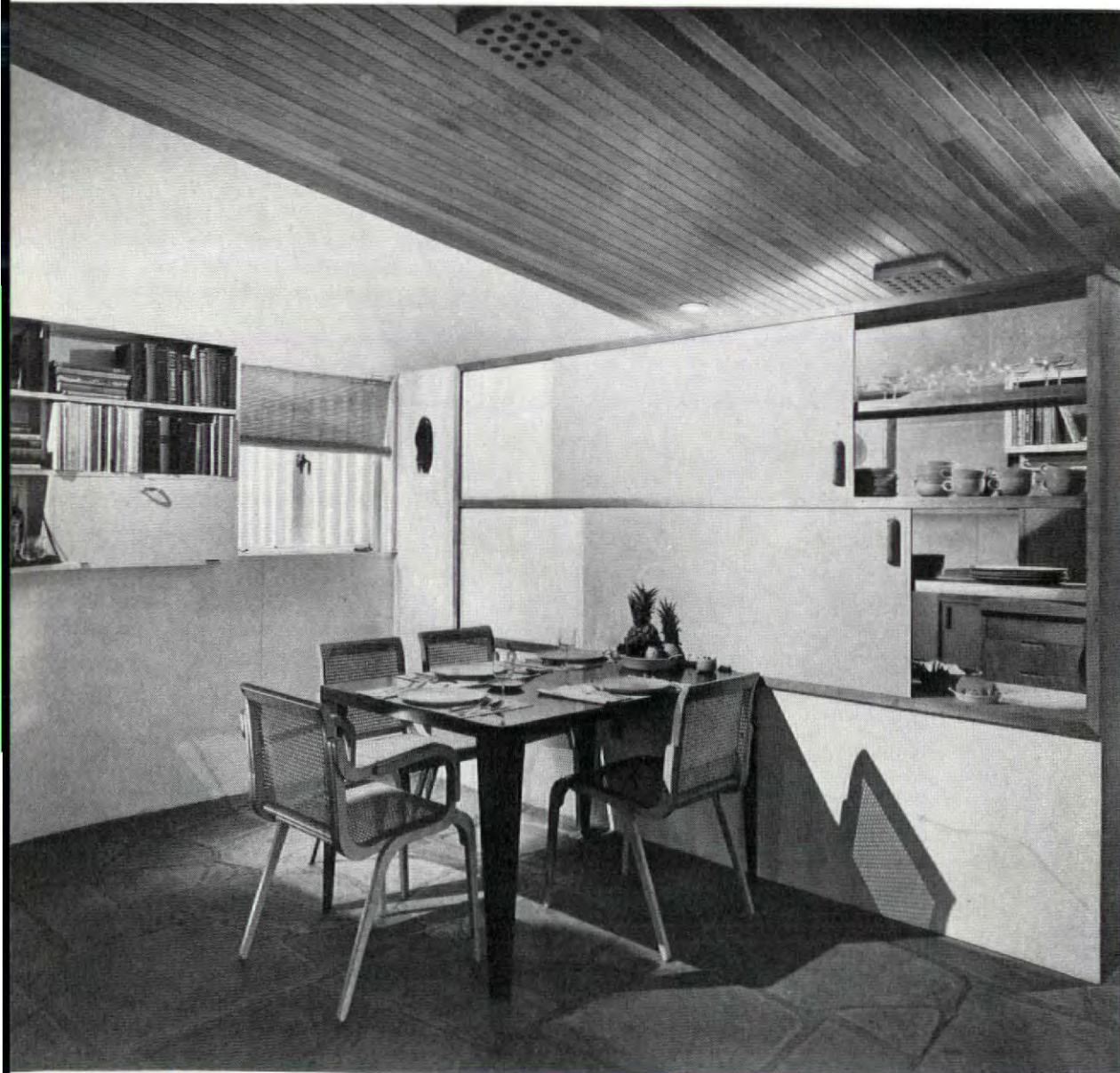
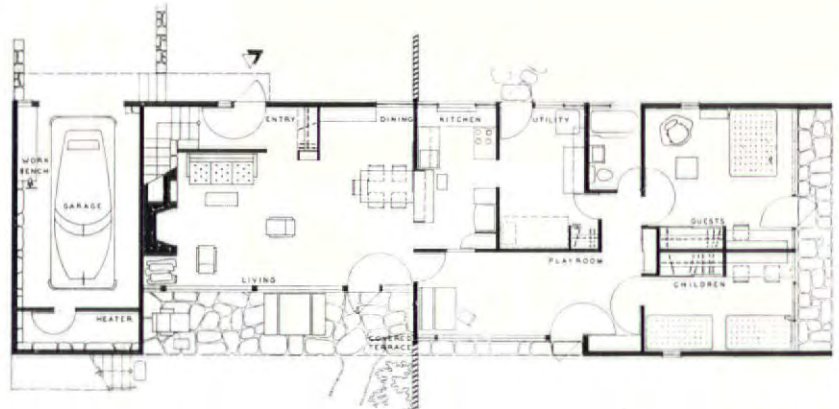
Outdoor areas—dining terrace, play yard, bedroom gardens, service yard and parking space—are subdivided by free-standing louver partitions and low stone walls which can be used for seating. Stationary granite dining table and benches on living room terrace are impervious to weather. Grill is simply half a flue lining.





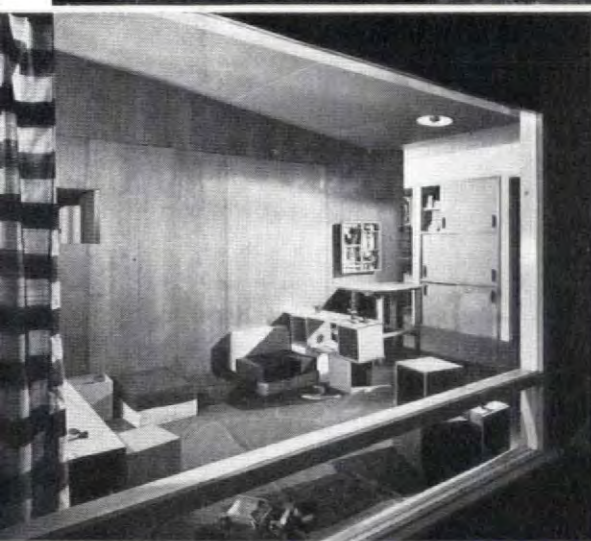
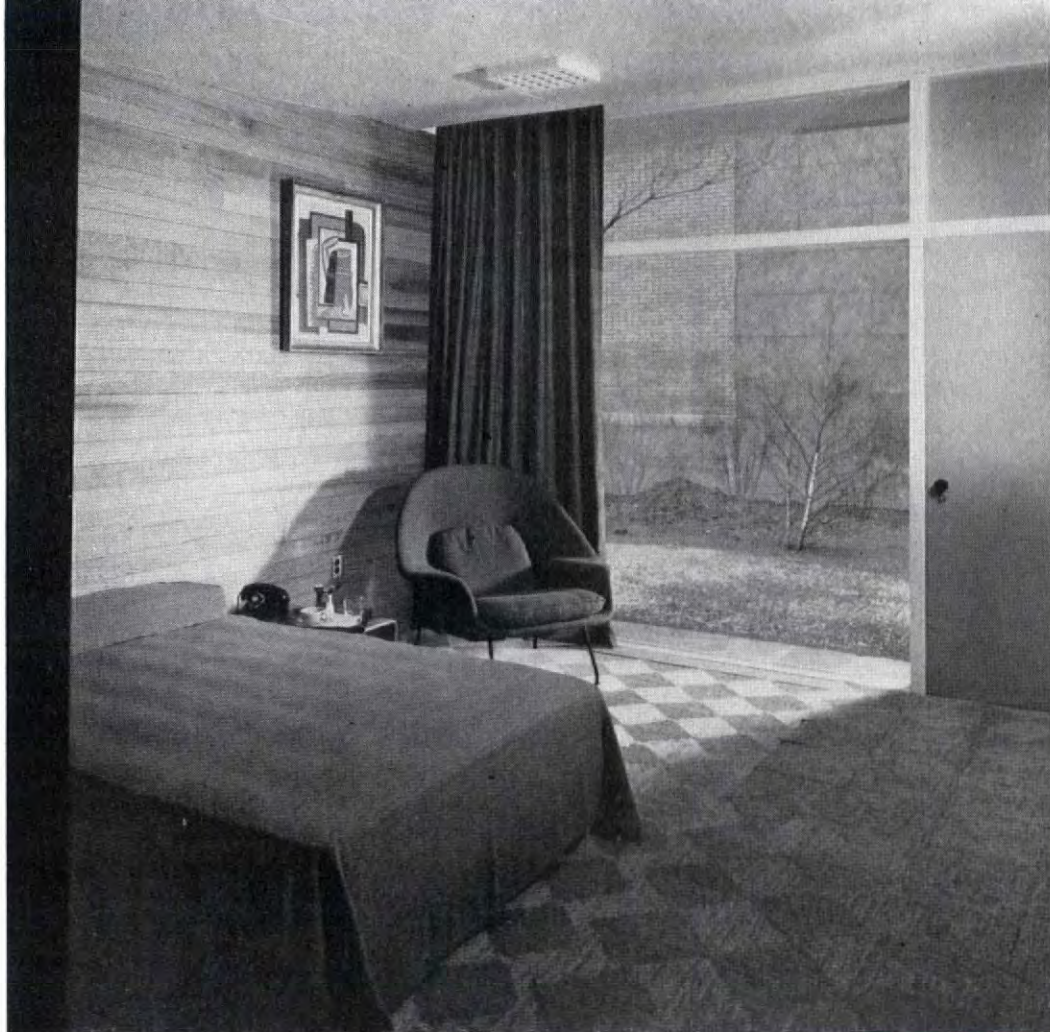
Because the house is designed for a family without servants, Breuer has made the kitchen the control center of the home. It is conveniently located for direct access to utility and service yard on one side and dining-living room on the other. A view panel between kitchen and playroom, commanding a view through to the adjoining play yard, allows the housewife to supervise children both indoors and out. Equipment in kitchen and utility room is designed to reduce housework to a minimum. For instance, accommodation for handling and storing of dishes has been provided within easy reach of the dish-washing machine. An added amenity is the fact that the utility room can double as a bedroom for night sitters or occasional help.

In commissioning this house, the Museum wished to demonstrate "how much good living and good design can be purchased for how many dollars." Fixed bids have already been received by a reputable construction firm which will build the house in Connecticut, New Jersey, or Southern New York State. Exclusive of architect's fee, land, landscaping and service connections these bids are: \$27,475 for the three-bedroom house substantially as seen at the Museum; \$25,110 for the same house with alternate wall, ceiling and floor finishes; \$21,960 for the two-bedroom house; \$19,975 for the two-bedroom house with alternate finishes. As the Museum explains, this is not a minimum house. Homes of comparable size can certainly be had for less. But few, if any of them, include the meticulous planning and the almost abstract beauty of design found here.



*Dining space is separated from kitchen by sliding panels which hide open shelving and work counter. Note Breuer chairs of cutout plywood and caning. Above: view of kitchen showing glass shelves for herbs in front of window.*





*View of bedroom which is used by parents in first phase of house. Child's bedroom adjoining the playroom can later become child's study.*

*Playroom furniture is a Breuer innovation. Box units, open on one side, can be used for storing toys, as building blocks or combined to produce benches, tables, shelves. Below is private entrance to downstairs bedroom wing.*



**GENERAL CONTRACTOR:**  
Murphy-Brinkworth Co.

**FURNITURE AND FABRICS:**  
New Designs, Inc.

**LANDSCAPING CONTRACTOR:**  
Wadley & Smythe

**CONSTRUCTION OUTLINE:** Foundations—8 in. concrete block. Fill for grading—I. B. Miller Contracting Corp. Exterior walls—T. & G. cypress siding, Southern Cypress Manufacturers' Association, asphalt impregnated fiber sheathing and insulation lath, The Flintkote Co. and studs; interior—plywood, U. S. Plywood Corp. Floors (1st.)—5 in. concrete slab on gravel fill; 2nd.—wood joists and double wood finish, John Hasbrouck Co. Floor contractor—Rollo, Johnson & Seidler, Inc. **ROOFING**—tar and gravel, 10-yr. felt and pitch, Barrett Div., Allied Chemical & Dye Corp.; gravel, H. E. Fletcher Co., Inc. Canopy and deck—canvas, William L. Barrell Co., Inc. Roofing contractor—Nicholson & Galloway, Inc. **INSULATION:** Roof—3 in. Fiberglar batts, Owens-Corning Fiberglas Corp. **FIRE PLACE**—brick, fire brick and flue lining, J. P. Duffy Co., Inc.; granite for fireplace wall, Mile Square Granite Quarries. Damper—H. W. Covert Co. **SHEET METAL WORK**—American Brass Co., Wasco Flashing Co. and Grossman Steel Stair Corp. **WINDOWS:** Sash—steel casement, Hope's Windows, Inc. Weatherstripping—bronze, American Brass Co. Glass—plate and double strength, Pittsburgh Plate Glass Co. Stairs—steel, wood treads, Grossman Steel Stair Corp. **FLOOR COVERINGS:** Main rooms—flagstone. Bedrooms—hemp matting, George E. Mallinson Importing Co., Inc. Bathroom (2nd floor)—asphalt tile, Armstrong Cork Co., Inc. **WALL COVERINGS:** Living room—plywood, U. S. Plywood Corp. Bathroom (2nd floor)—Carrara glass, Pittsburgh Plate Glass Co. **PAINTS**—Martin Senour Co. Painting contractor—Shatz Painting Co., Inc. **WOODWORK:** Marlite sliding panels—Marsh Wall Products, Inc. Doors—flush plywood, U. S. Plywood Corp. **HARDWARE**—W. C. Vaughan Co. **ELECTRICAL INSTALLATION:** Wiring system—General Electric Co. Panel boxes—Trumbull Electric Mfg. Co. Fixtures (incandescent)—Kurt Versen Co.; (fluorescent)—Gotham Lighting Corp. Electrical contractor—Lord Electric Co. **KITCHEN EQUIPMENT:** Range, refrigerator, freezer unit, sink and dishwasher—General Electric Co. Ventilating fans (six)—Blo-fan, Pryne Co., Inc. **LAUNDRY EQUIPMENT:** Washing machine—General Electric Co. **BATHROOM EQUIPMENT**—Crane Co. Showerhead with Mixometer—Speakman Co. Cabinets—Charles Parker Co. **SPECIAL EQUIPMENT:** Stainless steel cable with bronze fittings and hemp rope stair railing, Paulsen-Webber Cordage Corp. Terrace—granite seats and table, H. E. Fletcher Co., Inc. Chain link fence—Frank E. Nash Fence Co. Woven wood fence—Dubois Fence & Garden Co., Inc. Ventilation louvers—Midget Louver Co. Curtain tracks—Gould-Mersereau Co., Inc. Asphalt paving—J. J. Haggerty, Inc.



# INDUSTRIAL PLANT REDESIGNED

to streamline the flow of materials, people and transportation

Skidmore, Owings & Merrill, Architects  
Gordon Bunshaft, Partner in Charge

Like many another long-established manufacturer, H. J. Heinz Co., famous maker of the ubiquitous 57 Varieties of food products, knows that an outmoded, overcrowded plant can strangle production. Heinz' main plant on the north bank of the Allegheny River in Pittsburgh is outmoded, having grown like Topsy since the first of its 19 major separate buildings was erected 52 years ago. It is also overcrowded: production has trebled in the past 20 years without any important building additions. The plant is again growing—but no longer like Topsy. With the aid of a new master plan by Architects Skidmore, Owings & Merrill, Heinz is setting its plant in order and is starting

S. J. Link

an orderly, integrated expansion program.

**PROBLEM NO. 1:** Located  $1\frac{1}{4}$  miles upstream from the confluence of the Allegheny and Monongahela Rivers, the Heinz site is subject to severe floods. The crest of the record 1936 flood inundated all buildings almost to the level of the first floor ceilings. This condition had made Heinz wary of putting more money into its Pittsburgh plant. **SOLUTION:** All new buildings in the Heinz master plan will be raised on stilts or designed with no major equipment or operations below the 1936 flood level.

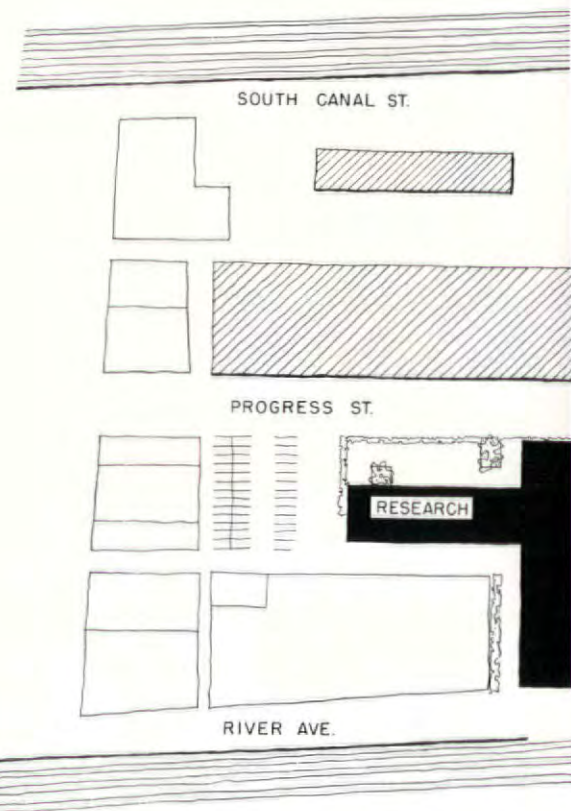
**PROBLEM NO. 2:** About 60 per cent of the best manufacturing floor area is presently

occupied by stock piles of ingredients and finished goods with the result that production and warehousing operations get in each other's way and neither approaches maximum efficiency. Moreover, with stock piling decentralized in many separate buildings, the receiving and shipping operations are fantastically complicated. **SOLUTION:** Construction of a central three-story, 2,250,000 cu. ft. warehouse for finished goods at the east end of the site.

**PROBLEM NO. 3:** Parking facilities of all kinds are inadequate. Rail car spots number only 40 and are so located that shipping and receiving operations cannot be separated and must be done on a 24-hour basis with expensive night work. A critical shortage of truck spots (they number only 33) adds to the congestion and inefficiency, which is compounded by inadequate automobile parking facilities. Employees now leave their cars in the street where they choke truck traffic. **SOLUTION:** On either side of the warehouse are 32 rail car spots reserved exclusively for the shipping of finished goods, and within the manufacturing area are spots for the unloading of 32 cars of ingredients—a total gain of 24 spots. Trucking facilities are expanded three-fold (to 85 spots) and are segregated as to receiving, local delivery and long distance shipping. On the river side of the warehouse, are car parking facilities for 150 office workers. Beyond the warehouse is space for the cars of 350 factory workers.

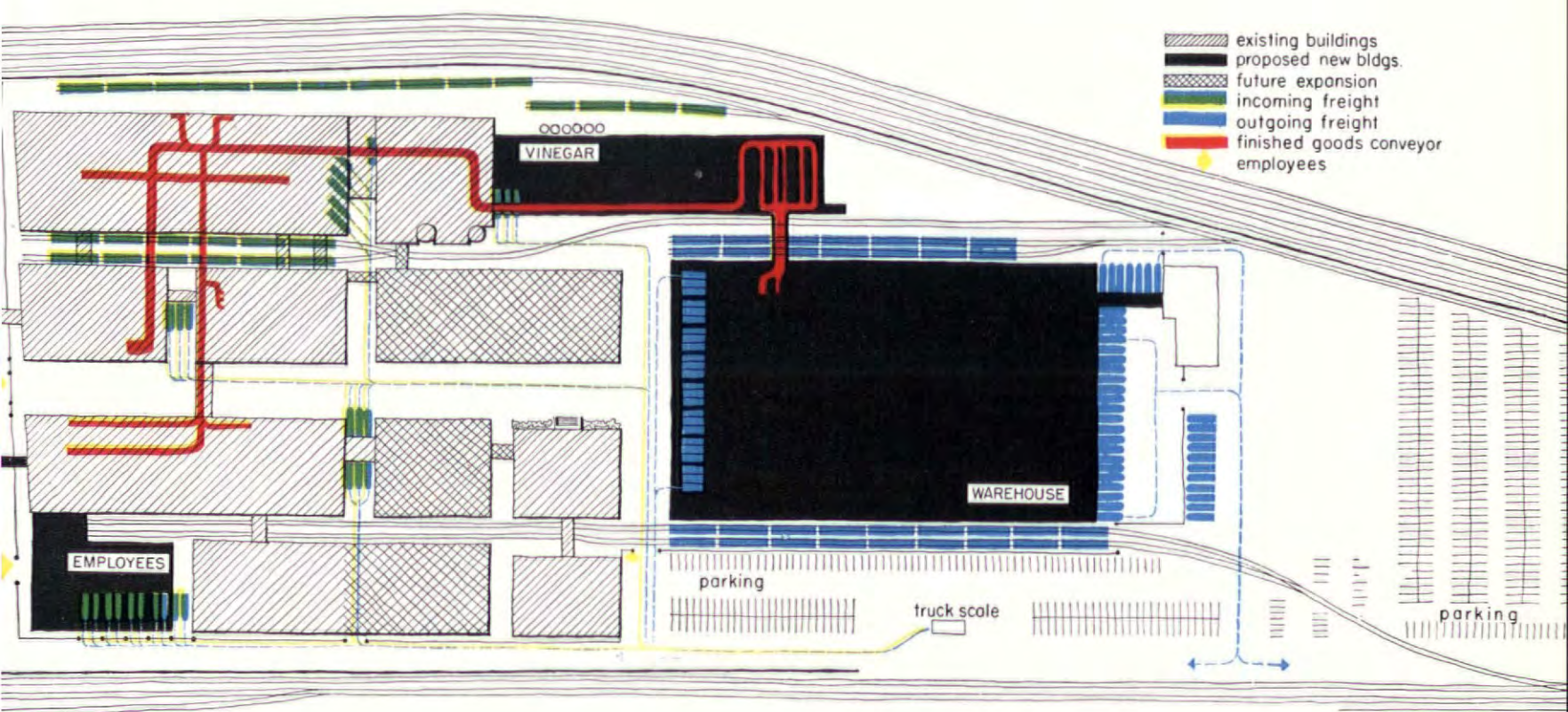
**PROBLEM NO. 4:** Several parts of Heinz' production operation are housed in completely obsolete buildings; others are misplaced in relation to each other and in relation to the flow of employees, job applicants and visitors. **SOLUTION:** Seven of the older, most obsolete buildings are to be demolished to make way for 1) a large modern vinegar manufacturing building, 2) a new factory headquarters building containing an employees' store, employees' lockers and factory offices and 3) a research and quality control building (p. 104).

Heinz' master plan is already in operation. By the time the whole project is completed (1952), Heinz will have spent some \$15 million. Last month stockholders authorized the company to borrow up to \$20 million for its completion scheduled for 1952.

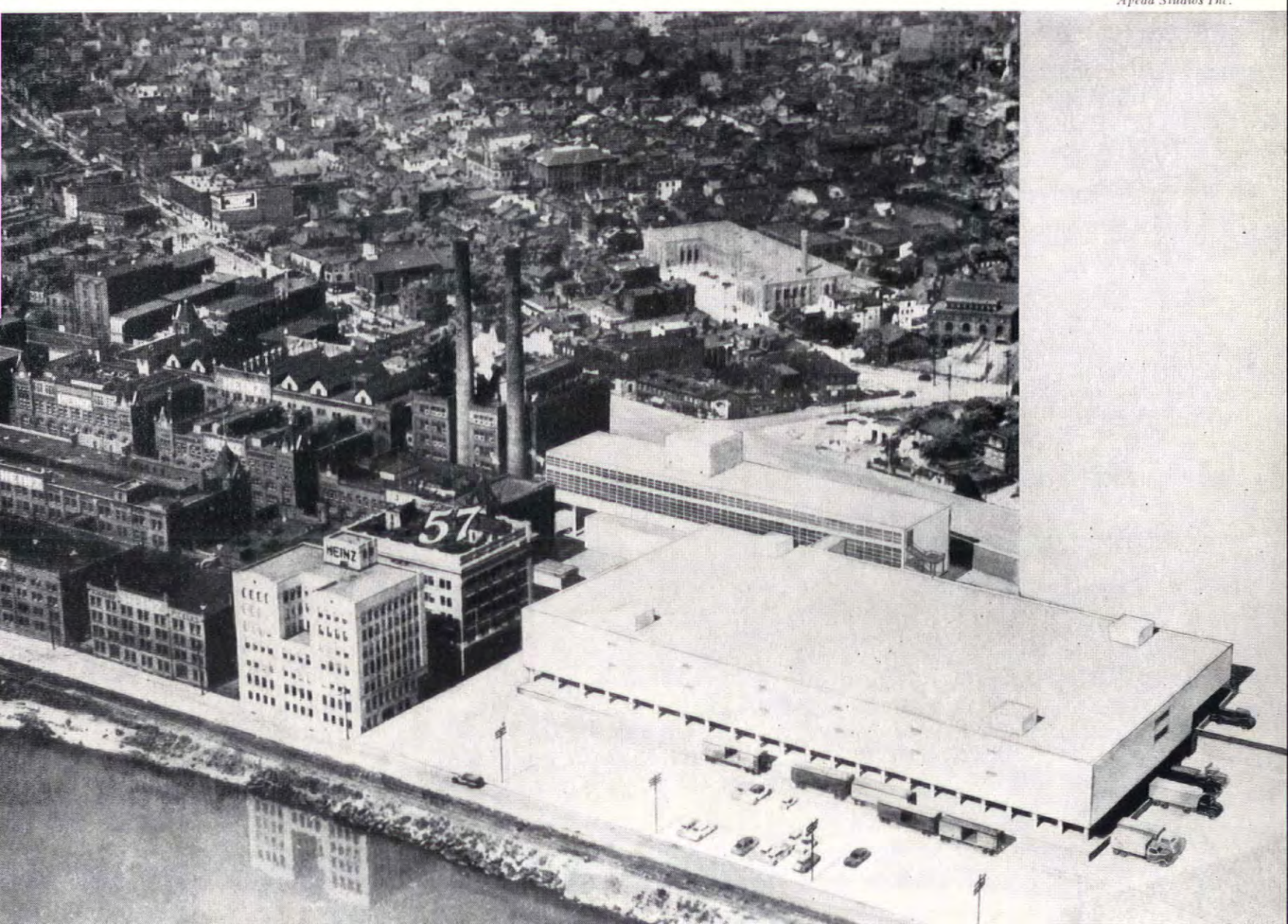




and to make room for new flood-free buildings

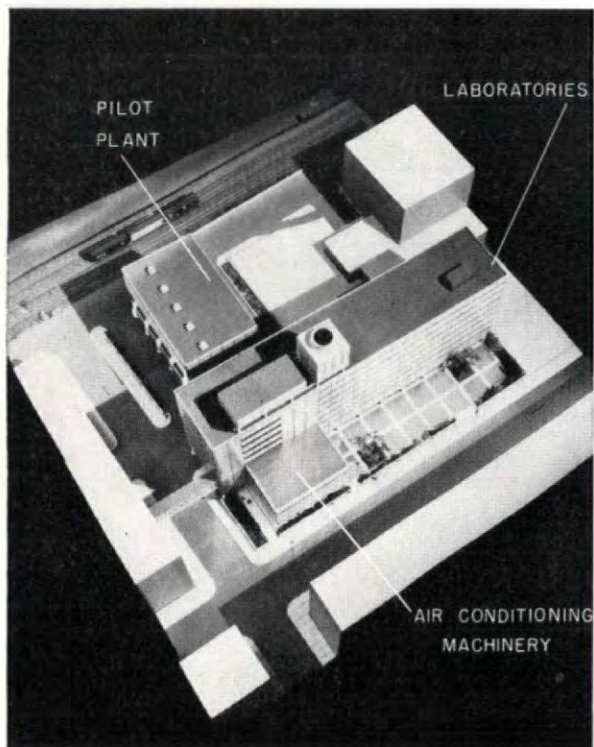


Apeda Studios Inc.





**RESEARCH AND QUALITY CONTROL CENTER in Heinz' master plan is a handsome solution to a complex design problem**



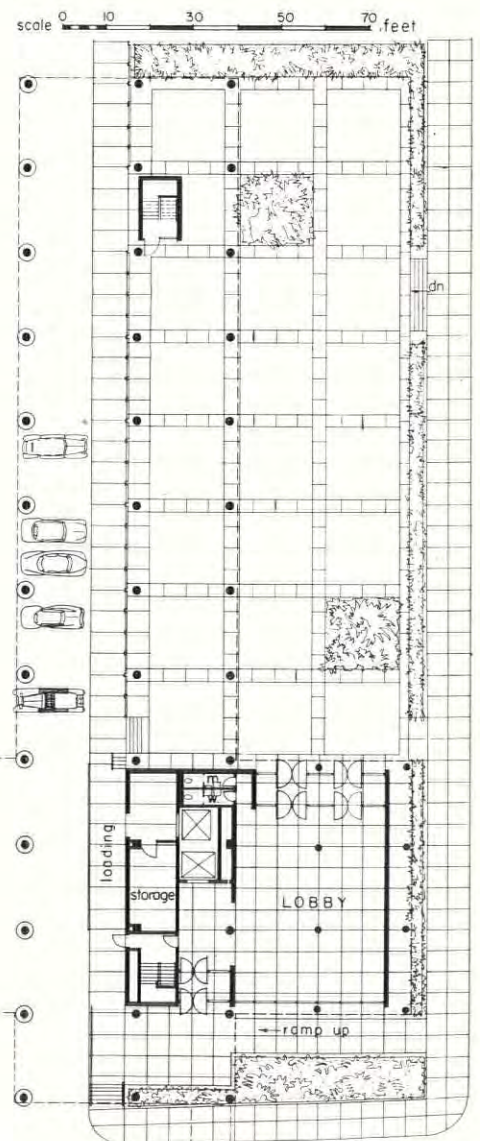
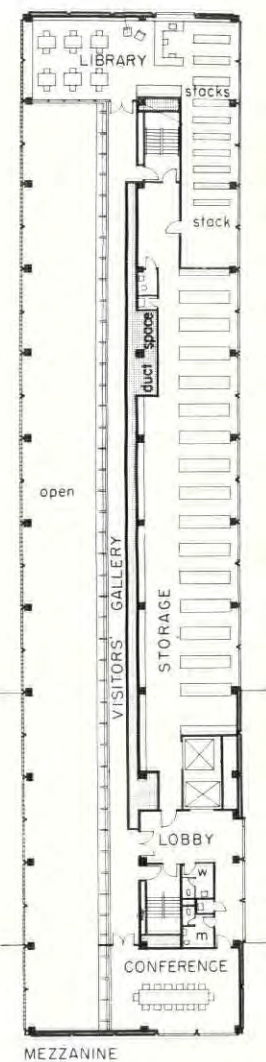
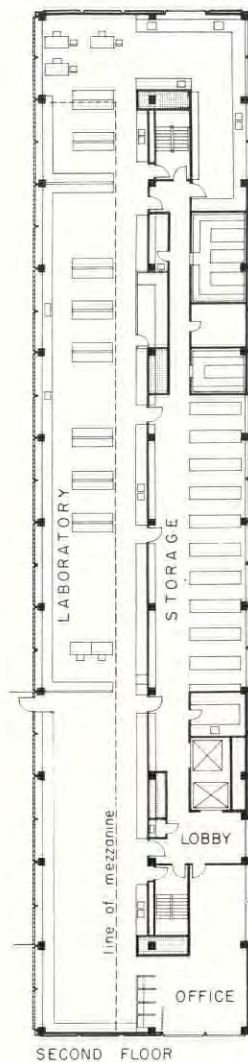
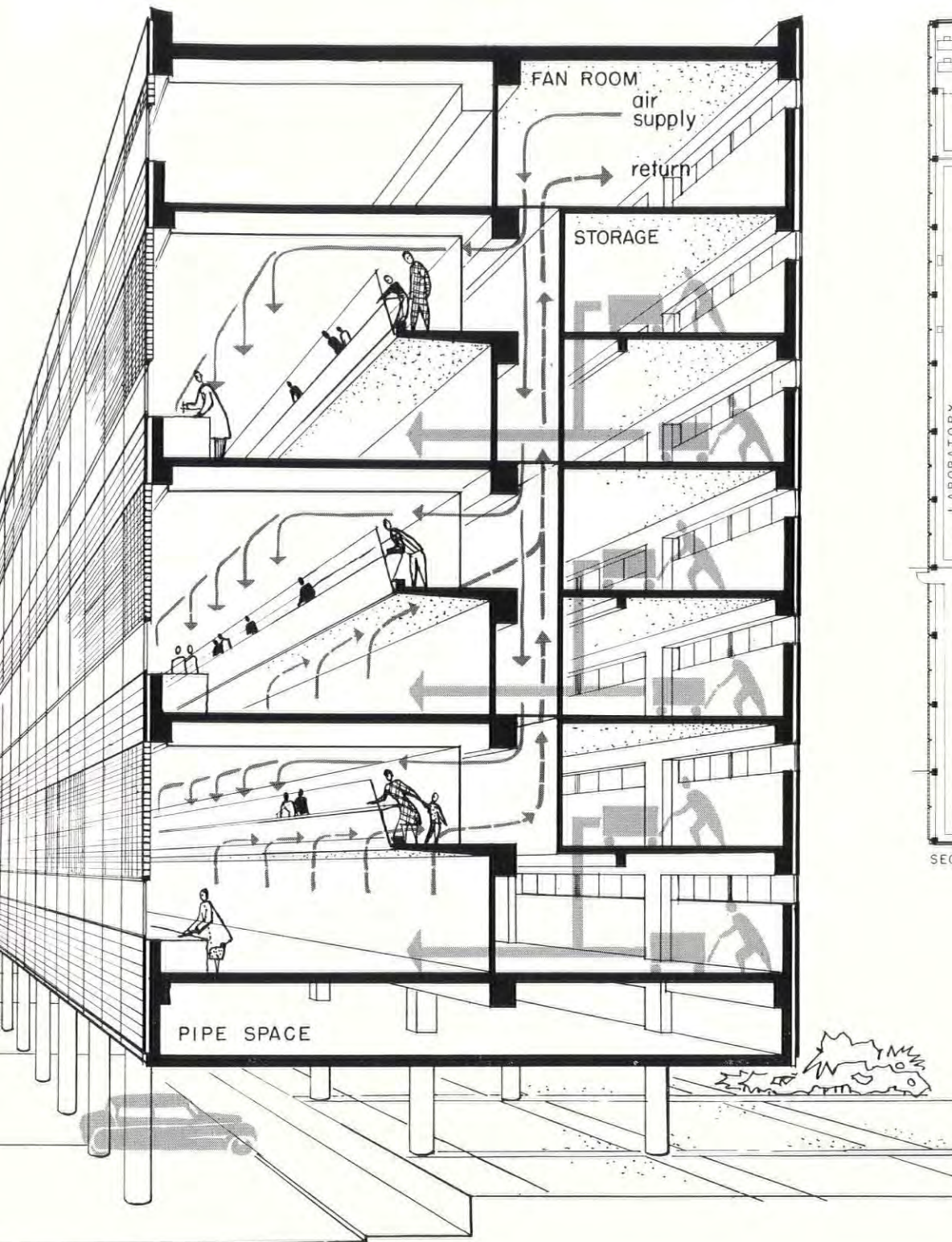
One of four projected in Skidmore, Owings & Merrill's master plan for Heinz' Pittsburgh plant, this new building will accommodate quality control facilities, research laboratories and experimental kitchens in its larger seven-story wing and pilot manufacturing operations in the smaller wing which projects toward the river. Quality control involves the constant testing of samples from Heinz' worldwide production network to assure the maintenance and uniformity of its high standards of purity, taste and appearance. This unusual operation is the Pittsburgh plant's show window and is a great attraction for visitors which number 150-200 per day—a fact which influenced the design of the building. To prevent visitors from interfering with laboratory work, they are restricted to balconies from which they command an excellent view of the operations below.

A show piece outside, as well as inside, this building will be the most prominent feature of the plant when viewed from the plant entrance and from Pittsburgh's "Golden Triangle" across the river. It presents a handsome picture in both directions. Concrete stilts, raising the building proper above the flood level, give it a feeling of lightness. (The ground floor is used only for covered parking and a glass enclosed lobby.) A striking exterior appearance is achieved by a new variety of curtain wall combining horizontal stainless steel panels with glass units of the same horizontal dimension (p. 105).

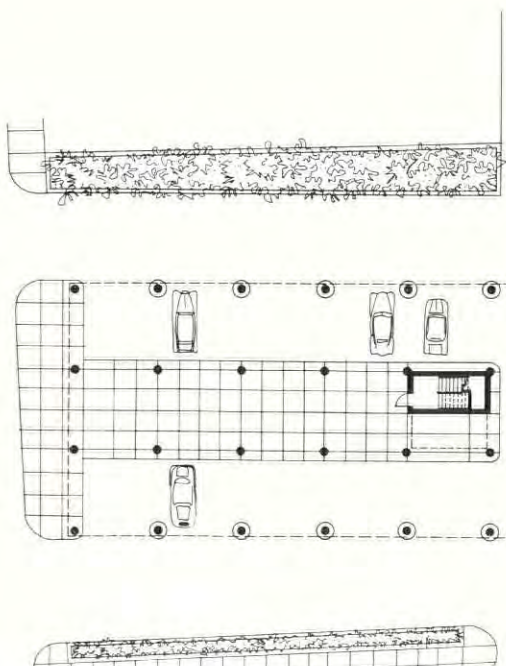
*Photos: Ezra Stoller, Pictorial Services  
Model, Theodore Conrad*



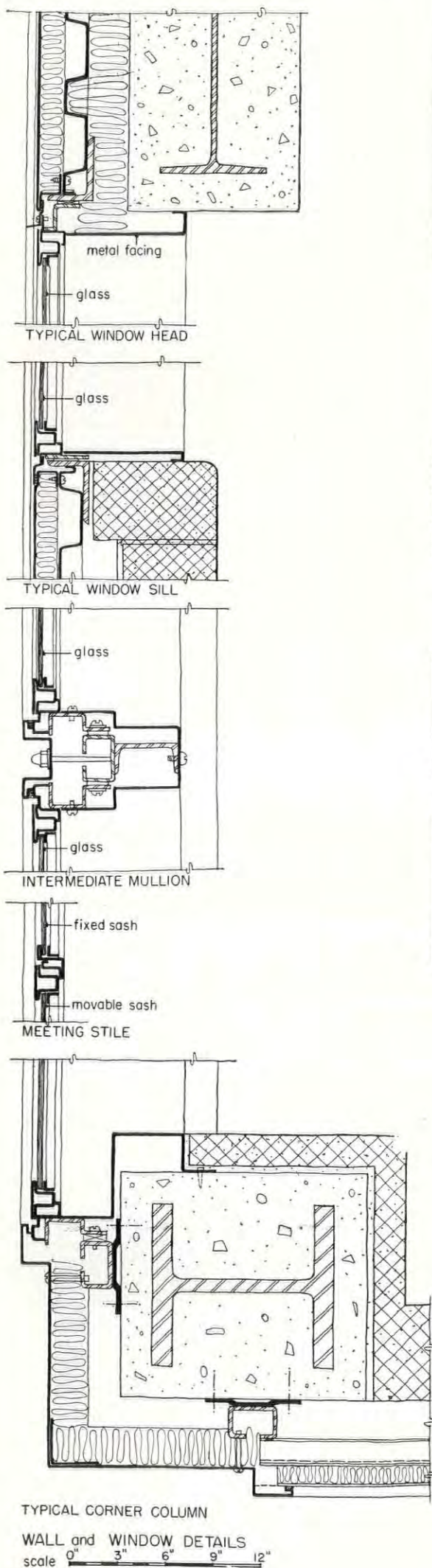




**TWO-STORY LABORATORIES**, 18 ft. high, receive abundant diffused light from large glass block panel in southeast wall. (Horizontal and vertical mortar joints between block courses are relied upon to reduce direct sunlight.) Store-rooms for laboratory supplies and materials to be tested occupy the northwest half of the laboratory floors. Visitors' balconies, overlooking the laboratories, are located at intermediate floor levels along with storerooms for less frequently used materials. In addition to air conditioning, the laboratories are served by an independent exhaust system which removes odors through hoods suspended from the ceiling. (Storage areas are not air-conditioned so that their atmosphere will simulate that of the un-air-conditioned warehouses in which the food would ordinarily be stored.) Floor planning is open and extremely flexible.







**CONSTRUCTION OUTLINE:** Foundations—3,000 lb. reinforced stone concrete piles 35 ft. long. Foundation walls for sub-grade utility room and elevator pit, footings for ground floor lobby area and stair towers, **WATER-PROOFING:** Sub-grade utility room—4-ply pitch and felt membrane. Access shaft and elevator pit—cement mortar coat. Pilot plant floor—3-ply pitch and felt membrane. **STRUCTURE:** Exterior walls—insulated panels run horizontally with No. 20 gauge stainless steel, flush outer facing, No. 18 gauge galvanized steel fluted inner shell supported at intervals of approximately 10 ft. horizontally on light steel framing members and backed up with 5 x 12 in. clear glazed structural tiles, 6 in. thick (or with concrete block where plaster or synthetic interior finish is used). Interior partitions—5 x 12 in. clear glazed structural tile, 6 in. thick. Columns conform to walls, except in laboratories where finish is plaster; Pilot plant—free standing stone concrete painted; ¼ in. galvanized steel plate casings, painted for all exterior columns. Structural steel frame throughout, fireproofed with stone concrete. Floors—stone concrete slab and beam, greaseproof asphalt tile on 4 in. fill in laboratories and kitchens; 1 in. dustproof monolithic cement in storage areas, acid-

proof floor brick in Pilot plant; joints hot poured sulphur compound. Asphalt tile in most other areas. Ceilings—acoustical fiber panels with system of suspended plaster board back-up in laboratories, offices, conference rooms and library; painted concrete in storage areas; painted exposed metal in Pilot plant; furred plaster in most other areas. **ROOF:** stone concrete slab and beam construction, cinder concrete fill for drainage, 2 in. rigid fiber board insulation, built-up gravel or slag surfaced. Pilot plant—22 gauge metal galvanized in place of concrete slab, 2 in. rigid fiber board insulation. **INSULATION:** Walls—½ in. glass fiber. **WINDOWS:** Sash—projected type opening out, shaped stainless steel. **ELECTRICAL FIXTURES:** combination flush lens recessed fluorescent and incandescent in laboratories and kitchens. **HEATING AND AIR CONDITIONING:** complete system in all areas except storage and Pilot plant with filtering, humidifying and cooling with fin-type convectors under glazed exterior walls (to balance heat lost through glass). Storage area—heated air in winter filtered but not humidified (air temperature approximately 60° F.). Fin type radiators at exterior walls. Pilot plant—unit heaters with exterior supply used as ventilators only in summer.



*The factory-built house  
is here, but not the answer  
to the \$33 million question:  
How to get it to market?*

In the vast Lustron plant outside Columbus, Ohio where Curtiss-Wright used to taxi fighter planes out the back door, there are now 23 acres of presses, furnaces and high-speed welding machines. If you open a door and step out on a balcony near President Carl Strandlund's big executive office, your ears will be assaulted by the throb and pound of the big presses, the clash of steel against steel, the sigh of the blowers—the familiar and auspicious rumble of mass production. Within this various rumble, it is possible to distinguish a rhythm: this is the continuous movement of the conveyor belt which carries the steel parts of the Lustron house. This conveyor moves at the inexorable speed of 20 ft. a minute.

Now this speed of 20 ft. a minute means a number of things. In the first place, it means that 100 porcelain enameled steel houses can be produced every 23 hours of continuous operation—or one house every 14 minutes. It means that around \$33 million—the largest capital stake yet risked on the old U. S. dream of a factory-built house—is enough to pay for a plantful of the most modern steel-working equipment available and to hire men to put this machinery in operation. It is the first real plant demonstration of the seductive theory that houses can be turned out like automobiles. But it also means that somewhere in the U. S. a house customer must arise, waving his mortgage papers, every 14 minutes.

Engineer Carl Strandlund, having performed the feat of tool design and complete plant installation in a mere 12 months, has proved beyond any doubt that it is possible to mass produce a house in a factory. Over the next few months, he will have to prove that he can mass distribute it.

If Strandlund can get his house up on foundations and



*Life: A. Haug*

into the hands of customers at a speed that will match the speed of his conveyor, he may have something much more than the answer to the nation's housing problem and a gross turnover of \$150 million a year. He may have a new industry that will have the expanding effect on the whole U. S. economy that the automobile once had. By establishing a means of high-level, year-in and year-out housebuilding, he may forever end the threat of a recurring boom-and-bust cycle in the construction industry. If he can't, he may have one of the biggest busts in modern business, a bust that would rock Washington and probably end the question of a factory-built house within our lifetime. As Senator Ralph Flanders put it: "If Lustron doesn't work, let us forever quit talking about the mass-produced house."

Strandlund's fantastic compression of the six months required to build a single house by conventional methods promises to be as much at home in the housebuilding industry as a jet-propelled wheelbarrow. Although the big operative builders have already considerably shortened the time normally required to build a house, the many processes accessory to housebuilding have remained conspicuously unaffected. Thus it still takes so many weeks to get a map through the zoning commission, so many weeks to get differences between local and FHA requirements ironed out, so many weeks for the bankers to make up their minds, so many days to satisfy the local building inspector, so many days to get the FHA inspector to come out and look at the plumbing wall. And, even more important, it takes so many weeks or months or years for the customer to accumulate enough money to make a down payment on a new house.



Last month, as the last 600-ton automatic press was bolted into place on the plant floor, some 143 dealers held Lustron franchises. Compared with what is ahead, a mere handful of houses—about 450—were up or going up on customers' orders. Half of the 60 houses ordered by the Navy for Marine officers and enlisted men at Quantico were finished—and here Lustron had hit its target of under 350 site man-hours per house. So far the problem had been production: there had not been enough houses to get dealers started. As automatic machinery was installed to displace hand operations in the plant (example: synthetic rubber gaskets were stapled by hand around panels until the machine which fuses them electrically arrived in March), houses were shipped with parts short. These shortages, plus the fact that substitute handmade parts did not always fit, had made a realistic gauge of site man-hours impossible on most of the houses erected in the early months of this year.

During these months of tooling, Lustron's biggest distribution problem had been how to explain shortages and non-delivery to the dealers already franchised and how to appease the thousands of clamoring customers who had poured through the demonstration houses opened in some 100 cities and read the big ads which Lustron had placed in leading magazines and newspapers. (Last month one irate customer, who put a down payment on a Lustron house ten months ago and had not yet been given a firm delivery date, brought suit against Lustron's New York dealer.) Now with the last of the automatic machinery in place—even the 1,800-ton press which draws out a steel bathtub in one continuous forming process was set up—Lustron was ready to pull the switch that means 100 houses a day. And the heat was finally where many a bankrupt factory houser had known it would be—on the dealers.

### ***Close to the American heart***

As the Lustron house came up for its decisive test in the hands of the dealers, there were two strikes against it. One of these was time and the other was price. Lustron had missed the peak of the housing market: the back of the housing shortage had been broken and there were no longer six customers for every house-for-sale sign. What urgent market pressure remained was in the low cost bracket—and Lustron's price to the dealer, counting freight, was around \$6,000. For the price to the customer, the cost of site labor, land and utilities had to be added. In Wisconsin, Lustron houses on lots were selling for \$10,000, in Illinois for \$11,000, in New York for \$10,500, in Connecticut for \$11,000. These prices were not low cost houses. Without some additional financing steam from Lustron, they were not prices low enough to persuade dealers to take the risk of building the houses without a down payment from a waiting buyer. In other words, even the limited mass distribution formula devised by the merchant housebuilder—who puts up a number of houses at once and takes the risk that he can find customers—was not yet working for Lustron.

Counterbalancing these factors was a simple and probably

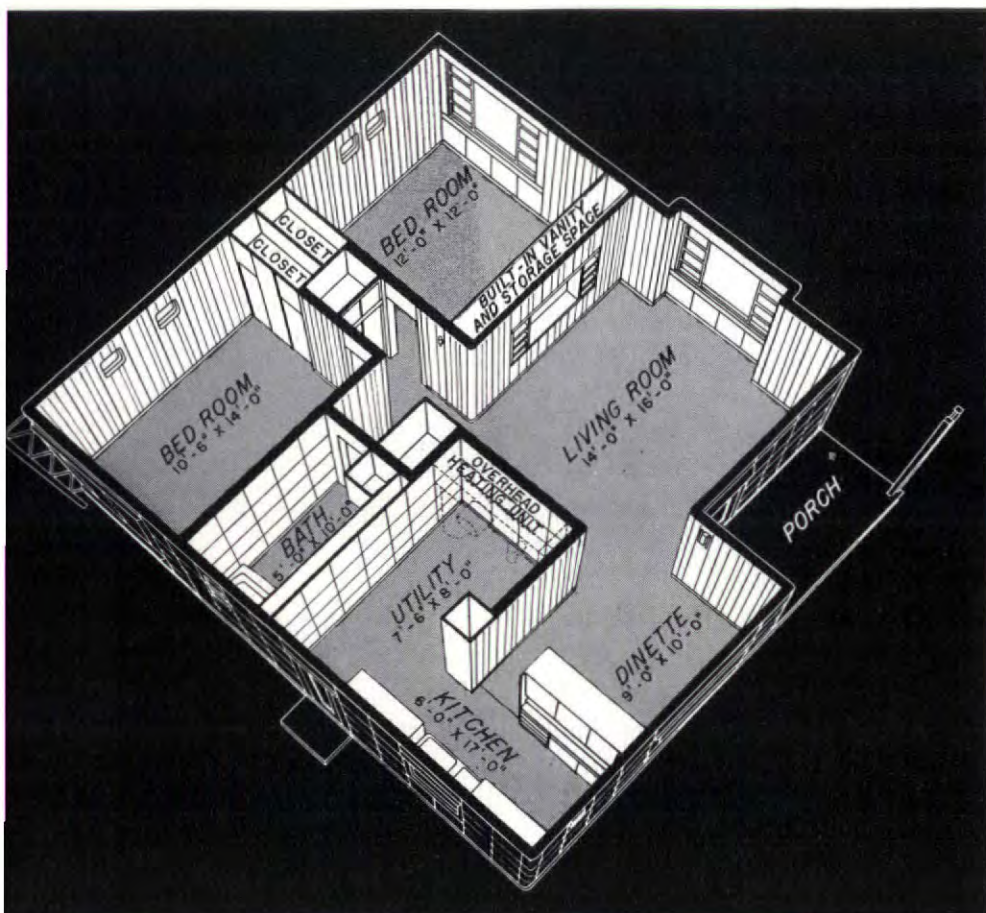
overriding fact: the Lustron house had enormous market appeal. Far from showing any dislike of the standardization of a machine-made house, well-heeled customers were taking to the houses with something like the passion Americans have given to automobiles. The porcelain enamel finish, which Strandlund applies at a cost of 10 cents a sq. ft. (about the cost of two coats of paint) has a lot to do with the remarkable consumer acceptance which has greeted his steel house. This finish gives the steel permanent rust resistance and eliminates a large part of the \$20 a month maintenance reserve usually figured for a house of this size. But its appeal to the eye may be even more provocative to the customer. The handsome colors, the subdued gleam of the mat finish, the look of immaculate cleanliness and imperishable newness—these seemed to stir something very close to the American heart. Moreover, Strandlund had reduced one big disadvantage of steel house construction—high thermal conductivity—by exploiting recently developed insulating materials such as glass fiber and rubber gaskets. And he had intelligently chosen to capitalize on, rather than fight with, the high conductivity of steel by introducing a low cost radiant heating system which distributes heat from an overhead plenum chamber through the steel ceiling panels.

For all of these reasons, Lustron houses were selling while comparably priced conventional houses stood vacant. Although Lustron dealers had stopped taking down payments during the months of plant delays and urged customers to take their money back until a firm delivery date could be set, at least half of them had refused to do so and over \$200,000 worth of down payments was in escrow in one city alone. If the present house was not priced for the big low cost market, it seemed an attractive buy to the stable middle-class market—the kind of buyers who, dealers reported, had been holding their own lots against a drop in building prices and who were able (although not required) to put cash down payments as high as 50 per cent into home purchase. Thus what looks like an initial handicap—Lustron's failure to hit a lower price market—may turn out to be a long-term advantage: Lustron seemed clearly to have surmounted the black-eye which prefabrication had got as emergency housing during the war and to have established its house with the public as a quality product. If Lustron can sell enough houses at its present price to stay in business, the way will be clear to bring out a stripped-down model for the lower price market.

### ***A nice clean way to build a gas station***

Last month as Lustron moved to meet its test in the market, big Carl Strandlund sat, cool as a cucumber, at his long desk under the photographs of an impressive list of friends of his house—including President Truman, Senator Flanders, and one-time housing boss Wilson Wyatt (who resigned in protest when the Lustron house failed to get the Chicago Dodge plant). Strandlund had ridden out so many near-disasters, so many rumors of bankruptcy, so many charges of government favoritism, that his initial crusading fervor for his house had shaken down to a quiet but rock-like confidence.





*Acme Newspictures, Inc.*

**HOUSE** is currently available in four exterior colors—blue, yellow, gray and light tan. Interior is a gray, with kitchen, bath and utility room in a soft yellow. It is shipped from the factory complete with radiant heating installation and oil burner, all plumbing fixtures, automatic washing machine and dishwasher, a large amount of built-in furniture. House frame is made up of steel channels, factory welded into studs, wall sections and trusses. Exterior and interior walls and roof are made of interlocking panels, finished with porcelain enamel.

Strandlund is an inventor-engineer who happens also to have the slugging kind of drive sometimes described as “promotion genius.” His old friends, who watched him run the Oliver Farm Equipment Co. from a gross of \$20 to \$120 million a year, who saw him show up in Washington in 1946 with enough engineering drawings and application forms on his house to fill four dollies, who watched him in Congressional committee rooms when he battled for a surplus war plant and an RFC loan and saw promised equity financing fade away at the last minute—these friends say Strandlund is a man who simply doesn’t know a licking. Some of these old-time business associates have joined the Lustron firm; since they are all men of middle years who gave up top-bracket business careers and incomes three times their present salary, their presence is a tribute to the quality of both Strandlund and his product.

One outstanding fact about Strandlund is that he is completely new to housebuilding. The house that may bring sweeping changes to the industry started out as a nice clean way to build a gas station. Before the war, Strandlund was vice-president and general manager of the Chicago Vitreous Enamel Co., which made money during the depression by putting a porcelain enamel finish on the steel washing machine. For many years porcelain enamel had been used as a veneer for hamburger stands, filling stations and store fronts. Strandlund, who thinks primarily in terms of metal-working, sold Standard Oil of Indiana on porcelain enamel as an integral part of an all-steel structure. But when Standard Oil was ready to start building these filling stations after the war, government building controls still banned all but essential housebuilding.

The government asked Strandlund if he could make a house instead. In three months, he showed up with complete engineering drawings for the present model and got the promise of both government financial aid and a steel allocation. Chicago Vitreous—who later agreed to sell its rights in the process to Strandlund—started work on the prototype house built in Hinsdale, Ill. (FORUM, June '47, p. 105.)

### **Sounds like free enterprise**

When Strandlund applied for an RFC loan under the 1946 legislation authorizing government loans to get factory-built housing underway, he was told he’d have to get support from Congress. “I didn’t know how to do it,” he says. “I didn’t even know the Congressman in my own district. I was packing up to leave when some vets’ groups said,—‘wait a minute; we know some Senators and some Congressmen.’ So they introduced me to Senator Flanders, one of the few engineers in the Senate. Flanders asked me to bring in all details, blueprints and plans, and he sat down and went over every detail. When he got through, he was for us. Then I met other members of the Banking Committee. Inside of a few days, I had the support of the Committee. Then I met some Representatives. They said—‘You sound like free enterprise.’ ”

RFC approved a \$15½ million dollar loan to Lustron 15 minutes before its emergency lending powers expired on June 30, 1946. This authority was later extended by Congress, and Lustron got a second loan of \$10 million in the summer of 1948 and a third loan of \$7 million in February 1949, of which it has some millions yet to draw. The first loan was a



seven-year convertible loan at 4 per cent, payable in installments (of which two have already been deferred). The other loans were short-term loans for working capital. Equity financing, amounting to \$840,000, was raised by a common stock issue sold at \$10 per share to some 20 customers by Hornblower & Weeks of Chicago.

"There has been a lot of talk about our equity financing," Strandlund says. "Well, production engineering is usually written off as zero in capitalization. But I brought in the patent and the engineering. I'm an endorser on all notes. If there is any failure in Lustron, you can meet Carl on the breadline."

### **Bolsters for weaknesses ahead**

During the frenzied months when Lustron was looking for financing, Strandlund made some fundamental decisions. The first of these was to start big. Although he had some offers of private financing, they were not big enough to permit big production. Steel and steel-working machinery pays off only in volume production, and Strandlund insisted from the beginning that this volume point had to be set much higher than that considered feasible by others who have tried to launch a factory-built house. (That this volume point is very high is also indicated by the fact that, although prefab pioneer Foster Gunnison has had the backing of U. S. Steel since 1944, he still uses only 2½ tons of steel in his wood panel house.)

The second of these was not to produce a minimum house for the lowest third of the market, a price class at which much prefabrication thinking has been aimed. Nor did Strandlund intend to compete with the conventional building supplying the top third of the market. He decided to shoot for the middle third: a relatively stable group into which families from the lower third shift up in good times and families from the upper third move down in bad. Thus he loaded his house with storage walls and built-in furniture, put in an automatic dishwasher and washing machine, radiant heating and 1,025 sq. ft. of floor space. Strandlund had hoped to do all this for a price to the customer of around \$7,000. The general postwar price inflation boosted the price of his plant equipment about \$5 million over estimate and the sales price of his house to about \$9,000. "We have to have a house price to help us over the start and our inexperience," Strandlund says. "There have been too many inadequate starts, too much inadequate capitalization in the prefab field. A lot of these people failed because they had no bolsters for weaknesses ahead."

His third decision was to use AFL labor in the plant, thus opening the way for an agreement on site erection with the AFL craft unions who in the early days of prefab ripped shop-made houses apart. Long before he moved into his Columbus plant, Strandlund signed a master agreement with the international representatives of the carpenters, plumbers and electricians unions. This was the first national pact in which the unions agreed to limit the various craft jurisdictions over house construction to these three basic trades. In return, Strandlund agreed to employ union plumbers and electricians at regular rates to handle plant plumbing and wiring work and to recognize carpenters' jurisdiction over the rest of his plant

workers. The unions' readiness to come to terms with Strandlund was accelerated by the promise of the factory-built house: year-round employment not only in the plant but on the building site. So far, the international agreements have stuck remarkably well at the local level, and not a single dealer has reported serious labor trouble.

The link between the Lustron plant and the Lustron dealer is a specially built tractor-trailer, into which the 12½-ton house is loaded. Last month tractor-trailers were still driving through the plant under their own power, but by next month Lustron will move a continuous line of trailers on a conveyor belt through the loading area. Truck-tractors pick up the trailer as it comes off the line and drive it to the building site, where the trailer is unhooked to remain on the erection site. The tractor picks up an emptied trailer from a nearby job and comes back for another trip. Thus the trailer serves as a warehouse at the building site, and house parts are packed to unload in the order of their use on the job. A rail freight rate of \$1,668 now prohibits shipment to the West Coast, and Lustron is negotiating with the railroads for a commodity rate of \$2.75 per 100 lbs. This would be comparable to the \$640 cost of moving a carload of hot water heaters to the West Coast, or the \$720 charge on a carload of the kind of sinks used in the Lustron house. Lustron argues that, if it broke its house down and shipped it in carloads of like parts, these rates would apply, and is petitioning the railroads to permit ship-



**GIANT PRESSES** form all parts of steel house. The 600-ton press shown here makes the basic 2 x 2 ft. panel, employing five dies. Lustron spent \$2 million for dies.

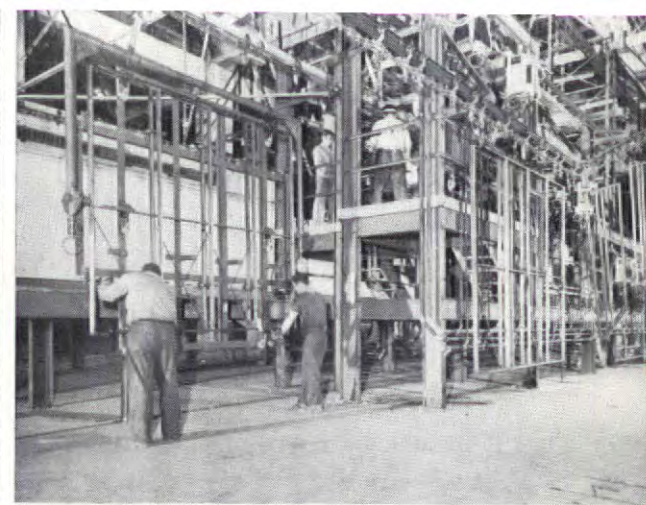
ping the house as a unit at the cost of shipping the parts separately. Lustron also hopes not to box and crate the house parts, but to run its loaded trailer onto a flat car. At the rail unloading point, truck-tractors would pick up the trailer for transport to the building site.

One of the first points a critic of Lustron's distribution system can score is that so far not many of the big merchant housebuilders has been sold on the Lustron house. But it would be a superficial judgment to discount Lustron's chances simply on that basis. Lustron may not be able to beat the costs of the Levitts or of Burns-Kaiser, who build thousands



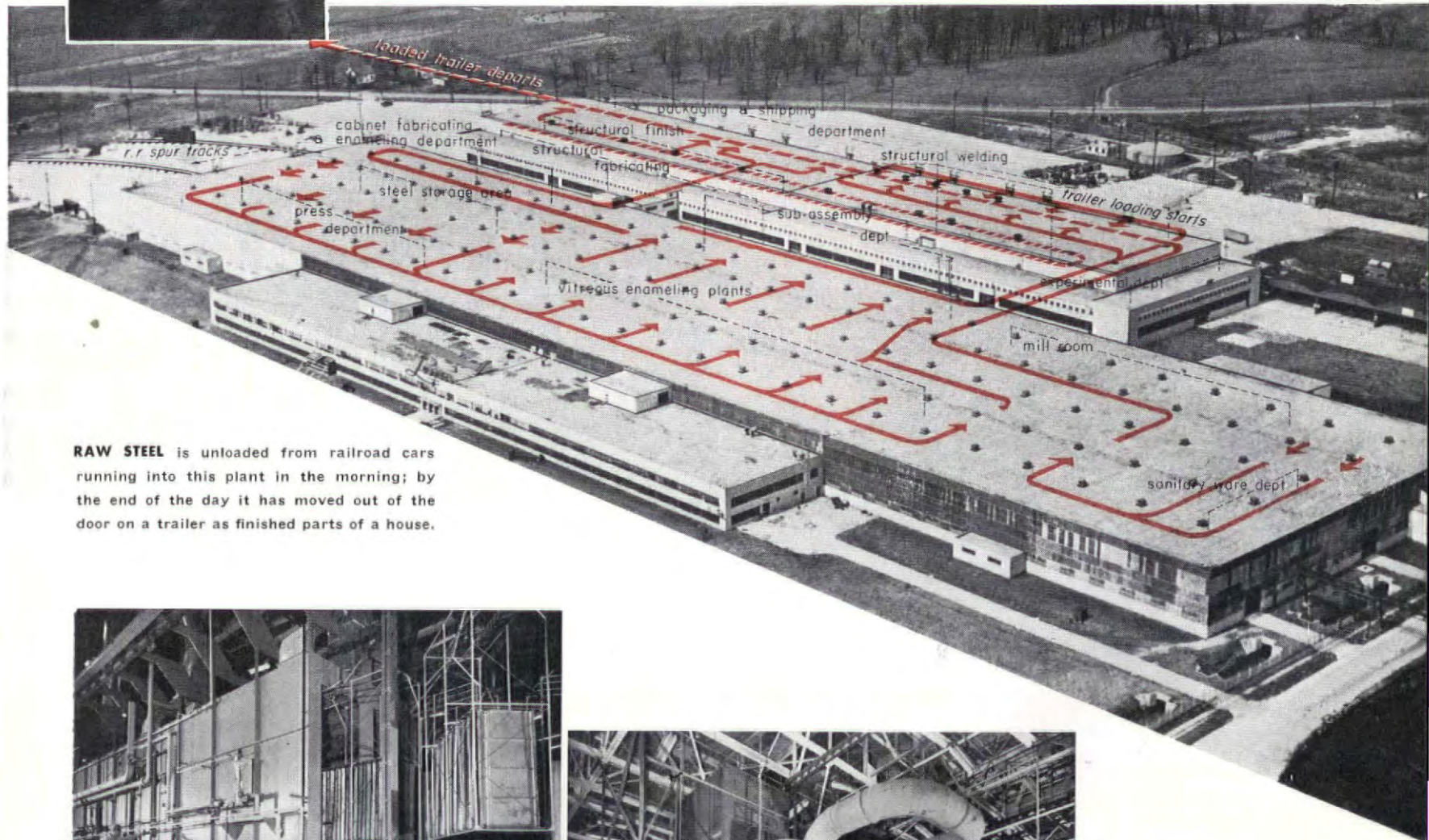


**LOADING AREA** is where all conveyor lines converge. The 4,000 finished parts of house are loaded on trailer chassis, which are drawn through plant on their own conveyor.

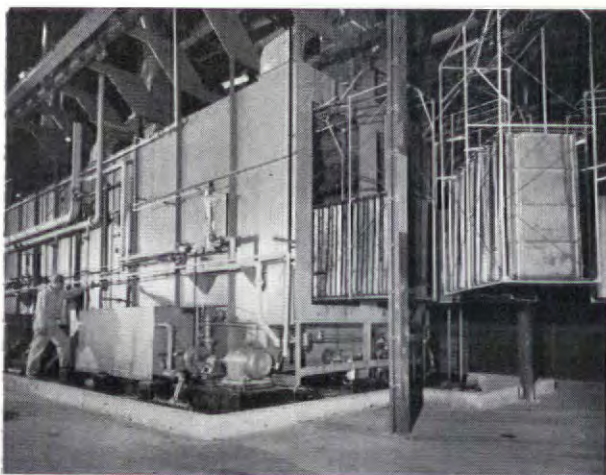


**AUTOMATIC WELDING MACHINERY** of the size used in the automobile industry welds the various sub-assemblies of the house frame. House has 10 trusses, 20 wall sections.

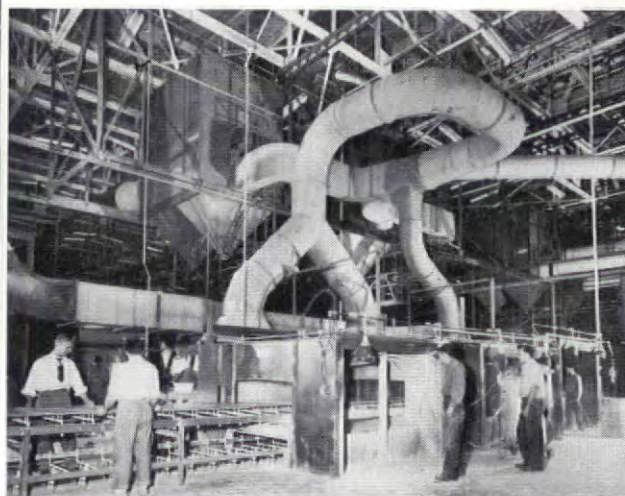
Bob File



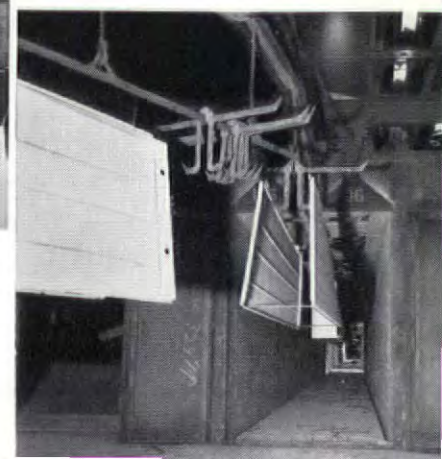
**RAW STEEL** is unloaded from railroad cars running into this plant in the morning; by the end of the day it has moved out of the door on a trailer as finished parts of a house.



**PICKLING** is the cleaning operation which prepares formed steel parts for enameling. After they come off presses, parts are dipped in the pickling solution in an open basket.



**PORCELAIN ENAMEL** color coat is sprayed on by automatic machine, through which parts pass on flat conveyor. Then they are fired in 1,300° F. enameling furnace (r.).





of houses a year on a single tract of land. (Strandlund would argue that he can beat them right now on quality per dollar.) But not everybody wants to live in a vast neighborhood of identical houses—and the big point of the Lustron house is that the customer can have his moderate-priced house where he wants it. Moreover, really big merchant builders still can be counted only in the dozens, and are found only in metropolitan areas where the market is large enough to support mass developments. Lustron promises to make the economies heretofore realized only in these mass developments available in smaller cities and rural areas where volume builders do not exist. Furthermore, the house is probably the most economic form of building for the some 30 million improved lots estimated to be standing vacant in U. S. cities.

### **A new kind of dealer**

When Lustron handed out its dealer franchises, it tapped well-financed men with building experience. Some were in existing building companies; others organized new firms for this purpose. A number of firms were organized by men whose background was primarily in heavy construction: the New York dealer, Svend Ericksen, is a partner in the Gotham Construction Co.; Joseph Miele, who holds a franchise in New Jersey, is a bridge builder; Kuhne-Simmons had done considerable building for the University of Illinois.

A number of builder-dealers had formed partnerships with

or found stockholders in a type of local business interest likely to be favorably affected by the Lustron house—a real estate broker, a ready-mixed concrete firm, a homebuilding contractor. If the Lustron house moved rapidly ahead, such integration was likely to take place on a widening scale—and bring an opportunity for cutting the price to the customer. For example, if the local Lustron dealer's operation reached an attractive volume, the master plumber might logically decide to move into the dealership and participate in profit-sharing at the top level rather than get his take in the usual form of a percentage on the sale of plumbing supplies.

One of the sales handicaps of a factory-built house is that it cannot advertise a fixed, national price—or even quote the same price to two customers in opposite sides of town. The cost of the house begins, of course, with the lot—but even if the cost of land and land improvements could be separated from the erected house price, a fixed price would not be possible. The essential fact about a house is that it has to be attached to the land, and this attachment opens the door to a host of variable cost factors. Thus, in Minneapolis, where the frost line is 48 in., the foundation for a Lustron house costs \$400 more than it would in Miami. In Des Moines, where union plumbers work for \$2.50 an hour, the Lustron house will be considerably cheaper than in the suburbs of Chicago, where union plumbers get considerably more an hour. Lustron has done its best to get around this lack of a quotable price-to-

Len Rosenberg



A. Mathewson



**LUSTRON'S CONNECTICUT DEALER:** *Like most, he has more customers than construction money*

Lustron's Connecticut dealer is C-B Homes, Inc., a firm organized about a year ago in New Haven with a capitalization of \$160,000. President Stanley Crute is a civil engineer who for some years was in charge of all state building. With his brother, he operated a general contracting firm before the war. Then he served as State OPA director.

"After the war," Crute said, "I couldn't stand the price of lumber. I didn't think any kind of housebuilding involving the inflated price of lumber would be a sound operation. I decided to see what had happened in prefab. When I saw the Lustron prototype in Hinsdale, it looked to me like the first soundly engineered house in which it could be fairly said that machines had replaced men."

When Crute organized his Lustron dealership, Gregory Bardacke joined the firm as vice-president. Bardacke had been consultant to Wilson Wyatt on industrialized housing and had helped Carl Strandlund work out his labor deal. His name will be familiar to those who have followed the factory-built house, since he had also been vice-president of the Fuller Corp. which tried to bring out Buckminster Fuller's famed Dymaxion.

Over the winter, C-B Homes put in foundations and by last month they had erected and sold 17 houses at prices between \$9,300 and \$9,900, not counting land and land improvement. Their best figure on man-hours to date is 600, but they are confident that this will soon drop to 350. They currently have six

erection crews at work, 12 houses under construction, and a backlog of 61 firm orders.

Sales are moving briskly, the partners say, and Lustron buyers become their best salesmen. Satisfied customers include a White Tower chain executive, who liked the porcelain enamel steel finish of his hamburger stands, and the son of the leading banker. Crute would like to erect 30 houses a month, but, like many Lustron dealers, can't raise the construction money, which would amount to a continuous outlay of \$180,000.

C-B Homes have already cleared 160 Connecticut towns on codes, after a stiff fight on basementless construction in some of them. One town, where the political boss also happens to be a lumber dealer, is still a holdout.



customer by assuming a very firm price responsibility. Every dealer is obliged to get Lustron's approval of the price he charges. Lustron's okay is based on a detailed work sheet covering the man-hour cost of every part of the construction operation and the cost of any materials purchased locally; a square-foot quote enabling the builder to hide his profit is not permitted. The dealer's allowance for profit and overhead is also set by Lustron. Since this is somewhat less than the profit *without* overhead to which the conventional house builder is accustomed, most dealers feel it is too low. Because their overhead on initial and experimental houses is apt to be enormous, their complaints about this Lustron-dictated maximum are currently very loud. On its part, Lustron says that the dealer's overhead and profit are figured on the basis of a volume business and that a dealer performing the minimum operation Lustron considers economic—a house a week—would net something over \$30,000 a year. Lustron also points out that it provides the dealer with many special services, including national advertising and centralized purchasing, which should reduce his overhead below that of the conventional builder.

### **How Big is a Trading Area?**

When it started out lining up well-funded dealers, Lustron handed out a number of exclusive franchises. The whole of the New York metropolitan area was tied up under a single dealership, as were the states of Connecticut, New Jersey, Florida, and large areas in Michigan and Wisconsin. When it became apparent that more capital was required to launch a dealership on this scale than the dealers were willing to risk or able to raise, Lustron stopped issuing exclusive franchises and last month set about jarring loose some of those already issued. The dealers, on their part, fought hard for holding on to as big a slice of territory as possible on the natural theory that plenty of room was their best market insurance. Opinion within Lustron was still not clearly formed on how many dealers would be needed or exactly what was the size area which one dealer could economically serve.

The dealers, of course, are on the front-line of Lustron's attack on obsolete local building codes, punitive zoning ordinances, deed restrictions, and the varying requirements of FHA state offices. Lustron backs up the dealer with legal and other assistance, and its construction system is backed by a stamp of approval from FHA's technical division in Washington. FHA's loan valuations have averaged over 80 per cent, and there has been, therefore, no difficulty about mortgage money. But Lustron, like many another manufacturer who has distributed a building product on a national scale, would be more than charmed if FHA in Indiana would not insist on an overhead light in the bedroom when FHA in Ohio does not and has often wondered why FHA in Tennessee wants a door between the kitchen and dining room while FHA in other states approves Lustron's open plan.

Codes have been the toughest problem: the porcelain enamel steel wall keeps the house out of the city limits of Chicago, while copper plumbing is still banned by codes written during

cast iron days in a number of places. There have already been, however, some victories. In St. Louis, where a number of Lustrons are already up, the *Post-Dispatch* wrote editorials blaming the city code for barring Lustron, and the code was amended. Strandlund appeared personally to testify for his product at the first deed restriction case in Detroit; the original property owner testified that had he known in 1909 that a porcelain enameled steel house would some day be available, he would not have forever restricted his property to a brick house. Lustron's radically new construction system means that initial houses run headlong into out-of-date codes, but one of the great boons of the house as a standardized product is that the battle for code acceptance has to be fought only once in each area—the first approval opens the door to as many houses as the dealer can build.

Labor hours at the site have, up to now, been the dealer's biggest headache. Hours on initial houses have run at high as 1,000—as compared to the hoped for 350. Lustron's competitors are quick to say that there are simply too many pieces in the house—about 4,000 as compared to some 30,000 in a conventional house. "Why, you could paper the walls with the blueprints they have to consult," one prefabricator snorts. Since man-hours have dropped sharply where dealers have built enough houses to train a crew, it is unlikely that there is much pouring over blueprints after the first house or so. One dealer's report on his first four houses runs like this: 1,211 hours, 1,088 hours, 952 hours, 436 hours. In other cases hours dropped much less because dealers were splitting crews—breaking the first experienced crew of five men into nuclei for two or three crews. Main difficulty in the house parts was in the cabinet work—about one-fifth of the house—which all dealers found very hard to put together. Considerable redesign and retooling has been done on this, and Lustron is now shipping pre-assembled cabinets.

### **Needed: construction money**

If the dealer is to put up houses at the volume that will keep the Lustron plant operating and earn himself a sizable profit, he is going to need much more construction money than the housebuilding business has seen before. Lustron asks for its money when the house goes out the plant gate. This means that the dealer has to put out about \$6,000 plus the cost of labor on each house. To sell five houses a week, a dealer would have to have 20 homes in process in any one month period—the amount of cash involved would be over \$120,000. Since few Lustron dealerships are capitalized for more than \$100,000, this kind of money is not available on a regular bank line of credit.

Even with the aid of FHA commitments, construction loans, as every housebuilder knows, are apt to be dribbled out just in time to pay for each sack of cement or each hour of labor. And if it is hard for the conventional builder to get enough construction money to start a volume operation, it has been twice as hard for anything resembling prefabrication. The postwar boom in cheap prefab systems, when many a customer who bought directly from a prefab plant tried two or



three contractors before he could get the house up, convinced a number of bankers that prefab is one of the worst risks in a generally unalluring lending area.

Because Lustron stands behind its product and because its speedy erection time provides a quick in-and-out, it is obviously a more attractive prospect for construction money. Lustron thinks it is attractive enough to interest some substantial private investors and is now negotiating with interests who may advance funds to set up a national pool of construction money. A national pool of construction money would free Lustron dealers from the purely local aspects of construction financing—from the sometimes arbitrary decisions of local lenders made in the interest of a balanced portfolio and on the basis of other competition for available funds. Such national financing would be safeguarded by a standard completion bond arranged by Lustron for all dealers.

Although Lustron has made no such request, RFC was known to be considering the possibility of making construction or interim loans to dealers as a safeguard for its original investment. It is believed that RFC has enough authority under its general powers to make loans to dealers similar to the "floor plan" financing which auto dealers get under the General Motors credit plan. Thus instead of waiting until he gets an order from a purchaser and then transmitting it to the factory, a Lustron dealer would receive a certain number of houses a month regardless of the firm sales agreements he has lined up. A car dealer gets this financing on the stock he has on hand. It might be three or four months before he sells a particular car. Then, when he sells it, a new type of financing is arranged for the purchaser, and the floor loan is paid off. While this kind of financing would equip the dealer with a fluid credit unparalleled in the housebuilding industry, it would also add another item to the sales cost of the house. Short-term dealer financing in the auto industry costs 6 per cent.

Automobile finance men, who have watched Lustron with interest, suggest that another possible source for this kind of money might be some of the smaller steel companies who, with markets currently dwindling, might decide to provide dealer financing at lower-than-market rates to get the Lustron house on the market.

### **The man-hour test**

As Lustron faced the test of bringing its house to market, it seemed to qualify for success by one fundamental theory of mass production. It had made a tremendous reduction in the man hours required to produce a house. Direct plant labor per Lustron house amounts to 280 hours; the Quantico project showed that 350 man hours at the site is possible. This means 630 hours of direct labor per house as compared with an average 1,600 man hours required by efficient site fabrication operations. On this basis, the saving in direct labor cost amounts to more than twice the cost of shipping the Lustron house to the farthest point in the present distribution area and to four times the cost of freight in the states where Lustron will find its major market. Nor do these rough figures tell the complete story of the man-hour reductions made by the Lustron operation. For the most part, Lustron man-hours start with

rolled strip steel; the 1,600 site man-hour figure for conventional building does not include the man hours required to fabricate materials before they reach the building site. Elaborate computation might establish whether Lustron's man-hour savings minus freight would be high enough to amortize investment in plant and provide a profit: this basic theoretical question will soon be answered by the reality of how well Lustron competes with conventional building in local markets.

It is interesting—although not particularly enlightening—to apply another theoretical yardstick to the Lustron operations. This is the 1.6 ratio of sales per invested dollar characteristic of the automobile industry. Since Lustron's ratio of expected sales (\$150 million) to invested dollars (\$33 million) is about 4.5, this may mean that Lustron is inadequately capitalized. Or it may mean that Strandlund has launched an industry whose high rate of return will be diminished only by the appearance of competition.

Whatever these theoretical considerations point to, Strandlund had several very practical aces yet to play. One of these was a break-even point of 35 houses a day. (This is the production of one eight-hour shift, but most economic use of the plant would be three-shift operation since the enameling furnaces must be kept at heat round-the-clock.) This break-even point means that if Strandlund can capture only slightly more than 1 per cent of the estimated annual housebuilding market he can stay in business long enough to find out how to make a profit. Strandlund himself points to his steel roof panels, which he thinks he could sell to repair every leaky roof in the U. S., and to his steel bathtub press which has already attracted the interest of a plumbing manufacturer who wants a competitive line of steel tubs and thinks it would be cheaper to buy from Strandlund than to install equipment.

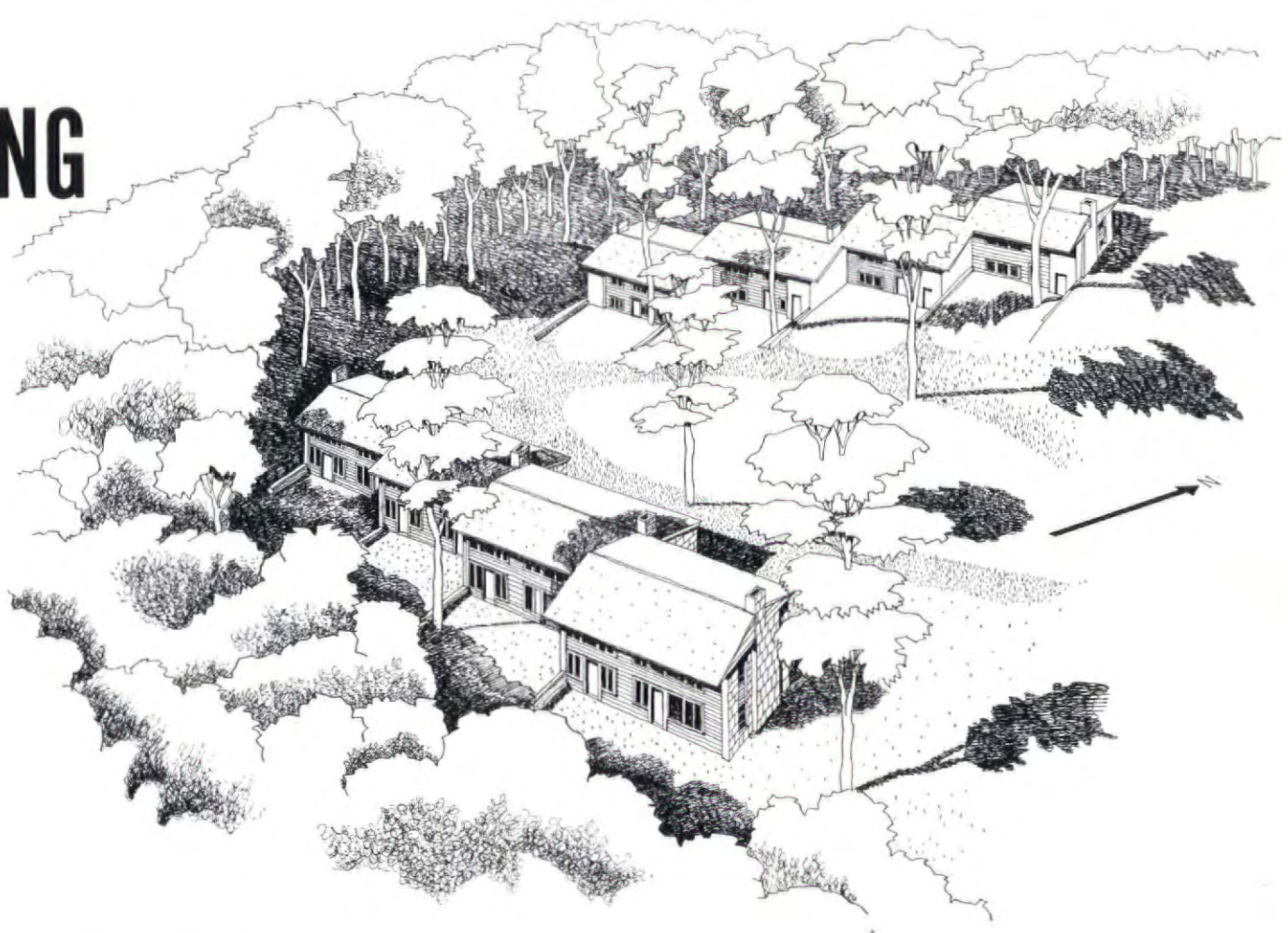
### **Trade-In Models?**

A vigorous program of both cost-cutting and product development was underway. For example, Lustron especially resents the fact that foundations alone account for some 10 per cent of house cost and is researching the problem of how to cut this down. Although a stripped down model would undoubtedly get priority, architect Carl Koch had already designed a luxury model with garage for future production. Strandlund believed he could someday bring out improved houses loaded with gadgets that would make Lustron owners want to trade in old models for new ones just as automobile buyers do. Second-hand Lustrons, he thought, might provide the first real answer for good housing for the lower-income group. (What trade-in models might do to existing methods of home finance and marketing was a prospect to set bankers' minds ajar.)

As the housebuilding industry calculated Lustron's chances and figured the effect a successful mass-produced house might have on every existing way of doing business, at least one thing was clear: Whatever the future for Lustron and however it would answer the question of the mass-produced house, housebuilders might well have cause to be grateful for its national, well-financed attack on many of the out-of-date practices which have kept the cost of a house too high.



# HOUSING



## ROW HOUSING on a wooded campus site combines rural charm with low cost

LOCATION: Swarthmore, Pa.

ARCHITECTS: Bishop & Wright

CONTRACTORS: Cleveland, Yerger & Sons





## Swarthmore Faculty Housing takes to the woods

These eight houses for the faculty at Swarthmore College prove that good design and a fair amount of space can still be had at comparatively small price. For \$10,300 the owner gets a three-bedroom home with separate laundry and storage rooms and an extra downstairs lavatory. In an effort to shave the budget, plans were first made to use prefabricated units. However, the site, an open knoll surrounded by heavy woods, presented a difficult problem for standardized housing. The small area of open land and its sloping contours made any but custom-built homes impracticable.

By building two rows of connected structures on either side of the knoll it was possible to solve several problems at once. Each unit was stepped down from its neighbor to fit the slope. In this way twice as many houses were built on the small site as had been thought possible. The setback of each house provides privacy from immediate neighbors and the distance between the two rows, plus the rise of the intervening knoll, at least partially segregates the facing houses from each other. In addition, the use of party walls cut costs considerably.

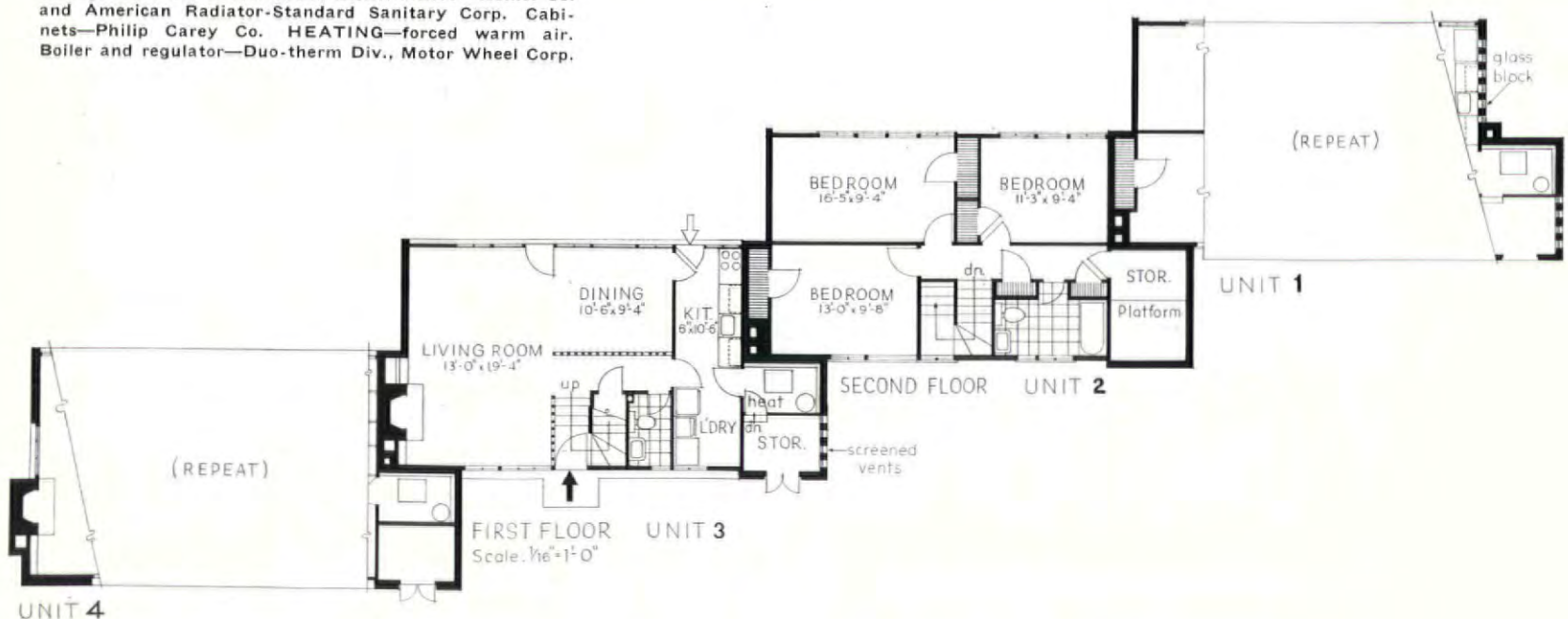
Construction throughout is simple and economical: conventional balloon framing; low gabled roof; cinder block party walls; concrete slab floors with asphalt tile finish; a forced warm air heating system. The plenum chamber is located above the hallways and return air is carried through ducts under the periphery of the concrete slab.

Photos: Dearborn-Masser



END AND PARTY WALLS, CONSTRUCTED OF CINDER BLOCK, HOUSE CHIMNEY FLUES

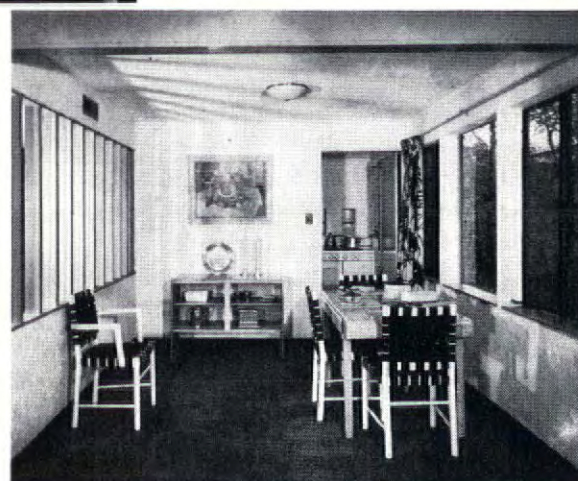
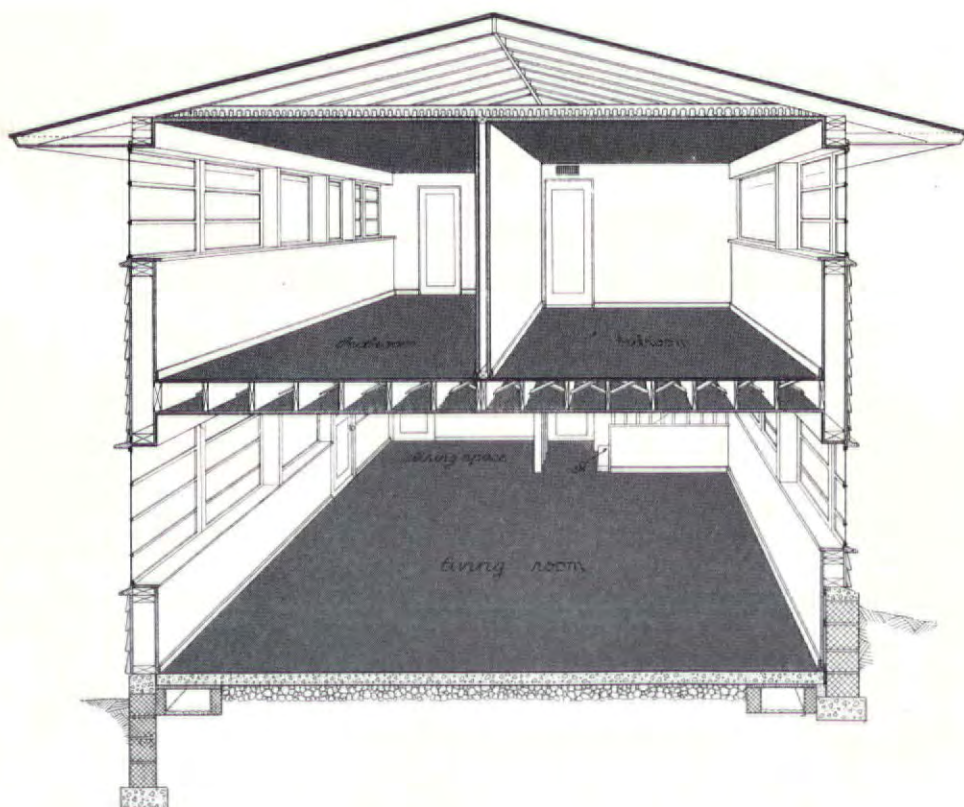
**CONSTRUCTION OUTLINE:** Exterior walls—8 in. cinder block; inside—plaster. **ROOFING**—4-ply asphalt built-up. **INSULATION**—Celotex Corp. **FIREPLACES:** Dampers—Donley Bros. Co. and H. W. Covert Co. **WINDOWS:** Sash—casement and fixed, Michael Flynn Mfg. Co. Glass blocks—Pittsburgh-Corning Corp. **FLOOR COVERINGS:** Bedrooms—beech. Remainder—Kentile, David E. Kennedy Co. **TRIM**—metal, Inland Steel Co. **HARDWARE**—Schlage Lock Co. **BATHROOM EQUIPMENT**—Kohler Co. and American Radiator-Standard Sanitary Corp. **Cabinets**—Philip Carey Co. **HEATING**—forced warm air. Boiler and regulator—Duo-therm Div., Motor Wheel Corp.







OPEN SLAT PARTITIONS SEPARATE LIVING-DINING AREAS FROM STAIR AND HALLWAY



RIBBON WINDOWS FRONT LIVING-DINING AREA  
VIEW OF LIVING ROOM FROM THE CENTRAL HALL





# MODERN APARTMENTS in Maine are considered a mistake by the insurance company

LOCATION: Orono, Me.

OWNER: Prudential Insurance Co. of America

ARCHITECT: Eaton W. Tarbell & Associates

CONTRACTOR: T. W. Cunningham, Inc.

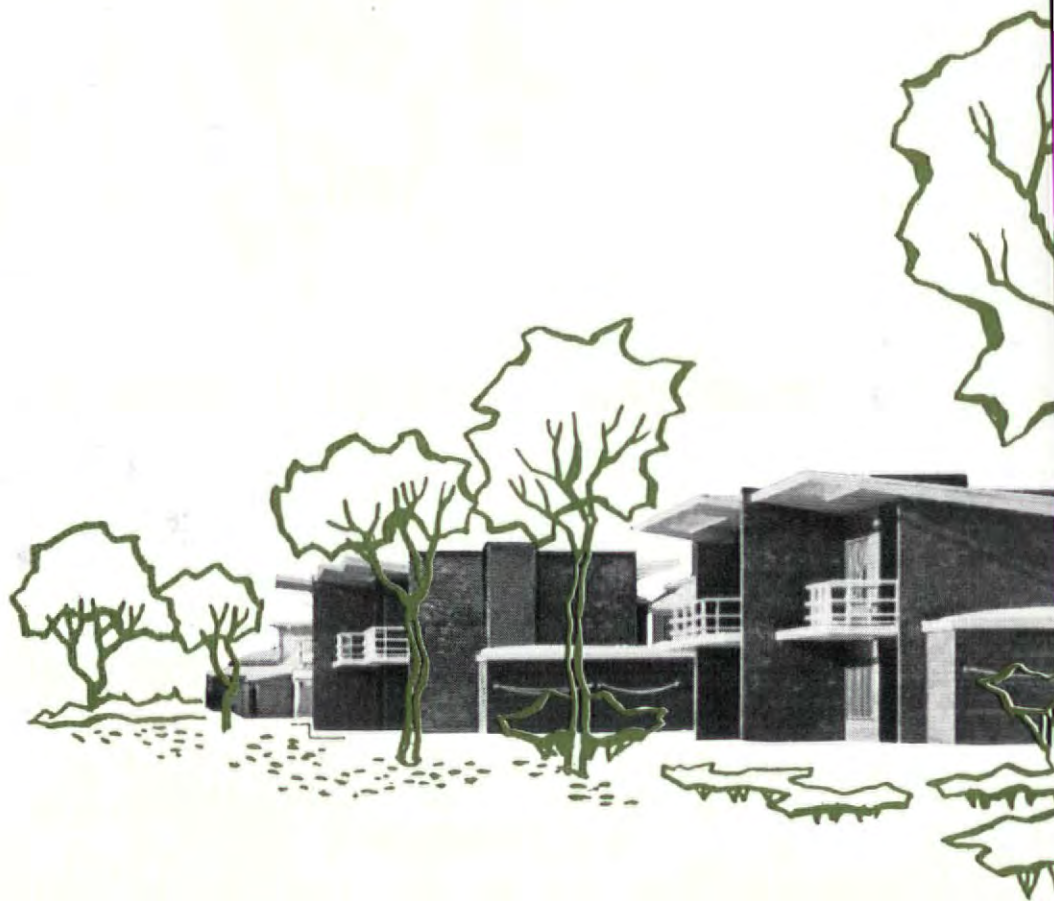
"Dryden Terrace is actually a rather disappointing thing to see. We are not proud of it." This is the Prudential Insurance Company of America's sour comment on its new apartment group for the University of Maine. FORUM, on the other hand, considers this development one of the best contemporary designs yet executed for the moderate rental market. Open planning, outdoor living space, excellent natural lighting and ventilation, built-in storage and good siting (8.65 per cent land coverage) make it a standout among apartments renting for from \$60 to \$105 per month.

Prudential's dim view of its own project may stem from the fact that it wanted a Georgian design, but succumbed to the architect's arguments in favor of modern. Prudential also seems to fear for its investment. The cost of the project was \$810,000, a rise of \$60,000 over original estimates. Considering the spiral of postwar building costs and the fact that kitchens were not included in the estimate, this does not seem out of line for 13 buildings containing a total of 61 apartments.

Major cost jump was the heating system, a baseboard arrangement costing \$63,000 as opposed to \$45,000 for the radiant floor heating recommended by the architect. Another extra was the use of septic tanks despite the legality of draining into a nearby river. Prudential proved penny-wise in cutting costs with a clay rather than a gravel backfill. Because of this economy, two sump pumps were burned out removing water from the cellars.

Whether because of these mistakes or because of the project's despised "modernistic" design, the owner is extremely nervous about its Maine enterprise. Says Prudential: "You ought to see our Georgian apartments over in New Jersey" (p. 122).

Photos: Brown-Silva



## TENANTS' COMMENTS

*"These apartments opened the eyes of a lot of people around here whose taste in architecture was traditional. When the designs were first announced, there was a lot of skeptical comment. The people who did go into the apartments did so mainly because they needed a place to live. Not until they got into the apartments did they realize how nice they were in terms of good living."*

*"I wish there were more ground between the apartments. You look out of your large living room window across to the other apartments with their small windows and you get the impression of a barracks. But I think landscaping will change that." "The buildings are well-sited. When you sit on your front porch, either upstairs or down, you're not bothered by your neighbors. The long brick wall on each side of the porch makes for privacy and, of course, the people who live opposite you spend most of their time on the other side of the building on their porches."*

*"The upstairs porch is great for the kids."*

*"The brick wall extension cuts off the afternoon sun in the winter . . . but it does provide privacy."*

*"The big windows are wonderful. When we first moved in last August we lived on the terrace. My wife and I are thinking in terms of a contemporary house for the first time."*

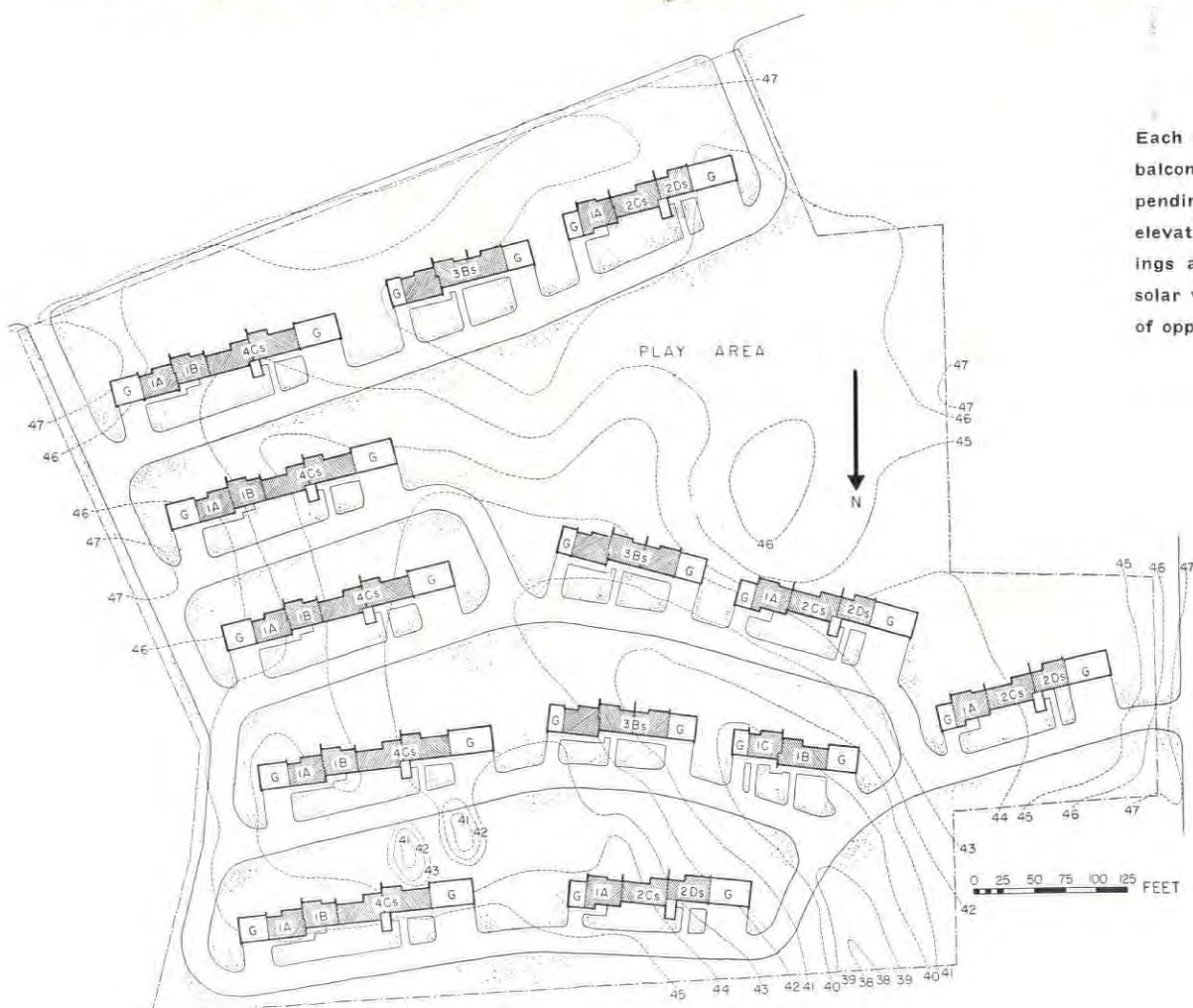
*"The openness of the plan is wonderful. When my wife and I walk into other houses now we feel cramped. The room space is marvelous. At Christmas we had 24 people in for drinks and our living room wasn't crowded at all."*

*"People are paying more rent for less area in older apartments in the rest of the town."*

*"I brought a chest of drawers with me, but I didn't need it. The built-in bureau and other storage space is more than adequate. The shelving in those big closets is marvelous."*



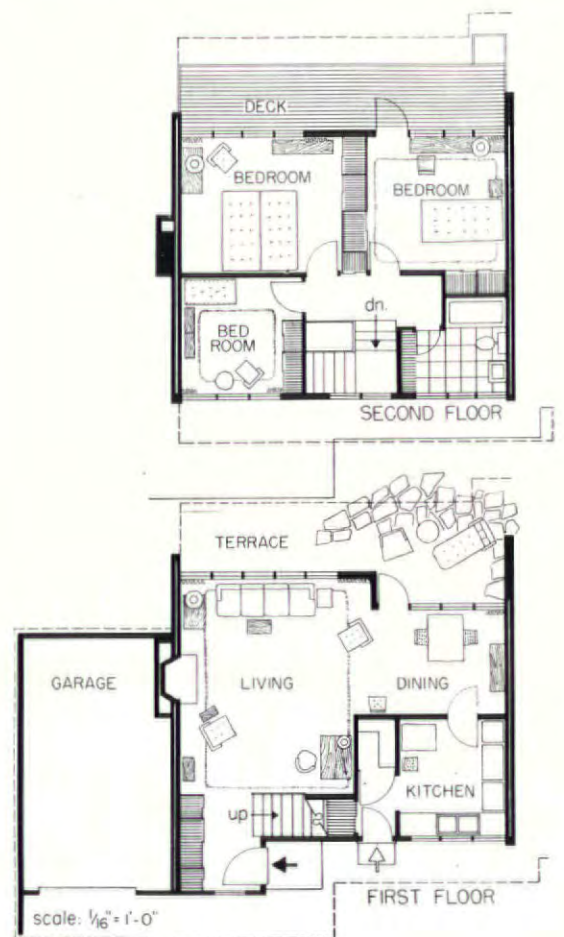
which built them



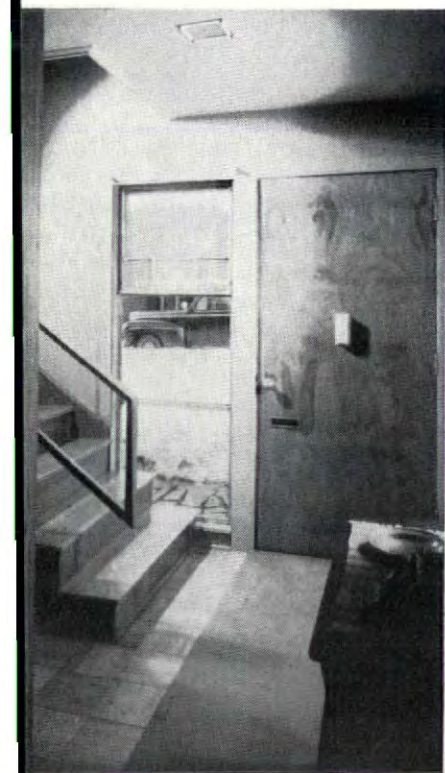
Each apartment has a private south balcony, paved terrace, or both, depending on size and location. North elevations have small windows. Buildings are sited so that balconies and solar windows of one face north walls of opposite buildings.



# MODERN APARTMENTS IN MAINE



**THREE-BEDROOM** duplex rents for \$105. Brick fireplace wall, solar windows and open plan are characteristic of all apartments. Garage rents for \$4 per month.



**TWO-BEDROOM** duplex rents for \$90. Its engineered kitchen and planned wall storage are standard items in every Dryden apartment regardless of size.





**ONE-BEDROOM** apartment rents for \$75 per month. Sun deck and bedroom built-ins are amenities seldom found in flats of this small size and price.



**ONE-ROOM** apartment, renting for \$60, proves that living in a single room need not produce claustrophobia. Open plan and large windows are the secret.



**CONSTRUCTION OUTLINE:** Waterproofing—Hydrocide, L. Sonneborn Sons. Exterior walls—white pine, beveled siding, sheathing, studs; inside—rockwool batts, Johns-Manville Corp., birch plywood or plaster on Rocklath, National Gypsum Co. Columns—Lally Column Co. Floors—oak block, E. L. Bruce Co. ROOFING—Barrett Co. FLASHING—copper, Revere Copper & Brass Co. WINDOWS: Sash—aluminum, Window Corp. of America. Screens—Burrowes Co. FLOOR COVERINGS: Kitchens—Kentile, David E. Kennedy, Inc. WALL COVERINGS: Bathrooms—The Formica Co. GARAGE DOORS—Overhead Door Corp. HARDWARE—Lockwood Hardware Mfg. Co. PAINTS—O'Brien Corp. and Pratt & Lambert Co. ELECTRICAL INSTALLATION: Wiring—General Cable Corp. Fixtures—Holophane Co. and Metallic Arts of New England. PLUMBING FIXTURES—American Radiator-Standard Sanitary Corp. KITCHEN EQUIPMENT: Sinks—Mullins Mfg. Corp. Ranges and refrigerators—General Electric Co. HEATING—forced hot water, baseboard radiation. Boilers—General Electric Co. Radiators—Vulcan Radiator Co. Thermostats—Barber-Colman Co. Circulators—Bell & Gossett.



# GEORGIAN APARTMENTS

LOCATION: East Orange, N. J.

OWNER: Prudential Insurance Company of America

ARCHITECT: Emil Schmidlin

CONTRACTOR: Mahieu Construction Co.

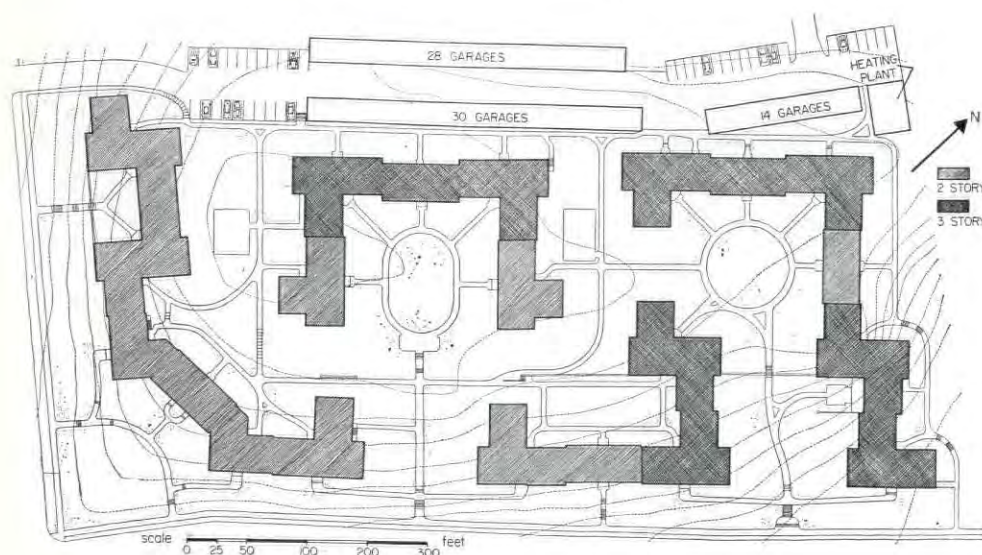


VARIETY WITHIN BLOCKS OF HOUSING IS ATTEMPTED BY PAINTING, SHUTTERS

"East Orange is a darn good looking project. We would duplicate East Orange, but I'm pretty sure we wouldn't do anything like the Maine development (p. 118) again." This is the Prudential Insurance Company of America's enthusiastic comment on its new, colonial garden apartment group in suburban New Jersey. FORUM, on the other hand, feels that this development is a typical example of uninspired American housing. The use of an architectural style outmoded 100 years ago effectively eliminates the excellent natural lighting and ventilation, the balconies and terraces which make for expansive living in the modern Maine apartment group. New Jersey interiors are the plastered box-shape familiar to apartment dwellers since the beginning of time. Unrelieved by large glass areas or brick interior walls, they are all painted a flat beige-gray as opposed to the rich variety of special colors used at Dryden Terrace. Siting and landscaping are typically formal, and land coverage is 21.8 per cent rather than the generous 8.6 per cent of the Maine development, reflecting the former's higher land value. Rents average \$30 per room, compared with about \$22 at Dryden Terrace.

The New Jersey project, which cost over \$2 million, is said to have almost doubled in cost over original estimates. A metal workers' strike, some materials delay and expensive landscaping are partly responsible. But much of this expense can be traced to the false roofs, space under which is not utilized even for storage; false dormers, chimneys, shutters and various ornamental gimcracks. However, Prudential feels that this project will prove a much more profitable investment than Dryden Terrace. Officials point to the open studwork of balconies and roof extensions in Maine as a major maintenance problem. In New Jersey the plethora of gingerbread and the painting of a number of the brick buildings white would seem to indicate an even larger maintenance cost.

Whether Prudential has an off-the-record reason for considering the New Jersey apartments a better investment than its Maine enterprise, FORUM cannot divine. It is probably another case of preferring a less livable and more expensive design because it is respectably traditional.





in New Jersey are the pride of their insurance company owner



Ben Schnall

Worst problem for the architect lay in attaching pitch-roofed buildings to flat-roofed ones of a different height. Result: an awkward roof line.



Only feature carried over from the Maine experiment was built-in storage. However, comparatively little of it is provided.





# SCHOOL ADDITION, crowded against street, is held to intimate scale and cheerful character by reduced heights, natural materials, bilateral light

GREENWOOD SCHOOL ADDITION, Waukegan, Ill.  
GANSTER & HENNIGHAUSEN, Architects  
PETER W. PETERSEN & CO., INC., General Contractor

Forced as close to the street as it could go, for lack of space on the lot, this addition to a 1925 four-room school could easily have looked overwhelmingly institutional in a residential area. The architect handsomely avoided such a result, first by placing his long connecting corridor, with its dropped roof, along the front; then by exaggerating fascias in order still further to reduce scale; and again by using "warm" natural materials: overburnt brick (in a cavity wall), sash painted Swedish red, stucco soffits, natural wood. The north-south direction of the street, which controlled the orientation, threw the larger classroom windows into an eastern exposure—scientifically unorthodox. As a countermeasure, the wide overhangs, apart from helping domesticate the building, cut off a big share of direct morning sunlight and, from most viewing angles, effectively cut off sky-glare

seen through windows. The thickness of these overhangs reduces the bilateral clerestory windows to rather narrow strips. (See classroom interior, opposite page.) Yet intensity of daylight falling on children's tasks at desks was found remarkably even in distribution compared to nearby conventional schools: never less than 12 foot-candles at the innermost desk, and always in ratios less than 2:1 as between the outermost and the innermost. On a hazy day the range was found to lie between 27 foot-candles and 15 foot-candles.

Eight colors are used throughout the building for stimulation rather than scientific reflectivity: a dark gray blue and a cobalt, two browns—dark leather and cocoa—turquoise, Swedish red, pinkish gray, and yellow "almost chartreuse." Red for windows and lower furred areas, and leather brown for classroom corridor walls, are uniform throughout the building; but end-wall colors vary from room to room.

Activity areas at rear of every classroom include flat-rim sink, linoleum counter top, cabinets, built-in easel and paper storage.

Total cubage of the addition is 274,340 cu. ft. at 94½ cents, or \$260,000 for the total building including professional fees.







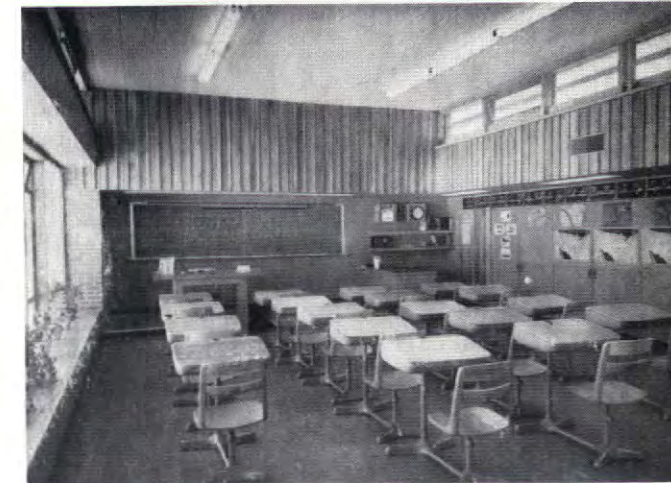
GYMNASIUM IS IN "NOISY" WING OF SCHOOL



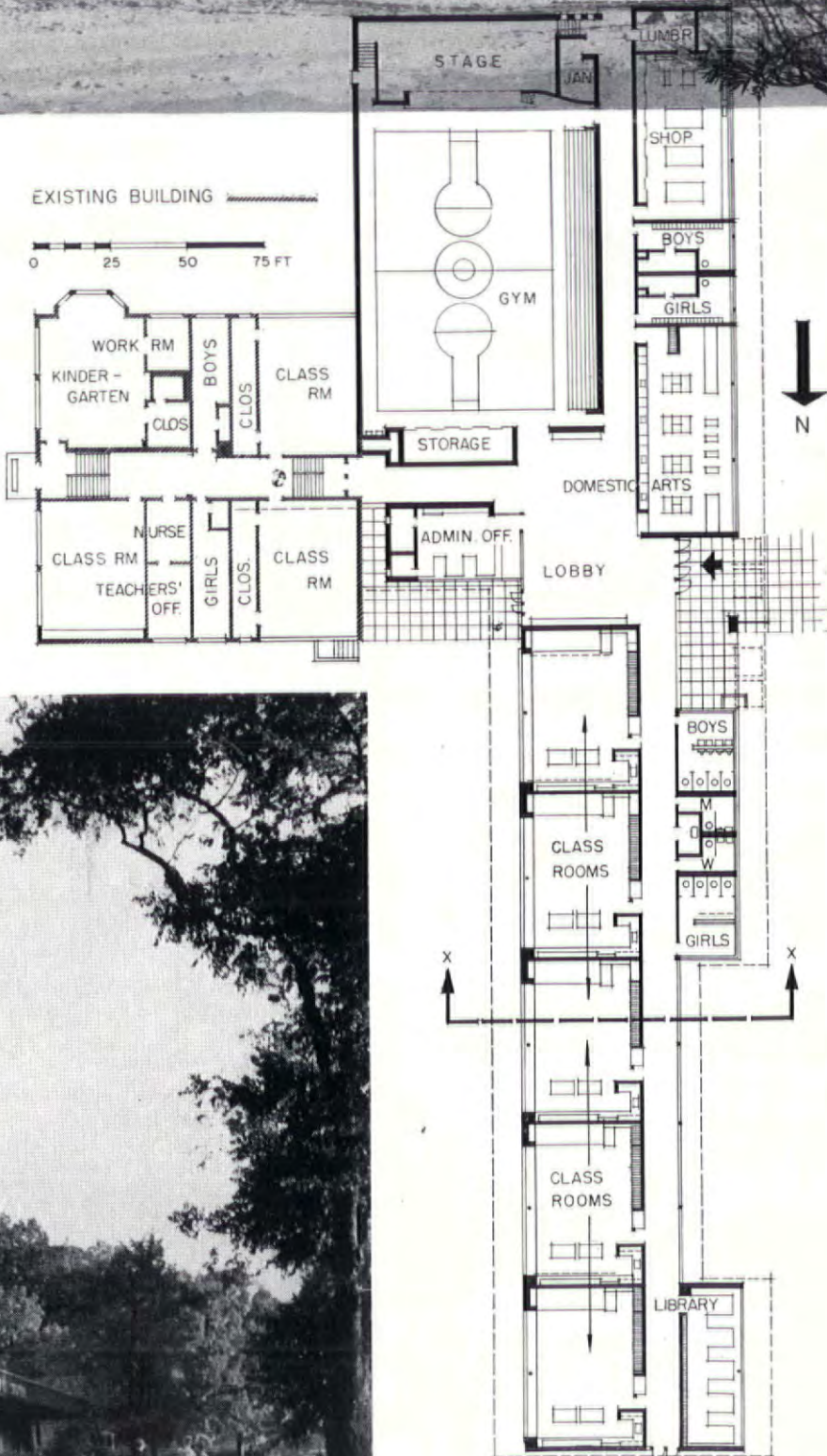
DOMESTIC ARTS: YELLOW, COCOA, TURQUOISE



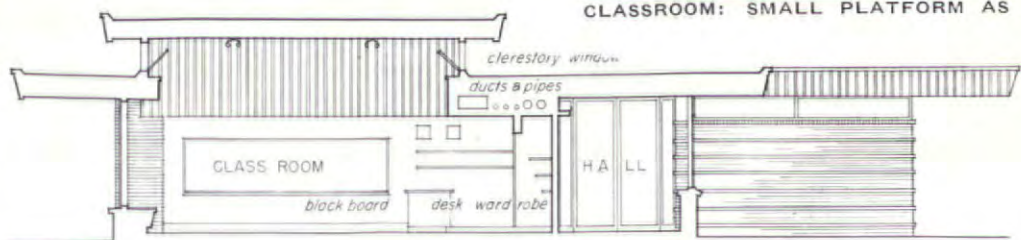
LIBRARY: AT QUIET NORTH END OF BUILDING



CLASSROOM: SMALL PLATFORM AS A STAGE

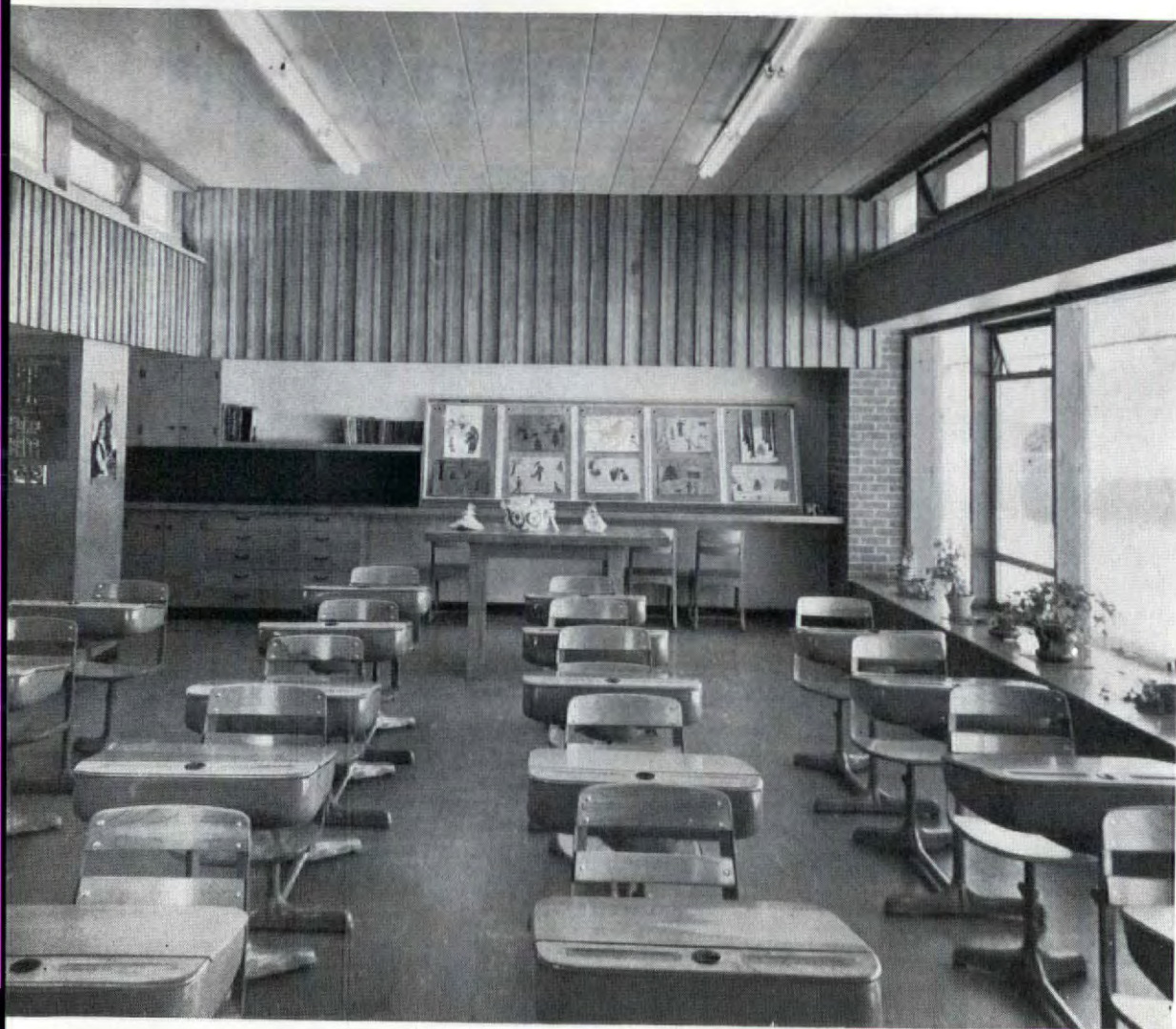
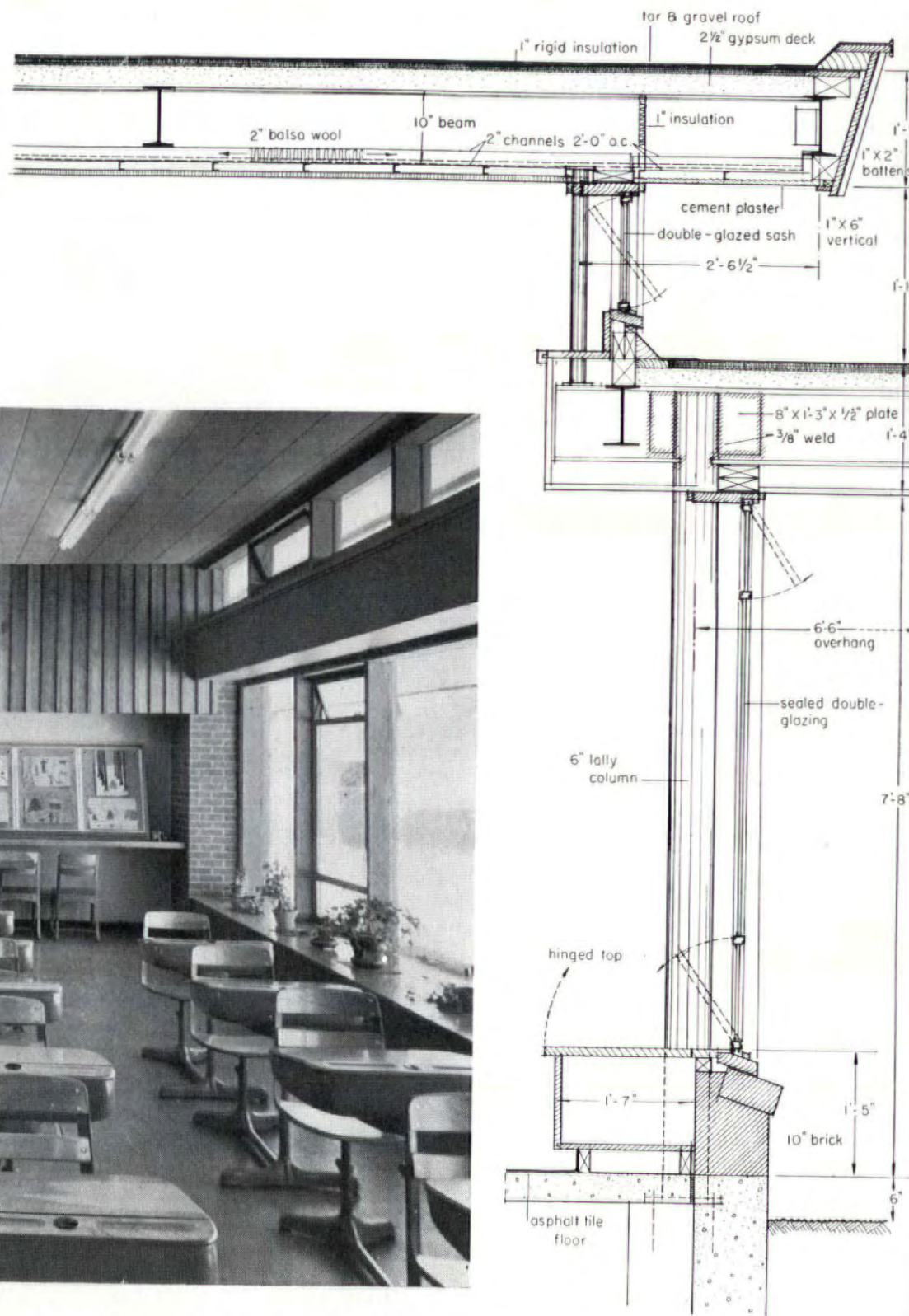


Photos: Life-Gordon Coster; John Paul Studio and Snazelle.



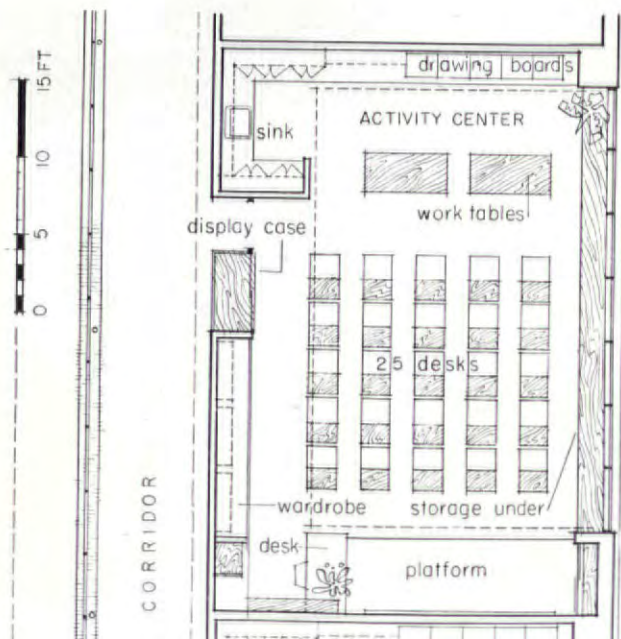
SECTION X-X





CORRIDOR'S LOW CEILING permits clerestory lighting (larger photo) both sides. Activity area at rear of classroom is carefully planned, includes sink, cabinets for paper storage, easels. Panel heating is in floor, surfaced with asphalt tile. Painted plaster walls, birch trim, overburnt brick, combine to create a "cheerful imaginative school home."

**CONSTRUCTION OUTLINE:** Exterior walls—brick, Streater Brick Co. Interior partitions—clay tile. Columns—Lally Column Co. Structural steel—C. Hennecke Co. Floors—concrete. Gym—1/2 in. corkboard set in mastic. ROOFING—Johns-Manville Corp. Gym—1 in. Weatherwood, Pyrofill deck, U. S. Gypsum Co. INSULATION—Wood Conversion Co. WINDOWS: Sash—steel, Hope's Windows, Inc. Glass—Thermopane, Libbey-Owens-Ford Glass Co. FLOOR COVERINGS—asphalt tile, Thomas Moulding Floor Co., and terrazzo. FURNISHINGS—American Seating Co. Folding bleachers—Horn Bros. Co. HARDWARE—Sargent & Co. PAINTS—Pratt & Lambert Co.; floor finish, S. C. Johnson Co. ELECTRICAL FIXTURES—Curtis Lighting Co., Hub Electric Co. and Daybrite Lighting Co. Stage lighting—Metropolitan Scenic Studios, Inc. PLUMBING FIXTURES—Crane Co. KITCHEN CABINETS—St. Charles Mfg. Co. HEATING—panel system. Coils—Trane Co. Boiler—U. S. Radiator Corp. Grilles—Barber-Colman Co. Regulators and valves—Johnson Service Co. and Crane Co. Water heater—Bell & Gossett Co. Pumps—Hoffman Specialty Co. Mail chutes—Sargent & Co.





# PRODUCTS AND PRACTICE

## CONCRETE SLAB WALL WITH CORE OF CELLULAR GLASS is practical compromise between simplest concrete prefab curtain panel and highly refined laboratory models

This structural sandwich, a layer of cellular glass between two concrete slabs, is the latest in the procession of prefab concrete walls developed in the last ten years; highly practical and efficient, it represents a compromise between the crudest concrete panel and the scrupulously scientific laboratory pilot model.

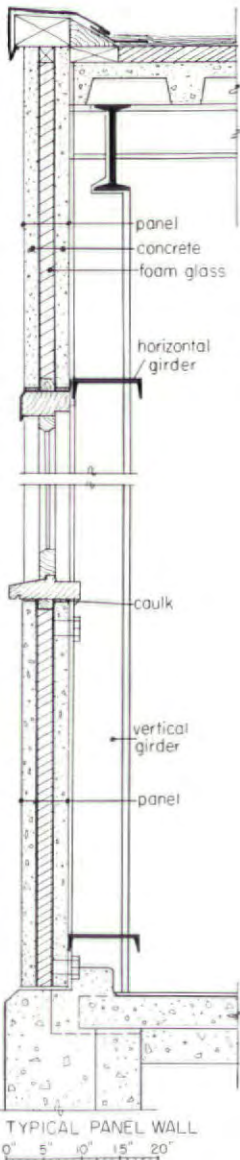
If all the other concrete curtain walls which have been developed in this concrete decade were laid end to end, we might have a cross country sidewalk. This form of prefabrication has been one of the great simultaneous discoveries of builders over the country, ranging from the small contractor who frames up pre-poured 4 in. slabs, then pours reinforced supporting columns between them, to the big manufacturer who develops machinery to factory-produce double thickness vacuum-concrete cavity panels.

But both have had faults. Most of the simple slab walls now standing are not entirely satisfactory walls, unless they get additional thicknesses of insulation; and most of the research-perfected slabs are not in large production, or require too much fabricating equipment for the average contractor.

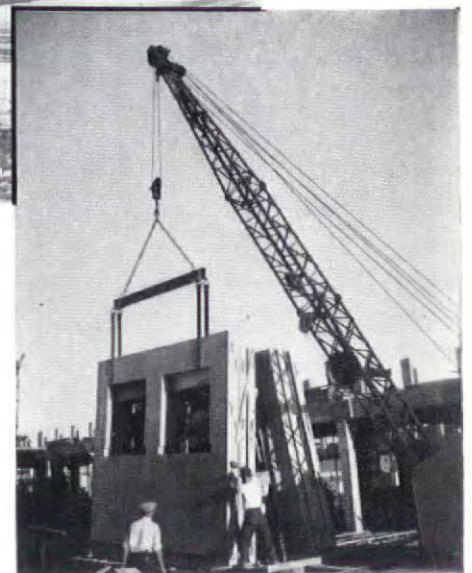
The slab wall shown on these pages is a likely candidate for the mean between the construction shack and the laboratory, par-

ticularly in today's still-big industrial building field. Its optimum thickness is 6 in.—a 2 in. slab of concrete on each side of the 2 in. core of cellular glass insulation, which can be detailed continuous with splines at the joints. The wall has been in use for two years in an installation where it faces severe weather changes, and has been found efficient as a weather block. It also has succeeded in solving the additional difficulty of most concrete slab walls, moisture migration. It has much of the immediate producibility of the solid concrete slab, together with a good deal of the efficiency of future factory-made sandwich panels. In the most refined form in which it has been produced so far, the only equipment required has been the same which is available to most sizeable contracting firms, and similar slabs have been made in simpler form by small builders. Cost and weight factors are both good, and jobs in this country are now underway for chemical process plants and other large structures.

The pilot building for this technique went up in Canada two years ago near the St. Lawrence River between Montreal and Quebec when Architect Ernest L. Denoncourt was commissioned to design a retail outlet and warehouse for the Hobbs Glass Co. of Hamilton, Ont. Contractor was the Page Equipment & Construction Co. and to-



**SERVICE CENTER BUILDING** in Toronto, Ont., used panels on concrete frame. At right, two-window panel is loaded on trailer for transportation to site. At upper left is close-up photograph of a thin version of this panel. To left is sketch cross section of one industrial insulated panel wall, a typical detail.







REINFORCING IS LAID FOR FIRST LAYER



WORKMEN INSERT INSULATING GLASS CORE

VACUUM PROCESS IS APPLIED TO SKIN

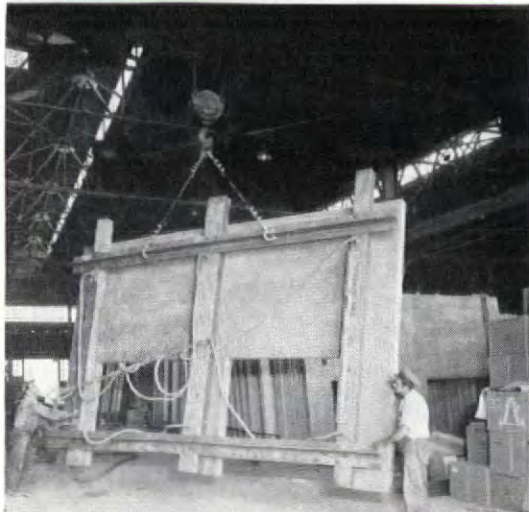


SURFACE OF OUTER SLAB IS LEVELED

SURFACE IS MECHANICALLY TROWELLED



VACUUM CHUCK LIFTS FINISHED PANEL



gether with the owner, both cooperated in working out essentially the same working wall panel which is getting wide attention now. Theirs was a 5 in. section made in-the-flat, cast against canvas to achieve an interior mat finish which could be painted without further finishing. The exterior veneer was made very dense by use of the vacuum process, and also by floating the exposed wall surface with heavy mechanical troweling equipment. Heart of the panel was Pittsburgh-Corning Foamglas. Another unique evolutionary step in this first building was the laying of the glass block while the panels were being made in the flat. A simple piece of 1 in. plywood with attached strips was used to hold the glass block while wall ties and waterproof mortar were inserted, and the same device raised the glass block panel from the lower surface of the wall during pouring to mold an inner and outer sill, jamb, and head effect.

Analysis of this building and several others which have stood long enough to enable some study has resulted in a long list of advantages cited for the concrete and cellular glass sandwich. First is cost, as compared with the conventional 12 in. common brick masonry wall; the saving was estimated at about a dollar per sq. ft. of wall. Weight of the wall was low (averaging from 40 to 60 lbs. per sq. ft., depending on aggregate and reinforcing—up to two-thirds less than typical masonry) resulting in other economies in foundation costs, in the skeleton frame itself, in erection time, and in cost of handling.

Another customary economic advantage of thinner walls is also evident here: a 6 in. panel wall in place of a 12 or 14 in. furred, lathed, and plastered wall can increase usable interior floor area about 72 sq. in. for each running foot of floor perimeter. No additional finishing is required on the interior or exterior of these panels for utility, especially if vacuum and machine troweling is used in making the panels. Moisture vapor migration from one side of the wall can be halted by the cellular glass insulation, if the designer uses a continuously insulated interior, enabling him to calculate his extreme design condition dew points within the insulation with confidence that condensation won't cause trouble on either face. Insulation value is also better than most conventional masonry walls with an approximate overall thermal conductivity, or "U" value, of 0.16 Btu/hr. sq. ft./F.° for the 6 in. sandwich.

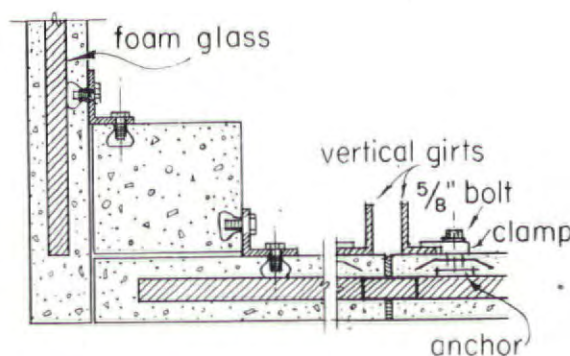
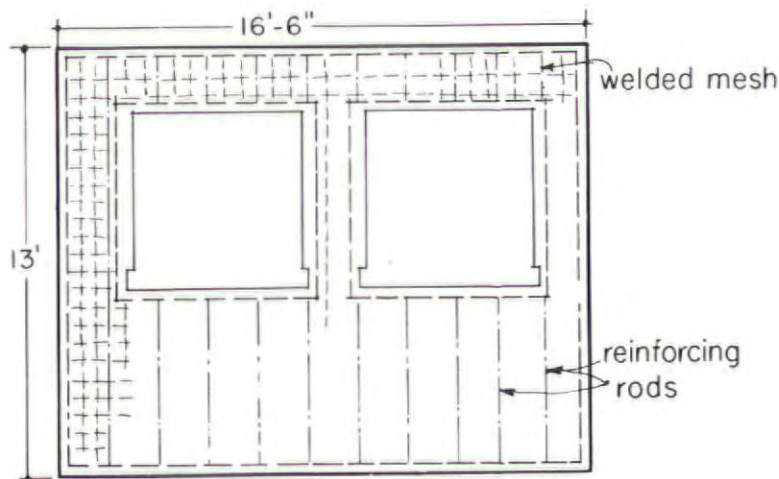
In fire resistance, a sample panel, 1½ in. concrete and 1¼ in. concrete on the faces with a 2 in. cellular glass core, was given a 3½-hour fire rating after being tested on a comparative fire test furnace using the Standard ASTM Time-Temperature Curve.

Prefabrication of the cellular glass con-



crete panel wall is already an established procedure, with mass production techniques not necessitating a large manufacturing set-up. In most cases panels have been made at the building site (see illustrations for examples of both site, and factory fabrication). A 24-hour casting-to-lifting cycle is possible. Panel wall units can be placed directly into final position and left to cure, or they may be transported. On one job the panels were fabricated ten miles from the site, and the same firm who made these is now shipping 6 ft. x 18 ft. x 6 ft. sandwiches by rail more than 100 miles.

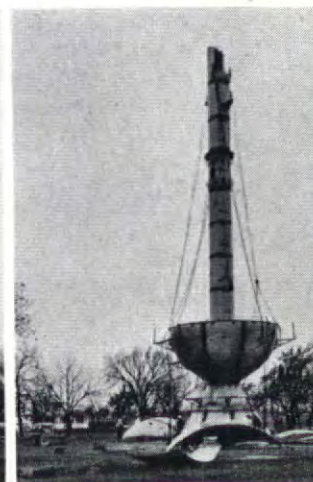
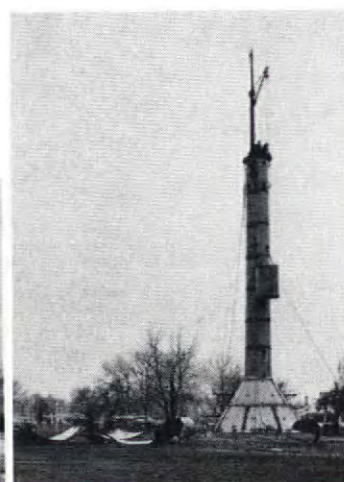
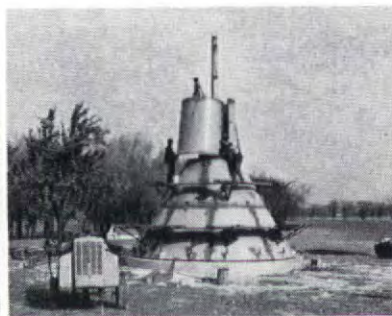
Since production and use of these panels embody a general practice more than any one rigid technique, a great deal of latitude is left for the designer to make improvements. Some of the panels made along these general principles reveal probable areas of imperfections, especially in the joining; but these weaknesses have been caused to a considerable degree by admittedly rough manufacture. Circumstances of manufacture seem to be improving for the designer in the field today. An apt example of this came in a recent job when seven contractors were asked to bid on manufacture of these panels for a large chemical plant which will carry the panels 100 ft. high; all seven bids came in, and came in lower than expected. The new panel seems not only to be a good wall, but seems also to be buildable.



**REINFORCING** in typical panel is welded mesh combined with rods. Use of cellular glass spline as in joint (illustrated) helps insulation continuity.



## WATER TOWERS of welded steel plate are striking landmarks with advantage of easy maintenance



In the last 20 years more than 100 of these striking knob-like steel water tanks have been erected on industrial and municipal sites throughout the country. Named the Horton Watersphere, the tanks are sectionally fabricated by the Chicago Bridge & Iron Co. in seven standard sizes ranging from 25,000 to 100,000 gal., in heights of 50, 75, 100, and 125 ft. top to bottom. Larger or intermediate sizes for designers

with particularly scrupulous senses of scale or thirst are fabricated to order.

As basic an example of truly native American architecture as only strictly utilitarian-engineered structures can be, the Watersphere was first designed in the Nineteen-twenties. Advantages then were the same as those today—its striking appearance and ease of maintenance. The large curved planes of its surfaces present

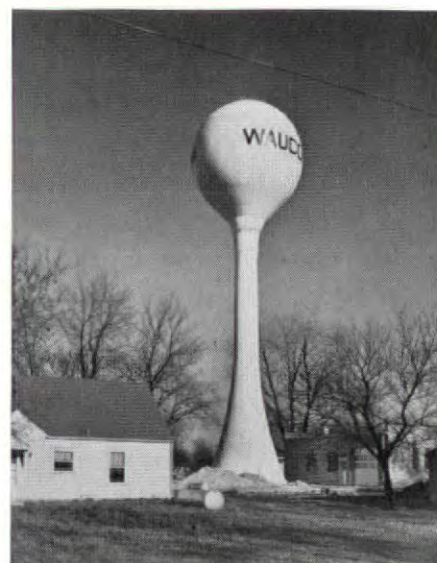
much less of a painting problem than water tanks supported by the usual framing. But the Watersphere erected in the Twenties was riveted, and proved impractical because of the difficulty of final assembly. When welding processes were perfected, this difficulty was overcome.

Most obvious of the changes which have been made in the new 1949 Watersphere is the softening of the silhouette in transition



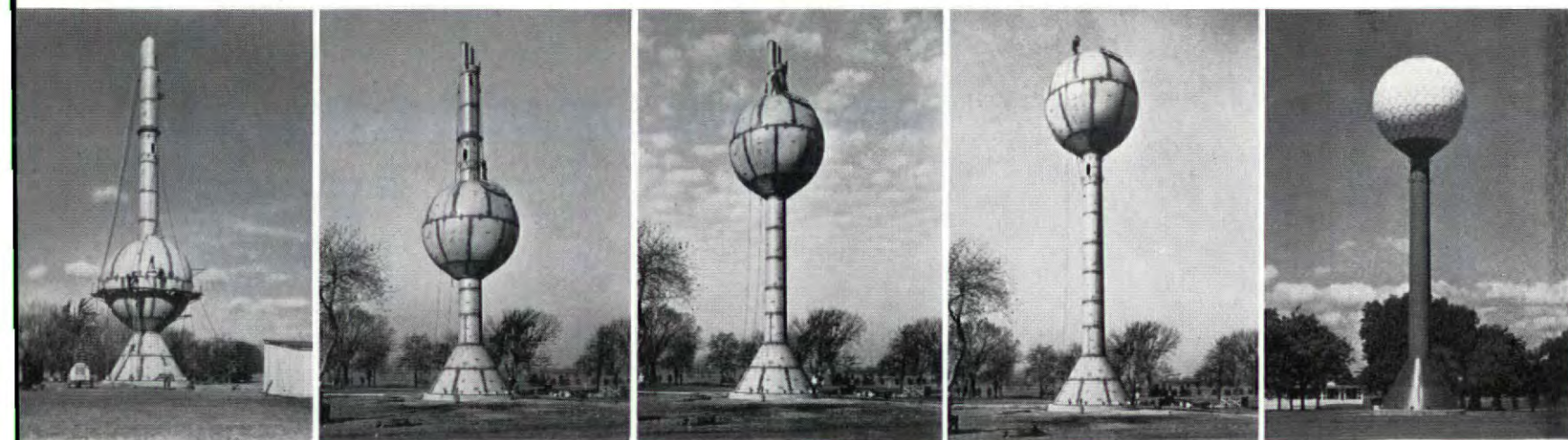


*Elwood M. Payne*



**NEW MODEL** Watersphere has all services contained, with more gradual transition in outline between the stem and its base and the storage sphere above.

**OLD MODEL** Watersphere was not so smooth, with more obvious joining of the base and sphere to the stem and some metal work embroidering the outside surfaces.



from tank to stem, and stem to base. Both (see comparison of pictures) are now unbroken slopes where, before this year's model, there was a more definite welding line at the top and bottom of the stem. Other structural changes make all parts of the new Horton accessible for maintenance, with the access ladder, now inside the stem and up through the center of the sphere, making it much easier to reach the top of the tank for inspection and painting.

Progress photographs are of an 86 ft. high Watersphere erected on the Tam-O-Shanter Golf Club on the northwest side of Chicago. This installation is a 40,000 gal. sphere

supported on a 65 ft. high column, and has been painted with a fine symbolic hand.

Total steel, including accessories such as anchor bolts and ladder, amounted to nearly 20 tons. Plate thickness for the conical base is  $9/32$  in. in the lower ring and  $13/32$  in. in the upper ring; for the central riser,  $1/2$  in. in the lower section and  $7/16$  in. in the upper part; and for the sphere,  $5/16$  in. in the lower half and  $1/4$  in. in the upper half. The central riser, which contains a ladder, extends upward through the sphere as an access tube. Also inside the column is a 6 in. water pipe. Diameter of the sphere is 22 ft. 10 in.

All plates are joined by butt-welded V-joints, made with shielded carbon steel electrodes arced by 200-amp. portable gasoline-engine generators. Two beads were sufficient for the  $1/4$  in. plate, one of them being a backup weld placed on the inside after peening. Other plates required two outside beads and a backup bead.

Erection procedure was typical for Watersphere construction as practiced today. No effort was made to achieve an assembly record. Weather caused no undue delays. Some days, as usual, were too windy for hoisting plate sections. Erection took 25 calendar days.



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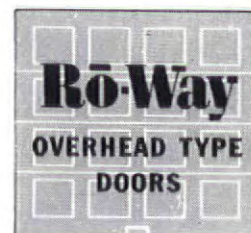
Whatever you want in Overhead Type Doors, the *right* way to get it  
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shipment. Good delivery on special sizes for  
commercial and industrial use.*

*There's a Ro-Way for every Doorway!*

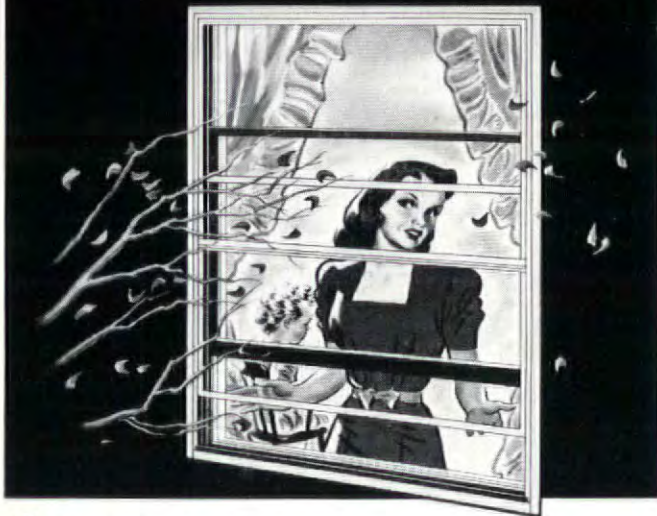




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\*T. M. REG. APP. FOR



**PORCELAIN ENAMEL FINISH** at not much more than the cost of paint is the result of ten years of engineering research which prefaced the Lustron House.

Porcelain enamel, which has recently dressed up the hamburger stand and the gas station, is a material as old as history. Some 15 centuries before the Christian era, somebody heated a batch of minerals and produced a glass-like substance which he found could be fused to metal by heat.

The modern porcelain enamel industry developed as a means of providing a permanent and attractive finish for iron and steel sanitary ware. As such, it is more permanent than most of the works of man. The wedding of steel and enamel is a chemical one: at a high temperature the enamel fuses with the steel, forming a permanent bond.

The Lustron house is the result of a decade-long research program which reduced the cost of the porcelain enameling process to about 10 cents a sq. ft.—or about the cost of a paint job. This cost reduction means that a material which already has building acceptance can now be feasibly used for volume house production and may be of wide interest in curtain wall construction.

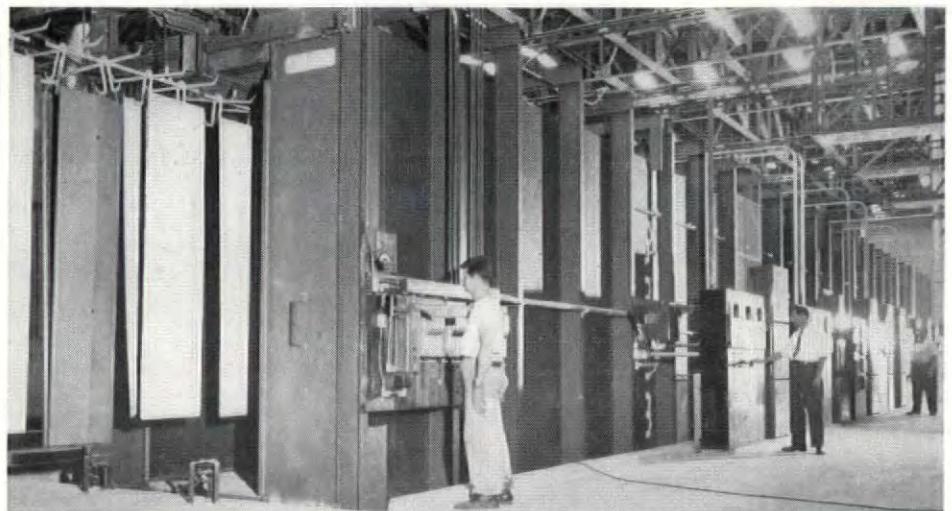
The ceramic engineering research started at the Chicago Vitreous Enamel Co. of which Carl Strandlund was vice-president and general manager. Eugene Howe, a young and brilliant ceramic engineer who was associate director of research at Chicago Vit, left that firm with Strandlund to become manager of the Lustron ceramic division—the largest

porcelain enameling plant in the world.

Lustron fuses porcelain enamel to sheet steel at a temperature of 1,300°F.—a new low for the industry. Since this temperature is below the critical point of steel, cold-rolled sheet steel, the kind used for automobile bodies, can be employed. Lustron accomplished this temperature reduction principally by devising a silica or vitreous mix that could be brought to a molten condition at 1,300°F. Since the usual enameling furnace temperature is 1,600° and requires special enameling iron that costs twice as much as sheet steel, this temperature reduction was as big news in the porcelain enamel industry as a factory-built house in the housebuilding industry. "Why, we've been trying for 25 years just to reduce the furnace temperature 100°F.!" one enameler said.

Basic steel fabrication process in the Lustron plant is cold roll forming. This means that the piece of steel is fed flat into automatic presses where it is formed by various dies. The basic 2 x 2 ft. panel, for example, is formed in an automatic press fitted with five dies. When steel parts have been formed and pickled (cleaned), they are sprayed with porcelain enamel and run through the furnaces. Exterior panels get two coats for weather resistance; interior panels, only one. Cabinet work and unexposed structural members are finished with a baked synthetic paint as are automobile bodies.

**PORCELAIN ENAMELING FURNACE** shown here is 180 ft. long with a work chamber 11 ft. high. In it are fired the big pieces of the house: 8 x 2 ft. interior wall sections, 8 ft. roof strips, doors. This is one of two electrically heated furnaces. There are nine gas furnaces.







HERE'S A SPECIALLY-PRICED  
***Magic Chef***  
 GAS RANGE

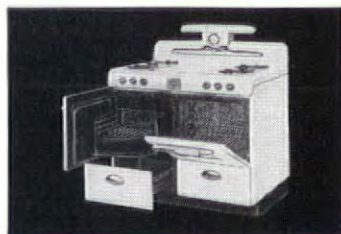


30" Wide—Series 600

# FOR LIMITED SPACE, LIMITED BUDGETS



36" wide—Series 700



39" wide—Series 2400 and 1300



36" wide—Series 1200



62" wide—Series 1000



20" wide—Series 500



43" wide—Series 400 and 460

OTHER Products: Combination, coal and wood ranges, oil stoves and heaters, oil furnaces.

Architects and builders have been asking for a range 30 inches wide. Here it is! Its smart styling will add to the appearance of any apartment or small home kitchen. The 600 Series Magic Chef range is low priced, yet it has a full-size oven and broiler, 4 fast Magic Chef top burners, and most of the features of deluxe Magic Chef models. Magic Chef ranges have the advantages of quality and appearance *plus* these *helpful* selling factors:

- 1 More women cook on Magic Chef than on any other range.
- 2 Surveys show more women plan to buy Magic Chef than any other gas range.
- 3 Magic Chef is the most widely advertised gas range in America.
- 4 Magic Chef is the easiest range to sell.

## BUILT LIKE A LUSTRON HOUSE!

Magic Chef gas ranges, like the Lustron House, are made of steel, porcelain-enameled inside and out, thoroughly insulated for efficient control of temperature.

*Let us show you why a Magic Chef range should be specified in your building plans—apartments, homes—hotels and restaurants, too!*

FOR COMPLETE DETAILS SEND FOR OUR  
 ARCHITECTS AND BUILDERS FILE

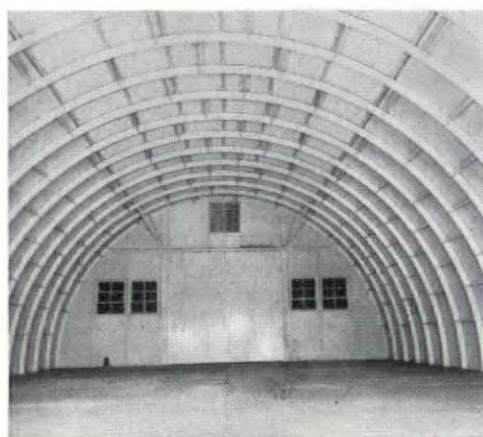
A M E R I C A N   S T O V E   C O M P A N Y • S T . L O U I S



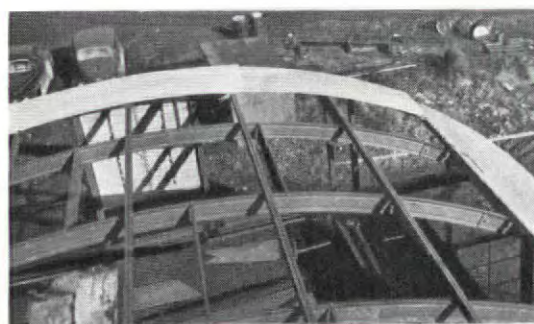
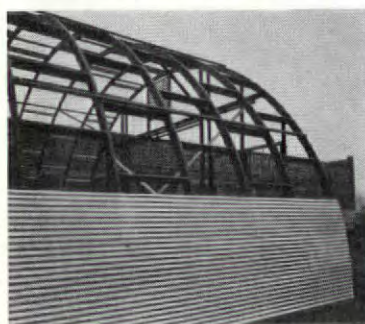
# BUILDING REPORTER



**NEW QUONSET** has distinct roof line and horizontally applied side-wall sheets. New bridging also simplifies interior.



**CHANNEL BRIDGING** is attached to ribs to connect adjoining members horizontally. Roof sheets are nailed vertically to purlins.



**TYPICAL ADAPTATION** is Hires Bottling Co. plant by Raymond R. Franceschi, Architect.



## IMPROVED QUONSET with fewer structural members promises stronger, cheaper, more easily erected building

Widely adaptable in a variety of applications, the 1949 version of the familiar Quonset features a new design with four basic improvements: greater strength, faster erection, smarter detailing and lower cost. As an example, the manufacturer cites that the new 40 x 100 ft. structure can be erected in 25 per cent less time than required for the same size 1948 model.

One of the main structural changes responsible for improvements in the new building is the use of fewer but sturdier parts, particularly for bridging. The new bridging system consists of quickly installed channel sections, measuring  $6\frac{1}{8} \times 1\frac{3}{4}$  in., which connect adjoining ribs horizontally like rungs of a ladder. These sections replace the more intricate, web-like system of lighter members which were formerly installed in a criss cross manner between ribs.

Improved appearance and a distinct roof line have also been added to the Quonset 40 by a design change intended primarily for greater structural efficiency. Sidewall corrugated sheets are now nailed directly in a horizontal position to the steel arch ribs, instead of vertically to purlins. The new purlins themselves have also been changed from 2 5/16 in. depth to 2 in., because tests have proved that the new dimension has ample strength required of this member. Crown sheets are nailed vertically to purlins for the roof.

The new Quonset features 15 other refinements. One of these is use of rubber to replace asphalt for corrugated weather-seal strips at certain sheet joints. Another is the use of continuous metal flashing at junctions of crown and sidewall sheets to eliminate weatherproofing precautions previously required at these joints. New factory-assembled end-wall window frames permit easier installation and simpler weatherproofing.

Prices on new Quonset buildings vary with the number of window and door openings; with amount of interior bridging required to meet codes and load factors; and with freight charges. However, one Detroit dealer quotes \$4,341.25 for the basic 40 x 100 ft. unit equipped with two windows, one louver and a 14 ft. sliding door. A Detroit contractor estimates erection at \$1,408 for this new unit which compares to \$1,760 for the same size 1948 model. In Detroit, this represents a saving of \$352, or roughly 6 per cent in completed building cost as a result of the new design.

*Manufacturer:* Great Lakes Steel Corp., Stran Steel Div., Penobscot Building, Detroit 26, Mich.

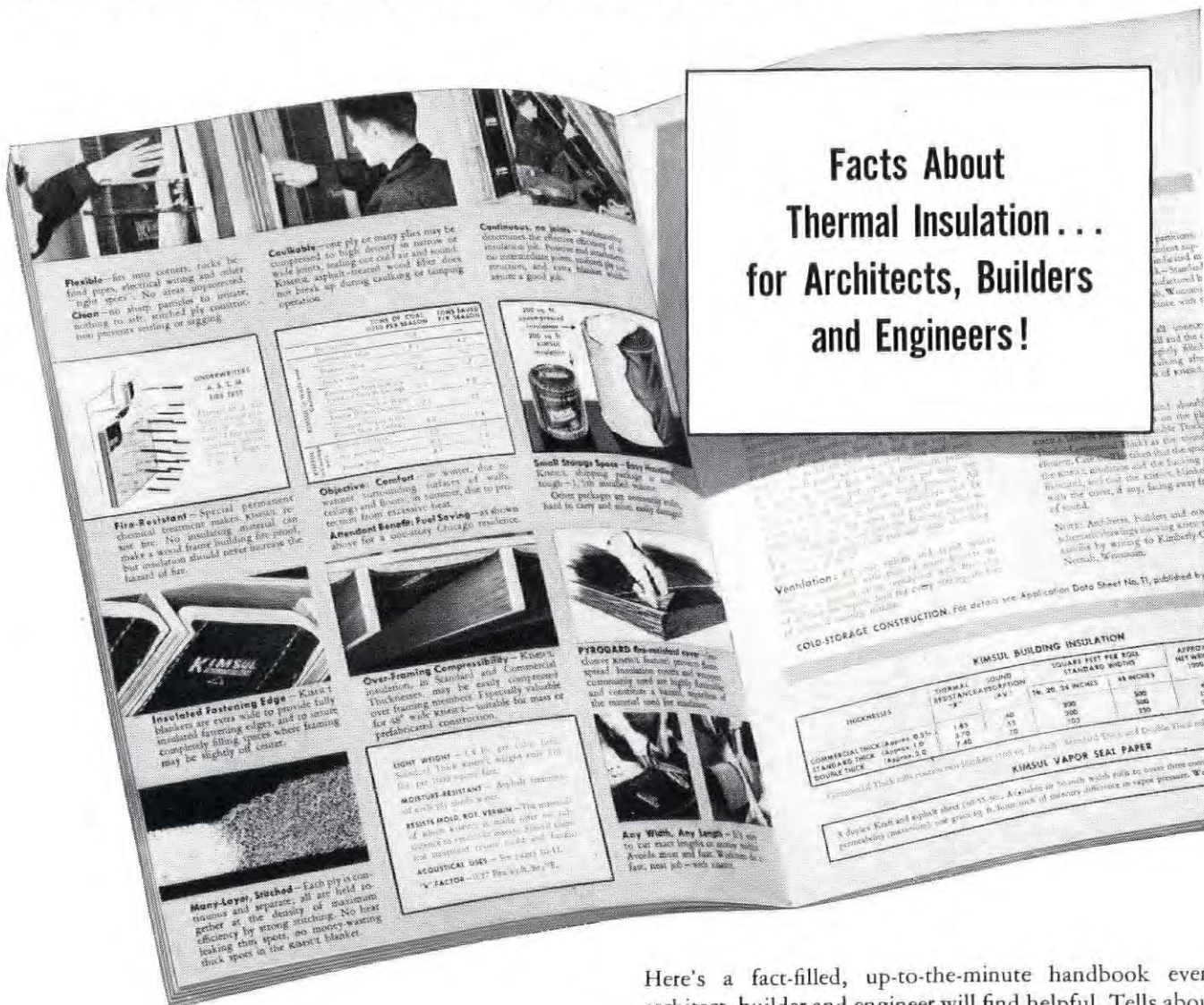
## PREFABRICATED BATHROOM, complete unit to be added to house, is eligible for FHA financing.

Ad-A-Bath, as the name suggests, is a new packaged bathroom for joining onto a farm house or summer cottage. Built of frame with a plywood interior, it is a complete unit consisting of walls, roof and floor; fixtures, plumbing and wiring. Once the foundation is laid, the unit can be set in place, joined to the house and utility connections made in rapid time. And since it is an addition, the modern conveniences are added without rearranging or sacrificing any of the existing living space. In this new prefab, the walls, ceiling and linoleum-covered floor are heavily insulated. All the electric wiring, copper supply tubing, vent and soil pipe are concealed in an 18 in. double wall compartment.

Ad-A-Bath equipment includes: tub, lavatory, stool, built-in electric heater, medicine and linen cabinets plus accessory bars and holders. A special (Continued on page 136)



# You'll want to have this 1949 Kimsul\* Technical Booklet!



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Here's a fact-filled, up-to-the-minute handbook every architect, builder and engineer will find helpful. Tells about new and important developments in insulation engineering practice. Includes information on heat loss distribution, "U" Factors of various types of construction, typical architectural specifications and other data on both thermal and acoustical installations for all types of structures—commercial, industrial and residential. Send for your free copy today, or look for it in the 1949 issue of Sweet's Catalogs for Architects and Builders.





PHOTO COURTESY OF HOTEL PIERRE NEW YORK

In hotels and restaurants—in stores and office buildings—in almost any type of commercial or institutional building you may design, Stanley Door Controls written into the plans will have definite, practical and important advantages for your clients.

Actuated by a photo-electric "eye", Stanley Magic Doors open instantly and automatically on approach, stay open till the passage is clear, then close quickly and silently.

Installed—as here—in restaurants and hotels, they eliminate waiter collisions—

breakage—all the other annoyances of ordinary doors.

As entrance doors they eliminate unpleasant crowding in stores and office buildings—make appreciable savings in heating and air conditioning costs. In mills and factories they speed up materials handling—help increase production and lower costs.

Stanley Door Controls, Magic Doors, operate either swinging or sliding doors, or a combination of the two, and can be designed to suit practically any requirements of space or location. A minute or two to mail this coupon for detailed information and drawings will be well worth your time.

## STANLEY The Magic Door

Reg. U.S. Pat. Off.

HARDWARE • HAND TOOLS • ELECTRIC TOOLS • STEEL STRAPPING •

The Stanley Works, Magic Door Division, 229 Lake St., New Britain, Conn.

Please send me full information on Stanley Magic Doors.

Name.....

Firm.....

Street.....

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

☐ Check if you would like a representative to call

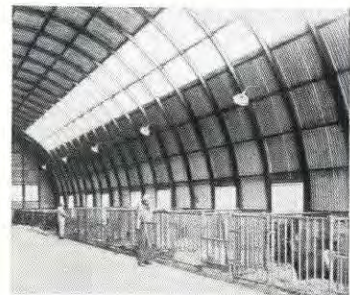
structural joint keeps the packaged room permanently tight against the existing house regardless of whether the structure is frame, stucco, brick or veneer. Only four utility connections: one electric, two water and one soil pipe, are required. Ad-A-Bath retails for approximately \$1,095 and is eligible for financing under FHA Title I.

Manufacturer: Builders Manufacturing Co., Bremen, Ind.



### CORRUGATED PLASTIC-GLASS LAMINATE for diffused lighting, is durable and shatter-proof.

Alsynite, a colorful, corrugated, plastic-impregnated glass fiber panel, is a new member of the plastic family to be entered in the building, decorating and display field. A semi-rigid, translucent, shatterproof material, Alsynite comes in panels .050 to .060 thick, 26 in. wide and 8 to 10 ft. long. A wide variety of pleasing colors are available in two types of corrugations: 1 1/4 in. and 2 5/8 in. Made with American Cyanamid's Laminac resin, the panels are durable, rotproof and maintenance free. They weigh only 7 1/2 oz. per sq. ft. can be shaped for various design effects, and

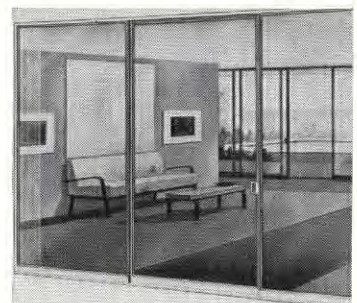


impose no heavy load on the building frame. Panels are usually cemented together with a special waterproof mastic when used as interior partitions or patio screens, but they can be easily sawed, nailed or screwed to any suitable surface. One of the main features of Alsynite is that it transmits a maximum of natural daylight. This feature has been exploited in industrial buildings where the translucent panels have been successfully employed in skylight construction. Substituted for conventional corrugated metal sheets, the new panels eliminate expensive frames and permit the entry of natural daylight with minimum expense. Tests now in progress also indicate that the new material is a promising hail resistant, substitute for glass in green house construction.

Manufacturer: Allied Synthetics Co., 4654 De Soto St., San Diego 9, Calif.

### SLIDING GLASS DOORS help achieve unrestricted glass areas in modern residences, apartments and offices.

To meet the increasingly popular trend toward large unrestricted glass areas in homes and commercial buildings, Arcadia Metal Products is offering sturdy, horizontal sliding glass doors in numerous styles and sizes. These doors are accurately fabricated of heavy phosphor-bonded steel,



(Continued on page 138)



Bright... Glossy... Quick-Drying

## SASH & TRIM COLORS

Blended to Stay Bright



"Save the Surface  
and You Save All"

**Bright!** "Dutch Boy" Sash & Trim Colors are specially "blended" to trim up a job so it not only *looks* bright but *stays* bright!

**Beauty-tight!** Specially blended for extra color strength and for glassy, mirror-like gloss, they add a finishing touch that lasts. They cover well... set dust-free in 4 hours

... and dry smooth and hard.

**Right!** "Dutch Boy" Sash & Trim Colors are ideal for sash, shutters, doors, fences and store fronts. A real "Dutch Boy" product, they make any job stand *out* and stand *up*! See the complete story, including actual colors, in Sweet's File, Architectural.

NATIONAL LEAD COMPANY: New York 6; Buffalo 3; Chicago 8; Cincinnati 3; Cleveland 13; St. Louis 1; San Francisco 10; Pittsburgh 12; Boston 6 (National Lead Co. of Mass.); Philadelphia 25 (John T. Lewis & Bros. Co.).



Line up with **The "Dutch Boy" Line**



Here's new, breathtaking beauty for bathrooms

# Crystalcrome

Accessories by

**HALL-MACK**

\*TRADE MARK REG. U. S. PAT. OFF.



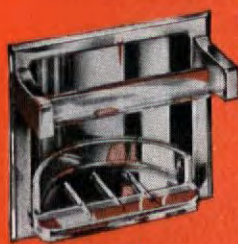
No. 170  
PAPER HOLDER

New in design...NEW in appearance...NEW in its conception of modern accessories for bathrooms—that is Hall-Mack Crystalcrome!

Crystalcrome combines the lasting brilliance of polished chrome on solid forged brass with the added beauty of crystal that is perfectly clear, jewel-like, and easy to clean.

Whatever your designs or building requirements may be, Crystalcrome will bring new beauty to bathroom decoration. Moderately priced to cover a wide range of building needs, Crystalcrome is quickly and easily installed. It is an important new addition to the complete Hall-Mack line of bathroom accessories for every application from millionaire's mansion to modest cottage.

Crystalcrome is available in towel bars, soap dishes, paper holders, toothbrush and tumbler holders and other accessories—in designs never before achieved in bathroom equipment. *Your copy of the Crystalcrome Catalog will be mailed without obligation on request—write for it today!*



No. 165  
RECESSED  
SOAP AND GRAB



No. 120  
SOAP HOLDER



No. 130  
TUMBLER AND  
TOOTHBRUSH HOLDER

## HALL-MACK COMPANY

1344 WEST WASHINGTON BOULEVARD, LOS ANGELES 7, CALIFORNIA  
7455 EXCHANGE AVENUE, CHICAGO 49, ILLINOIS

prime coated with high quality lacquer, or with stainless steel sections. All welding is concealed. Doors slide easily and quietly on sturdy 2 in. diameter sealed, ball-bearing Micarta bottom rollers. At the top are rubber guide rollers. The frame, including sill and track, can be quickly and easily installed. Factory track aligning assures correct installation. Sliding sections may be removed for protection during construction and for adjustment of all moving parts. Five types of doors, in both right and left hand models, are available in a variety of sizes. Well-styled hardware in solid brass or aluminum is supplied. Weatherstripping and sliding screens are also available.

*Manufacturer:* Arcadia Metal Products, Inc., 324 North Second Ave., Arcadia, Calif.

**SLIDING ALUMINUM WINDOWS** are well suited to contemporary design, are attractive and economical.

Peterson aluminum horizontal sliding windows, because of their sleek, trim design, are especially adaptable to modern residences, apartments, hotels and similar buildings. The unit consists of an integral frame and fixed sash, and a removable sliding sash which is supported on two rollers to open horizontally.

The sliding sash lifts into the room for initial glazing and safe washing. It can be equipped with double glazing panels or storm sash with sill ventilator in addition to screens. The window is constructed of sturdy, tubular type aluminum extrusions which need not be painted unless desired. All hardware, anchors, glazing strips and springs, and a woven fabric type weatherstripping are supplied with the unit.

In addition to the two-sash window, the Peterson line includes a larger three panel unit with a center sliding ventilating sash, and a picture window with the two side panels functioning as ventilators. All windows are available with several muntin arrangements and an expansion type mullion permits the windows to be used in continuous spans of any length without danger of buckling. Units are supplied knocked down. Assembly, requiring only a screwdriver, takes about 15 minutes. Cost of Peterson windows ranges from \$25.80 for a small 3 ft. x 2 ft. 2½ in. unit to \$76.90 for an 8 ft. x 4 ft. 10½ in. picture window.

*Manufacturer:* G. D. Peterson Co., 714 Parker Ave., Detroit, Mich.

**PICTURE WINDOW FRAME** is sturdy, versatile.

Modular for masonry, veneer, frame and block construction, the new Malta Picture Window unit is adaptable to any wall thickness. In addition, it is available with either casement or double hung side windows. The ¾ in. inside blind stop not only strengthens the entire frame and assures proper alignment, but it also anchors the jamb to the studding and furnishes a proper plaster ground. The new unit, designed primarily for double insulating glass, will accommodate plate or double strength glass if wide stops are used. Where greater glass area is desired the double insulating or plate glass may be set directly into the frame. Sash may also be shop glazed. Easy operating hardware is

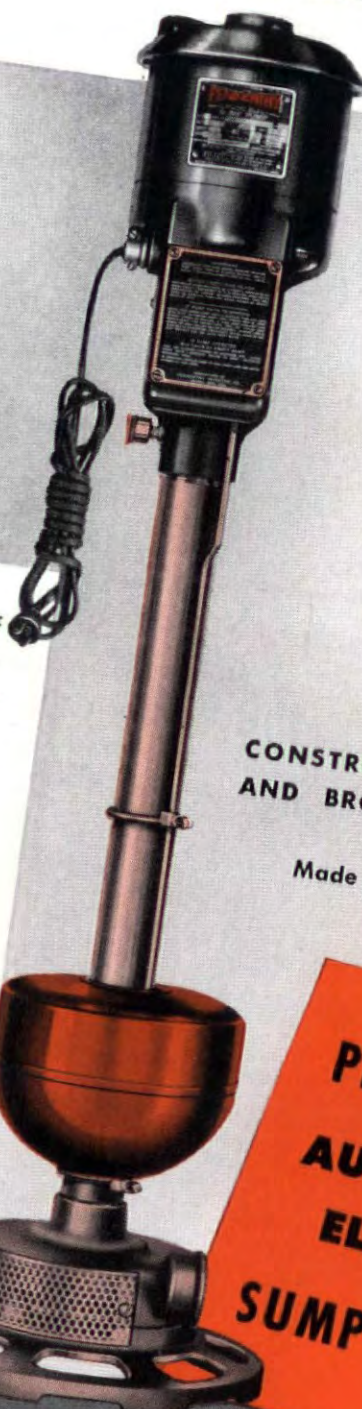
(Continued on page 140)





# Satisfaction...

any way you look at it



Whether you look at it from the viewpoint of the architect, the building contractor, the master plumber, or the home owner... a Penberthy Automatic Electric Sump Pump means satisfaction to all concerned.

Wherever seepage water must be removed, a Penberthy Pump is the logical selection. It can be depended upon to operate instantly when needed... regardless of how long it has stood idle. Simple and rugged in design, it is immune to corrosion because it is constructed of copper and bronze throughout. The motor is specially impregnated for moisture resistance and has built-in overload protection. The mercury switch is sensitive and dependable. The impeller has high efficiency and the shaft is fully enclosed.

Penberthy Automatic Electric Sump Pumps are stocked by leading jobbers everywhere.

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CONSTRUCTED OF COPPER  
AND BRONZE THROUGHOUT

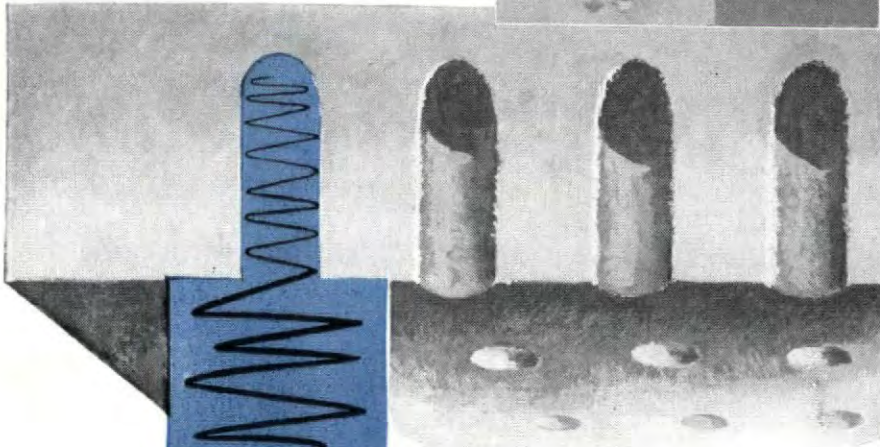
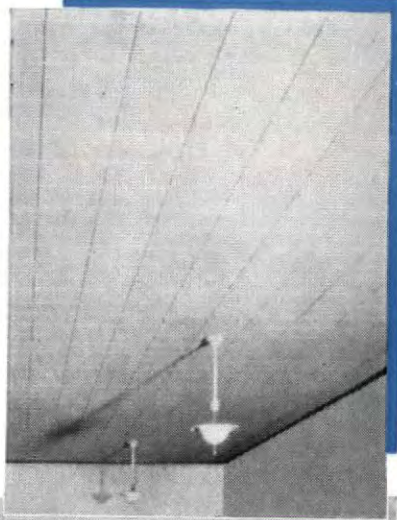
Made in Seven Models  
and Sizes

**PENBERTHY  
AUTOMATIC  
ELECTRIC  
SUMP PUMPS**

**PENBERTHY INJECTOR COMPANY**  
DETROIT 2, MICHIGAN  
Established 1886 • Canadian Plant, Windsor, Ontario



*We've built  
a better  
"noise trap"*



\*Based on room size 15' x 15'  
†Reg. U. S. Pat. Off.

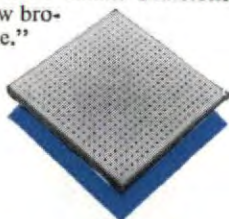
**You'll have 108,900\* noise traps to give you quiet, when you buy a Johns-Manville Fibretone† Ceiling**

• Every 12" unit of a Johns-Manville Fibretone Ceiling has hundreds of scientifically designed "noise traps". . . small cylindrical holes drilled in the sound-absorbing panels.

Here the noise waves are trapped and dissipated *within* the holes.

Once you experience the benefits that noise-quieting Fibretone gives . . . greater comfort, less nerve strain, increased efficiency . . . you'll never again be satisfied to have an ordinary ceiling in any busy area. You'll be surprised, too, at Fibretone's *low cost*.

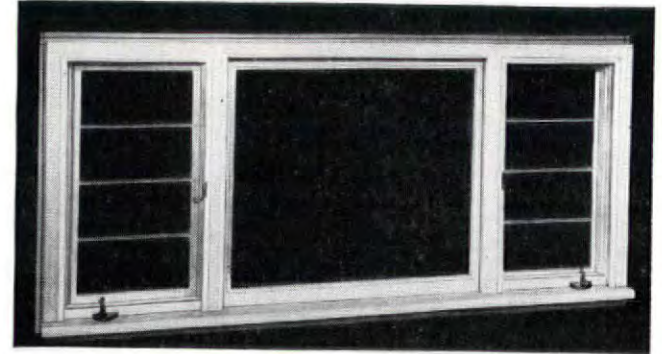
**Send for Free, Fascinating Booklet:** Whether you're interested in quieting an office, restaurant, bank, school, or factory, let us tell you more about Fibretone. Write for our new brochure, "Fibretone," Johns-Manville, Dept. AF-5, Box 290, New York 16, N. Y.



*Put a ceiling on noise with*



**Johns-Manville FIBRETONE CEILINGS**



supplied with the frame. Two styles are available, each featuring operators of the angle drive type.

*Manufacturer:* The Malta Mfg. Co., Malta, Ohio.

**ALUMINUM SCREENING** reduces interior temperatures 10 to 15° and eliminates insects.

Kaiser's new louvered aluminum screening performs three functions: cooling, shading and insect protection. The new material is made of high strength aluminum alloy which is formed into angled louvers spaced 1/18 in. apart. These louvers cut out the direct rays of the sun and thereby lower inside temperatures from 10 to 15°. Not only does this provide more comfortable living rooms but in commercial buildings, it can increase workers' efficiency and reduce air-conditioning costs. The angled louvers also protect rugs and furnishings from sun fading and eliminate the entrance of insects. Plenty of indirect light enters windows equipped with the new screening and the material does not interfere with visibility through the windows from the inside. Rustproof and stainproof, the screening is coated with a special chemical solution that gives an attractive, protective finish and reduces glare. It is supplied in 24 in., 26 in., 28 in., 30 in., 32 in., 34 in., 36 in. and 42 in. widths in 50 and 100 ft. rolls.



*Manufacturer:* Permanente Products Co., 1924 Broadway, Oakland 12, Calif.

**FIRE RESISTANT WINDOW SHADES** blend with interior color schemes, withstand washing and rain.

DuPont's new Tontine, fire-resistant, shadowproof window shades should interest the fire-conscious hotel architect, builder, and owner. Strong as regular shades and equally long lasting, these new units will char but will not support combustion. They will also resist cracking, fraying and pinholing and may be washed when necessary with soap and water. Rain will not harm the new waterproof shades, which are supplied in a wide range of fade-resistant colors.

*Manufacturer:* E. I. DuPont De Nemours & Co., Inc., Wilmington 98, Del.

**LARGE CAPACITY ROOF VENTILATOR** is inconspicuous, weathertight and insectproof.

The large capacity SR 20 Louver is designed to meet the demand for a slant-roof ventilator *(Continued on page 142)*



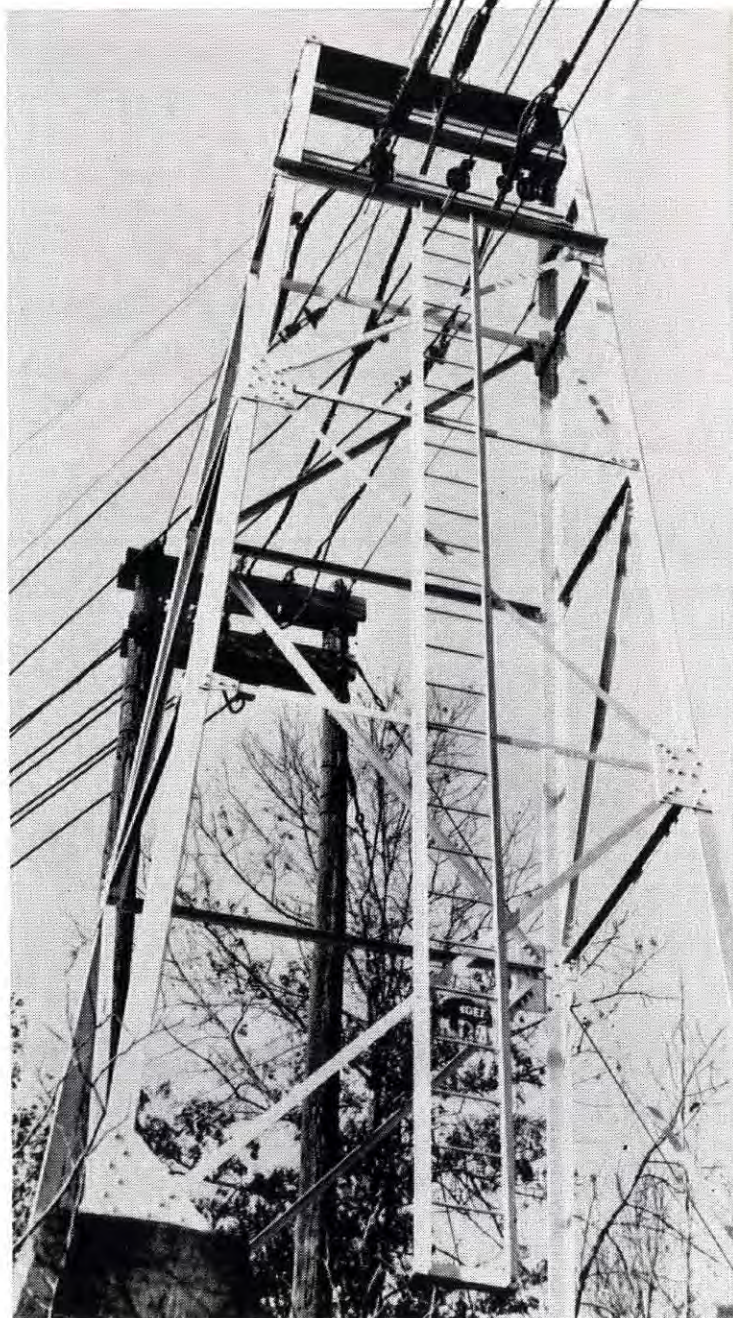
MORE DATA ON ALCOA

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ALUMINUM

Lighter weight, lower cost

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**Q** How does ALUMINUM compare on tensile and breaking strength?

**A** Tensile strength of ALUMINUM conductor is higher than copper wire for comparable duty.

Insulated wire and cable made with Alcoa E.C.\* Aluminum is specified two AWG sizes larger than copper if same voltage drop or power loss is desired. If specified for same carrying capacity (temperature rise) the aluminum conductor has approximately 36% larger cross section than copper. In both cases, the aluminum conductor is stronger. And the ratio of strength to weight is much greater. For example, aluminum can sustain at least twice the length of vertical riser permissible with copper conductors.

You get greater tensile breaking strength—you get lighter weight and lower costs—with wire and cable made with Alcoa E.C. Aluminum. Alcoa makes light, strong, conductive E.C. Aluminum; leading wire manufacturers draw, strand and insulate it, and sell it under their own trade marks. Ask your wire supplier about it, or write ALUMINUM COMPANY OF AMERICA, 1475 Gulf Building, Pittsburgh 19, Pennsylvania.

\*E.C.: Electrical Conductor Aluminum



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1,500,000 cm T.B.W.P. all-aluminum cable river-crossing span 800 ft. long. Three aluminum cables, two iron shield wires above and an additional circuit of 400,000 cm copper underneath. Installed in 1914. Carries load up to 1000 amperes. A double circuit of 400,000 cm copper is paralleled and connected to the 1,500,000 cm aluminum cable by use of aluminum parallel groove clamps. Clamps are bare and have not been changed since installation in 1914.

Insulated and sold by leading wire manufacturers



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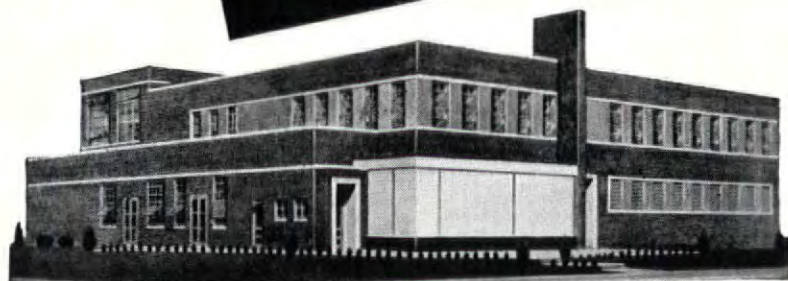
FOR ELECTRIC WIRE AND CABLE



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Modern dairy plant in Richmond, Virginia.  
Architects: Ballou & Justice

In this attractive, modern plant, it's mullions by Alberene — because Alberene mullions match so well the shadow effect of the windows . . . blend so perfectly with the exterior of the building as a whole.

And . . . it's Alberene Stone, too, for modern-looking, durable, maintenance-free spandrels . . . sills . . . stools . . . trim.

Here's why —

- **Esthetically**, Alberene soapstone is *right* for giving a building — institutional or industrial — the modern touch. *Because* . . . its natural greenish-blue color harmonizes with any decorative pattern. *And* its moisture-proof surface does not chip, scale, or split — it *always* looks good!

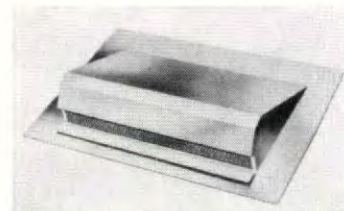
- **Financially**, Alberene soapstone is *right* for pleasing even your most budget-minded client. *Because* . . . its reasonable price . . . its ability to be cut into thin sections . . . and its outstanding durability makes it *triple* economical.

Why not write or phone us today  
for samples and further information?

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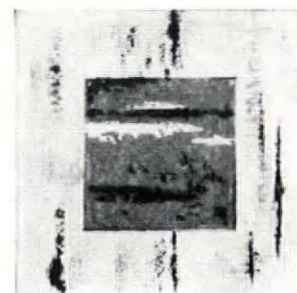
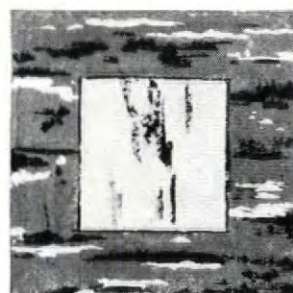
to be inconspicuous as well as weathertight and insect-proof. Because of its capacity, the heavy gauge aluminum or galvanized steel vent is suitable for low cost ventilation of larger homes and multiple dwelling units. Like other Leslie slant roof louvers it is flanged, baffled and screened. An interesting design feature of the SR 20 is an auxiliary over-flashing at the bottom of the opening which fits over the shingle ends to assure a weathertight seal.



Manufacturer: Leslie Welding Co., 2943 West Carroll Ave., Chicago 12, Ill.

### ASPHALT TILE FLOORING features special cut which permits variety of floor patterns.

By cutting a 6 in. square from the center of its standard 12 in. asphalt tile, this company has greatly increased the pattern possibilities of its line. Duotone, as the new cut tiles are

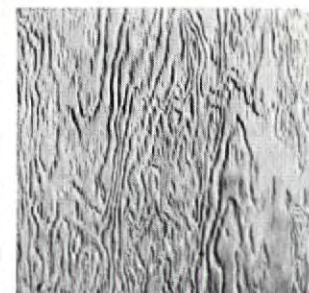


known, permit different colored inserts to be used in the blocks to give the effect of a custom designed floor at reasonable cost. The die-cutting process assures the exact fit of the inserts which the manufacturer reports simplifies laying the floor. Duotone is being supplied in standard 12 in. Azrock tile in 28 marbelized colors. It is also available in greaseproof quality Azphlex tile in ten colors. Cost is only slightly higher than regular asphalt tile.

Manufacturer: Uvalde Rock Asphalt Co., Frost Bank Bldg., San Antonio, Tex.

### RAISED-GRAIN PLYWOOD for interior and exterior decorative applications takes variety of finishes.

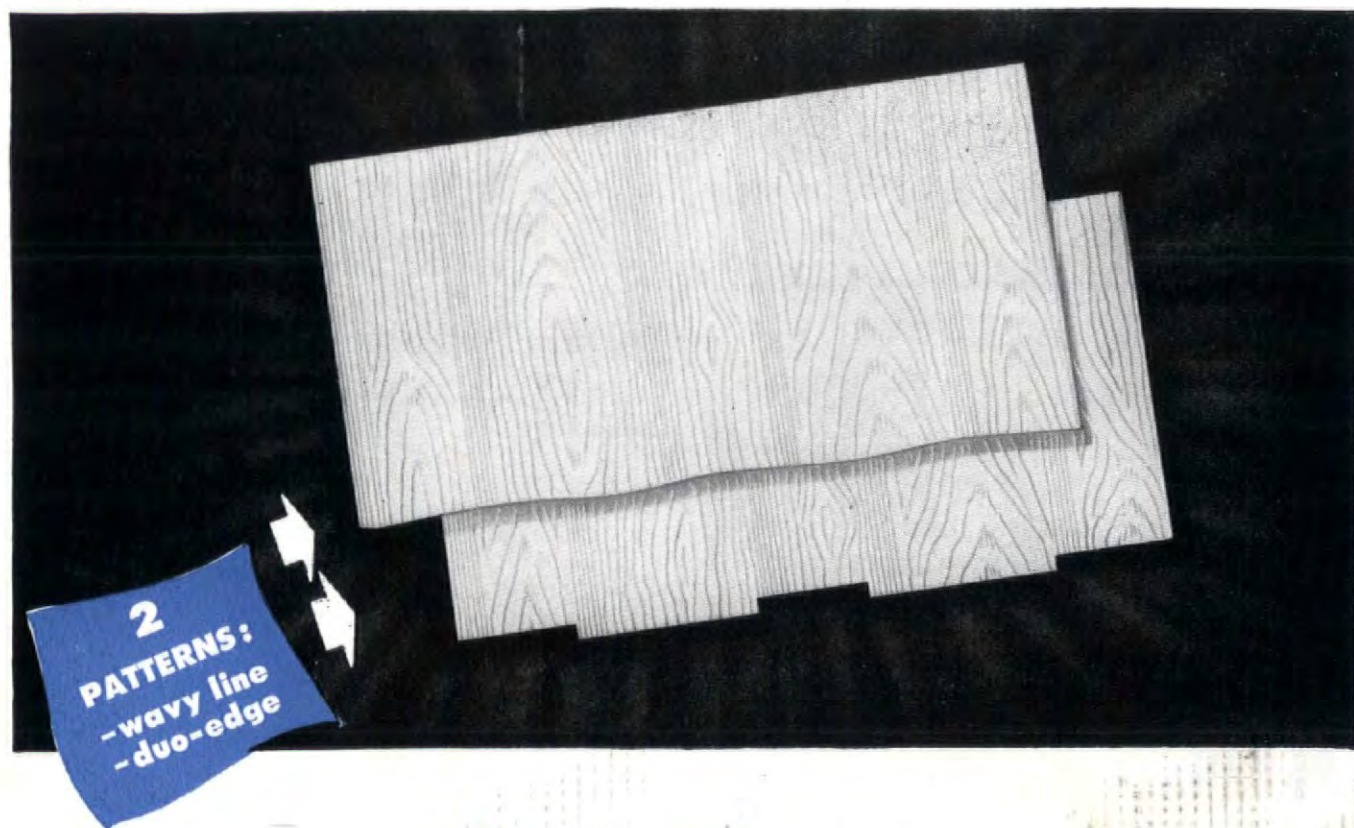
A new inexpensive plywood with a smooth, non-splintering, raised-grain surface, Plytex can be easily applied in new or existing construction to create a number of decorative effects. The raised grain surface, the result of wire-brushing, can be lacquered, waxed, oil stained or painted with one or more colors. Two grades of the new three-ply, exterior type plywood are available. Grade A is for natural finishing such as oiling and waxing, and Grade No. 1 is for painting with either one or two colors. The 5/16 in. thick, 4 x 8 ft. panels can be used equally well in living rooms, bars, offices, showrooms and for such exterior applications as trim on dormers and gables.



Manufacturer: The Davis Plywood Corp., 12555 Berea Road, Cleveland, Ohio.

(Continued on page 144)

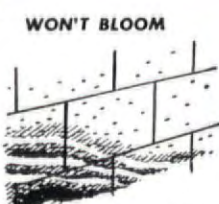




# This Siding Does More for a Home



**WON'T BURN**



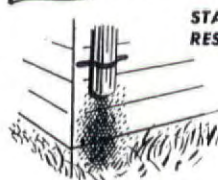
**WON'T BLOOM**



**NOT AFFECTED BY  
FREEZE OR THAW**



**WHITER  
WHITE**



**STAIN  
RESISTANT**



**RESISTS WEATHER,  
SMOKE AND FUMES**



**CERAMO** — ceramic surfaced  
asbestos-cement siding  
—a famous Carey development is back  
again, to help you make homes more  
beautiful, more practical, more valuable!

Ceramo is asbestos siding *a la mode*! It combines the long life and all-around protection of quality asbestos-cement, topped with a glazed surface like that applied to ageless pottery. This ceramic surface means continued beauty that weather won't affect. Maintenance is no problem because Ceramo's surface is hard and flint-like, resists penetration from acids, rusts and other stains.

For more proof that Ceramo *does more* for a home, ask your Carey representative or any Carey dealer—OR, write Dept. AF-5, The Philip Carey Mfg. Company, Cincinnati 15, Ohio. In Canada: The Philip Carey Co., Ltd., 1557 MacKay Street, Montreal 25, P. Q.

**CERAMO**

ceramic surfaced asbestos siding

**Carey**





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**It won't mar the lasting beauty  
of Varlar Stainproof Wall Covering**

WHATEVER stain you choose . . . ink, food, hair tonic, cold cream, crayon, even shoe polish . . . it washes right off Varlar, quickly and easily, with ordinary soap and water. Time and time again, Varlar comes up as sparkling-fresh as the day it was put up. Resists fire, steam, water and vermin, too!

Stainproof Varlar has no surface coating to crack or peel. No brittle plastic "skin" to chip or discolor. That's why any interior wall, commercial or domestic, can enjoy stunning new beauty and cleanliness never before possible. Varlar's rich new coloring and stain resistance go

clear through and last for life!

Varlar offers architects a versatile new decorating medium of durable beauty and protection . . . suitable for use in any room or hallway, public or private, domestic or commercial. All 93 stunning styles . . . florals, plaids, weaves, pictorials, stripes and tones . . . go up easily as wallpaper.

See for yourself how stainproof Varlar resists the wear and tear of everyday living! Smear, splatter, write or even walk on your free test sample. Then watch how easily it cleans with ordinary soap and water . . . over and over again. Mail the coupon for your free test sample, now!

*Never Before Such Enduring Beauty*

# VARLAR

*Stainproof Wall Covering*

**VARLAR, Inc.**

DIVISION OF UNITED WALLPAPER CHICAGO

VARLAR, Inc., Dept. B-59  
Merchandise Mart, Chicago 54, Illinois

I'll show you how to stain it! Send my FREE sample of Varlar and I'll make my own tests.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

**SMALL WOOD FIBER PANELS** are available for minor repairs and remodeling jobs.

"Handy-Size Panels," smooth, wood fiber panels 24 x 36 in. and 1/4 in. thick, are now available for those odd household repair and remodeling jobs. Made of a number of plies of wood fiber laminated together into a strong, rigid board without knots or splinters, the panels can be sawed, nailed, sanded and painted. A few suggested uses for the Handy-Size material include: shelves, cabinets, chests, signs, displays, book-cases and similar household articles.

Manufacturer: The Upson Co., Lockport, N. Y.

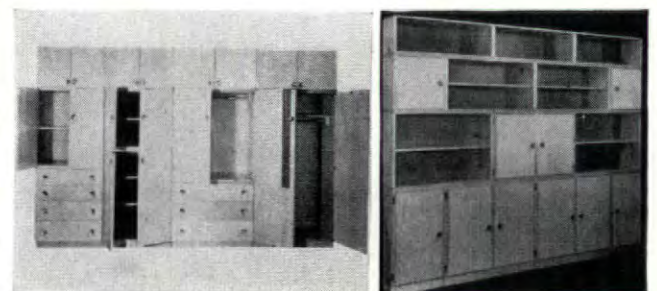
**CHALKBOARD** can be easily and economically installed in new or existing schools, colleges or institutions.

Videoplate, Beckley-Cardy's new chalkboard, is designed to be as simple to cut and mount as a piece of ordinary wallboard. Videoplate is cold pressed into smooth warp-proof, grainless, moisture resistant sheets or panels 1/4 in. thick, 3 1/2 or 4 ft. wide and in lengths up to 12 ft. To this is added, by special process, a fine chalk writing surface in either old fashioned black or modern, eye-saving, Litegreen. As Videoplate weighs less than 2 lbs. per sq. ft., it can be mounted either by nailing or molding direct to any wall whether it be wood studding or monolithic concrete. Unusually adaptable, the new material provides a simple and economical way of constructing new partitions, of replacing old chalkboards, or enlarging or repairing existing chalkboards.

Manufacturer: Beckley-Cardy Co., 1632 S. Indiana Ave., Chicago, Ill.

**SECTIONAL STORAGE UNITS** combine to form convenient furniture pieces or non-load bearing partitions.

With 162 pieces in the line, Nasco sectional storage units offer a flexible solution to the problem of household storage. When grouped, they not only provide ample and convenient storage of clothing, linens, books, etc., but they may substitute for various furniture pieces or for clothes closets. With the large variety of cabinet styles and sizes, double-duty non-load bearing partitions also can be formed to fill any desired wall

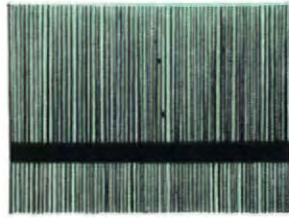


length. The 108 cabinets in "Series 21," having a uniform depth of 21 in., are supplied for general use with or without plywood doors, shelves, drawers or hanging rods. This series includes 18 basic units: nine base pieces and nine mid-sections and upper units, each available in six sizes. The "Stor-Flex" series include 54 different size record and book shelf units. These are supplied with or without doors and shelves and are 12 in. deep. All Nasco cabinets are constructed of solid, kiln-dried white pine and are available either unfinished or with clear lacquer and pickled finishes. Illustrated is a typical 11 ft. wall section consisting of 11 separate units. This retails unfinished for approximately \$475. (Continued on page 146)

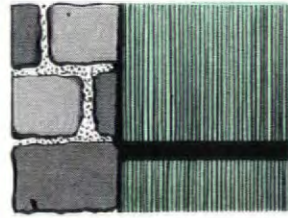




Customers have a choice of smooth-surfaced stained shingles with visible joints or



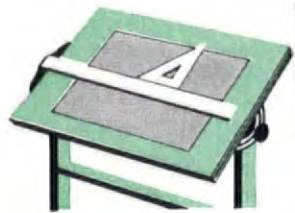
Grooved surfaced shakes which have invisible joints and resemble handsplits.



They are excellent for use with other building materials.



Application is easy as ABC. Ship-lap nailing guide is the only "extra" tool needed.



Easy to specify, the complete specification range is covered in Sweet's 8b/7a.



Carton packages make stained shingles and shakes easy to store, clean to handle, easy to deliver.

## 14 reasons why Architects specify STAINED SHINGLES and SHAKES

Beauty and versatile application to design are primary reasons for the growing trend to stained shingles and shakes for residence walls. Whether the design calls for shingles or shakes—you have the freedom to specify exposures as narrow as 8", as wide as 16", or any appropriate exposure between these extremes. Full specifications and recommendations are included in Sweet's Architectural File 8b/7a.

Note the other advantages illustrated on this page, particularly the ease of application, good nation-wide distribution and plentiful supply. Manufacturers listed below will send sample shingle and shake products to interested architects on request.



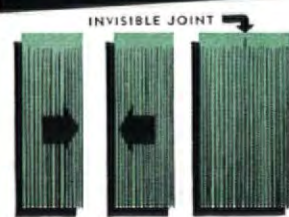
Homeowners get greater value, dollar for dollar, with stained shingle and shake sidewalls.



Distribution is convenient to dealers everywhere. Write to manufacturers listed below.



16" and 18" lengths provide wide choice of weather exposures to make project homes look different.



Edges of shakes are true parallel. Joints are tight and blend with the grooved texture.



Every shingle and shake home is an advertisement. One home will lead to the sale of another.

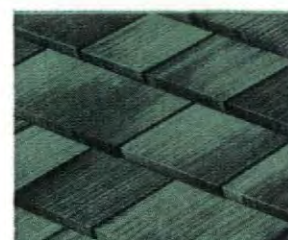


Architects approve and recommend cedar shingles and shakes. Sweet's file has 8 pages of data.

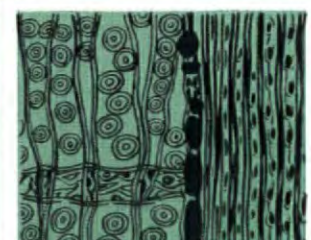


### ASSURANCE OF QUALITY

Rigid grading requirements for the manufacture of stained shingles and shakes have been established by the Stained Shingle and Shake Association. Precision re-butting and jointing, proper drying and packing, minimum widths, and guaranteed coverage per square are maintained by the members of the Association. Address inquiries to the Association at 835 Central Building, Seattle 4, Washington, or write direct to any member listed below.



Stained shingles are excellent material for roofs as well as for sidewalls. A real roof value.



Cedar shingles and shakes have millions of microscopic insulating cells to resist heat transmission.

### ASSOCIATED MANUFACTURERS

• Creo-Dipt Company, Inc., North Tonawanda, New York • Everett Shingle & Shake Company, Everett, Washington • Capilano Timber Company, Ltd., Vancouver, British Columbia • Perma-Products Company, Cleveland, Ohio • West Coast Stained Shingle Co., Seattle, Washington • Portland Shingle Company, Portland, Oregon • Wood Beautifiers, Seattle, Washington • Colonial Cedar Co., Inc., Seattle, Washington • M. R. Smith Lumber & Shingle Co., Seattle, Washington • Canadian Forest Products, Ltd., Vancouver, British Columbia • The Robert McNair Shingle Co., Ltd., Vancouver, British Columbia





coffee table and  
light upholstered armchair  
available at the three  
herman miller showrooms—



one park avenue,  
new york,  
622 merchandise mart,  
chicago, illinois  
exhibitors' building,  
grand rapids, michigan.

from the herman miller collection

for free illustrated brochure,  
write to herman miller furniture co.,  
zeeland, mich.

Also illustrated is a 9 ft. Stor-Flex unit combination consisting of 14 units which retails for approximately \$299.

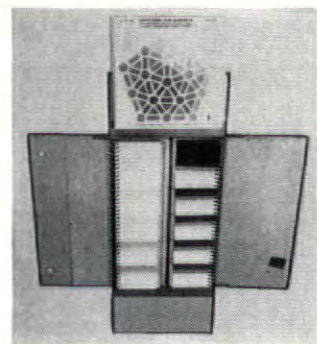
Manufacturer: Nathan Sheetman, Inc., 404 East 108th St., New York, N. Y.

## KEM-TONE PAINT LINE now includes deep colors.

Eight new deep "Vogue" colors have recently been added to the popular Kem-Tone line of resin emulsion paints. Usable full strength or for tinting any of the present 12 pastel shades or white, the expanded paint line will now meet almost any decorating need for walls and ceilings. Washable, the new paints are made with Kem Thermo-Tempered oil and fortified with durable resins. They require no sizing or primer for application over wallpaper, paint, wallboard, brick and most other wall surfaces. The new colors include rich shades of blue, red, yellow, green, sienna, burgundy, umber and brown. Manufacturer: The Sherwin-Williams Co., 101 Prospect Ave., N.W., Cleveland 1, Ohio.

## NEW COLOR SYSTEM not only aids color selection but eliminates guesswork in paint mixing.

Selecting a desired room color and seeing it projected on the wall usually wastes a lot of time, not to mention patience, for both the painter and housewife. Now, by giving the housewife a wide range color selection and the painter an exact mixing formula, Martin-Senour's Color Coordinator System eliminates this situation. The new method utilizes pentagon shaped charts with a series of color chips laid out in circles, rectangles and triangles. When the client selects a certain color from the mixing chart or companion book containing larger size color chips, the painter simply mixes two or three colors surrounding the selected color to obtain the exact shade. The chart comprises ten basic tones represented on the chart by ten circles placed around the border. To these are added six moderate grayed colors, portrayed by additional circles. Thirty-five combinations of two basic tones in equal parts are shown by rectangles. Further combinations of neighboring basic tones add 20 colors illustrated by triangles. Adding white to any of the colors greatly increases the color range.



Manufacturer: The Martin-Senour Co., 2520 Quarry St., Chicago, Ill.

## INDUSTRIAL FLOOR COATING puts a long-lasting, high gloss finish on wood, concrete, and other surfaces.

Ronex No. 9 Clear is a new quick-drying protective coating for maintaining interior and exterior concrete, wood, linoleum and asphalt tile floors with a minimum of expense. Designed for easy application by industrial maintenance workmen, the Bakelite resin base product furnishes a long-lasting, high gloss finish that will not chip or crack. In addition, it has non-slip safety qualities. After the recommended two-coat application, no polishing or waxing of the treated surface is required. Only a damp mop cleaning is necessary to retain the high-gloss tile-like luster, even after (Continued on page 148)

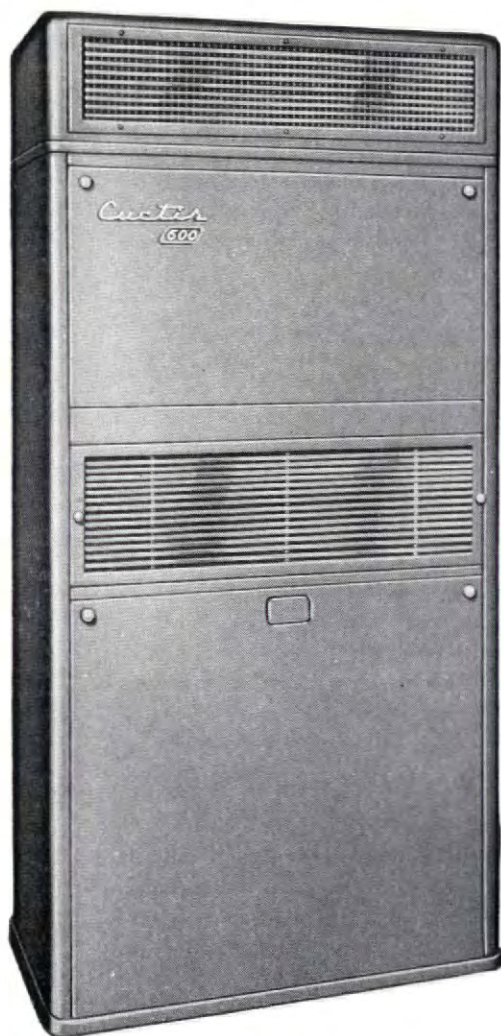
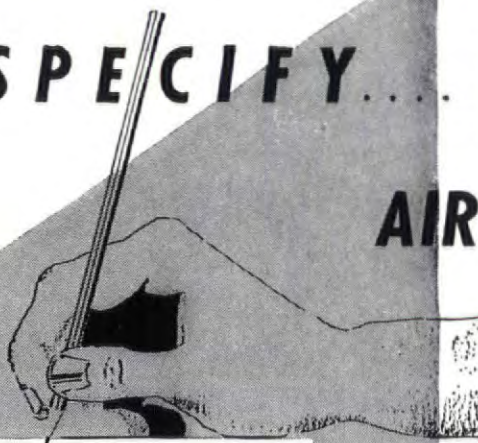


SPECIFY....

*Curtis*

95 Years of Successful Manufacturing

## AIR-CONDITIONING UNITS



Compact, attractive units...  
3, 5, 7½, 10 and 15 tons.

*Curtis*

95 Years of Successful Manufacturing  
REFRIGERATING DIVISION OF  
CURTIS MANUFACTURING COMPANY  
1914 Kienlen Ave. • St. Louis 20, Missouri

### **Assure Easy Installation Trouble-Free Operation Longer Life**

Sound engineering and proven precision manufacturing are your guarantee that Curtis air-conditioning equipment will be a source of complete satisfaction to everyone concerned:

**Architects**

**Engineers**

**Contractors**

**and Users**

In thousands of installations throughout the world, meeting a wide variety of requirements, Curtis equipment is giving trouble-free service to satisfied users, and has for many years.

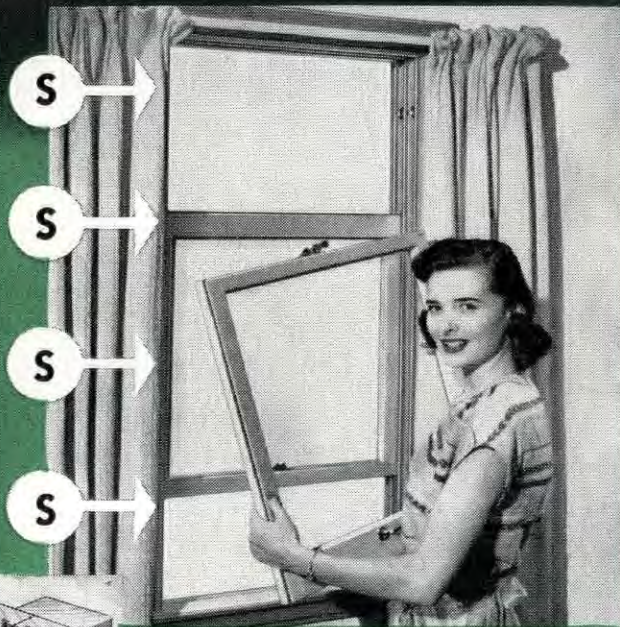
*Specify Curtis and get these advantages:*

- One day installation
- Cooling, dehumidifying, circulating and filtering air
- Easily adapted for heating
- Quiet, dependable operation
- Finger-tip control
- Completely assembled at the factory

Write for full information on Curtis equipment for any air-conditioning or refrigeration need.



## The REMOVABLE Window *is the Window Women Want!*



She moves the lower sash up, the upper sash down, presses each window to the left against spring cushion, and REMOVES. Wood-against-metal sliding action gives easy operation, prevents rattling. Spring cushion (S above) adjusts for weather changes. It's easy to see why women want R•O•W Windows:

**YOU WASH BOTH SIDES  
—INDOORS!**

R•O•W is the Removable Window that costs no more than ordinary good wood windows. Millions in use are giving complete satisfaction. R•O•W means:

**Removable  
Opens Easily  
Weatherstripped**



Architects, Builders, and Dealers appreciate the many R•O•W features. No weights, cords, or pulleys. No air leaking "sash clearance." Saves on-the-job labor; can be delivered as a complete, pre-fit unit. 47 R•O•W distributors: one near you gives prompt, efficient service. For his name, write R•O•W Sales Co., Dept. AB, Royal Oak, Mich. Look for the R•O•W Catalog in Sweet's Architectural and Builders Files.

hard wear. The highly resistant Ronex is unharmed by such industrial menaces as abrasion, alcohol, heat, acids, alkalis and grease. Whether applied by brush or lint-free cloth from the can, it is self-leveling. A 24-hr. drying interval between the two coats is necessary. The new finish retails for \$6.95 per gal.

Manufacturer: Pro-Industry Sales Co., 299 Madison Ave., New York 17, N. Y.

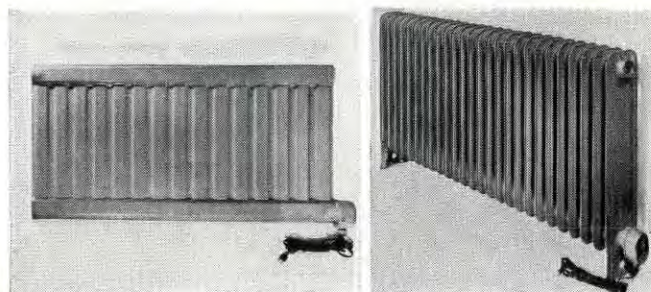
**PLASTIC BASE FLOOR ENAMEL** provides extremely durable and colorful surface for wood, concrete and metal floors.

The Benjamin Foster Co. makes high claims for its new floor enamel, affirming that the colorful paint will outwear, outlast and outperform any floor coating now on the market. Formulated with a Vinylite resin base, the paint has been subject to tests which indicate that it withstands at least twice as much dry abrasion and ten times as much scrubbing with alkali solutions as floor enamels having any other base. Not only is the fast-drying paint unaffected by water, soaps and all alkalis, but it is unharmed by grease, oil, brine, alcohol and most acids according to the manufacturer. The Vinylite base also provides a slip-resistant surface that can be washed with soap and water without affecting the non-slip quality. Applicable by brush or by spray when a special thinner solution is added, the new coating is particularly recommended for use on surfaces which receive hard wear—whether in homes, stores, industrial, institutional or office buildings. These surfaces include doors, walls, cabinets and counter tops in addition to wood, concrete and metal floors. Two coats of the new paint are recommended for maximum wear with a four to eight hour drying interval between coats. Coverage is approximately 500 sq. ft. per gal. Furnished in eight colors, the new enamel retails in qt., gal. and 5 gal. containers for \$2, \$7 and \$34.25, respectively.

Manufacturer: Benjamin Foster Co., 4635 W. Girard Ave., Philadelphia, Pa.

**ELECTRIC HEATING SYSTEM** seals oil in pressed steel radiators of several types, thermostatically controlled.

Well known and widely used in England, the Hursel Electric Heating System is a coming British bid in the U. S. building field. This heating development features thermostatically controlled, pressed steel radiators and wall type panels in which specially blended oil is hermetically sealed: the oil is heated by electric elements which are welded into the unbreakable, frostproof radiators. Surface temperature of the small units is approximately 160° F.—safe to touch, and heating is dispersed over a radiating surface of 20.15 sq. ft. per kw. which makes the unit relatively economical to operate.



Two types of Hursel heating units are available: a wall type unit for built-in installation and a portable column-type radiator. When used in a dividing (Continued on page 150)





## YOUR OPEN DOOR TO LASTING BEAUTY... LOWER COSTS!

There's a cleanness of line and simplicity of design about Kwikset locks that enhance the beauty of every type of residential structure.

What is more, because they are low in cost and easy to install, Kwikset locks make possible savings of 20% or more on average installations.

Born of wartime research, Kwikset lock parts are of brass stampings or pressure cast from Zamak No. 5 — the same kind of tough, high-test alloy now used for precision tools and calculator parts. Over 4 million Kwikset locks have been installed and have already proved their ability to render years of trouble-free service.

For beauty...for economy...for lasting service — specify Kwikset locksets. Available for all standard installations and in all popular U. S. finishes. Deadlatches optional.

*Manufactured by* **KWIKSET LOCKS, INC.**, Anaheim, California

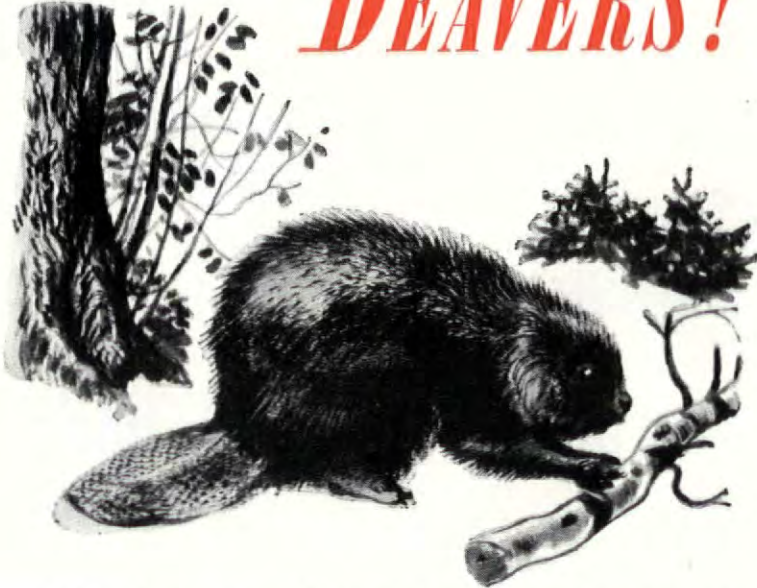
*Distributed by* **PETKO INDUSTRIES, INC.**  
1107 East Eighth Street, Los Angeles, California



400A DL  
5-pin tumbler entry  
locking set for all exterior doors.  
Easy one-hand operation.

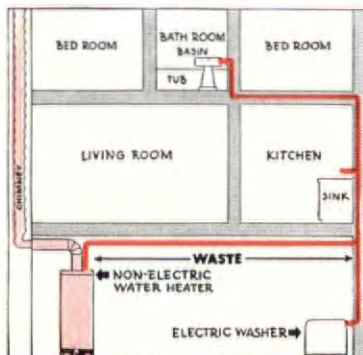


# EAGER AS BEAVERS!



Sales and survey figures both show that more people are eager for Electric Water Heaters than ever before. The only way to satisfy them is to install in the homes you build the kind of water heater that will serve your customers best, both now and years from now — **OF COURSE, IT'S ELECTRIC!**

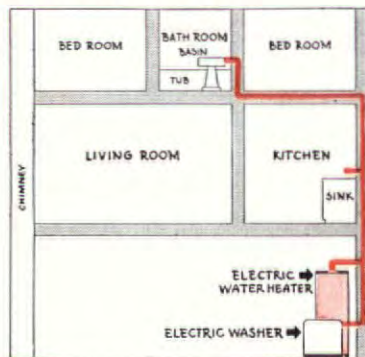
**How to reduce construction costs and add customer features . . .**



**NON-ELECTRIC INSTALLATION**

Electric Water Heaters can save you money on construction costs. Installation can be made anywhere—in the kitchen, in the bathroom, or the utility room—even in a closet. This keeps hot water lines short, cuts piping cost.

Customers like Electric Water Heaters because they are: (1) **AUTO-**



**ELECTRIC INSTALLATION**

**MATIC** (continuous hot water, no attention); (2) **CLEAN** (smokeless, sootless); (3) **DEPENDABLE AND TROUBLE-FREE** (as electric light); (4) **ECONOMICAL** (fully insulated storage, short hot water lines); (5) **SAFE** (all electric, dependable temperature control); (6) **FLEXIBLE** (can be installed anywhere, even in living quarters; no flue or vent).

**ELECTRIC WATER HEATER SECTION, National Electrical Manufacturers Association**  
155 East 44th Street, New York 17, N. Y.

BAUER • FAIRBANKS-MORSE • FOWLER • FRIGIDAIRE • GENERAL ELECTRIC • HOTPOINT • HOTSTREAM  
JOHN WOOD • KELVINATOR • LAWSON • MERTLAND • MONARCH • NORGE • PEMCO • REX  
RHEEM • SELECTRIC • SEPSCO • SMITHWAY • THERMOGRAY • TOASTMASTER  
UNIVERSAL • WESTINGHOUSE

**IT'S EASY TO INSTALL an electric WATER HEATER!**  
... in a house wired for an Electric Range!

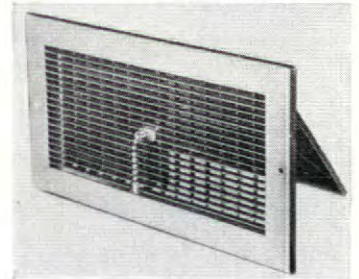
partition, the wall panel unit provides a simple, practical method of heating two rooms simultaneously. The portable units are usable for supplementary or temporary heating. Both types of units are equipped with thermostats for maintaining automatic control of individual room temperatures and one thermostat will operate three 1 kw. radiators (or one 2 kw. and one 1 kw.) provided they are installed in the same room and on the same 15 amp. circuit. Installation of Hursel units is simplified and relatively inexpensive, since no chimney or boiler room is required. The complete absence of pipes also enables all units to be moved as desired and once installed, no maintenance or change of oil are necessary. Both units operate on 110-120 and 220-230 v. Different sizes and loadings to suit residential, industrial and commercial requirements are available. Wall units as well as floor type radiators come in various colors to blend with any color scheme.

**Manufacturer:** Hursel Corp. of America, 250 Park Ave., New York 17, N. Y.

**WARM AIR REGISTER permits installer or homeowner to balance easily the warm air heating system.**

Easy installation, maximum comfort and adjustability so simple that the homeowner can balance his own warm air heating system, are features claimed for Lima's new register.

This unit is constructed with non-movable horizontal louvers across the face which are held in perfect alignment by vertical diffusing blades. Set at the factory, these vertical



blades diffuse air laterally both ways, enclosing an angle of approximately 60°. No matter whether the register is located high or low in the wall or receives air from above or below, air discharge is always held horizontal. There is also an even discharge velocity over the entire face area whether the damper is 1/3, 2/3 or wide open.

One of the features of the new unit is the patented balancing bell. The damper, spring loaded on a smooth, piano type hinge, is controlled by a heavy ball chain that comes through the center of the register's face. This volume control chain permits the installer or homeowner to balance the system easily to his own comfort. A sponge rubber gasket prevents whistling when the damper is closed. The new rustproof registers come prime coated in deep metallic bronze. They are supplied in three sizes, 10 x 6 in., 12 x 6 in., and 14 x 6 in. for either wall or baseboard installation. The company has developed a new plastering-in frame for use with the new register and they report it is the lowest in cost in the industry.

**Manufacturer:** Lima Resister Co., Lima, Ohio.

**ELECTRIC HOT WATER HEATER LINE offers variety of models and sizes.**

Kelvinator's 1949 domestic hot water heaters have been completely restyled. The diversified line features seven round models for normal basement installation as well as two table top styles for use in kitchens and utility rooms. Both types are available with either a single or double immersion type heating element, with or without an anti-corrosion magnesium alloy rod. Other features uniform throughout the line include heavy steel tank

(Continued on page 152)





## WHY SOME **B**UILDERS ARE **B**USY AS **B**EAVERS!



...of course, it's Electric!

Many builders sell houses as fast as they can build them. One reason is that they realize home buyers want the most modern type of kitchen equipment—and that includes Electric Ranges. Proof is found in the actual sales figures. Another million American families switched to Electric Cooking last year. Conservative estimates indicate that the same thing will happen again this year.

To you, this means just one thing. To build houses that are modern today and will stay modern for years to come, you must include wiring for an Electric Range, leading to a range outlet in the kitchen. The time to do this economically and efficiently is during construction. An Electric Range, like electricity itself, is now a "must" in every modern home!

**ELECTRIC RANGE SECTION**, National Electrical Manufacturers Association, 155 East 44th Street, New York 17, N. Y.

ADMIRAL • COOLERATOR • CROSLY • FRIGIDAIRE • GENERAL ELECTRIC • GIBSON • HOTPOINT  
KELVINATOR • LEDO • MONARCH • NORGE • QUALITY • UNIVERSAL • WESTINGHOUSE

*Follow  
the trend...*

# WIRE FOR ELECTRIC RANGES

Another 1,000,000 American families switched to Electric Cooking last year

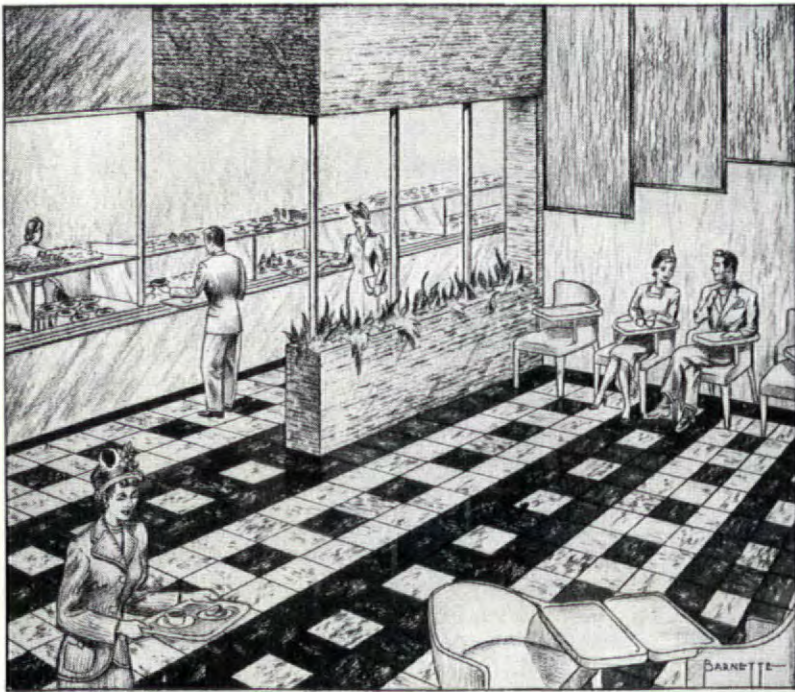






*"The Architect  
had an answer  
for Archie"*

"I'm building a new cafeteria for Archie and he sure was excited when he saw the plans! 'Bill,' he said, 'this is wonderful. But how can I be sure that my floor will be as attractive, easy to clean, and durable as you say at this low price?' Benton, the architect, beat me to it. 'Because I specified Hood Asphalt Tile,' he said."



For colorful, durable, and economical flooring, specify Hood Asphalt Tile . . . ideal for installations on grade and below grade . . . in restaurants, hospitals, office buildings. Made with meticulous care, Hood Asphalt Tile will withstand the moisture and alkali

always present when concrete is in direct contact with the ground. Many sparkling colors to choose from, each decorative and practical. These tiles are amazingly easy to clean. See Sweet's or write for our full color catalogue showing the complete line.

**HOOD  
RUBBER TILE**



**HOOD  
ASPHALT TILE**

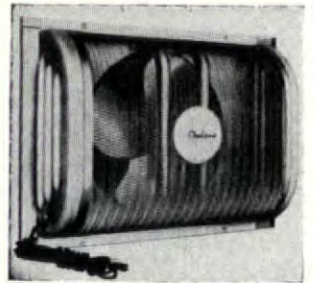
construction for maximum durability and safety, thick blanket insulation and a white, baked enamel exterior finish. The round model is available in 12, 20, 30, 40, 52, 66 and 82 gal. sizes. The table top model comes in 30 and 40 gals. Tanks are designed for a working pressure of 150 lbs. per sq. in.

*Manufacturer:* Kelvinator Div., Nash-Kelvinator Corp., 14250 Plymouth Rd., Detroit, Mich.

## **PORTABLE WINDOW VENTILATING FAN offers three-speed air volume control.**

The new Chelsea WP panel type window fan is a portable three speed ventilating fan for use in homes, apartments, offices and stores. Supplied with either a 16 in. or 20 in. fan which delivers 1,550 c.f.m. and 2,100 c.f.m. respectively, it is equipped with an extension cord and a three speed switch. Both fans have a quiet operating 1/15 h.p. motor. The three speed control provides air in volumes as desired. Chelsea's adjustable panel fits windows from 25 to 36 in. wide.

*Manufacturer:* Chelsea Fan & Blower Co., Inc., 1206 Grove St., Irvington, N. J.



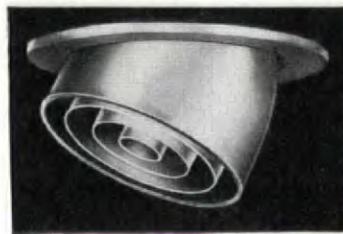
## **TINY EVAPORATIVE COOLER delivers 800 cu. ft. of filtered, cooled air per minute to condition small rooms.**

Designed for cooling bedrooms, kitchens, workshops, trailers and other small rooms, the Sno-Breeze "Junior" evaporative cooler will disperse, according to the manufacturer, 800 cu. ft. of filtered, washed, cooled air per minute. Its light-weight, 17 lbs. and small size, 12 in. high, 16 in. wide and 9½ in. deep, permits it to be easily and conveniently installed, temporarily or permanently, in practically any type of window. It can even fit in an average casement window pane opening. A deep pitch four blade fan, driven by a quiet, heavy-duty rubber mounted motor delivers the cooled air through a 10 in. grill covered opening. A patent pending "rain drop" water distribution system is used to filter, wash and cool the air. The unit is priced at \$29.75.

*Manufacturer:* Palmer Manufacturing Corp., Phoenix, Ariz.



## **SMALL ADJUSTABLE SPOTLIGHT can be installed simply for versatile use.**



Adjust-O-Spot, the manufacturer reports, is not only one of the best adjustable spotlights on the market, but is the cheapest. Small and compact, the new unit rotates 360° in any direction and tilts to 27° on the vertical. It

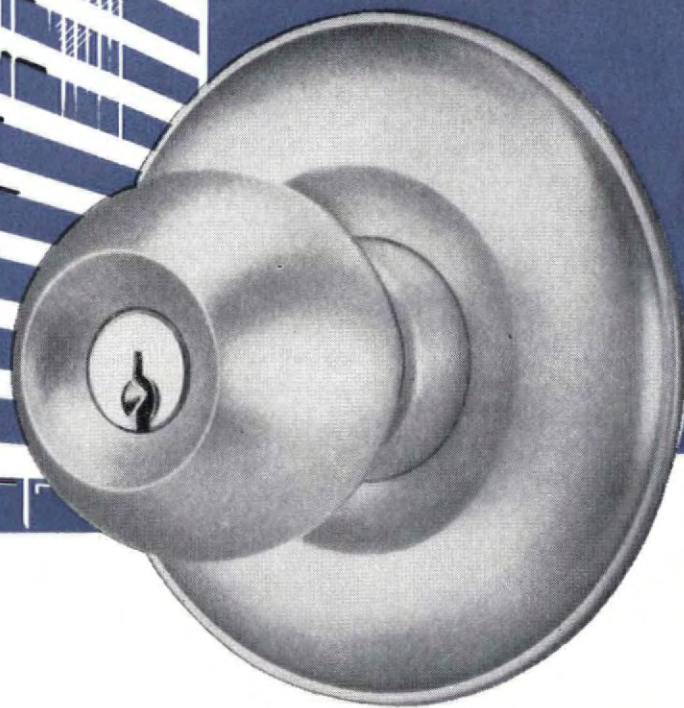
self-locks in any position and takes either an R-40 or PAR 38 lamp. For quick, easy installation, Adjust-O-Spot comes completely wired. It is supplied with plaster frame in brushed satin chrome and colors and carries U/L approval. Louvers and heat resisting glass color filters can be furnished.

*Manufacturer:* The Litecraft Mfg. Co., 135 Rome St., Newark, N. J.

(Continued on page 154)



**SCHLAGE** ... first name in cylindrical locks



**New York City's Universal Pictures Building**  
a Schlage installation of heavy-duty cylindrical locks... Architects: Kahn and Jacobs

The Schlage lock illustrated is **Mercury Design**

**SCHLAGE**

**SCHLAGE LOCK COMPANY**  
SAN FRANCISCO • NEW YORK



**YOU GET A  
3 REASONS WHY... BETTER  
FLOOR WITH**

**Hasko**

**BLOCK FLOORING**

- 1** **SMOOTH UNBROKEN OAK SURFACE** has no weakening cuts, dirt-catching cracks or separations.
- 2** **CROSS-LAMINATED CONSTRUCTION** checks expansion, no buckling and warping...permits tighter joints to prevent mastic extrusion.
- 3** **TRIPLE TONGUE AND GROOVE JOINTS (Pat.)** tightly lock each block to others...insuring floor flatness.

Right! Three construction features that mean a permanently beautiful floor . . . a better floor . . . one that is easy to lay . . . safe to specify. These features are yours exclusively with Hasko block flooring. First: The smooth, unbroken surface. There are no crevices, separations, or cuts to weaken the block, catch dirt, or admit damaging moisture. Plies are permanently laminated — cannot separate. Second: Hasko blocks are built with cross-laminated construction which keeps expansion and contraction, and resultant buckling and warping, to a negligible minimum. The patented Hasko triple-locking tongue and groove is the third feature. Notice how even the lips of the groove are locked in to positively prevent raised or curled edges . . . how the tongue is tapered to give a wedge-tight fit which prevents mastic extrusion. In addition, 12" x 12" blocks are laid speedily with minimum number of joints . . . save installation time, cost and waste. Factory finished in light or dark oak.

**FOR RADIANT HEATING:** Authorities working with radiant heating and exhaustive tests pronounce Hasko blocks ideal for radiant heating installation.

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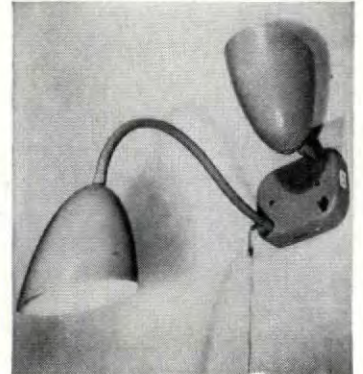
New York Chicago Detroit St. Louis Philadelphia Los Angeles

**MANUFACTURING CORPORATION**

Dept. AF Grand Rapids 2, Mich.

## MULTI-PURPOSE HOSPITAL LIGHTING UNIT boasts efficiency and wiring economy.

Kurt Versen's new modern design, multi-purpose Hospitality Lighting unit is an efficient and economical hospital room fixture. Constructed of heavy gauge steel and finished in baked enamel, it provides in a single unit, indirect illumination, a reading illumination, a reading and night light, and a convenience outlet for operating



radios, therapeutic devices, or other appliances. The swivel unit, in addition to supplying general indirect illumination, can also function as a medical examination light. The Cobra unit has a flexible arm and convenient pull switch cord to furnish comfortable light for reading. Mounted inside the housing, the night light directs a faint beam through a slot in the bottom of the housing. This light is operated by the nurse with a toggle switch mounted on the face of the housing.

According to the manufacturer, the most conspicuous feature of the new lighting unit is its plug-in installation design. Since emergency lighting requires two circuits per room, the receptacle is designed to receive a four-pronged, two-circuit plug. The new fixture reduces the number of necessary outlets to one per bed. It is estimated that four outlets are eliminated in a single bedroom and three to three and a half outlets in a multi-bedroom. Wiring costs are thus cut \$75 to \$110 per bed. Additional savings are obtained by the elimination of fixture costs: overhead, switches, bed lamp, convenience outlet, etc. In this new unit the standard 4 in. outlet box houses the two circuits. The swivel is wired to one circuit with a wall switch near the door. All other wiring is consolidated in the terminal block provided in the housing of the unit. Easy maintenance, aside from minimum disturbance of the patient, is another feature. The unit, plugging into the receptacle and locked in place by two screws, can be replaced with a spare in a matter of seconds.

Manufacturer: Kurt Versen Co., Englewood, N. J.

## COMPLETE ELECTRIC KITCHEN fits in space 60 in. wide.

A complete kitchen in a space only 60 in. wide, 25 in. deep and 84 in. high should be good news to builders of small homes and apartment projects. General Electric with its new appliances, is supplying such a kitchen. Equipment in the new work center includes a range, refrigerator, three storage cabinets and a stainless steel sink top. The AP-1 range has three



five-heat Calrod surface units plus a full size oven and broiler. The NB-4 refrigerator under the sink drainboard provides 4 cu. ft. of refrigerated space. Its freezing compartment holds two trays of ice cubes and in addition, will accommodate two packages of frozen foods.

(Continued on page 156)





# ***YOU'RE RIGHT "ON THE LINE"*** ***—when you turn to Wheeling!***

Survey the field and you'll find quality and satisfaction in these products that bear the famous Wheeling Red Label. Write us for complete information.



## **WHEELING CORNERLATH**

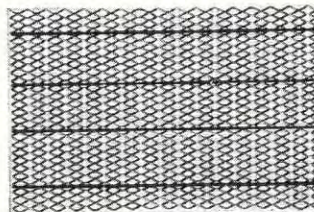
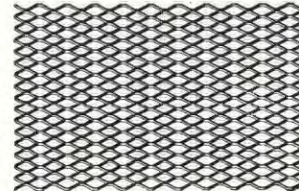
New. A reinforced selvedge edge cornerlath for all plastered inside corners.



## **WHEELING BAR-Z PARTITIONS**

Its few unit parts quickly assemble into non-bearing hollow plastered steel stud and metal lath partitions or free-standing wall furring.

**WHEELING  
DIAMOND LATH**  
Flat, perfectly straight sheets with parallel sides. Stiff. Impervious to rust.



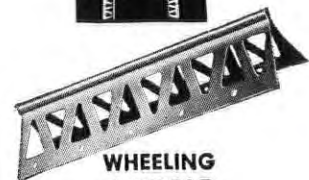
## **WHEELING BAR-X-LATH**

Stands stiff to the trowel, handles easier, faster, needs no stretching. Four pairs of No. 11 rods are welded through the mesh for reinforcement.



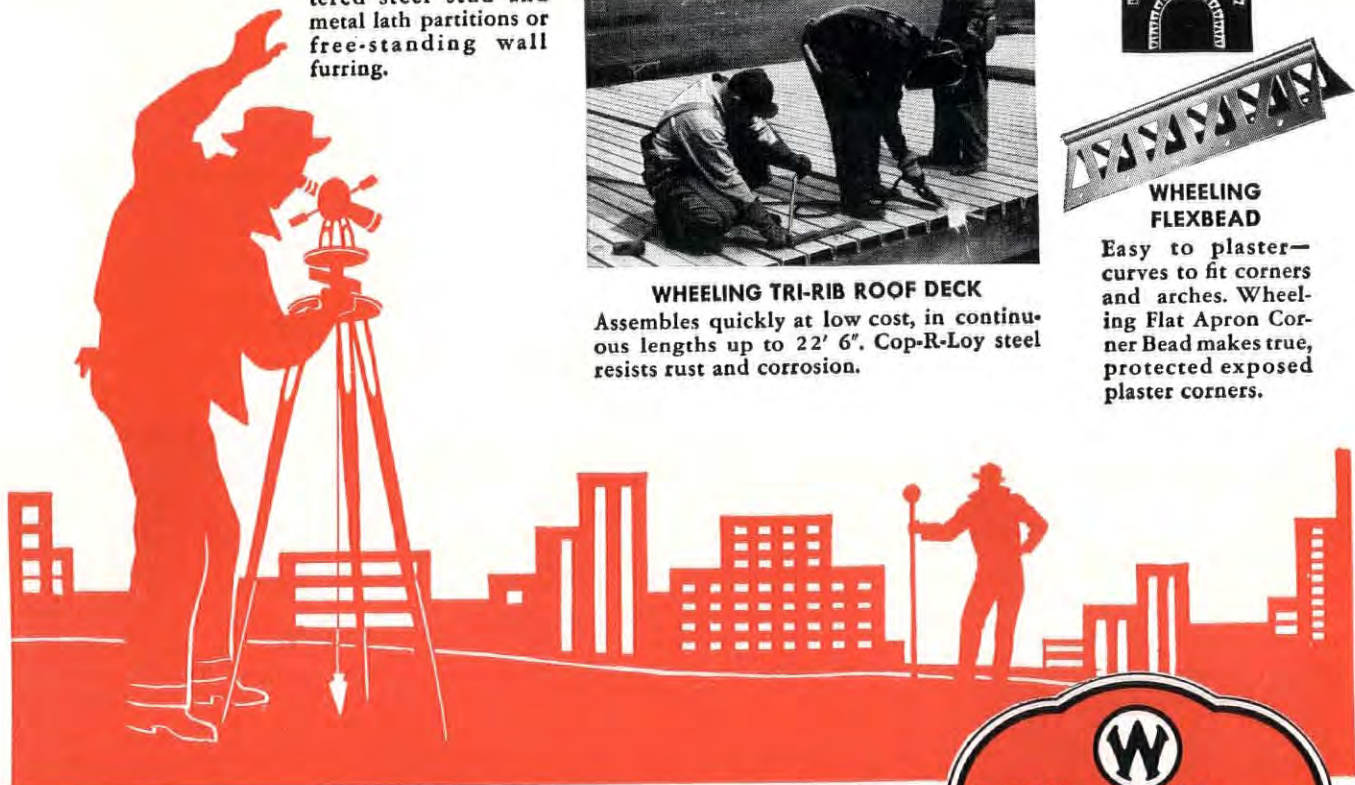
## **WHEELING TRI-RIB ROOF DECK**

Assembles quickly at low cost, in continuous lengths up to 22' 6". Cop-R-Loy steel resists rust and corrosion.



## **WHEELING FLEXBEAD**

Easy to plaster—curves to fit corners and arches. Wheeling Flat Apron Corner Bead makes true, protected exposed plaster corners.



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## new colors speak softly yet clearly in a Moultile Asphalt Tile

You'll be delighted when you see how your finished Moultile floors reflect the beauty that's in your mind's eye. Improved availability of pigments now add variety, greater clarity and depth of tone to mellow Moultile colors. The crisp, distinct veining creates a pleasing "woven" effect against the lustrous background colors.

Yes, it's a pleasure to work with Moultile . . . and to live with Moultile. There's a toughness to Moultile that takes year after year of hard wear without visible effect. Moultile has the firmness to resist indentation and the strength to withstand subfloor vibration. Yet it provides a quiet, buoyantly comfortable, slip-safe footing.

You . . . and your clients . . . will be pleasantly surprised at the low cost of installing and maintaining a Moultile floor. For your copy of the new Moultile color chart, write today to THOMAS MOULDING FLOOR MFG CO., 165 W. Wacker Drive, Dept AF5, Chicago 1, Ill.



The colorful, attractively patterned Moultile floor keynotes the decorative scheme of this reception room at Gruttenden & Eger, Chicago. Arthur A. Ehrlich, designer.

**Moultile**  
Flexible-Reinforced MASTER ASPHALT TILE

*When it comes to FLOORS... come to*

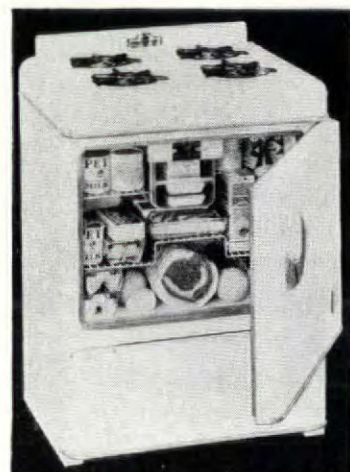
**THOS. MOULDING**

The one-piece stainless steel sink bowl and drainboard furnish the durable work surface. This unit is equipped with a chrome plated faucet and Duo-strainer. Above the work top two all-steel wall cabinets supply storage space for food and dishes. A slide-out cutlery tray in the sink cabinet and space for a Disposal complete the kitchen. As both sink top and refrigerator come in right and left hand models, the kitchen can be arranged in several ways to fit space and plumbing needs.

Manufacturer: General Electric Co., 1285 Boston Ave., Bridgeport, Conn.

### COMBINATION REFRIGERATOR-RANGE saves space and money.

An ideal appliance for use where space or budget is limited, the General Chef provides refrigerating and cooking facilities in a single small unit. The combination model is available with either a four gas burner or two electric burner cooking top combined with a 4 cu. ft. electric refrigerator. The A.G.A. approved top is equipped with four full-size, heavy-duty gas burners and newly designed non-tilt grates. (The all electric General Chef is available in two models.) The 115 v. unit has two 1,100 w. burners; the 220 v. model,



(Continued on page 158)

**\$500 prize contest**

for New Applications of **MicroRold®**  
Stainless Steel in gauges .015 and thinner

1<sup>ST</sup> PRIZE \$250  
2<sup>ND</sup> PRIZE 100  
10 PRIZES 15  
TOTAL \$500

Washington Steel Corporation announces a contest with \$500.00 in prizes for suggestions for new uses or applications of MicroRold stainless steel sheet and strip in gauges of .015 or thinner. Entries will be judged on the basis of economic practicability and originality by a board of three impartial judges selected by the corporation; the decisions of the board will be final. There is no limit on the number of suggestions that each entrant may submit.

By submitting an entry each contestant grants to Washington Steel Corporation the non-exclusive right to promote the manufacture and sale of any article or idea contained in the entry. All entries must be submitted on your company letterhead.

The contest closes at midnight, June 30, 1949, and all entries must be postmarked on or before that time. Winners will be notified by mail on or before July 31, 1949. Duplicate prizes will be awarded in case of ties.

Employees of Washington Steel Corporation and its advertising agency and members of their families are ineligible. The contest is subject to all applicable federal, state and local laws.

Mail entries to:

Contest Headquarters,  
Washington Steel Corporation,  
Washington, Pennsylvania.



**WASHINGTON STEEL CORPORATION**

116 Woodland Avenue

Washington, Pennsylvania





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again the choice for Smart Appearance



**Convection Heating with**

**TUTTLE & BAILEY**

## **Standardized COPPER CONVECTORS**

In selecting the heat distribution equipment for *homes of distinction*, appearance is always an important consideration. For such equipment must blend architecturally with design . . . must harmonize with interior decorations.

Smartly-styled to meet these demands, Tuttle & Bailey Type RP Convectors actually add a touch of beauty to any room. Trim, space-saving units — *exclusively designed for recessed installation* — extend only  $1\frac{3}{4}$ " from wall. Front panel provides sufficient overlap to cover the wall plaster line.

From the standpoint of performance, T & B Convectors, operating on the principle of air motion, assure proper air circulation, more even temperatures, comfortable living . . . all-copper heating elements mean fast response to thermostatic control, quick transmission of heat from boiler to rooms, fuel cost savings.

For modern appearance . . . outstanding performance . . . specify and install \*CH . . . with Tuttle & Bailey Standardized Copper Convectors.

**ASK YOUR JOBBER**

**TUTTLE & BAILEY inc**

NEW BRITAIN, CONNECTICUT

For detailed facts that will aid specifying and installing Tuttle & Bailey Convectors, write today for your copy of Catalog No. CBR.



one 1,250 w. and one 2,100 w. burner. Like the gas model, this unit's porcelain top is removable for easy cleaning.

The refrigerator is the familiar, U/L approved, 4 cu. ft. General. This model is operated by a hermetically sealed, self-oiling Tecumseh unit and is insulated with fiber glass. Temperature is controlled with seven settings and space is provided for frozen food storage in addition to two ice freezing trays. The General Chef is especially suitable for apartments, motels, cabins and offices as it occupies only 27½ x 21½ in. of floor space. The all electric model sells for \$239.50. The gas cooking top model, for use with natural, manufactured or butane gas, retails for \$229.50.

*Manufacturer:* General Air Conditioning Corp., 4542 E. Dunham St., Los Angeles, Calif.

## 25 LB. ELECTRIC CLOTHES WASHER is used in home wash-tubs, will soak, wash and rinse 4 to 8 lbs. of clothes.

The new Metro Washer is a small electric-driven agitating unit which fits into a home washtub to turn it into a washing machine. The hot and cold water faucets and the drain of the tub provide the necessary plumbing facilities, so all that is required for washing with the new unit is to plug it into a 110 v. AC outlet. The cast aluminum fins of the airtight, watertight, aluminum washer agitate 4 to 8 lbs. of clothes clean in 15 to 20 minutes. The tub is then drained and re-filled with clean water for rinsing with the Metro. The new machine, approximately 12 in. high with an overall diameter of about 13 in., rests on suction cups and is silent and vibrationless in operation. Also it does not splash. All of the unit's mechanism is sealed and permanently lubricated to assure maintenance-free service and the aluminum construction is rustproof. When not in use the U/L approved, 25 lb. washer can be conveniently stored in the washtub. Metro is fully guaranteed for a year, retails for about \$59.50.

*Manufacturer:* Metropole Machine Corp., 36-56 34th St., Long Island City, N. Y.



## MODULAR *Marlitz* saves money for your clients

Marlitz, the modern plastic-finished wall and ceiling panel, coordinates with other building materials now being used in modular construction . . . to help offer your clients big savings in building costs.

Large, wall-size Marlitz panels come in multiples of the standard 4" measurement . . . ranging from 4' x 4' up to 4' x 12'. With beautiful Marlitz, you can design luxurious interiors with the 4-ft. plan grid. And the wide range of Marlitz patterns and colors makes possible striking, distinctive interiors in homes, stores, theatres, specialty shops, hotels and a host of other installations.

### BEAUTIFUL • PRACTICAL • PERMANENT

The cost of materials for a Marlitz installation has risen less than 15% since 1939! For new construction or modernization, Marlitz meets all the requirements for smartness, ease of cleaning and housetime beauty at low installation cost. Sold by all leading lumber and building material dealers. Complete details are available in Sweet's Architectural File—or write today for new, full-color literature. Marsh Wall Products, Inc., subsidiary of Masonite Corporation, Dept. 501 Dover, Ohio.



*Marlitz*  
PLASTIC-FINISHED  
WALL PANELS

*for Creating  
Beautiful Interiors*

## INEXPENSIVE FIRE ALARM SYSTEM for the average size house.

"Wak-Em" fire alarm system promises complete fire protection for 225 sq. ft. of floor area for only \$11.95 plus installation. Designed for homes and farms, the U/L approved system is operated through a series of highly sensitive thermostatic heat detectors connected in circuit to a loud, 4 in. fire alarm gong. The detectors are installed in strategic parts of the house, such as in the attic, basement, hallway, etc. Actually highly sensitive thermostats mounted in thin brass housings, these detectors close the circuit in case of fire to sound the alarm. The Wak-Em kit contains the gong and five heat detectors. Additional detectors and transformer (required only when additional wiring cannot be accommodated by doorbell transformer) are available at slight extra cost.

*Manufacturer:* Davis Manufacturing Co., Plano, Ill.

## INDESTRUCTIBLE 6 FT. FOLDING RULE bends around pipes, extends rigidly, will not break.

Made of a special hardened and tempered alloy steel, the new Indestructible Durall 6 ft. folding rule can be bent, twisted or walked on yet will spring back to its normal shape. In fact, the manufacturer unconditionally guarantees it against breaking or loosening at the joints. Aside from its flexible feature Durall resembles and operates like other folding rules. It weighs 3 1/5 oz., or 20 per cent less than the average good wood rule and is finished in white baked enamel. Price is \$1.00.

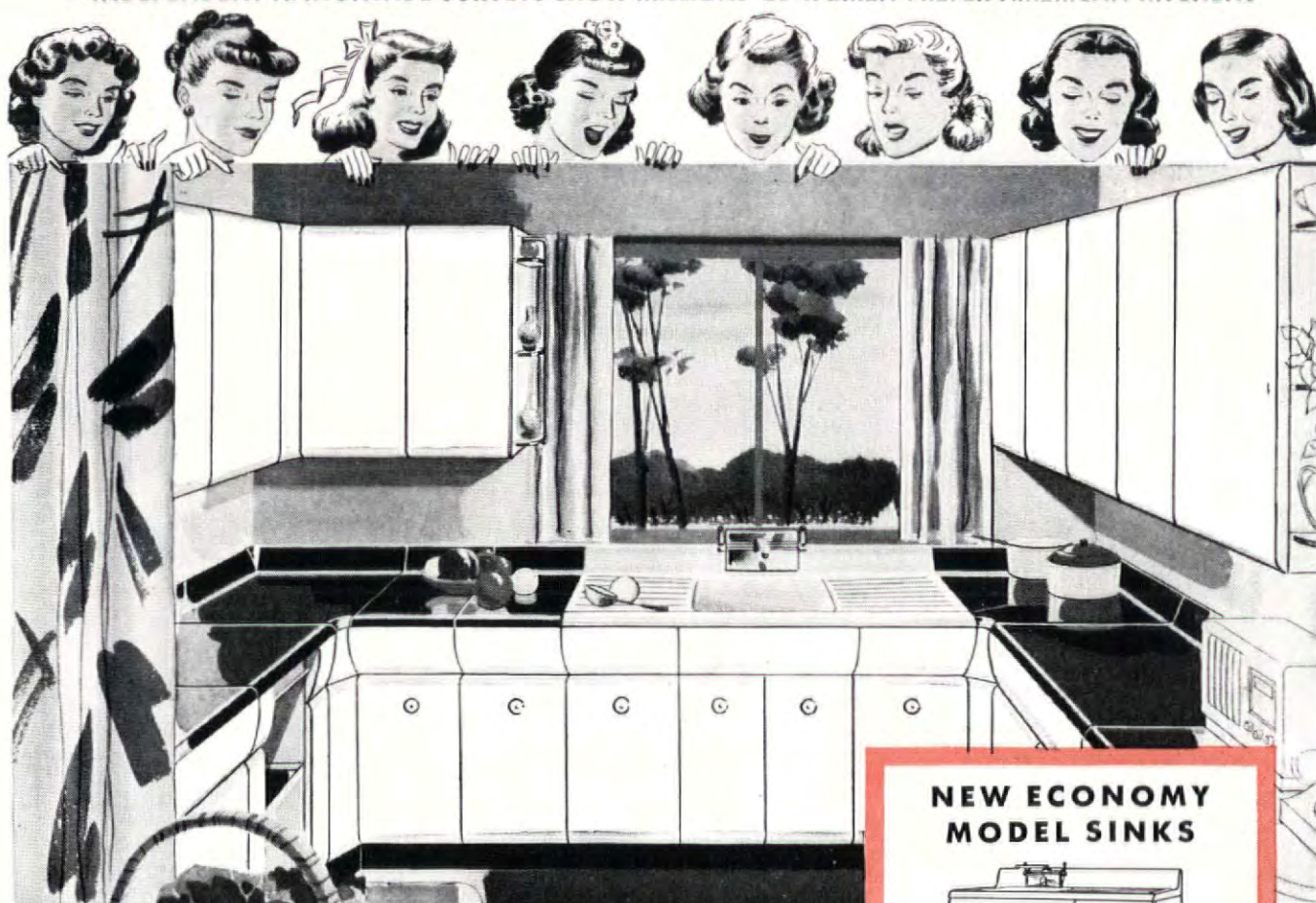
*Manufacturer:* Durall Tool Corp., 117 Woodworth Ave., Yonkers, N. Y. (Technical Literature, page 198)





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\*INDEPENDENT NATIONWIDE SURVEYS SHOW MILLIONS OF WOMEN PREFER AMERICAN KITCHENS



## NOW—Install *American* Kitchens At New Low Prices!

Now you can equip your houses with the prestige and easy-to-see advantages of nationally-advertised American Kitchens at new low prices. For stepped-up production now makes it possible for American Kitchens to offer you two great new economy sinks that materially lower your kitchen costs. Almost identical to our de luxe models on the exterior, these new economy models permit you to equip your houses

with the kitchen literally millions of women prefer to all others—at a real savings. See panel at right for illustration and details. Place your orders *now*.

FREE! Architects-Builders File . . . gives blueprints of outstanding kitchen treatments, equipment specifications, etc. Ask your nearest American Kitchens supplier. If you don't know his name, write us today.



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**KITCHENS**  
STYLED IN STEEL

AMERICAN CENTRAL DIVISION  
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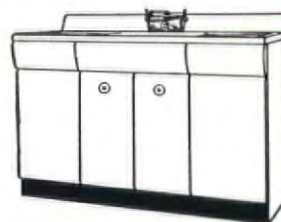


### NEW ECONOMY MODEL SINKS



#### MODEL ES-4200

42" wide over-all. Drainboard available either right or left.



#### MODEL ES-5400

54" over-all. Single bowl, 2 drainboards, 2 drawers.

ALL BASE CABINETS  
NOW AVAILABLE  
LESS TOPS,  
IF DESIRED!



for  
visible  
beauty  
...for  
insulation  
unseen



Aluminum Statue of Eros, by  
Sir Alfred Gilbert, in Piccadilly  
Circus, London. Erected 1893.

# aluminum



Aluminum was pure ornamentation in 1893. Today, its *usefulness* is virtually unlimited. As an insulating material, for instance, aluminum offers almost exclusive ability to reflect radiant heat, and assures exceptional freedom from condensation. These were prime reasons why Reynolds Reflective Insulation was specified for the 312-family Redfield Village Development in Metuchen, N. J.

In addition, Reynolds Reflective Insulation is light in weight, odorless and embodies aluminum's rustproof permanence. It makes a fast, clean, economical installation that *stays in place*. It meets F.H.A. requirements. (Redfield Village Specification: Reynolds Reflective Insulation, Type B, foil laminated to both sides of tough Kraft paper. Bowed between studs, providing two air spaces, sidewall conductance is 0.13. Between floor joists over unheated area, overall coefficient is 0.10.) Reynolds, whose entry into aluminum production started the industry toward its present expansion, is developing both the design and the functional qualities of this material. New embossing facilities have created unusually attractive surface textures in Reynolds *Lifetime* Aluminum Roofing and Siding, Gutters and Downspouts. Reynolds Aluminum Windows offer superior engineering features in all residential casement, fixed and picture types. Reynolds also offers a variety of Architectural Shapes. For descriptive literature in A.I.A. file form, please write:

**Reynolds Metals Company,**  
Building Products Division,  
Louisville 1, Ky., offices in 32 principal cities.

**REYNOLDS *Lifetime* ALUMINUM**

IF YOU SEE RUST  
YOU KNOW IT'S NOT  
ALUMINUM



**REYNOLDS  
*Lifetime* ALUMINUM  
BUILDING PRODUCTS**

Redfield Village, Metuchen, N. J.  
Architect: Erwin Gerber • Insulation engineers and  
contractors: The Fireproof Products Co., Inc., New York.  
Exterior walls and crawl spaces insulated  
with Reynolds Reflective Insulation.



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OIL-O-MATIC  
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**THANKS TO OIL-O-MATIC'S LOW PRESSURE PRINCIPLE  
LUSTRON HOMES ENJOY THE ECONOMY AND RELIABILITY  
OF THRIFT-METERED OIL HEAT!**

**Radiant heat**, latest development in modern heating, is "engineered" right into the Lustron Home, by means of a specially designed Oil-O-Matic overhead furnace.

Operating on the famous Low Pressure Principle, the superbly efficient Oil-O-Matic burner meters oil precisely . . . pre-mixes it within the burner . . . and burns it in a

swirling stream of external air. The result is combustion that converts every drop of oil into useful heat, for maximum efficiency and thrift.

Moreover, Low Pressure operation enables Oil-O-Matic to burn ANY of today's domestic fuels and those of tomorrow as well—the new, hotter but harder-to-burn catalytic oils of the future!

***New!***

**COMPLETE UNITS**

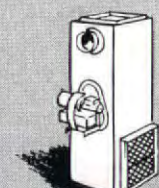
**THERE'S A WILLIAMS OIL-O-MATIC FOR EVERY TYPE OF HEATING SYSTEM IN HOMES OF EVERY SIZE!**

Complete line of Heating Units . . . Designed by George Walker . . . Unit Engineered to Fit YOUR Needs EXACTLY!

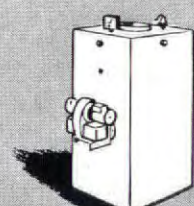
With such features as the Exclusive Glo-Quick Combustion Chamber and Heat Intensifier.



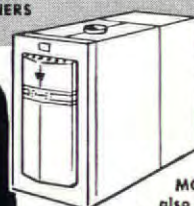
MODEL 70  
also Model 10A  
Model 13A  
WINTER AIR  
CONDITIONERS



UTILITY MODEL 1  
also Utility Model 1-S  
for ceiling suspension  
WINTER AIR  
CONDITIONERS



MODEL 300  
ALL STEEL  
BOILER-BURNER  
UNIT



MODEL C3  
also Model C4,  
Model C5, Model C6  
CAST IRON  
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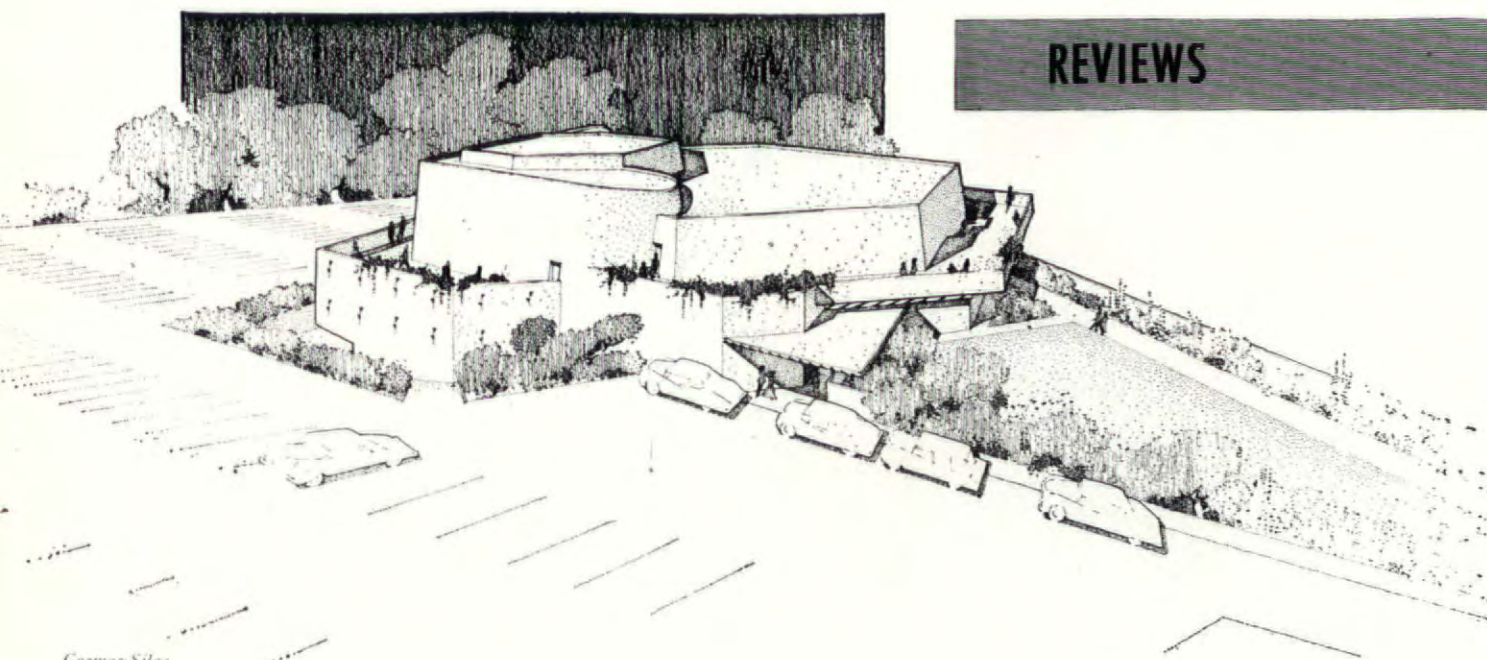
Your Oil-O-Matic Dealer is a factory-trained installation expert . . . qualified by training and experience in fuel-saving, dollar-saving heat conservation.

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## REVIEWS



### WRIGHT'S HARTFORD THEATER shown in a New York City museum exhibit

Dwellers of New York City—traditionally the center of U. S. theaterdom—got a chance during April to study the design of a future rival theater to be built in nearby Hartford, Conn. Sketches, plans and model were lent for an exhibit at the Museum of Modern Art by the theater's architect, Frank Lloyd Wright.

Such a building might well arouse the envy of New Yorkers, for they could hope to build nothing like it along the inchpinching streets of Manhattan. Only where land is relatively cheap can the hard-pressed theater business afford space for the demands of good design. In the last 15 or 20 years critics have sadly conceded that progress in the theater field can

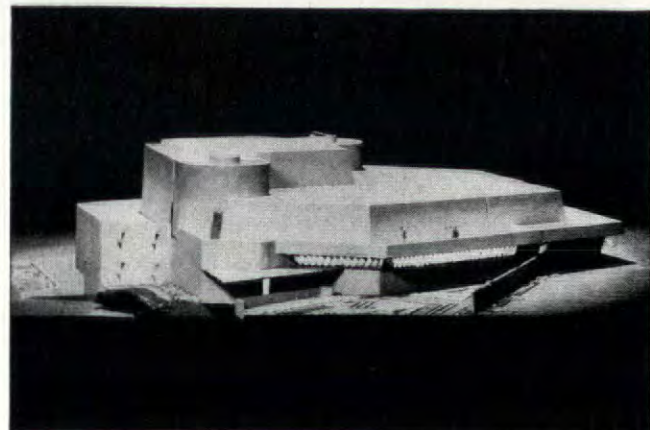
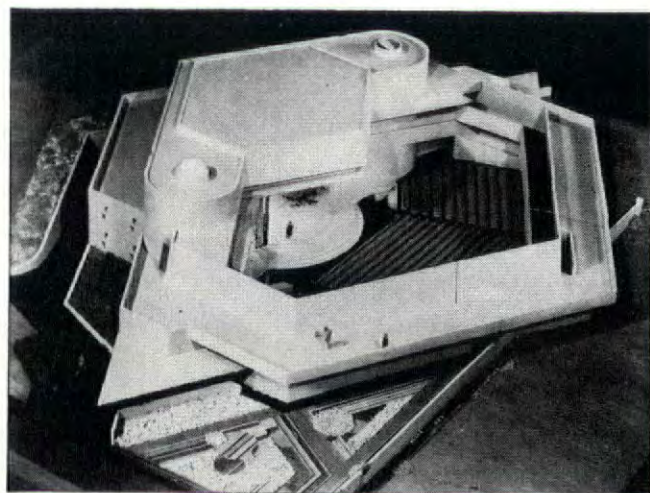
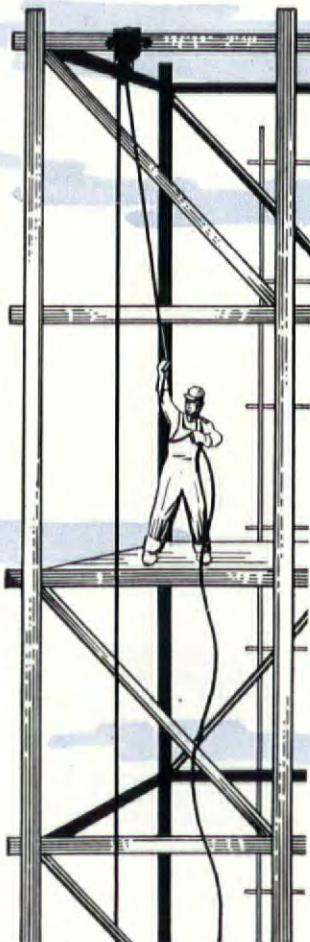
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**HASTINGS** alumitile



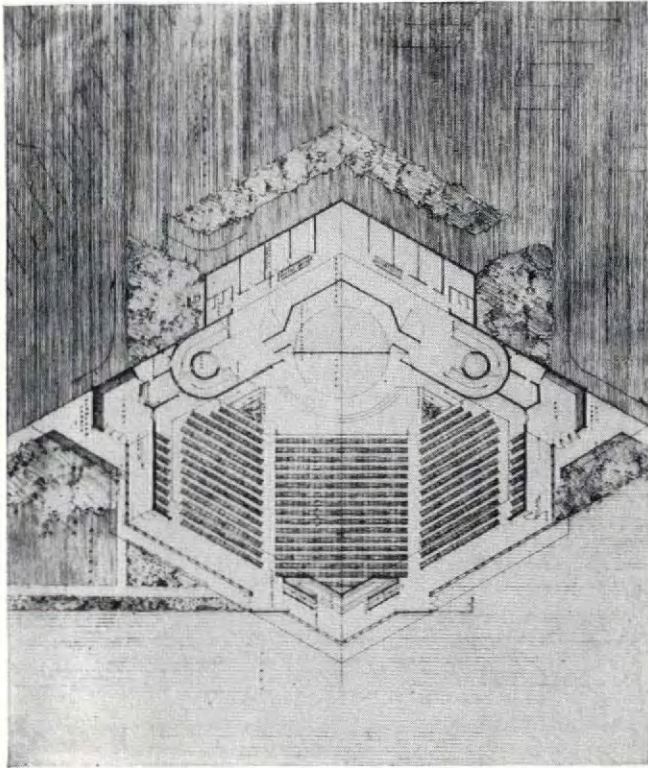
For complete information see Sweet's Catalog or MAIL THE COUPON.

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Please send me complete facts on Alumitile including prices, discounts without obligation.

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come only from less-hampered college and community groups. This is the first time, however, since the Wisconsin University theater was built (FORUM, July, '40) that an out-of-town group has taken a real step towards assuming such leadership.

Set on a hill in the middle of an eight-acre meadow, there will be ample space around Wright's theater for patrons to park their cars. Two lobbies, on opposite sides of the building, will lessen congestion at curtain time. During intermissions, the audience will leave its thousand seats and stroll on a wide terrace extending around the exterior at balcony height.

The hexagonal shape of the Wright theater will be unfamiliar to those accustomed to the squeezed rectangles of Broadway. It is not, however, as the exhibit catalogue states—"a clean break with all past traditions." An audience of Shakespeare's time would find the protruding stage and the semi-circle of seats very similar to the plan of its own playhouses. In fact, it is an idea that, like so many others, goes back to the Greeks.

In addition to the fore-stage or "apron," the interior reveals an absence of the usual proscenium arch. This was useful in conventional theaters for concealing the lighting apparatus and overhead grid from which backdrops were hung. Now, however, progress in the form of a revolving stage, behind-scenes elevators and ample room in the wings, makes this confining and expensive framework unnecessary. Wright, an artist who understands very well the power of dramatic speech, says of his innovation—"It is a way to free the so-called legitimate stage from its present peep-show character" . . . to present plays "as a circumstance in the round,—performers and audience in one room."

Since the course of erecting a Wright building seldom runs smooth, observers were not surprised to hear that a local group had tried to ban the theater on the score of zoning restrictions. Law and Wright, however, have since triumphed—and the drama world is expecting big things from Hartford.

—S.K.

# SPECIFY

## MASTER NO-DRAFT SASH BALANCE

FOR BALANCING AND WEATHERSTRIPPING SASH WITH ONE UNIT

Two jobs finished for the work of one . . . and both done right. Perfect window operation and better weather protection in one piece of equipment. Entirely eliminates pulleys, cords, weights and box frames. Master No-Draft Sash Balance—permanent, time-proven and trouble-free—saves labor, time and money. Can be installed quickly and easily. This is the modern way to counterbalance and weatherstrip all double hung windows—old or new.

Acting as a perfect weatherstripping for both sides of a window, Master No-Draft Sash Balance will automatically adjust itself to any amount of shrinkage or expansion in the wood.

The unit is made of highly tempered, rust-proof metal for long enduring service. Correctly tensioned springs give upper and lower sash perfect balance and easy fingertip operation.

Runways are completely metal covered and require no painting, (of course, cross members should be installed). Double contact prevents any rattle when windows are open.

The Master No-Draft Sash Balance gives a neater appearance to all windows and makes a more weather-tight window. Nothing to wear out or cause trouble.

SEE OUR CATALOG IN SWEET'S <sup>17</sup>/<sub>5</sub> a

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Please send me, without obligation, complete information about Master No-Draft Sash Balance.

Please send detailed literature at once.

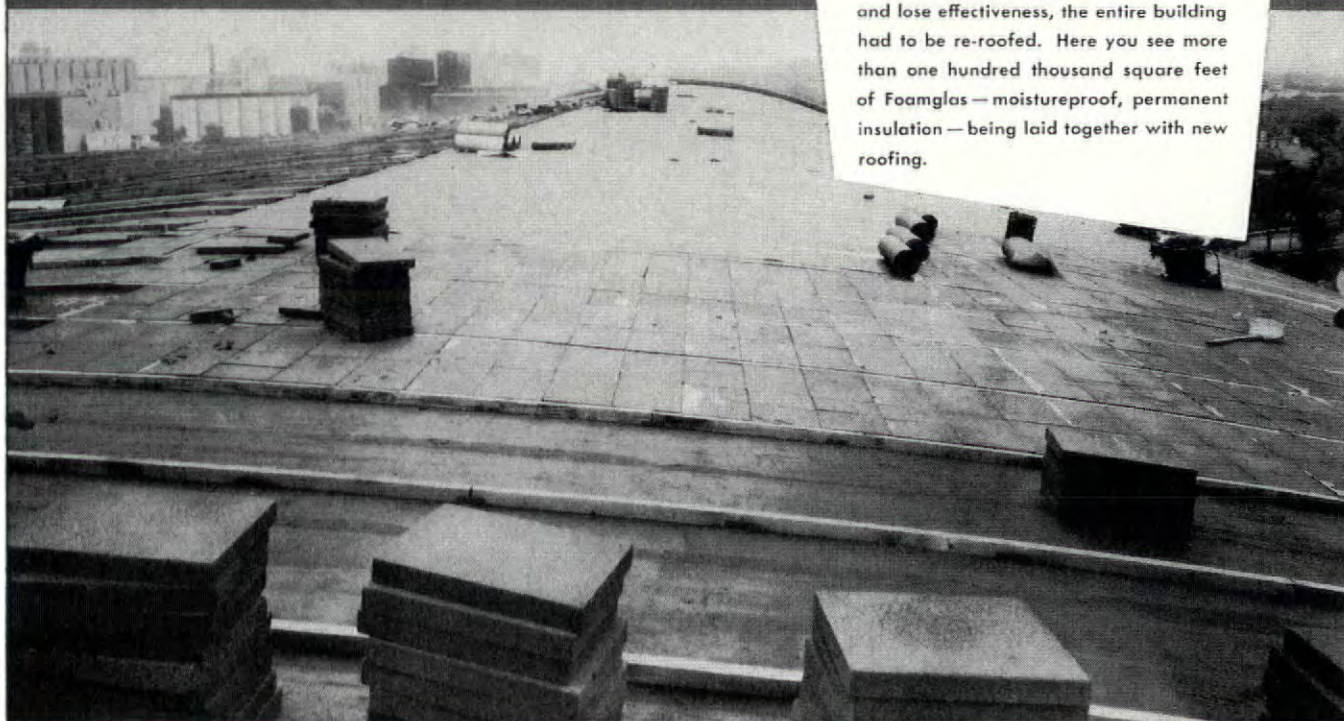
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Address.....  
City..... Zone..... State.....



# On the University of Minnesota Field House, the permanent insulation



When extreme humidity conditions in this Field House caused the original roof insulation to become soggy, slip out of place and lose effectiveness, the entire building had to be re-roofed. Here you see more than one hundred thousand square feet of Foamglas — moistureproof, permanent insulation — being laid together with new roofing.



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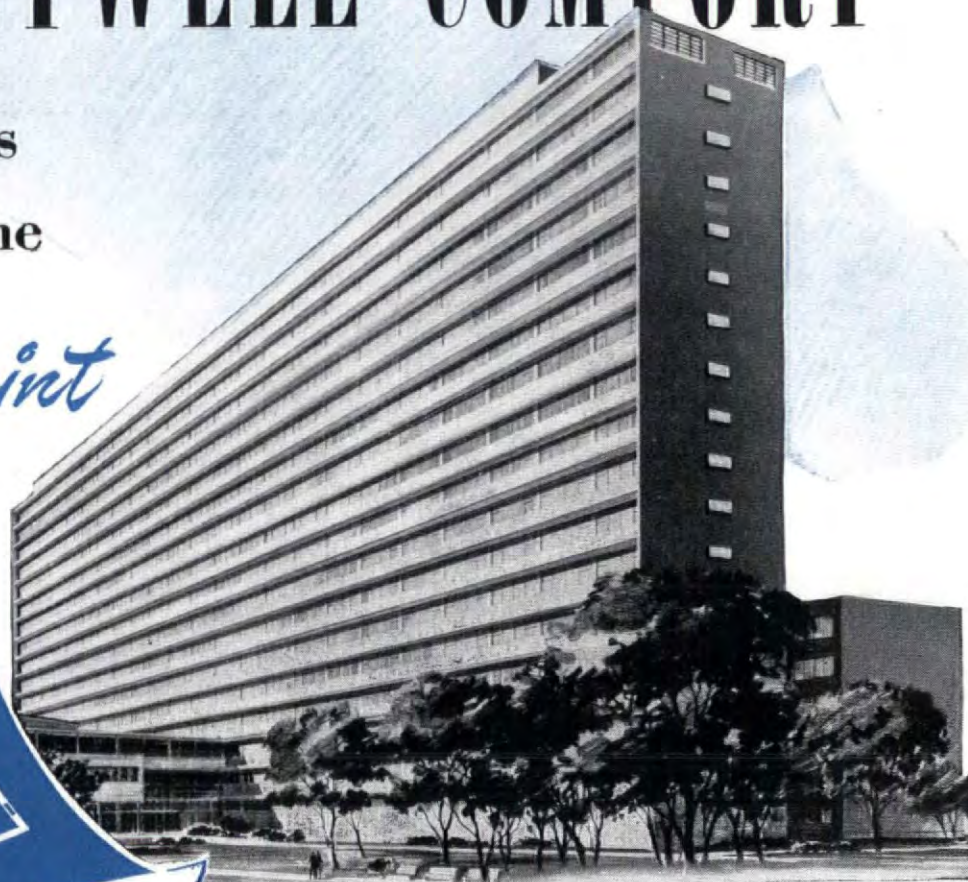
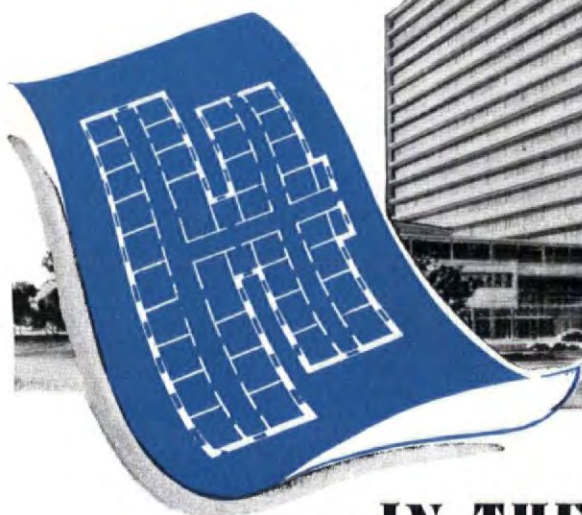
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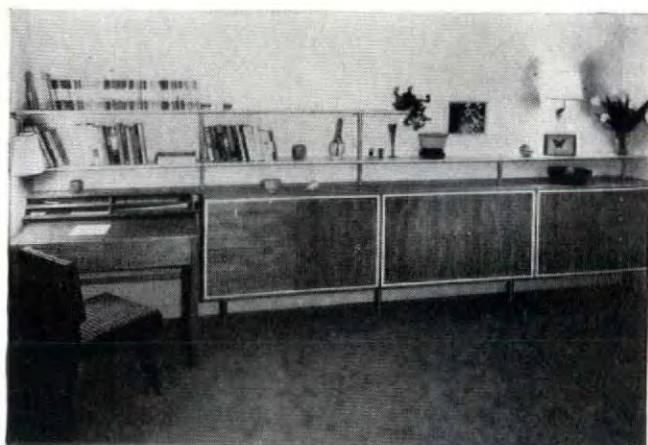
Bachelor's flat makes the most of unrationed welded metals and glass.

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Ironical footnote to the show is the after-statement—"most of the furniture and fittings . . . are only available for export." Americans, then, are more likely to find these pieces on the market than the still-restricted English consumers.—S.K.



Sleek chairs at right and movable cabinets and desk above equip home of dress designer.

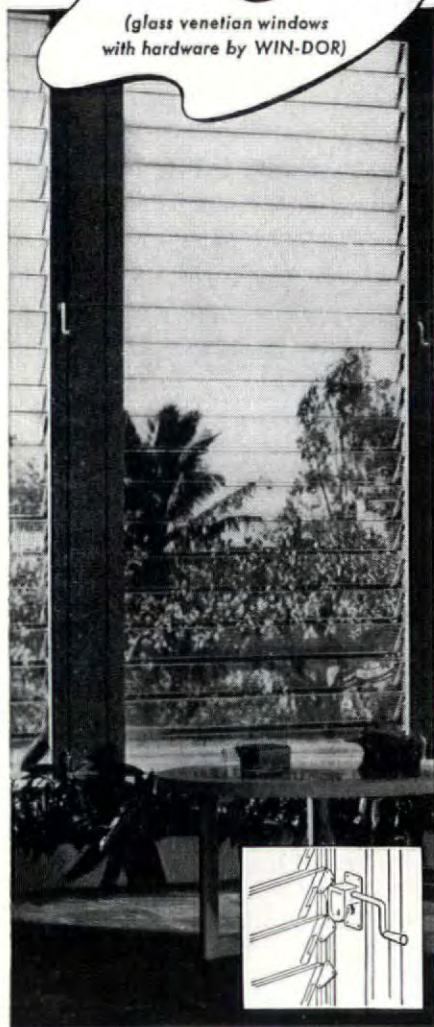


Table in living-dining area below (for a doctor with a small family) can be pulled out to seat six people.



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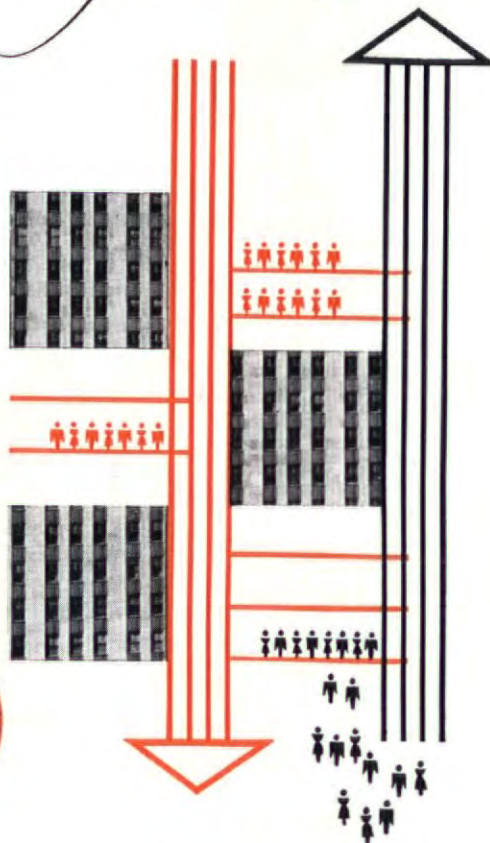
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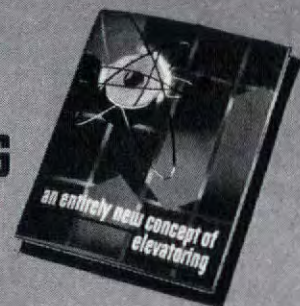
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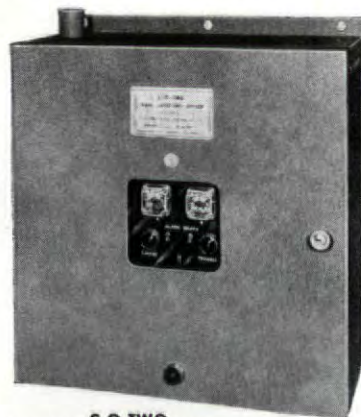


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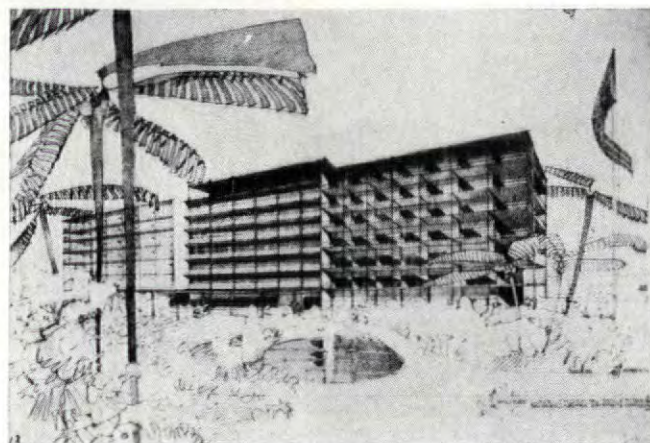
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## REVIEWS

**ARCHITECTURE OF SOCIAL CONCERN** in regions of mild climate, by Richard Neutra. Edited and published by Gerth Todtmann, Caixa Postal 3620, Sao Paulo, Brasil. 221 pp. Illus. 8¾ x 11 ¼. \$12.95. English and Spanish text.

The significance of this book does not lie in the fact that it presents any new material on Richard Neutra's architectural work, nor that it gives any greater insight into work that is already familiar. It is significant, first of all, because it was published not in North America where Neutra lives, but in South America which might be expected to concentrate on



distinguished architects of its own. The format, though naive by northern design standards, is noteworthy for its unusually generous presentation.

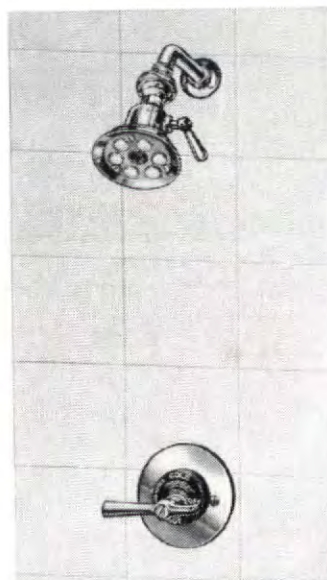
Through its high-flown English, there shines a sincere admiration for this architect's insight into the statesmanship that must underlie any true planning. During his extended tour of Latin American countries in 1946, he established an influence second only to that of LeCorbusier. This continent, which is just taking on the labor of industrial conversion, warmed immediately to Neutra's dogged insistence on fundamentals.

*Architecture of Social Concern* states its thesis in the following sentences of uncertain English text: "Richard Neutra has in his thoughts and designs profound reverence for projects of broad general social significance. He has manifold and meticulous interest in schools, health facilities, housing, neighborhood and city planning. Whenever it happened to be an individual client who requested services, he rendered them so to speak twofold: to the individual owner and his well-studied requirements on one hand and, on the other, to the civilized community in which the structure was to stand and for which generic techniques of contemporary construction were needed and research was to be made."

Neutra's admirable studies for school, health and hospital systems in Puerto Rico (*FORUM*, Mar. '45) are presented at full length. It is good to know that they will thus be made available to a large audience whose social problems are similar to those he analyzed so carefully. As Editor Todtmann notes—"The example of a small country of well-managed programmatic . . . may in all modesty be useful and instructive to an empire." The thorough presentation of Neutra's Channel Drive Housing project (*FORUM*, Mar. '44) adds photographic reinforcement to the sketches and diagrams of the Puerto Rican section. *Architecture of Social Concern* shows Neutra at work on a task that grows more, instead of less, difficult with the years. He is pitting himself against no less than "the special problem of interesting people in what civilization has to offer." His success or failure in solving such a problem has vital implications for everyone.—S.K.

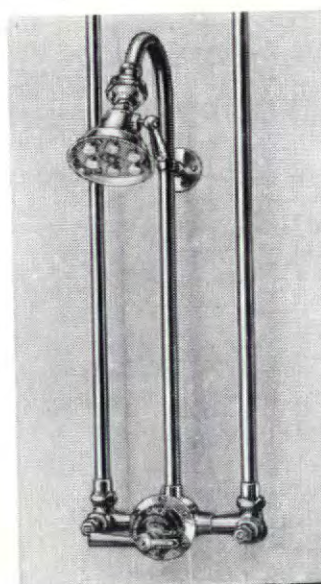
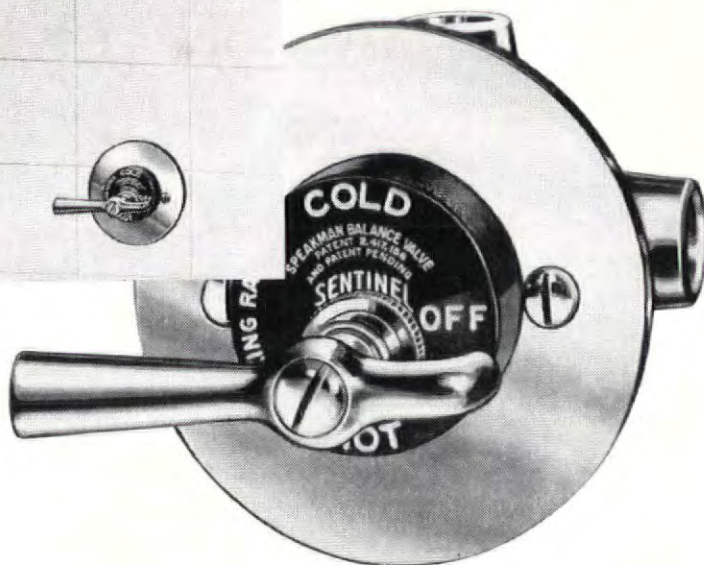


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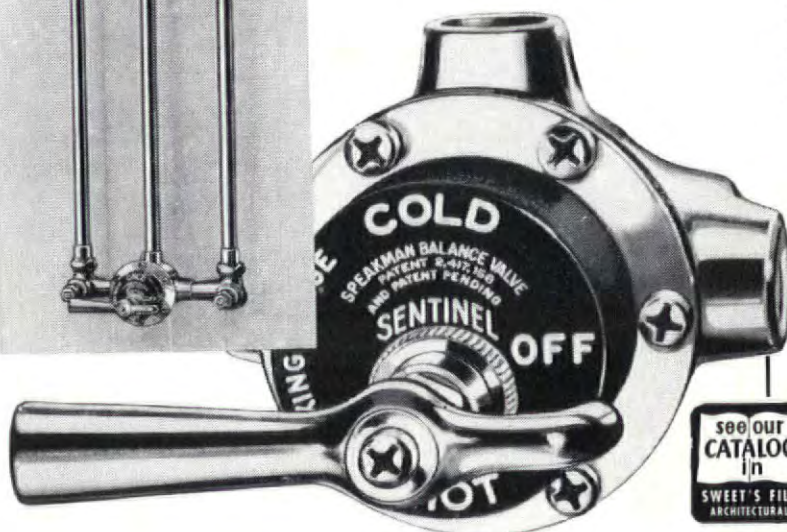
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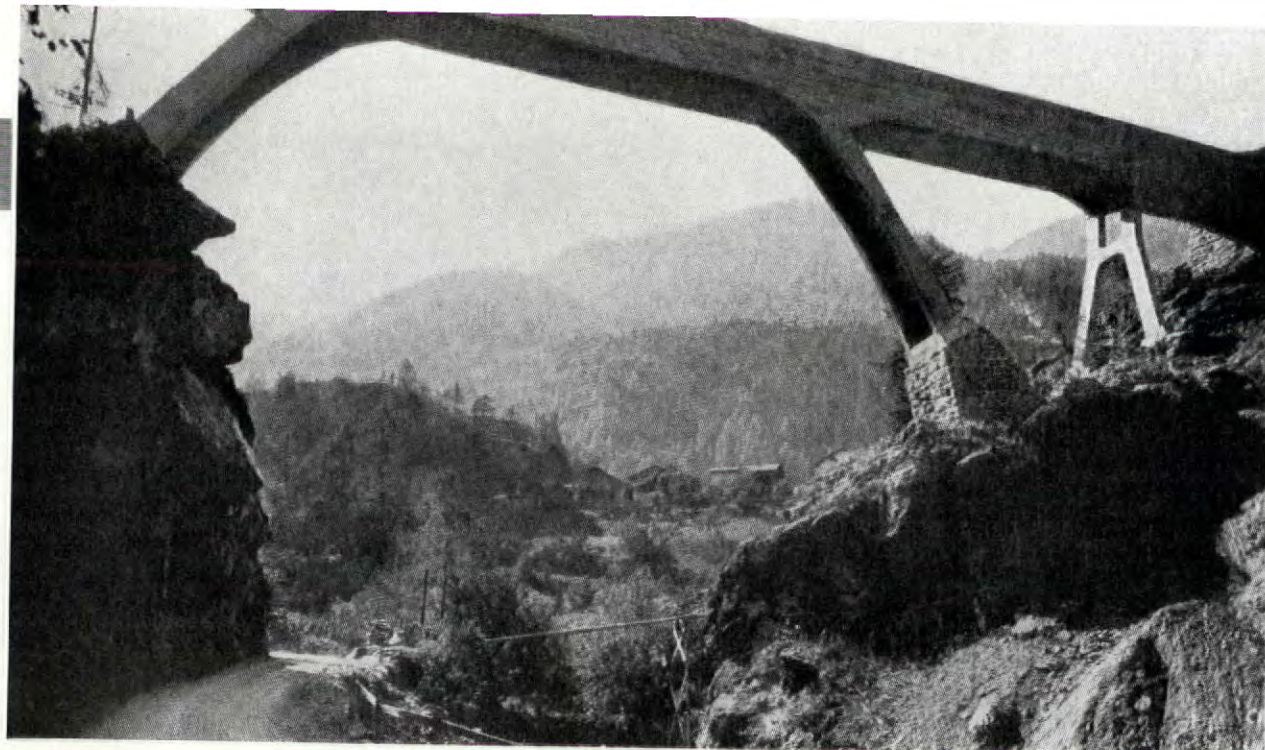
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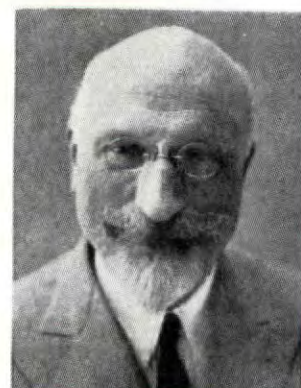
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**ROBERT MAILLART.** By Max Bill. Verlag fur Architektur AG., Erlenbach-Zurich, Switzerland. 180 pages. 8½ x 8½ in. In German, French, and English. French translation by Jean Paul Haymoz. English translation by W.P.M. Keatinge Clay.



Hans Kruck

"Reinforced concrete does not grow like wood, it is not rolled like steel and has no joints as masonry. It is most easily compared with cast iron as a material cast in forms . . . (with) a fluid continuity between the members that serve different functions. The condition of this beautiful continuity is the conception of the structure as a whole."

In Max Bill's new book the translation into English of the words of the great concrete constructor, Robert Maillart, is sometimes all too literal, and without great grace. But there are many fine photographs and drawings of his work, and these are wonderfully graceful. Maillart was a visionary engineer, and the right kind of man to build bridges—which more than other structures have the opportunity to be nobly symbolic of our time's building culture. Bill's book, published just 75 years after Maillart's birth, is a nice compromise between technical and layman's presentation, including sections on other Maillart structures besides the bridges.

In the book is a quotation from Maillart which might be added to the recurring discussion of the monumental in modern architecture: "The public may love massive things. The more cubic meters, tons or train loads of material required for it, the more wonderful the building. The contractor may also enjoy it, because it is interesting for him to discover ways and means of managing the greatest mass in the shortest time. But the designer ought to strongly oppose the massive. Firstly of course on economic grounds, and secondly in view of the stability of the structure."—W.McQ.





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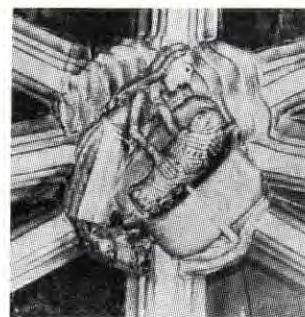
## REVIEWS

**ROOF BOSSES IN MEDIEVAL CHURCHES** by C. J. P. Cave. Cambridge at the MacMillan Press; New York, The MacMillan Co. 235 pp. Illus. with telescopic photographs. 7½ x 10. \$9.50.

**MEDIEVAL RUSSIAN CHURCHES** by Samuel Hazzard Cross. The Medieval Academy of America, Cambridge 38, Mass. 145 pp. Illus. 7 x 10. \$7.50.

Both these books show how an out-of-the-way phase of architecture can fill out and make richer the more familiar outlines. *Medieval Russian Churches* tells the story of those outlandishly attractive spires that appear as an integral part of the background of Ivan the Terrible, Catherine the Great and the novels of Tolstoy. The first American book on the subject, it possesses a great natural interest. The latter book, however—on the obscure subject of church roof carvings—makes much more of its limited material.

A roof boss was the Gothic solution to a problem of ornament in architecture. For some years after the pointed arch had been discovered, it was felt to be sufficiently decorative in itself. Later, however, someone must have remarked on how cold and bare the Gothic arch was, and how much colder and barer it became when two of these arches met to form a vault.



Medieval stone carvers needed no more than this hint. The keystone of almost every vault—up so high that only a break in the straight ribbing appears from the ground—is elaborately and often excitingly carved. Norwich Cathedral gives a striking example of this detailed care. Several figures in its transept have books in their hands. Not even the figures, much less the books, are distinguishable without field glasses, but to indicate the writing on the pages of the books the sculptor has used dots and lines. Many of the designs presented in this book were never seen from the time the carver signaled his fellow workmen to let him down (they were carved after the stone was in place)—until several hundred years later when C. J. P. Cave set up his telescopic camera. *Roof Bosses in Medieval Churches* is concerned mainly with English examples—but several French ones are also included.

Two facts add to the interest of these obscure sculptures—and both have to do with their position. First, their remoteness from sight provided sculptors with much greater leeway than they had when working in more prominent positions. The artists were obviously enjoying themselves in most of this work and they often supply sarcastic comment on the life below. Animal fables, scriptural incidents (see Moses being hidden in the bulrushes above) and the seven capital sins offered plenty of sculptural variety even within limits of accepted subject matter. Among the other quirks of the medieval mind revealed here, is an unsuspected passion for mermaids!

The obscurity which permitted such freedom of expression also saved these carvings (Continued on page 174)

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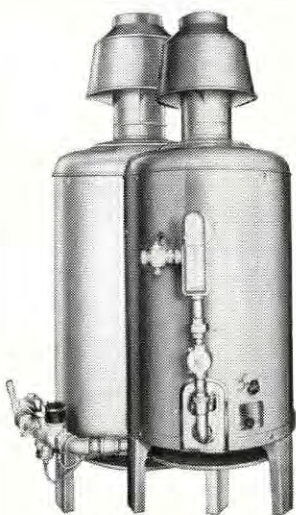
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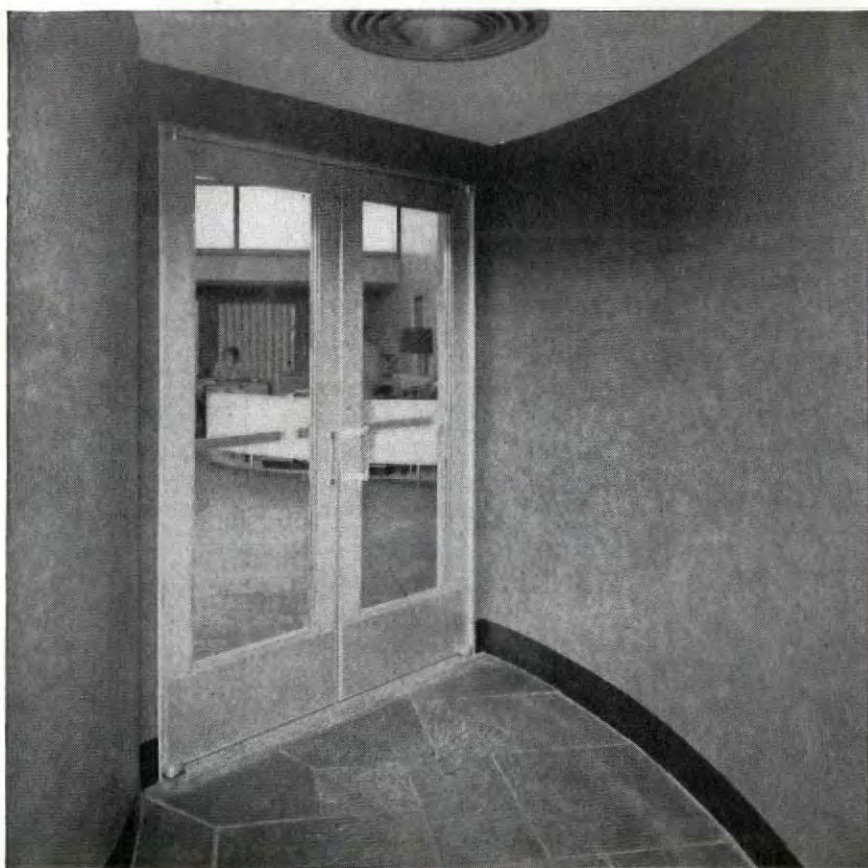


## REVIEWS



DeCou: Ewing Galloway

Two famous churches in Moscow—above, St. Basil the Blest; at right, St. John's



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from later destruction—not only from the wars of the Reformation but from the Victorian campaigns for improvement. In the famous Lady Chapel at Ely only one head remains on the thousands of figures that ornament the walls—in the roof not one head is missing.

*Medieval Russian Churches* is a posthumously published collection of essays by the Harvard professor, Samuel Cross. Its main interest is the account of that most typical feature of Russian churches—the onion spire. According to Cross, this resulted from a grafting of cultures. As early as 700 A.D. Vikings had pushed their way down the Russian rivers in a sickle-movement towards Constantinople. The architecture which slowly evolved in their settlements combined the steep snow-shedding shafts of their former Scandinavia with the newly adopted Byzantine cupola. Traditional use of wood made their buildings a frequent prey to fire—a fact which makes its growth difficult to trace. Another aspect of these churches—more congenial to our taste now than it might have been a generation ago—is the medieval Russian flair for exterior decoration. There can be no doubt that St. John's, the last pure Muscovite church (built in 1687) is a challenging conception—"15 great towers all gilded—contrasting brilliantly with the soft red of its walls, and set with lines of blue tiling."

Mr. Cross's study will make the historian wish for a really definitive book in English on this expression of popular architecture.—S.K.

**BUILDING FOR MODERN MAN**, a symposium. Edited by Thomas H. Creighton. Princeton University Press, New Jersey. 219 pp. 5¾ x 8¾. \$3.50.

In the spring of 1948, 60 architects, planners and scholars, were invited to visit Princeton for a two-day conference. The subject on which they gathered to confer was—"Planning for Man's Physical Environment." This subject, nearly as large as space itself, could hardly be covered even by 60 hand-picked men. When it was all over, many of the members wondered what, if anything, had been accomplished. A number doubted the possibility of summing up its scattered profits in any coherent form. "The gain at the Conference," wrote one member to Editor Thomas Creighton, "was the same that a political convention has. It was the electricity in the air . . . How the hell can you get *that* into a book?" If *Building for Modern Man* has a living value at all, it is this faint but unmistakable crackle of electricity. In spite of a quite deadening atmosphere of advance correspondence, questionnaires and program notes, of timed speeches and rebuttals—unexpected and live bolts do flash out from its pages. Like the conference itself, this summary is stimulating if not satisfying.

Beginning with an effort to define the subject, these highly (and oppositely) charged participants showed that planning, architecture, and man were still objects of vital interest. At first glance this definition seemed broad enough to please both humanists and mechanists: "the modification of natural environment by planning and building structures and communities in a way best suited to man of our time."

Henry Churchill picked up the phrase—the way best suited to the man of our times. "There seems," he commented, "to be a tendency to tell man what he needs, instead of trying to find out." Carlos Contreras on the other hand found man trying too hard to find out—"We try to improve upon nature—and we are not always successful." William Greeley cast his vote against the impersonality of planning trends—"We should strive for a complete community small enough," he affirmed. "The bees are our model." Ernest Kump declared

(Continued on page 176)





# New Frigidaire Kitchen Cabinets

## give custom-built results at standard cabinet prices!

The new Frigidaire Kitchen Cabinet units are so flexible in arrangement, permit so many different combinations that they make any kitchen look custom-built—without expensive building alterations or special designing. Moreover, they combine with Frigidaire Refrigerators, Electric Ranges and Cabinet Sinks to form efficient, time-and-energy-saving work centers.

**Adjoining cabinets provide unbroken work surfaces.** Any two or more Frigidaire base cabinets can be locked together so snugly that the joints in the Vitalast worktops can barely be seen. No moldings or fillers are needed. And, as shown at right, Vitalast offers advantages that can't be matched by any other cabinet top.

**These beautiful new cabinets** include eight wall cabinet sizes, six base cabinet sizes and a utility

cabinet. All have Dulux-finished, all-steel bodies that can't warp, swell or shrink—that *keep* drawers and doors working smoothly.

**New Frigidaire Cabinet Sinks!** The 54-inch model has two drainboards. The 48-inch size provides two bowls and a space-saving, sliding drainboard. Both have stainless porcelain sink tops and Dulux-protected all-steel bodies—new silent drawer guides—durable, completely concealed hinges. Both sinks offer finger-tip sprays, built-in cutting boards, rust-proof chromium soap trays and crumb cups—in addition to a really large amount of *organized* storage space.

For full facts, see your Frigidaire Dealer. Find his name in Classified Phone Directory. Or write Frigidaire Division of General Motors, Dayton 1, Ohio. In Canada, Leaside 12, Ontario.



# FRIGIDAIRE

Makes a Good Building Better

Refrigerators • Electric Ranges • Electric Water Heaters • Automatic Washer • Electric Ironer

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• Cabinet Sinks • Electric Dehumidifier • Air Conditioners • Water Coolers • Commercial Refrigeration

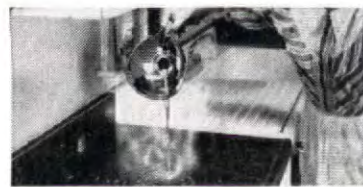
Only Frigidaire Kitchen Cabinets Have Amazing

## Vitalast Worktops

No other cabinet top material offers so many advantages! It's tough, molded composition — permanently bonded to the steel cabinet top under tremendous pressure and heat. Easy to clean, waxes beautifully—yet is not slippery.



**Smooth, one-piece work surface** results when two or more base cabinets are joined.



**Water proof, acid proof!** Completely unaffected by boiling water, vinegar, fruit juices.



**Fireproof, scorch-proof!** Can't be damaged even by hot utensils direct from range.



**Stain-proof—grease-proof!** Even hot grease from the skillet can't stain or mar Vitalast!



**Resilient!** Won't chip dishes—yet it can't be scratched or marred in normal kitchen use.



in round terms that the whole plane of the discussion was superficial—"When architecture seeks ardently and uncompromisingly for fundamentals, incidentals will take care of themselves . . . I urge that we view man as artists, not scientists; in other words that we see him whole."

Passing on to the problem of the designer-planner in today's world, Walter Gropius found a threefold necessity—the habit of thinking "in space terms, in technical terms, in economic terms." Standardization and prefabrication stood out as necessary parts of this picture. Henry Kamphoefner tried to introduce here a new rule of social esthetics: "If the goal of modern architecture is the enclosing of the greatest amount of usable space with the least amount of material, proportion must be based on the logical and economic use of material."



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ROLSCREENS provide freedom from screen troubles! Once in place, always in place. No putting up — no taking down! No painting! No seasonal repairs! No storage space required. By minimizing window screen maintenance, ROLSCREENS pay for themselves over the years.

The exterior beauty of windows is preserved by ROLSCREENS because they are made of neutral colored Alumina wire cloth and installed on the **inside**. ROLSCREENS cost no more than good quality flat-frame screens. When annual maintenance and labor costs are considered, ROLSCREENS actually cost less than ordinary screens.

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This drew immediate fire from Harvard's Joseph Hudnut. "That sounds to me," he said, "like something out of Calvin."

Even sharper exchanges occurred along the planning front. Architect Contreras was typical of a group who thought—"Planning may be discussed as large scale architecture." Against these, Planner Frederick Adams adopted a scorched earth policy. "I should have known that we can count on the architects to remake the physical world, provided the public collaborates 100 per cent. Architects, while frequently good coordinators, are rarely good collaborators."

Roland Wank, TVA planner, spoke with a breadth of vision that decades of struggle had not seemed to narrow—"Before good buildings can be put up as a matter of course, rather than exceptions, something needs to be done about the conditions surrounding all the business of building . . . Every bit of accomplished plan is thrice valuable. Once for what it accomplished; twice for what it added to planning experience; thrice for what public evidence it presents for the case of planning."

The traditional-versus-modern controversy—as everyone noted with satisfaction—had died down from the status of a holy war to that of personal preference and historical perspective. Siegfried Gideon, however, quoted Bergson on planning with ominous effect—"The past gnaws relentlessly into the future." George Howe saw in that fact a challenge, which he phrased as strongly if less elegantly—"Tradition should be a burr in the seat of understanding."

These advances and skirmishes paved the way for a final Robert Moses—Frank Lloyd Wright debate, which attracted most of the publicity at the time. This book reveals that, in spite of the protests of other members that the attitudes of Moses and Wright were not typical, they did in fact dramatize a fundamental division of viewpoint. Wright used his knife-edge against second-hand design—"It is characteristic of a social life like ours that any great cause must grow as much by meretricious imitators as by meritorious originators . . . Nearly every power boy is a shopper." Moses stuck blandly to his big guns—"Pragmatism is to planning what relativity is to physics."

Chairman Arthur Holden's final statement that the Conference (and book) "made no attempt to reach conclusions" only to "illuminate advances," certainly was not true of the attitude of individual members. The principal value of this summary lies in the fact that each of the participants had very definitely reached his own conclusions. These conclusions, by their very positiveness and variety, serve to mark—like scattered flares—the advance guard of planning thought and endeavor today.—S.K.

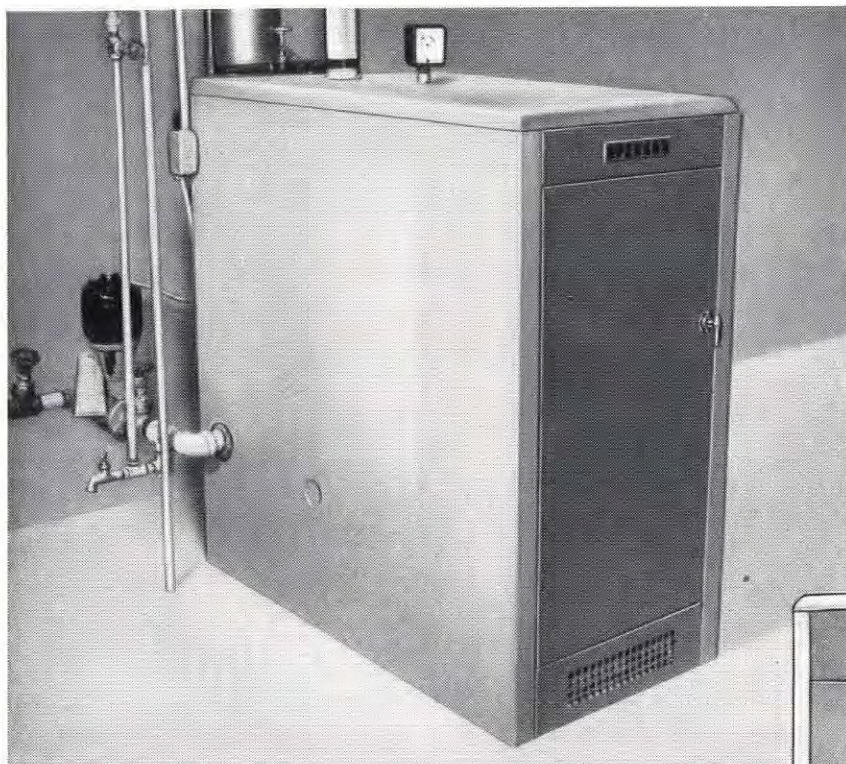
**THE MATHEMATICAL BASIS OF THE ARTS** by Joseph Schillinger. Philosophical Library, New York. 696 pp. 7 x 9 3/4. illus. \$12.

Mathematics, once looked on as the drudge for science and art, has in the last hundred years grown to aristocratic estate. An equation today can command the honor reserved by primitive man for an incantation, by the humanist for an epic. It has proved its unique value in furthering and strengthening the conclusions of all other sciences. Today it is the basis of the mental link between man and those otherwise fabulous worlds—stars and atoms.

But mathematicians are not content with this. Having proved that they can lead as well as follow in the realm of science, they are exploring the boundaries which lie between their territory and that of art. An increasing group devotes

(Continued on page 180)





The attractive Elmont, Long Island, home of Henry Allmendinger, designed and built by Hans Allmendinger, has the Spencer "R" Heating Boiler installation shown at left.

## Homes with happy hearts

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You'll have your home owners really singing when you specify Spencer "R" heating boilers—for quietness, efficiency, economy, clean operation, and effortless heat.

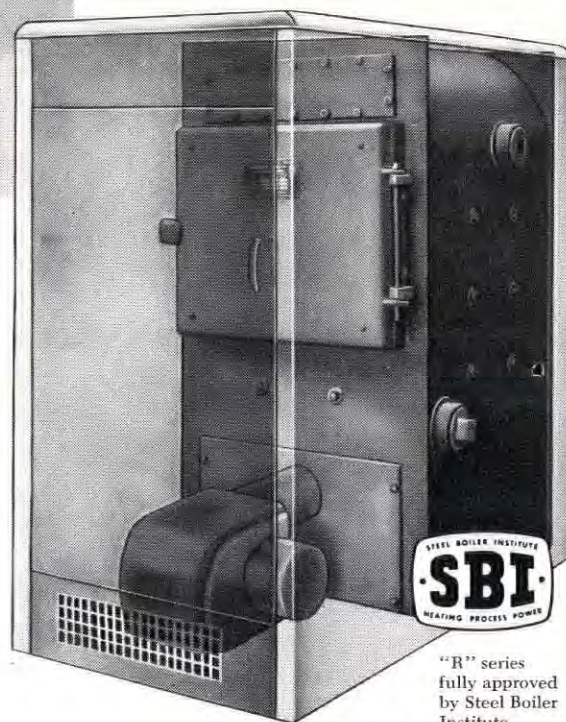
There are many reasons why the Spencer "R" steel heating boiler means happier, healthier living for your clients. Here are just a few of the numerous features:

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Ed Mead has a good job but he hasn't been out of the army long enough to save up that kind of cash. It had begun to look as though the Meads might have to stay "doubled up" with the folks even after the new baby came . . .

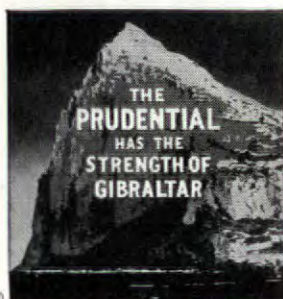
Did a rich aunt die? No . . . It was The Prudential that helped them.

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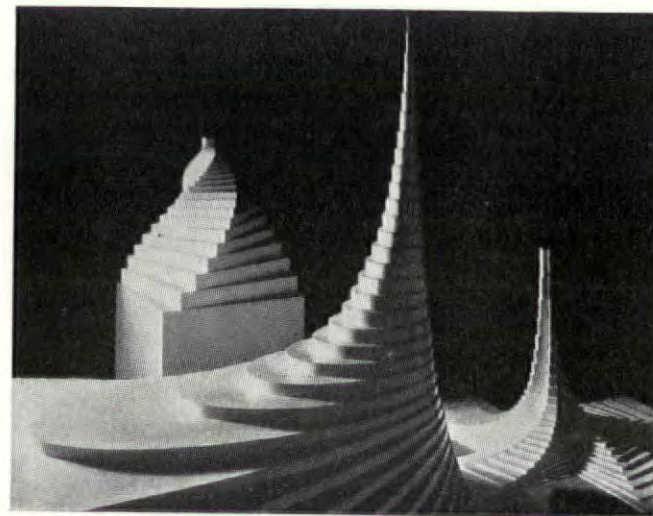




its spare time to constructing designs and forms whose primary interest is not the expression of human emotions but arithmetic formulae. Some of these designs are very pleasing and dramatic. They hardly, however, imply what mathematicians hope they will—that all other artistry can be scrapped. As one observer noted, they rather represent the beauty of mathematics, than the mathematics of beauty.

In *The Mathematical Basis Of The Arts* Joseph Schillinger set himself no little aim. He wanted, as he said—"to disclose the mechanism of creatorship as it manifests itself in nature and the arts" and "to shatter the very foundations of the great myth of artistic creation." His attempt was not only ambitious but (as is apparent in the tone of these phrases) a little naive. In trying to simplify things, Schillinger inevi-

tably makes them more complicated. Algebra, whose chief function is to provide a short cut, becomes in his hands a rhetorical device. The equation for the simplest action may run on for several pages.



A Mathematical Theme in Design by Rutherford Boyd

Architects can judge the practical value of this book by an aside Schillinger makes into the field of building. How much would this analysis help any man on the job? "A building is not erected by magic. First comes the architect's idea . . . based in part on existing material forms and their properties. After the architect makes a blueprint and the contractor is called upon, only then does materialization of the idea begin. Excavation of the ground, draining, cementing, erection of steel girders, installation of the plumbing system, electric wiring, plastering, painting, all these phases of construction, following each other in a predetermined manner, bring us finally to such achievements as the Empire State Building . . . An art structure in its formation (the process of being created) may be expressed as a series of sub-structures in their sequent development and accumulation:

$$\left. \begin{array}{l} N \\ S \\ I \end{array} \right\} = S_I t_1 + (S_I \div S_{II}) t_2 + (S_I \div S_{II} \div S_{III}) t_3 + \dots \\ \dots + (S_I \div S_{II} \div S_{III} \div \dots \div S_N) t_n$$

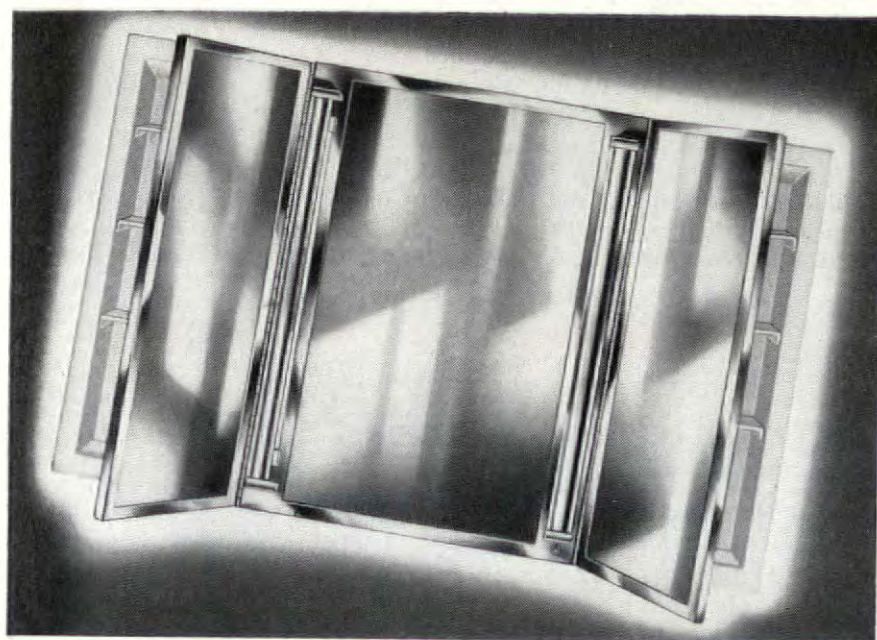
$S_n = \text{sub-structure}$   
 $t_1, t_2, t_3 = \text{consecutive moments in time}$

Schillinger, who died in 1943, was a music theorist as well as mathematician, and his analysis of music has been very highly praised, and used in a number of schools. His 696-page book, however, boils down to just one more attempt to substitute digits for human nature. He summarizes the evolution of his favorite art of music thus: It grows "from reliance upon the organs (lungs, vocal cords, diaphragm, lips, fingers, arms, etc.) as the agents of performance, through utilization of electrical devices—finally, to elimination of the performer."

To the relief of all concerned, this last phase—the mathematician's dream—seems to have come and gone. Remember the player piano?—S.K. and A.R.

**A HISTORY OF CAST IRON IN ARCHITECTURE.** By John Gloag and Derek Bridgwater. The MacMillan Co., New York City. 377 pp. Illus. 8 1/2 x 10. \$18.

This thorough and very handsome account of cast iron in English architecture is now published under American auspices. It was reviewed at the time of its recent publication in England (FORUM, Jan., '49). (Continued on page 184)



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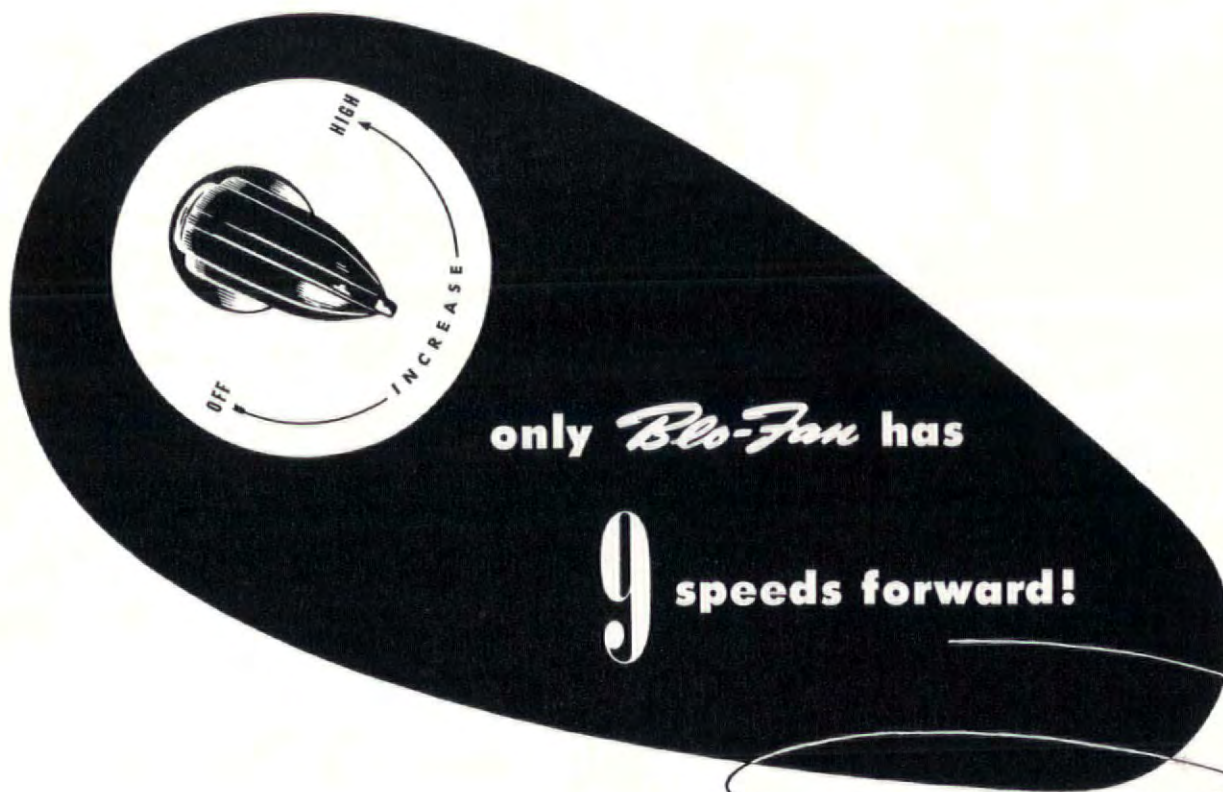
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IN THE KITCHEN, BATHROOM, DEN OR LAUNDRY  
INSTALLS IN THE CEILING — WHERE A FAN BELONGS



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Yes, concrete joist construction costs are low, because the use of Meyer steelforms reduces the amount of concrete needed for any span or live load. And since Meyer steelforms can be moved from job to job—floor to floor—they can be used time and time again for just a nominal rental charge. Construction is speeded up . . . costs are driven down.

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Ceco originated the removable steelform method of concrete joist construction. The company is first in the field—actually providing more service than all competitors combined. So, for concrete joist construction, call on Ceco—the leader over all.

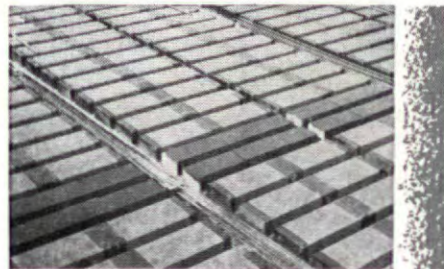
### **CECO STEEL PRODUCTS CORPORATION**

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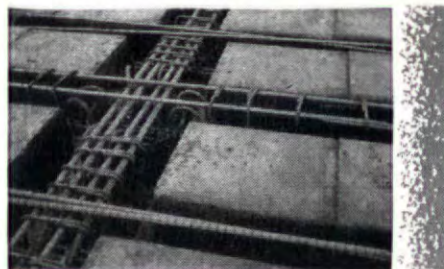
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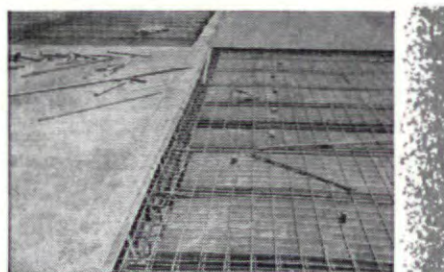
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Here is illustrated Meyer steelforms completely erected on open wood centering, ready for placement of reinforcing steel and concrete.



In this photograph, the reinforcing bars are installed as detailed by Ceco, in proper relation to the erected steelforms to provide a rigid construction.



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## REVIEWS



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A Lapidolith-treated floor stands up to heavy trucking and traffic as no untreated floor can. You actually 'case harden' a floor with a deep layer as hard as granite . . . up to 10 times as hard as the original concrete! Yet the entire treatment is as fast as mopping the floor . . . the material cost is under \$20 for 1000 square feet of concrete or terrazzo . . . and you can use the floor even while it's being treated. You can apply Lapidolith yourself, or if you prefer, we can arrange to have it applied for you.

If you have a tough problem involving concrete treatment, damp-proofing or protective painting, call on your Sonneborn Man. Chances are, he has the answers, or can get them for you. If you don't have his name, write your problem direct.

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**PLANNING AUTOMOBILE DEALER PROPERTIES.** By Service Section, General Motors Corp., Detroit 2, Mich. 142 pp. illus. 10 x 13 1/4.

In publishing this book, General Motors has made a contribution valuable both to its dealers and its dealers' architects. Information in planning automobile showrooms always has been scanty and hard to locate, but now, in *Planning Automobile Dealer Properties*, GM has collected between two covers a wealth of material on every phase of the subject. Major and minor points are discussed and illustrated.

The first half of the book is devoted to suggestions for planning salesrooms, used car lots and service departments. It is full of ideas on everything from choice of location for the agency building to storage facilities for nuts and bolts. The second half is made up of some rather disappointing designs of dealer buildings planned for various sizes and shapes of lots and for different types of dealerships. GM credits its 1945 design competition (FORUM, Oct. '45) for many of the ideas contained in this book. It is, therefore, surprising that the book does not include some of the better prize-winning designs from the competition. Fortunately, GM's Service Section, which prepared the book, considers *Planning Automobile Dealer Properties* a presentation of ideas rather than plans.

An interesting sidelight connected with the publication of *Planning Automobile Dealer Properties* was the nearly concurrent opening of the Pemberton Cadillac Building in Toledo, Ohio. The building (see photos of showroom above and carefully studied model below) was designed by Toledo Architect Karl B. Hoke who used the standards set up in the new book. Cooperating with the architect and with GM, in the Pemberton design, was Libbey-Owens-Ford Co.'s Chief Designer, H. Creston Doner. The cooperation between GM and L-O-F worked both ways so the book contains some up-to-date data on the uses of glass in automobile showrooms. Included are explanations of the causes of shadows, reflections and veiling glare as well as advice on the proper shape of showrooms and placement of glass for the best display of motor cars.

The book includes specific information on such subjects as the fields of vision of pedestrians and motorists, internal traffic in the showroom and its effect on display, inside and outside shading of the showroom, lighting techniques, space required for various service operations and the design and layout of aisles and aprons. In addition, each function of the dealership is explored separately, assuming large and very complete agency facilities. In discussing each function the writers point out the pros and cons involved in combining any two or more functions in a smaller agency. A large agency, for example,

(Continued on page 188)





# Sealuxe-Browne Windows Were Used in the General Petroleum and the Prudential Buildings There Is a Reason!

These windows and ALUMITEX fins of aluminum save the owners money in the initial cost of air conditioning systems. They continue to save money in the operation and maintenance of air conditioning systems.

When you have the facts it becomes very apparent that Sealuxe-Browne Folding-Type Windows parallel closely your window requirements — *appearance, resistance to elements, ease of operation, ease and low cost of maintenance, and quality of materials and construction.*

Sealuxe-Browne Windows have features of design that result in substantial savings in building operation and maintenance.

**Architectural Harmony** regardless of design, always is possible with Sealuxe-Browne Windows. The trim, sharp lines, and the dignity of aluminum adds much to building beauty and distinction.

**Air-Tightness:** The metal-to-felt contact between sash and frame forms a positive seal against air and water leakage. The snug fit tends to subdue outside noises and keeps infiltration of dust to a minimum.

**No Costly Outside Window Washing:** As both sides of glass in a Sealuxe-Browne Window are cleaned from room-side there is the substantial savings resulting from the elimination of the costs and hazards of professional window washers working outside. Sealuxe-Browne Windows can be cleaned quicker.

**100% Controllable, Draft-Free Ventilation:** The center-hinged sash in a Sealuxe-Browne Window can be opened slightly, forming a "flue" that produces draft-free ventilation, even in windy, rainy weather. This feature means that full advantage can be taken of the favorable weather nature provides for a large portion of each year.



A section of the more than 1600 Sealuxe-Browne Window installation in the General Petroleum Building is shown above. The huge ALUMITEX vertical fins of aluminum (a product of Sealuxe Engineering and Manufacture) not only add to the distinctive beauty of the General Petroleum building but they saved 100 tons of refrigeration in the initial cost of the air conditioning plant. They continue to save money in the operation and maintenance of the air conditioning system. They keep large portions of the glass in other parts of the building in the shade. This tames the terrific rays of radiant heat.

General Petroleum Company Building  
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Wurdeman and Becket, Architects  
P. J. Walker Co., General Contractor  
  
Prudential Insurance Company Building  
Los Angeles  
Wurdeman and Becket, Architects  
Wm. Simpson Const. Co., General Contractor

**Permanent Ease of Operation:** Even the largest Sealuxe-Browne Windows are easy to open and close. The simplicity of design, the precision of manufacture and sturdiness of parts assure trouble-free operation.

**Low Maintenance Cost** comes from the use of heavy aluminum extrusions and the special Sealuxe solid, rigid connections at corners of sash and frame. The alumilited finish requires no painting — will not tarnish or rust.

The record of Browne Folding-Type Windows is most impressive. They are in prominent buildings of all types in all sections of the country. *During more than 45 years these windows have proved through performance that they are all and more than is claimed.*

The General Petroleum Company building and the Prudential Insurance Company building are typical examples of the Buildings of Distinction for which Sealuxe-Browne Windows were selected.

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\*patent applied for



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Faster methods and new materials are saving erection time. This cuts cost despite higher labor and material prices. These booklets explain new cost-saving construction developments.

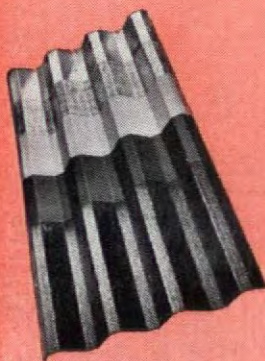
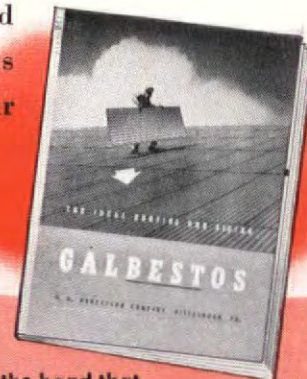
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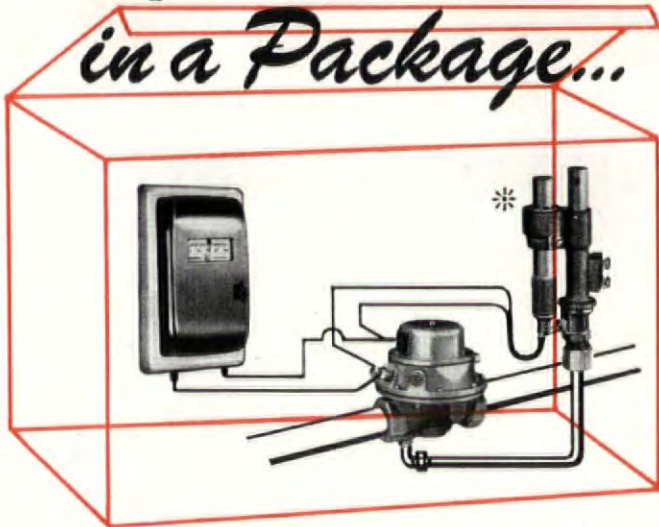


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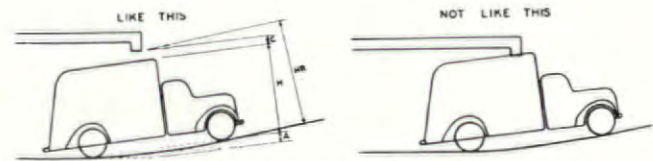
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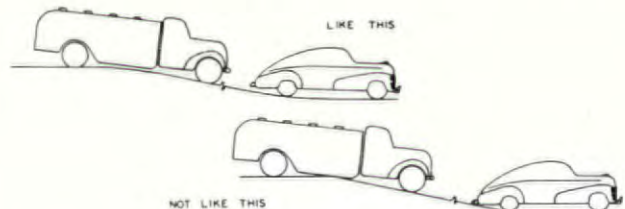
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would have eight types of stalls for servicing cars while a smaller agency might have only five types. The book explains which stalls might logically be combined and why. The same procedure is followed in discussing office space, storage space, parts salesrooms and other facilities.

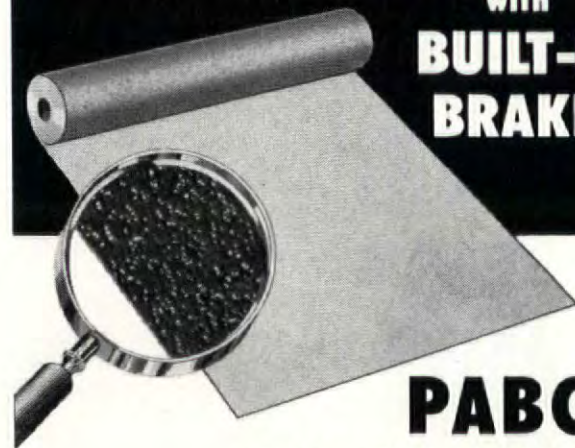


H=HEIGHT OF VEHICLE  
A=ADDITIONAL HEIGHT VEHICLE IS RAISED AT START OF RAMP  
C=CLEARANCE ABOVE VEHICLE  
HR=HEADROOM = H + A + C



*Planning Automobile Dealer Properties* can be recommended highly to any architect who has in prospect a commission to design an automobile agency building, for it combines the thinking of some of the leading minds in the automotive world. The philosophy behind the book is good and, by ignoring the design examples, the architect should be able to come up with some excellent functional plans and designs for dealer buildings.—W.W.A. (Continued on page 190)

the **SAFETY FLOOR**  
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BRAKES!**



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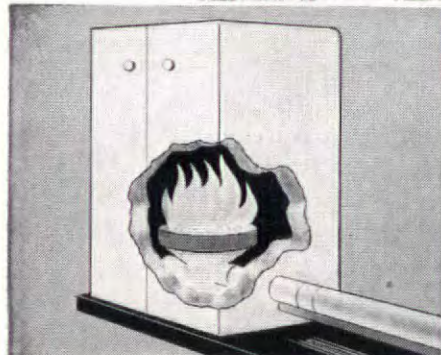
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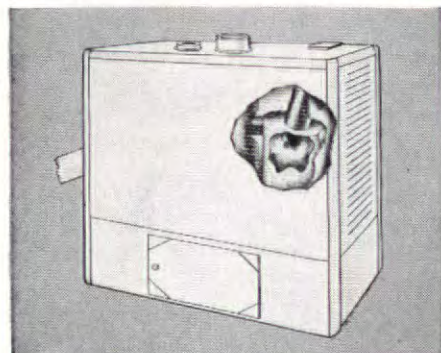




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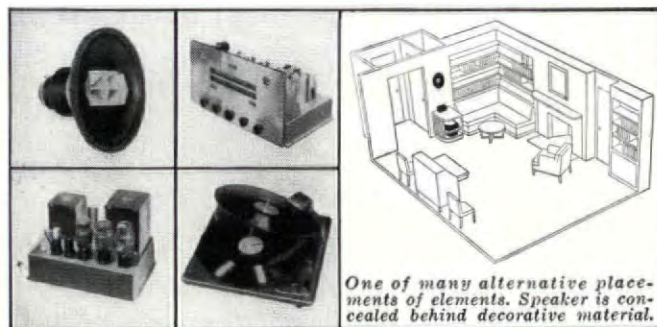
**AMERICAN SCHOOL BUILDINGS**, 27th Yearbook. American Association of School Administrators, 1201 Sixteenth Street, N. W., Washington 6, D. C. 525 pp. Illus. 6 x 9. \$4.

Eighty-two per cent of schools in the U. S. are rated *poor* or only *fair* by the states themselves, reported a *New York Times* survey last month. "Millions of children now attend classes in buildings that are obsolete, potential firetraps or totally inadequate to meet the needs of a modern educational program." This state of affairs seems destined to get worse instead of better. The increased birth-rate has raised enrollment between 50 and 75 per cent in some states. Increased construction costs have halved the potency of the taxpayer's dollar. There seems to be no way of meeting the dilemma head-on—but one conclusion does become evident. Wherever funds are available for school buildings (and at least \$10 billion of the needed \$100 billion has been allocated), they should be spent with the greatest care and foresight. In this process such a handbook as *American School Buildings* may play an important part.

It should certainly be required reading for every P. T. A. member as well as every one of the school officials listed in its 156-page Administrator's Directory. Common sense chapters are given on design, layout, construction and equipment. Their application to maintenance and remodeling problems is shown. Flexible, multi-purpose rooms for school and community use are proved to be essential and attainable.

The book has interest for those in the building field, too. A number of its suggestions are too vague to be a positive guide, (for example, "Shrubby should be planted so as to make the space attractive and at the same time not interfere with children's play") but it does provide a valuable checklist of the various factors

(Continued on page 192)



One of many alternative placements of elements. Speaker is concealed behind decorative material.

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ESTABLISHED 1853

to be considered in school planning. For architects contemplating this branch of design, Chapter 8 provides a board's-eye view of qualifications.—S.K.

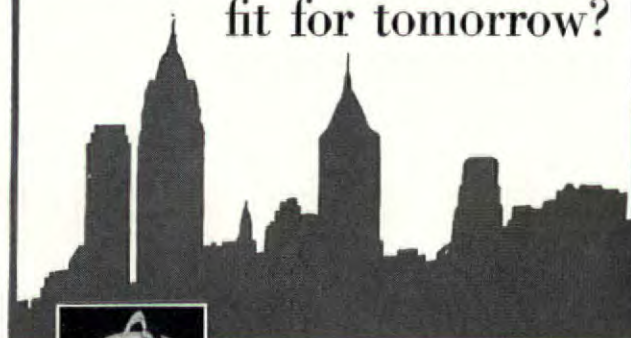
**HOUSING STATISTICS HANDBOOK** prepared by the Housing & Home Finance Agency and the Office of Housing Economics. Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 170 pp. 7 1/2 x 10 1/4. \$1.

This book will be a godsend for its intended readers—"the increasing number of persons in both private and public life" who want to know "how housing statistics are assembled, and their reliability and limitations for various purposes."

Anyone who has tried to trace a particular set of figures back over a period of years and—for some purpose—needed to compare it with similar figures has found himself in a near-hopeless predicament. Available charts overlapped, contradicted, left gaps or could not be reduced to a common base. As the preface here puts it—"Most of these persons are not prepared for the great variety of material . . . produced during the last two decades, nor are they prepared for the considerable amount of work necessary to identify these agencies, to learn what service each performs, and to assemble the necessary pieces from the separate sources."

To all such readers, this book renders two services: first, it analyzes and clarifies material that is available; second, it points out what is yet missing. This last is no small boon to the researcher who so often wastes time and energy before learning that bitter fact. The volume and cost of new housing production, the size and characteristics of existing dwellings, and the financial state of housing form the three large divisions of material supplied here. Among the principal sources classified in this handbook (Continued on page 194)

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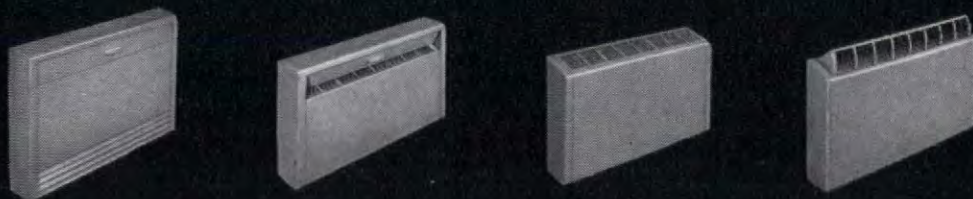
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are the findings of *Twentieth Century Fund*, the *National Bureau of Economic Research*, the *Bureau of Labor Statistics* and the *Dodge Reports*.—S.K.

**HOW TO OWN YOUR OWN HOME** based on information gathered by Senator Joe McCarthy. Home Service Bureau, Lustron Corp., Marion, Ohio. 5½ x 8½. 94 pp. 35 cents.


The unique feature of this pamphlet is its clear, thorough account of home-financing through FHA and VA loans. It tells in simplest terms how much one can borrow; how to go about borrowing it and what the terms of repayment will be. There are also several sensible chapters on points to look for in choosing a house and neighborhood—and points to look out for in closing a deal. In addition, a chapter by Senator Joe McCarthy, Vice Chairman of the Joint Congressional Committee on Housing, sizes up the housing problem as a national headache, with hints on how the law may be applied as a remedy.—S.K.

**A GUIDE TO THE ART OF LATIN AMERICA** edited by Robert C. Smith and Elizabeth Wilder. Superintendent of Documents. Washington, D. C. 480 pp. Index. 5½ x 9. \$1.50.

This bibliography (a pioneer in its field) collects the scattered material published over the last 250 years, on the arts of all 20 Latin American countries. Three comprehensive sections—Colonial, 19th Century and Contemporary (until 1942)—supply book and magazine references to architecture, education and institutions, graphic arts, minor arts, painting, photography, and sculpture. References to Latin American arts since 1942 are already available through the services of the *Annual Handbook of Latin American Studies*.—S.K.

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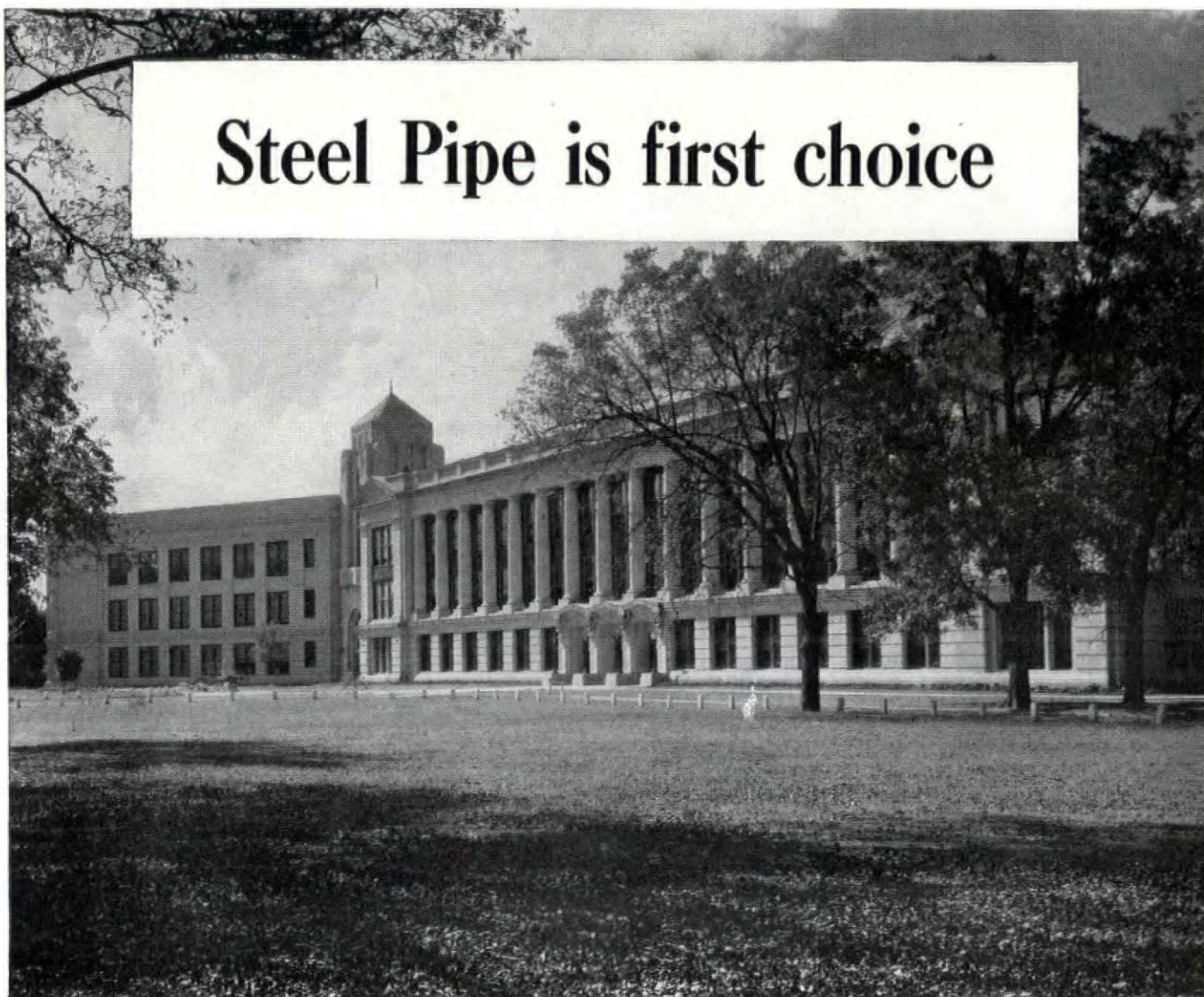
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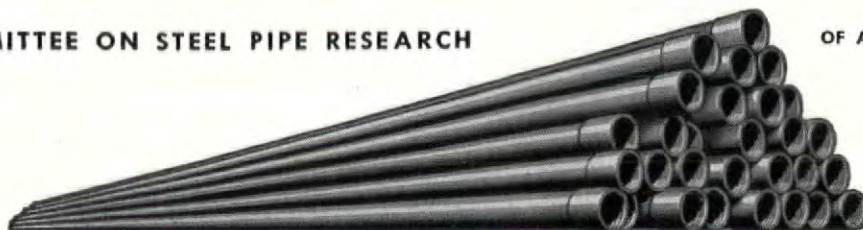
The men who specify and use it know. *Steel pipe is first choice.*

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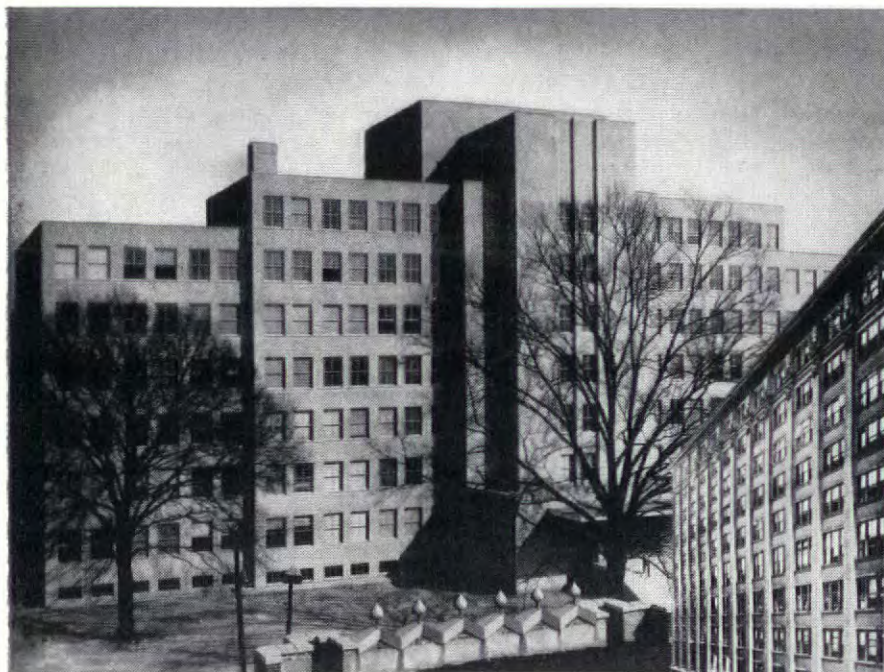
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**PLASTICS.** SPI Handbook. The Society of the Plastics Industry, 295 Madison Ave., New York 17, N. Y. 451 pp. 6 x 9 1/4 in. Illus. Price \$7.50 to non-members; \$4.50 to members.

Plastics, the most ubiquitous of all man-made materials, have been used—and mis-used—to make more different products than any other substance. The SPI Handbook, by establishing a systematic classification of plastics, might do much to insure responsible handling of these valuable raw materials. Plastics have been assigned classification numbers based on heat distortion points, impact strength and tensile strength, and classification letters for mechanical, electrical, optical, chemical and other properties. The book points out that the choice of a plastic for a given purpose requires cooperation among a large group, including engineer-draftsmen, artist-designer, tool-builder, molder and raw material supplier. The

classification of plastics is the most important single contribution made by the SPI Handbook as far as the consumer is concerned, but the book also contains a wealth of carefully coordinated information on molding methods and procedures and fabrication of plastics in general. The Society of the Plastics Industry has reason to be proud of this first handbook.

**VERMICULITE PLASTER.** Vermiculite Plaster Fireproofing. Vermiculite Institute, 208 S. La Salle St., Chicago, Ill. 16 pp. 8 1/2 x 11 in.

The story told in this well-planned booklet is outlined concisely in the opening paragraph: "For years persons concerned with the problem of protecting steel buildings from fire have been trying to obtain an economical, light-weight and comparatively thin material that would provide as much as four hours fire protection to structural members. Vermiculite plaster fireproofing has been found to be the answer." The booklet goes on to offer an explanation for the high fire resistance obtained with this plaster. In addition it offers an analysis of the savings in dead load and steel with the use of this material and a summary of fire tests made in constructions using Vermiculite plaster as the fireproofing material. Good illustrations offer construction views of jobs located in all parts of the country as well as typical fireproofing details.

**STUCCO.** Specifications For Beautiful, Durable Stucco and Overcoating Reinforced With Keymesh. Keystone Steel & Wire Co., Peoria, Ill. 16 pp. 8 1/2 x 11 in.

Specimen specifications for stuccoing and overcoating and a discussion of the features and application of Keystone reinforcement are the attractions of this booklet. Opening pages cite the seven important advantages of stucco. In subsequent sections the versatility of the material in various types of residential architecture is illustrated, and the result of a survey describes "What Architects Think About Stucco." The largest percentage of those polled, 63 per cent, thought ranch type design the most appropriate for stucco exteriors; another 56 per cent chose modern design as the best use of the material, while 12 per cent gave colonial design their first mention. Other sections present a variety of information about Keystone reinforcement for stucco siding. This is followed by complete specifications for stuccoing and overcoating. Keymesh's wide use is illustrated in closing pages.

**METAL BUILDING PRODUCTS.** Majestic Building Necessities, Catalogue No. 48-R. The Majestic Co., Huntington, Ind. 22 pp. 8 1/2 x 11 1/8 in.

Superseding former editions, this revised *Building Necessities* contains complete catalogue information on a variety of Majestic products. These run the gamut from coal chutes to basement windows, and include such items as underground garbage receivers, ash pit doors and dumps, attic and foundation ventilators, fireplace dampers, circulator fireplaces, and heating equipment. Practically all of the products are completely described, dimensioned and illustrated.

**DECORATIVE WALL PANELS.** Marlite Modern Plastic-Finished Wall and Ceiling Panels. Marsh Wall Products, Inc., Dover, Ohio. 10 pp. 8 1/2 x 11 in.

The versatility of Marlite, the familiar plastic-finished wall and ceiling panel, is portrayed (Continued on page 202)

6 reasons  
why you  
should  
install

**FLOR-EVER has the easiest upkeep**—Its smoother, non-porous surface doesn't absorb dirt. It's spot-, stain- and alkali-resistant, grease- and water-proof. The mere swish of a mop leaves it sparkling-clean.

**FLOR-EVER adds charm and beauty to every home**—quiet and resilient to the step—it comes in a whole rainbow of bright, fade-resistant colors that go right through to the backing—blend well with all decors.

**FLOR-EVER is economical**—outwears other floor covering in the same price range.

**FLOR-EVER is easy to install**—it comes by the yard for quick, inexpensive installation. Create your own decorative patterns by using feature strips and borders.

**FLOR-EVER is made of Vinylite Brand Plastics**—a famous trademark teamed with products of outstanding success—a trademark advertised to the tune of millions of messages each year.

**FLOR-EVER is nationally advertised**—prospective home-owners see FLOR-EVER's full color national campaign in these key magazines—Better Homes and Gardens, American Home, House Beautiful, House & Garden, McCall's, Good Housekeeping and The Saturday Evening Post.

**Flor-Ever®**  
Vinylite PLASTIC FLOOR COVERING



in the homes you build

DELAWARE FLOOR PRODUCTS, INC., WILMINGTON 99, DELAWARE

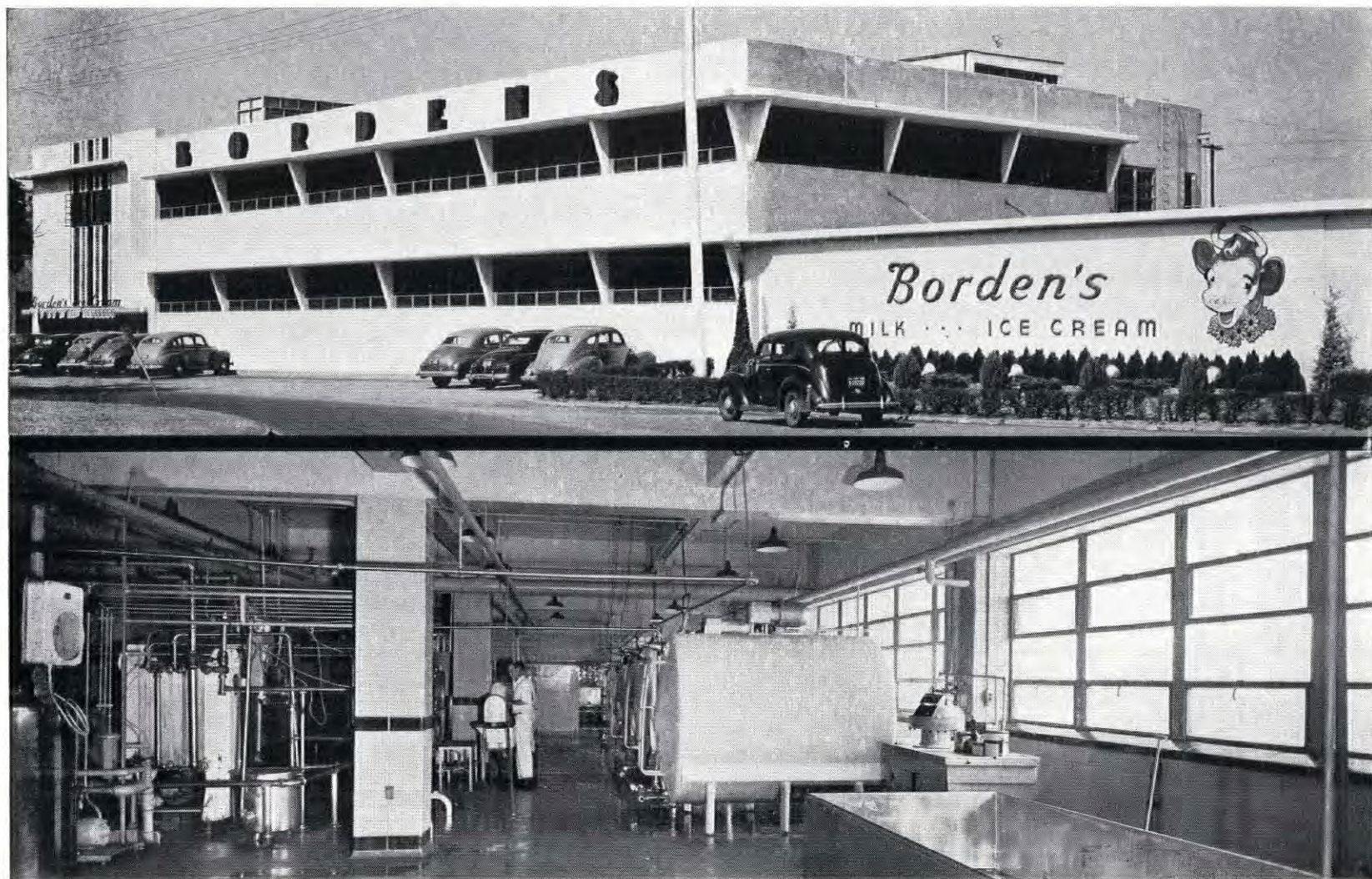
New York Showrooms: 295 Fifth Avenue

Also manufacturers of "Wall-Ever" Vinylite Plastic Wall Covering and "Duralin" Enamel Floor Covering



# more free sunlight and fresh air for Elsie

Below: Exterior and interior views of the Borden Co., Plant at Oklahoma City. Truscon Pivoted, Commercial Projected, Architectural Projected and Intermediate Casement Windows, Screens and rack and pinion operators used throughout. The Austin Company, Designers and Contractors.



## with Truscon Steel Windows

Borden's milk products are famous for healthful quality and cleanliness!

Look at the plants they're produced in . . . like this one at Oklahoma City. And look at the light-giving, easily ventilated windows that aid the well-being of both the milk products and the dairy workers inside the plant!

This Oklahoma plant is completely equipped with Truscon Steel Windows —Truscon Pivoted Windows, Truscon Commercial Projected Windows, Truscon Architectural Projected and Truscon Intermediate Casement Windows . . . also Truscon Screens, and rack and pinion operators!

Truscon Steel Windows are permanent and fire-resistant; they never stick, shrink, warp, or fail to operate easily, regardless of climatic conditions; they provide adequate and proper ventilation; and their slender but strong muntin bars admit the maximum of light to the interior.

Truscon Steel Windows are adaptable to all types of industrial and commercial buildings, including warehouse, factory and storage buildings, garages, filling stations, and a host of other installations.

The architectural correctness, substantial hardware, ease of installation, economy and low upkeep of Truscon Steel Windows will be of help to you in your planning. May we send you a complete new catalog of Truscon Steel Windows?

## Truscon Steel Company

Youngstown 1, Ohio

Subsidiary of Republic Steel Corporation



Truscon Commercial Projected Window



Pivoted Window Push Bar Hardware



Truscon Architectural Projected Window



Truscon Steel Intermediate Casement

**New Literature.**  
Send for new catalog complete with installation details and specifications on Truscon Steel Windows for every type of residential, commercial and institutional use.







## They've been meeting at the Astor for twelve years—on this floor that still looks new

"MEET me at the Astor" is an old New York tradition. That's why this attractive floor on the popular mezzanine can tell you volumes about Goodyear Flooring. It's been down for twelve years—walked on by millions—yet *doesn't even show a scratch!*

Service like this is typical of Wingfoot Flooring. You can specify it with complete confidence for public buildings, stores and offices where *durability* comes first—and be sure of lasting *beauty*.

That's because Wingfoot colors go all the way through—won't walk off under the heaviest traffic or wash off when cleaned with commercial compounds. It is resistant to fire, alcohol, ink and stains. A damp mop keeps it clean—occasional waxing keeps it at its best.

### Wide Choice of Colors

Wingfoot Rubber Flooring comes in sixteen multi-tone and plain colors to harmonize with any decorative scheme. It is available in sheet or tile—can be readily worked into patterns and feature strips to permit the design of "personalized" floors as well.

You can confidently specify Wingfoot Flooring for your "showcase" jobs—because its lasting good looks and wearability are a testimonial to your good judgment. See Sweet's Architectural File for complete specifications. Goodyear Flooring is available in every area through authorized dealers. Write Goodyear, Builders Supply & Flooring Dept., Akron 16, Ohio, for complete information.



WINGFOOT *Rubber* FLOORING { SHEET and TILE  
by  
**GOOD YEAR**

Wingfoot—T.M. The Goodyear Tire & Rubber Company





**The Original Mengel Flush Door**  
with the Patented  
"INSULOK" GRID CORE →



**Through the MENDEL DOOR  
Lies Opportunity for  
MORE BEAUTY...LESS UPKEEP**



IT'S more than just a beautiful door! It's an approved way of building durability and utility into any interior... regardless of period and decorative scheme.

For Mengel Flush Doors are engineered and built by skilled craftsmen to give *beauty with a purpose*... beauty with fingertip lightness, long, trouble-free life, easy upkeep.

Only the Mengel Door has the patented "Insulok" Grid Core. Made of sturdy insulation board strips halved together, it ends expansion and contraction headaches... makes Mengel Flush Doors much lighter than standard panel hardwood doors.

**Built Like Fine Furniture!** Framing is hard, even-textured poplar. Corner connections have dovetailed lock-joints, securely wedged, to give dimensional stability and seal moisture out. And the 3-ply faces are permanently bonded to frame and core.

No wonder Mengel Doors stand a 25,000-slam test. And every door is "cured" before it leaves the factory to assure warp resistance.

Mengel Flush Doors come faced with beautiful veneers of Birch, Mahogany, Oak, Walnut, Gumwood (and other hardwoods to order).

And they *stay* beautiful! Their smooth, unbroken surfaces are easy to clean... offer no place for dust to cling. No panels to shrink... no moldings to come apart.

**Easy to Paint!** The smooth Gumwood door is perfect for painting... never shows a grain raise.

For new construction or remodeling, specify Mengel Flush Doors... the doors with years of performance behind them. For full information mail the coupon *today!*

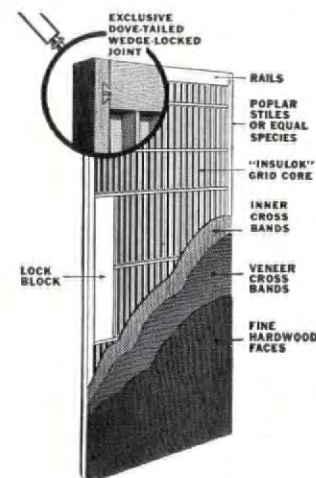
#### **The Open-and-Shut Case for Mengel Doors**

1. **An Engineered Door**... with patented "Insulok" Grid Core, hardwood frames and faces, and dovetailed lock-joints.
2. **3-Ply Faces Bonded to Core**... with moisture-resistant resin glue by hot-press method.
3. **40% Lighter in Weight**... than standard panel hardwood doors.
4. **Warp-Resistant**... "cured" before leaving factory.
5. **Slam Tested**... 25,000 times by powerful machine.
6. **Flame-Resistant Core**... made of  $\frac{3}{8}$ " insulation board.

Copyright 1949, The Mengel Company

7. **Sealed Construction**... prevents entrance of dirt, vermin or moisture.

8. **Over-sized Lock Block**... centered on edge of stile, permits reversing door.



• • • Mail Coupon Today! • • • • •

#### **THE MENDEL COMPANY**

Plywood Division, Dept. AF-1, Louisville 1, Ky.

Please send me complete information about the Mengel Flush Door.

Name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



**MENGEL Flush DOORS**

THE FAMOUS FLUSH DOOR WITH THE PATENTED CORE



colorfully in this complete catalogue of Marsh products. Photographs suggest ideas for finishing kitchens, bathrooms, dens and commercial interiors with the material while the text covers advantages and methods of installation. Other sections of the booklet present the available finishes, colors and patterns of Marlite in color plates and describe Marsh bathroom accessories, moldings and installation accessories.

**METAL WALL TILES.** Beautiful Crown Metal Wall Tile For The Homemaker. Ohio Can & Crown Co., Massillon, Ohio. 4 pp. 8½ x 11 in.

The 11 colors in the Crown metal wall tile line, and methods in which this material can be used to decorate the kitchen and bathroom are well illustrated in this eye-catching, full-color folder. Advantages of the enameled steel tiles—appear-

ance, durability, easy maintenance and economy—are discussed. The different size units and accessories are also described.

**CAULKING COMPOUND.** Vulcatex Elastic Caulking Compound. A. C. Horn Co., Inc., Tenth St. & 44th Ave., Long Island City, N. Y. 8 pp. 8½ x 11 in.

Vulcatex, A. C. Horn's time-tested elastic caulking compound for pointing, sealing and glazing, is fully described in this folder. In addition to results of tests involving boiling, steaming and high and low dry temperatures, the material includes data on advantages, uses, coverage and the convenient "Thrift-pak" packaging.

**ADHESIVES.** Benjamin Foster Co., 4619 West Girard Ave., Philadelphia, Pa. 16 pp. 8½ x 11 in.

This new reference manual contains facts on Foster's adhesives, sealers, surface coatings, cements, mastics and emulsions for use with various types of insulation in both industrial and marine applications. Included is a detailed discussion of the basic properties and uses: viscosity, coverage, flammability, heat flow and resistance to acids and alkalis of the complete line. A feature of the booklet is a concise, informative reference chart which summarizes bonding and drying time, colors, temperature limits, types of thinner and pertinent application data for each of the adhesive materials.

**PAINT.** How To Beautify and Protect Concrete, Stucco and Masonry with Medusa Portland Cement Paint and Medusa Rubber Base Coating. Medusa Products Div., Medusa Portland Cement Co., 1000 Midland Bldg., Cleveland 15, Ohio. 6 pp. 8½ x 11 in.

How, why and where to use Medusa Portland Cement Paint on concrete, stucco and masonry surfaces are the subjects of this pamphlet. After a discussion of why its paint protects as well as beautifies, the Medusa Co. outlines seven reasons why the finish saves money. The questions of where to use the paint and how to apply it are then discussed. Closing page briefly describes Medusa Rubber Base Coating, an extremely durable new finish with a thermo-plastic rubber resin base.

**FLOOR MAINTENANCE.** The Tornado Method. Breuer Electric Mfg. Co., 5100 Ravenswood Ave., Chicago, Ill. 30 pp. 8½ x 10¾ in.

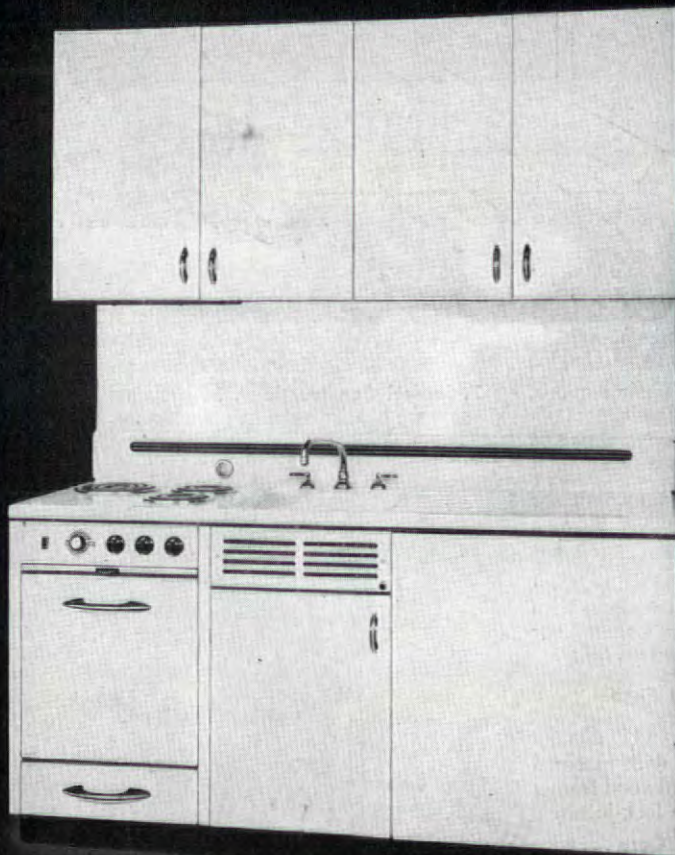
This clear, concise manual on floor care covers in detail practically every problem of plant and institutional floor maintenance. In addition to describing the necessary equipments, it gives specific instructions for the preparation, sealing, finishing and maintenance of many types of floors: wood, asphalt, rubber tile, linoleum, concrete, terrazzo, ceramic tile and marble. Complete data on the various types of Tornado brushes, discs, holders and pads available are given along with instructions for their use. New floor installations receive special attention. Another section offers helpful information on removing stains and shampooing carpets.

**FANS.** The Finest Line For 1949. The Emerson Electric Mfg. Co., 1824 Washington Ave., St. Louis, Mo. 32 pp. 8½ x 11 in.

Emerson-Electric's complete 1949 fan line is reviewed in this catalogue. Descriptions, specifications and performance data are given for the various types of desk and stand fans, air circulators, ceiling fans, (Continued on page 206)

## MURPHY-CABRANETTE KITCHENS

Compact ★ Complete ★ Ready to install



### Durability proven in 25 years of service in rental properties

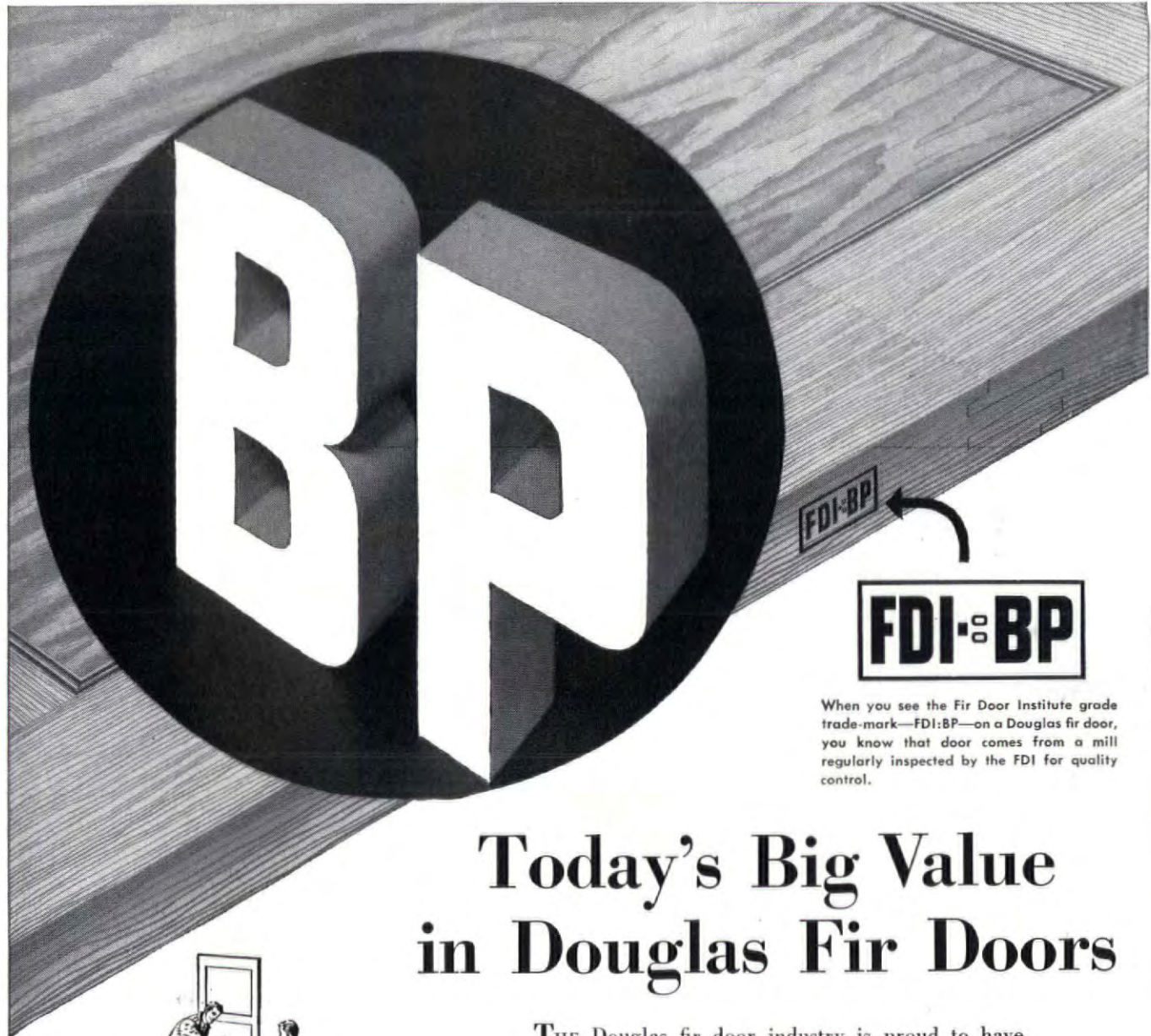
You'll find tenant appeal in the enduring beauty of genuine vitreous porcelain, in the one-piece sink and range top free from dirt-harboring cracks and crevices, in the efficient refrigerator with its smart push-button door and stainless steel frozen food compartment. You'll find durability in the vitreous porcelain surfaces that never require repainting but wash

bright and clean with soap and water. You'll find economy in a refrigerating unit of high efficiency, in a refrigerator with super-insulation, in a gas or electric range of advanced design. These are not mere claims. They are facts... proven by thousands of Murphy-Cabranette Kitchens, some of which have been in active service for over twenty years.

Write for new bulletins.

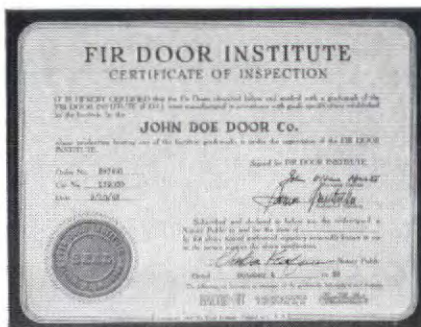
**DWYER PRODUCTS CORPORATION**  
Dept. F5 — MICHIGAN CITY, INDIANA





When you see the Fir Door Institute grade trade-mark—FDI-BP—on a Douglas fir door, you know that door comes from a mill regularly inspected by the FDI for quality control.

## Today's Big Value in Douglas Fir Doors



Mills subject to regular Fir Door Institute inspection are always glad to provide Notarized Certificates to buyers, upon request, showing that doors shipped have been found by the FDI to be up to U. S. Department of Commerce Standards.

THE Douglas fir door industry is proud to have designed, tested and produced the BP door.

This year it expects to again produce this exceptionally fine Interior fir door in quantity—a door ideally suited, and designed, *for paint or enamel finish.*

The Fir Door Institute, in a series of important laboratory tests, found this Multiple-Piece Stile (Finger-Jointed) door:

1. Strong and Durable in Construction.
2. Possessing a life span equal to, if not greater than, the life span of a door of One-Piece Stile construction.
3. Having joints so snug and well-manufactured the finished paint job is smooth and unbroken.

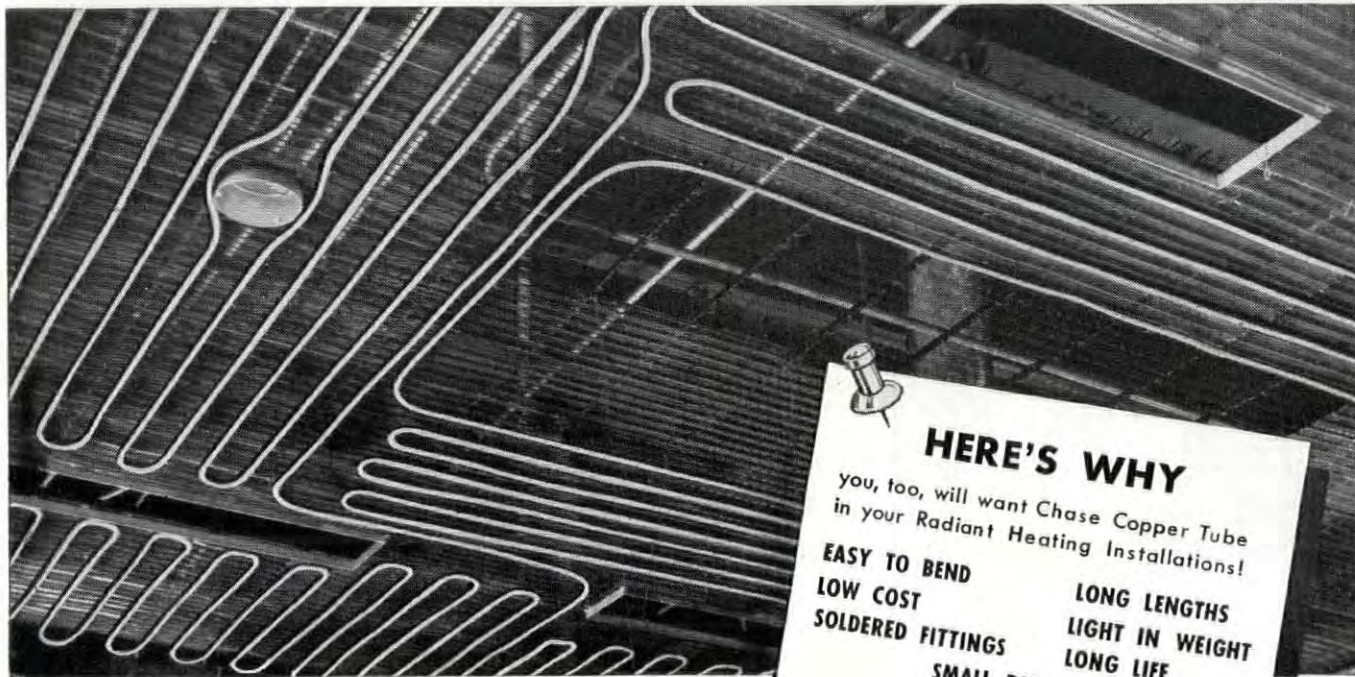
Write now to the Fir Door Institute for your free copy of a booklet showing the results of these laboratory tests.

And, when you specify Interior Douglas fir doors, for paint or enamel finish, *be certain to include the FDI-BP door in your order file.*

**FIR DOOR INSTITUTE**  
Tacoma 2, Washington



# CONTRACTOR INSTALLS CHASE COPPER TUBE RADIANT HEATING IN \$250,000 HOME!

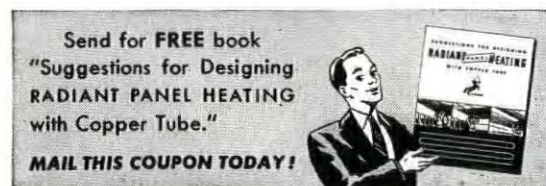


Ceiling installation of Chase Copper Tube for radiant heating in \$250,000 home. Long 60 and 100 ft. lengths of tube eliminate many connections. Heating Contractor: Wm. J. Coombs, Bloomsburg, Pa. Heating Engineer: George Heath, Mechanicsburg, Pa. Architect: D'Entremont & Berninger, Jenkintown, Pa. Building Contractor: Percy Swank, Elysburg, Pa.



**L**IGHT weight . . . small diameter . . . two outstanding reasons why builders of huge homes and small homes use Chase Copper Tube for radiant heating. These facts are important because they make for economy. For instance, no more than the usual amount of plaster is needed for ceiling installations. Equally important are the long 60 and 100 ft. lengths of Chase Copper Tube which reduce considerably the number of connections.

Flexibility, too, is another advantage—Chase tube is easily bent and shaped by hand. And no fittings are needed at bends! All these Chase Copper Tube advantages, and many more, are worth your investigation. For up-to-the-minute information being distributed throughout the building field, request our new book on radiant heating. Write Dept. AF 59.



**Chase Brass & Copper Co., Dept. AF59  
Waterbury 20, Conn.**

Please forward your book "Suggestions for Designing Radiant Panel Heating with Copper Tube."

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

# Chase

WATERBURY 20 CONNECTICUT

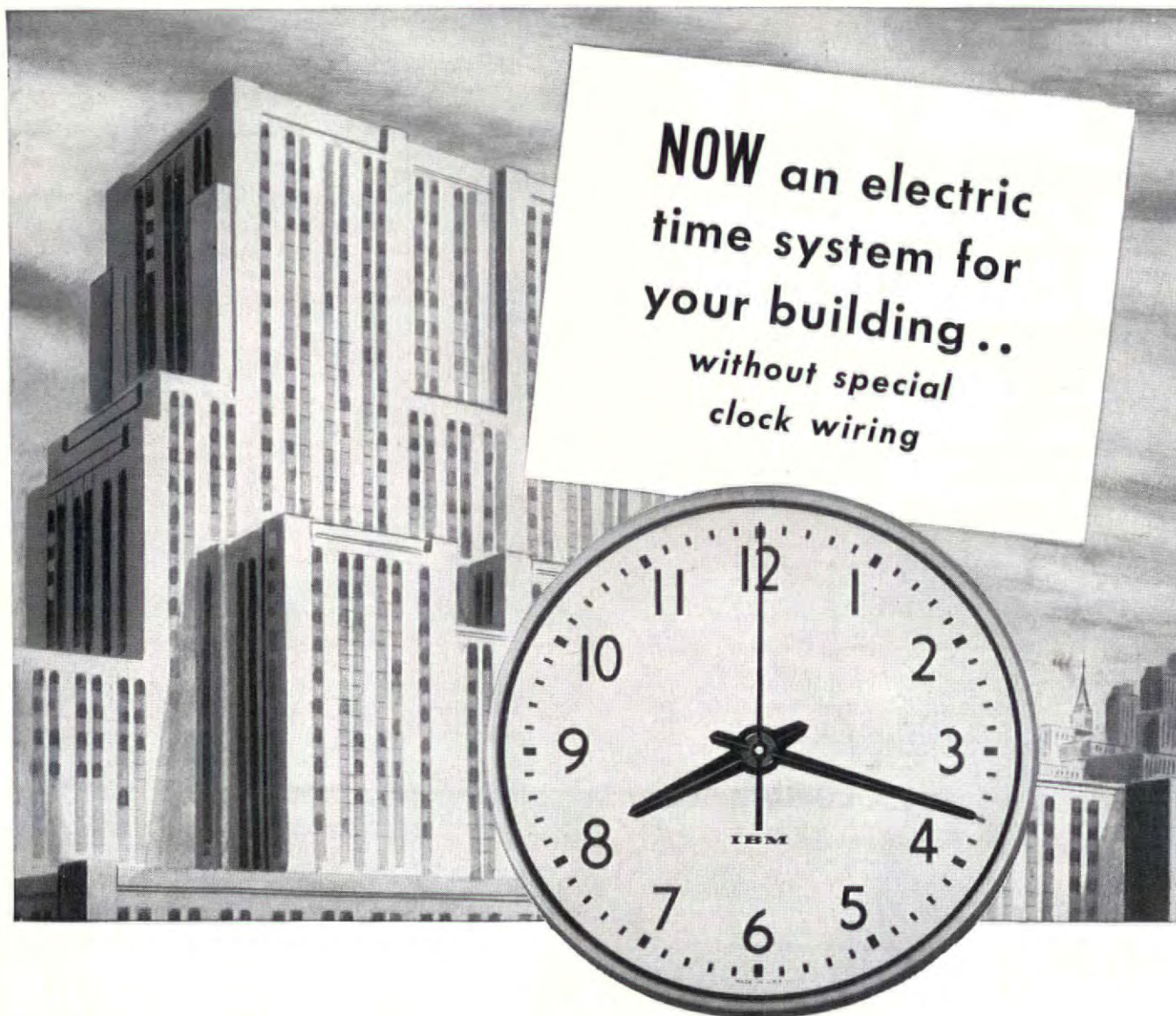
*the Nation's Headquarters for*  
**BRASS & COPPER**

SUBSIDIARY OF KENNECOTT COPPER CORPORATION

THIS IS THE CHASE NETWORK . . . handiest way to buy brass

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Every clock in the building or plant showing the same uniform time to the second; signals ringing in synchronism according to any schedule; time recorders and time stamps uniform with system time—this is the new IBM Electric Time System with Electronic Self-regulation.

This is the great advance in time control which utilizes electronic principles. Clocks are merely connected to the nearest 60-cycle AC current, and are self-regulated

continuously and automatically day after day, year after year, **WITHOUT SPECIAL CLOCK WIRING.**

The same time on every clock, on every signal, on every recorder—a real contribution to efficient coordination in your office building, school, hospital, plant, or hotel.

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**IBM**

**TIME RECORDERS AND ELECTRIC TIME SYSTEMS**

Proof Machines • Electric Punched Card Accounting Machines  
and Service Bureau Facilities • Electric Typewriters

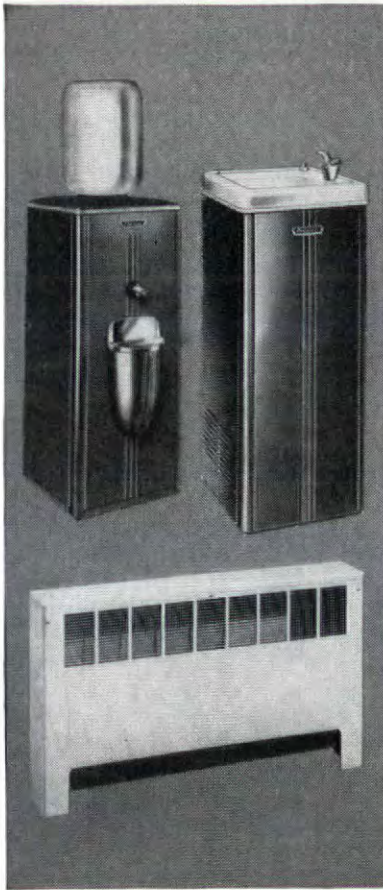
International Business Machines Corporation, World Headquarters Building, 590 Madison Avenue, New York 22, N. Y.



## TECHNICAL LITERATURE

# Announcing

# fedders



### ELECTRIC WATER COOLERS

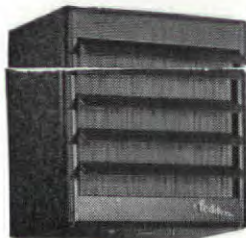
● Backed by 17 years experience, Fedders Electric Water Coolers are designed for use with bottled water and for connecting to city water lines. Handsome cabinet, sanitary construction, quiet operation, compact size, — make them ideal for every installation. Write for data.

### CONVECTOR RADIATORS

● Available in complete lines for semi-recessed, wall hung, and free-standing installations. High efficiency heating element with copper tubes and aluminum fins assures maximum heat transfer efficiency. Beautifully styled cabinets harmonize with modern decorative schemes. Ask for catalog.

#### Also:

ROOM AIR CONDITIONERS  
Window and Console Models  
UNIT COOLERS  
REFRIGERATION CONDENSERS  
CLIP-ON SUPERHEAT  
THERMOMETERS  
AUTOMOBILE RADIATORS  
CAR HEATER CORES



*Manufactured by Builders  
of Fedders Unit Heaters*

● Thousands of industrial and commercial users depend on Fedders Horizontal and Down-blow Unit Heaters. Design features include rugged cabinet, non-ferrous heating elements, full protection against expansion strains, modern broad blade fans and resilient motor mountings. Built in a complete line of well-graduated capacities. Write for catalog.



**FEDDERS-QUIGAN**  
CORPORATION  
BUFFALO 7, N. Y.

kitchen ventilators, exhaust, and attic and window fans. Also included is detailed dimensional information on the company's exhaust and ventilating fans and accessories.

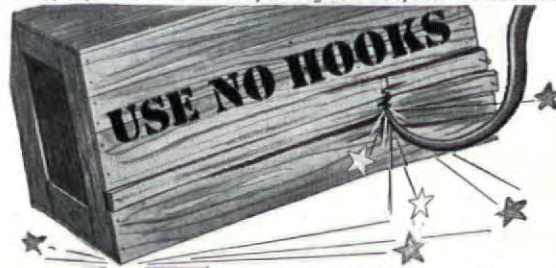
**LIGHTING.** Lighting By Holdenline. Holdenline Co., 2300 Scranton Road, Cleveland 13, Ohio. 8 pp. 8 1/2 x 11 in.

Eleven Holdenline fluorescent fixtures are featured in this pamphlet. Among these are the Arrowhead commercial fluorescent fixture incorporating an all-plastic louver, and the recently introduced semi-industrial fixture, Model CED-80. This unit is designed to serve interchangeably in office or shop. Other sections illustrate and describe various industrial models; industrial and commercial accessories, types of mountings and hanging information.

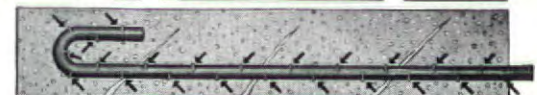
**LIGHTING.** Trends In Modern Bank Lighting. Curtis Lighting Inc., 6135 West 65th St., Chicago, Ill. 8 pp. 9 x 12 in.

Directed toward the banking market, this brochure stresses the fact that specific levels of illumination do not constitute a good lighting system. Pointing out that comfort, psychological atmosphere and physical well being are all affected by immediate surroundings, the booklet introduces the idea of appropriate brightness-control lighting. It touches upon the alliance of lighting sources and interior finishes and illustrates pictorially how some leading financial institutions have set about to improve client and employee relations and increase employee efficiency by installing Curtis Lighting low-brightness equipment. Installation examples include the First National Bank of Chicago and the Chase National Bank of New York. (Continued on page 210)

*The fifth of a series in the interest of more efficient use of steel... a vital American resource.*



### ON BOXES or REINFORCING BARS!



Old style reinforcing, with localized anchorage — conducive to widely spaced open cracks.



Laclede Multi-Rib Bars adequately transmit stresses to concrete by uniformly distributed anchorage. Small, closely spaced cracks do not open under load.

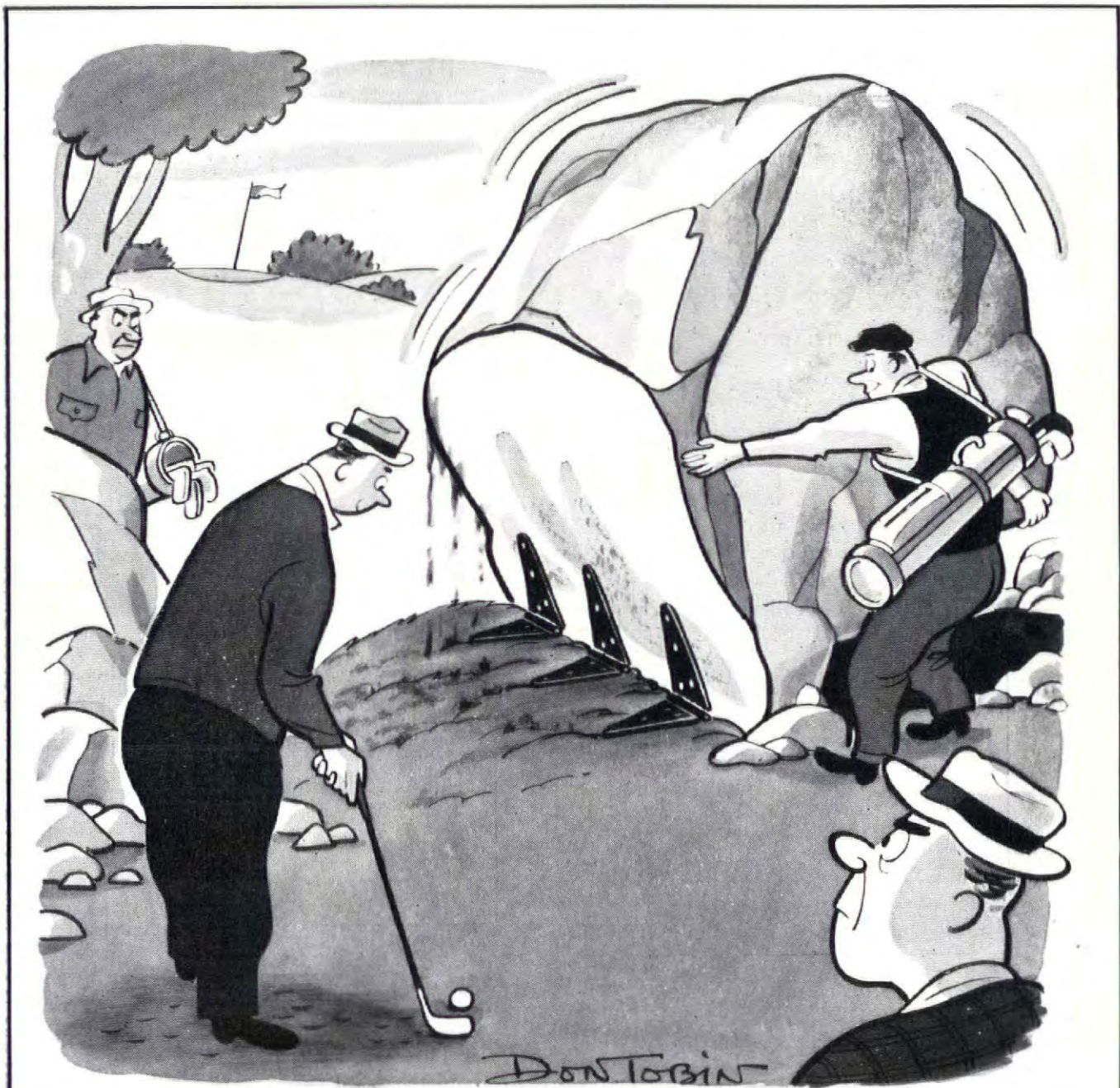
The hook, which has been the symbol of bond strength in 30 year old codes has been succeeded by the balanced design of reinforcing bar deformations specified in ASTM Specification A 305-47 T. The balanced design and distributed strength of Laclede Multi-Rib Reinforcing Bars meet these new requirements—assure a more efficient use of steel and a better job!



Modernize your specifications—with ASTM  
A 305-47 T and Laclede Multi-Rib Bars!

**LACLEDE STEEL COMPANY**  
St. Louis, Mo.





DON TOBIN  
FAMOUS SATURDAY EVENING POST  
AND COLLIER'S CARTOONIST

"You can't stymie Julius...  
He knows that

*Everything Hinges on Hager!"*



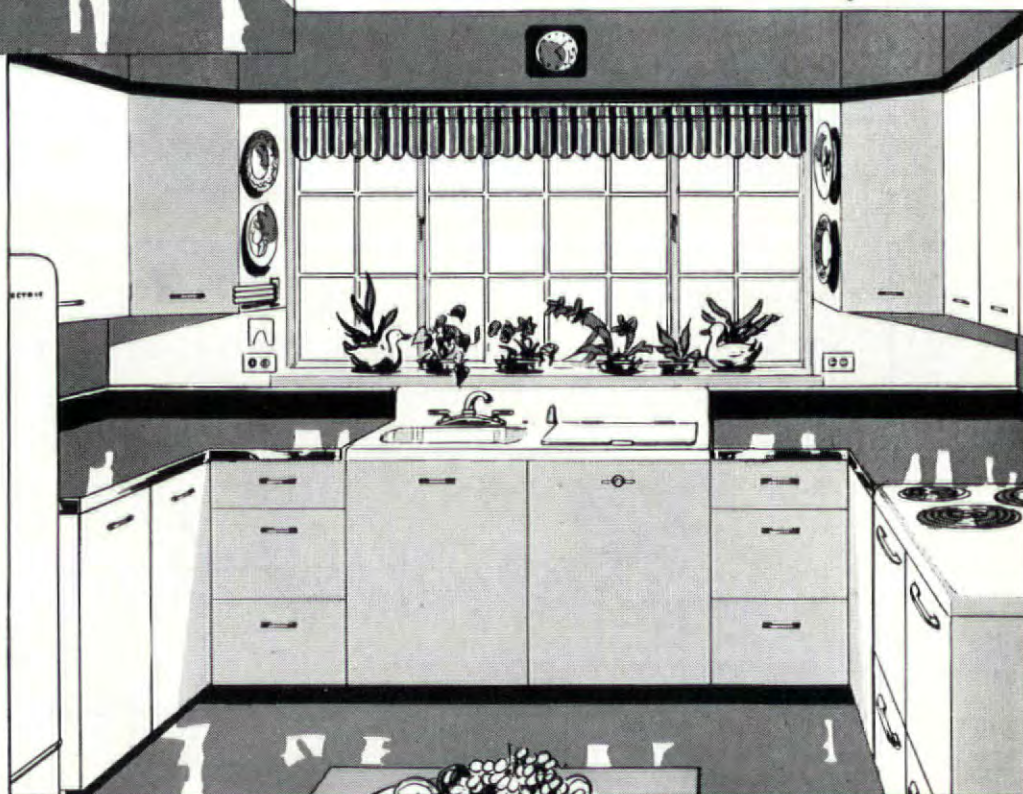
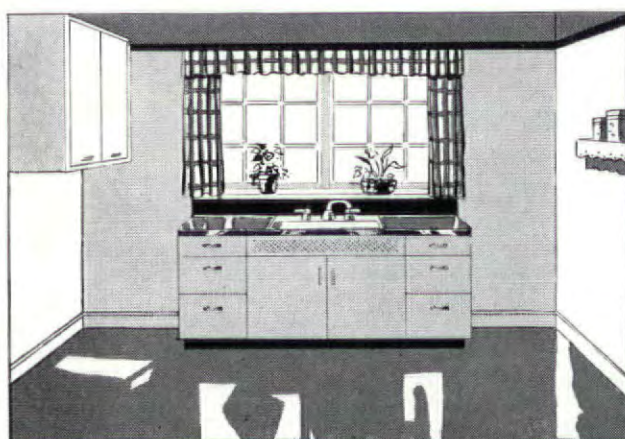
**C. HAGER & SONS HINGE MFG. CO. • St. Louis, Mo.**

FOUNDED 1849 — EVERY HAGER HINGE SWINGS ON 100 YEARS OF EXPERIENCE



**“General Electric Equipped” VS**

**WHICH SIDE ARE YOU  
BETTING ON?**





# "Bare-Kitchen" Houses

**Bare-kitchen home building  
is already down for the knockout count!**

**Count 1:** No house is truly up-to-date without a General Electric equipped kitchen-laundry!

**Count 2:** Thousands of home-hunters are enjoying the time-saving, worksaving, moneysaving advantages of a General Electric equipped home. Thousands more are learning to insist upon General Electric kitchens—in big *and* small homes!

**Count 3:** General Electric appliances help sell homes *faster!*

**Count 4:** General Electric equipped homes *stay sold!* The buyer doesn't have to load himself down with short-term payments on kitchen equipment. So he's better able to keep up payments on the house.

**Count 5:** General Electric equipped homes are within everybody's reach—under the "packaged mortgage" plan. The price of the kitchen-laundry is *part* of the price of the house. Paying is easier—because the cost is stretched out over *years* instead of *months*—just by adding a few extra dollars a month to the home mortgage!

**Count 6:** Economical General Electric appliances often help the homeowner make up this slight extra payment in operating *savings!* A wonderful extra selling point for the "packaged mortgage!"

**Count 7:** People prefer General Electric appliances. In a recent survey, *51 per cent of the men and 53 per cent of the women said they prefer General Electric appliances!*

**Count 8:** General Electric equipped kitchen-laundries in your present project will make your *next* project easier to sell!

**Count 9:** General Electric equipped homes cost you *nothing extra!*

**Count 10:** General Electric's Home Bureau can help you with planning, promotion, *selling!*

## **Get on the winning side**

Act *today* to include General Electric equipment in the next homes and projects you build.



## **GENERAL ELECTRIC HOME BUREAU SUCCESS STORY OF THE MONTH**

**W. H. Weaver, Greensboro, N. C.,** builder, *always* includes General Electric equipment in his houses. He says:

"My last 187 houses were rented *prior* to completion. My tenants enjoy dependable, economical and efficient G-E appliances. *That helps rent my houses faster!*"

Make *your* next project a *fast-selling* success! Let Home Bureau help—from foundation to sales campaign!

Write to the General Electric Home Bureau, Appliance and Merchandise Department, General Electric Company, Bridgeport 2, Connecticut.

**You can put your confidence in —**

**GENERAL**  **ELECTRIC**



## TECHNICAL LITERATURE



TYPE H MIXER for Concealed Piping. Dial diam. 6". Mixer for exposed piping has 3 1/4" dial.

**SAFEST  
SHOWER MIXER MADE**

**ONLY ONE MOVING PART**



### Thermostatic SHOWER MIXERS

are SAFE against scalding caused by

**1 PRESSURE or 2 TEMPERATURE**

fluctuations in water supply lines

Shower temperature remains constant wherever set. They're modern, really safe and non-scald. For new installations or when modernizing obsolete showers use POWERS mixers. Get Circular H48. 2720 Greenview Avenue, Chicago 14, Illinois.

**THE POWERS REGULATOR CO.**

**LIGHTING.** The Fleur-O-Lier Index System. Fleur-O-Lier Manufacturers, 2116 Keith Building, Cleveland, Ohio. 30 pp. 8 1/2 x 11 in.

This booklet introduces and explains the new Fleur-O-Lier Index System for specifying a desired lighting performance and for rating fluorescent lighting fixtures. Of special interest to specifiers of lighting as well as fixture manufacturers, the system provides a simple, exact and standardized formula which the specification writer may use to express the illumination characteristics he seeks to obtain. It also serves as a method of fixture identification on the lighting performance of a particular fixture. In effect, the system is a code employing letters and numbers to express and evaluate five aspects of fixture performance: fixture classification (light distribution), crosswise shielding, lengthwise shielding, brightness in shielded zone and service classification (type of mounting).

**LIGHTING FIXTURE.** The New Dramalite by Century. Century Lighting, Inc., 419 W. 55th St., New York 19, N. Y. 4 pp. 8 1/2 x 11 in.

Century's newly designed Dramalite is graphically presented in this folder. The inexpensive swivel type fixture, practical for both commercial and residential application, is illustrated in full size together with its various mounting arrangements. Brief text lists its features and prices, which range from a low of \$8.50 to a high of \$11.50.

**FLUORESCENT LAMP BALLASTS.** Catalogue GET 922-B. Apparatus Department, General Electric Co., Schenectady, N. Y. 20 pp. 8 1/2 x 11 in.

This new bulletin gives complete information on the installation, operation and testing (Continued on page 214)



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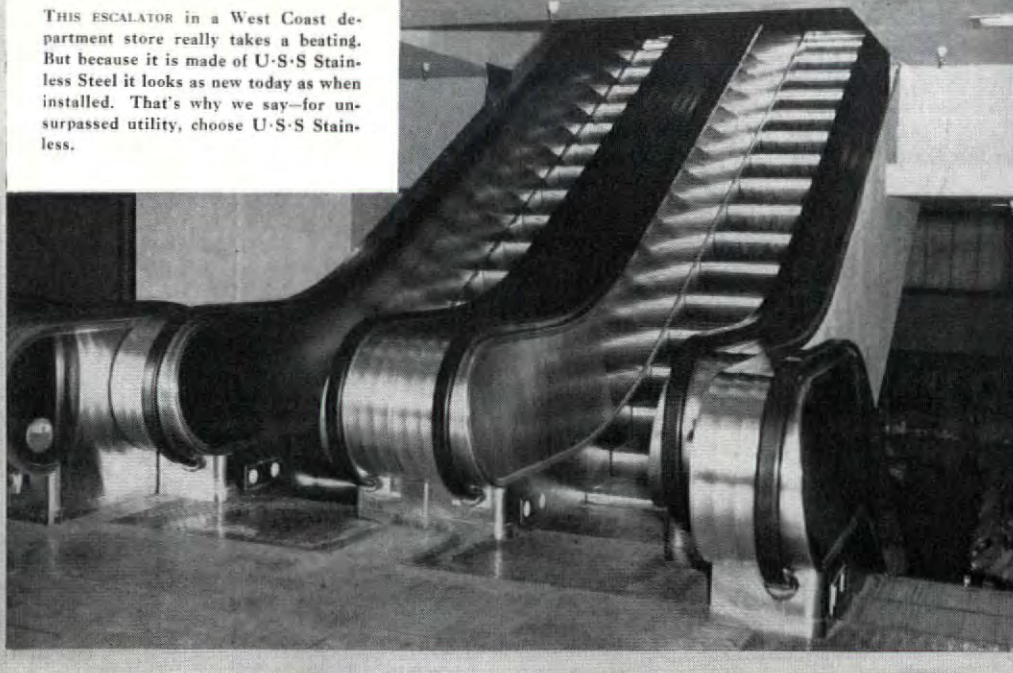
For these and similar applications, U·S·S 18-8 Stainless Steel—a perfected, service-tested Stainless—is available in the widest variety of commercial shapes, forms, and sections, and in the standard finishes used for architectural purposes.

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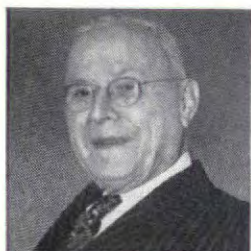
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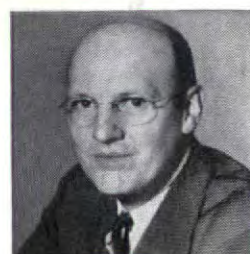
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## TECHNICAL LITERATURE

### WHY *Bennett Bilt* FLUORESCENT LIGHTED MEDICINE CABINETS



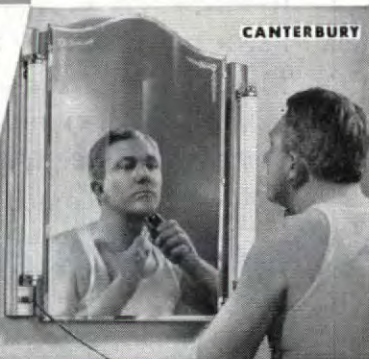
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of G.E. ballasts for fluorescent lamps. The various types of fluorescent lamps and starter switches are discussed first. Subsequent sections cover inductive and inductive-capacitive ballasts and inductive starting ballasts for DC lamp operation. Tables of ratings, test data, wiring diagrams and complete instructions and procedures for testing ballasts are also included.

**STUD WELDING.** Nelson Stud Welding. Nelson Stud Welding Div., Morton Gregory Corp., Toledo Ave. & E. 28th st., Lorain, Ohio. 8 pp. 8½ x 11 in.

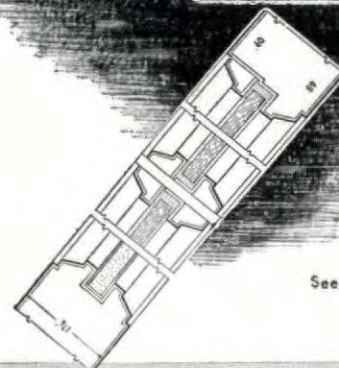
In this publication 24 picture paragraphs depict a variety of stud welding applications using the Nelson Stud Welding Gun. This method of fastening, an outgrowth of World War II, is an electric arc welding process developed to end-weld studs and other fasteners to steel surfaces. Quick and accurate, it is widely used by the construction industry because it eliminates such time-consumers as drilling, tapping and hand welding. Among the stud welding applications featured in the work are brief sections illustrating the fastening of corrugated metal and asbestos roofing and siding, asbestos-cement insulated sheathing, sprinkler systems and pipes, insulation and furring. Other pages describe the fastening method, its operation and advantages, and necessary Nelson equipment.

**BENDING TOOL.** Form-Bar Bender. Winfield R. Scott, 234 South 11th St., Newark, N. J. 12 pp. 8½ x 11 in.

A new portable tool for doing bar bending jobs is featured in this folder. The advantages and uses of Form-Bar Bender, name of the new product, and how it operates are fully described and amplified with photographs.

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**WATERPLUG**, Nonmetallic, nonshrink, hydraulic cement to prevent corrosion and water from entering at vital points. Points A-1, 2, 3 on accompanying chart.

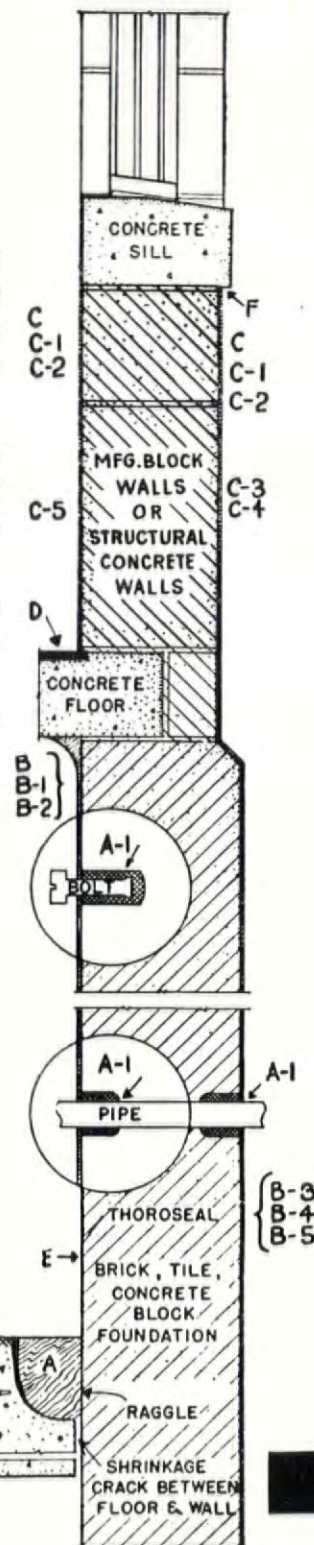
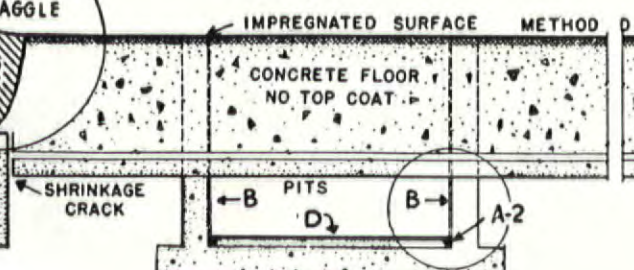
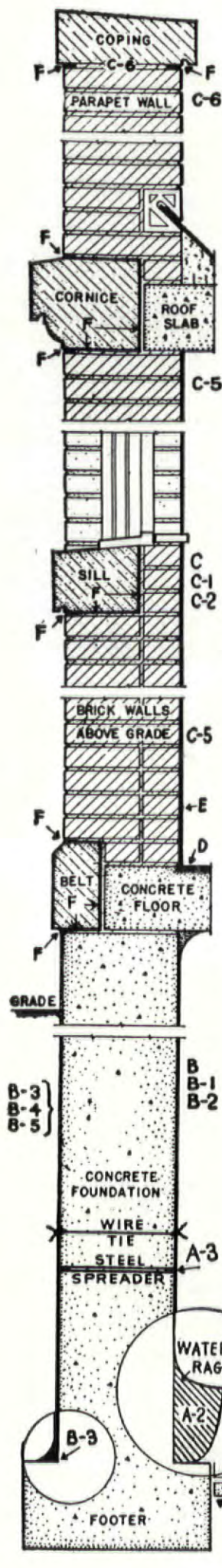
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The advertising pages of FORUM are the recognized market place for those engaged in building. A house or any building could be built completely of products advertised in THE FORUM. While it is not possible to certify building products, it is possible to open these pages only to those manufacturers whose reputation merits confidence. This THE FORUM does.

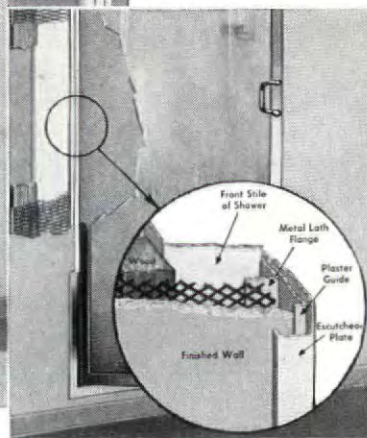
Shower Cabinets designed for...

Modern bathrooms  
by... **FIAT**



Cadet Built-In Model No. 19-B.

Cutaway view showing metal lath and plaster construction.



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The Built-In Cadet design No. 19-B, for example, has construction features that enable the builder to completely recess the cabinet and to extend the plaster and tile right up to the door frame which has special flanges to receive metal lath and plaster coats.

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This recessed Cadet shower cabinet is simple to install and is the only shower cabinet available today that has these special built-in construction features.

Other Fiat shower cabinets now available with prompt delivery are the Commodore 2000-C, Admiral, Ensign, Cadet Corner Type, Cadet 17-R, Skipper and Plebe. See description with specifications of these showers in Sweet's Architectural File, section 246/1 and Building File, section 6a/6 or write for catalog.

**FIAT**

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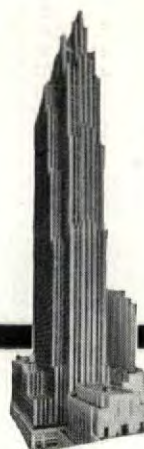
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## DUNHAM DIFFERENTIAL HEATING *cuts fuel costs up to 40%*

**Provides Unsurpassed comfort year 'round . . . in any climate**

Imagine designing a heating system that automatically gives your clients the precise amount of heat they want . . . throughout the day and throughout the season . . . at fuel savings that run as high as 40%!

Dunham Vari-Vac\* Differential Heating is such a system. Utilizing a continuous flow of steam, at temperatures that vary with the weather and the needs of the building occupants, it insures maximum comfort; pays for itself in fuel dollars that formerly went up the flue or out the window.

**Job-scaled to  
any size installation or budget**

Once restricted to large structures, like Rockefeller Center in New York and the United Exchange Building in Seattle, this remarkable

heating system is now available to everyone. For, recently, Dunham engineers have perfected methods of job-scaling Vari-Vac to fit *any* requirements, from Deluxe installations down to Basic jobs.

Now, regardless of the size of the building you're planning, you can give its future occupants the advantages of greater comfort at less cost — by specifying a Dunham Vari-Vac Heating System.

### **FREE BOOKLET TELLS ALL**

Bulletin 509, just published, gives you complete information on "Job-scaled" Vari-Vac Heating; tells you what it is, how it operates, how it may be fitted exactly to your clients' needs. Send for your copy today: C. A. Dunham Co., 400 W. Madison St., Chicago 6, Ill.



*\*Variable Vacuum*

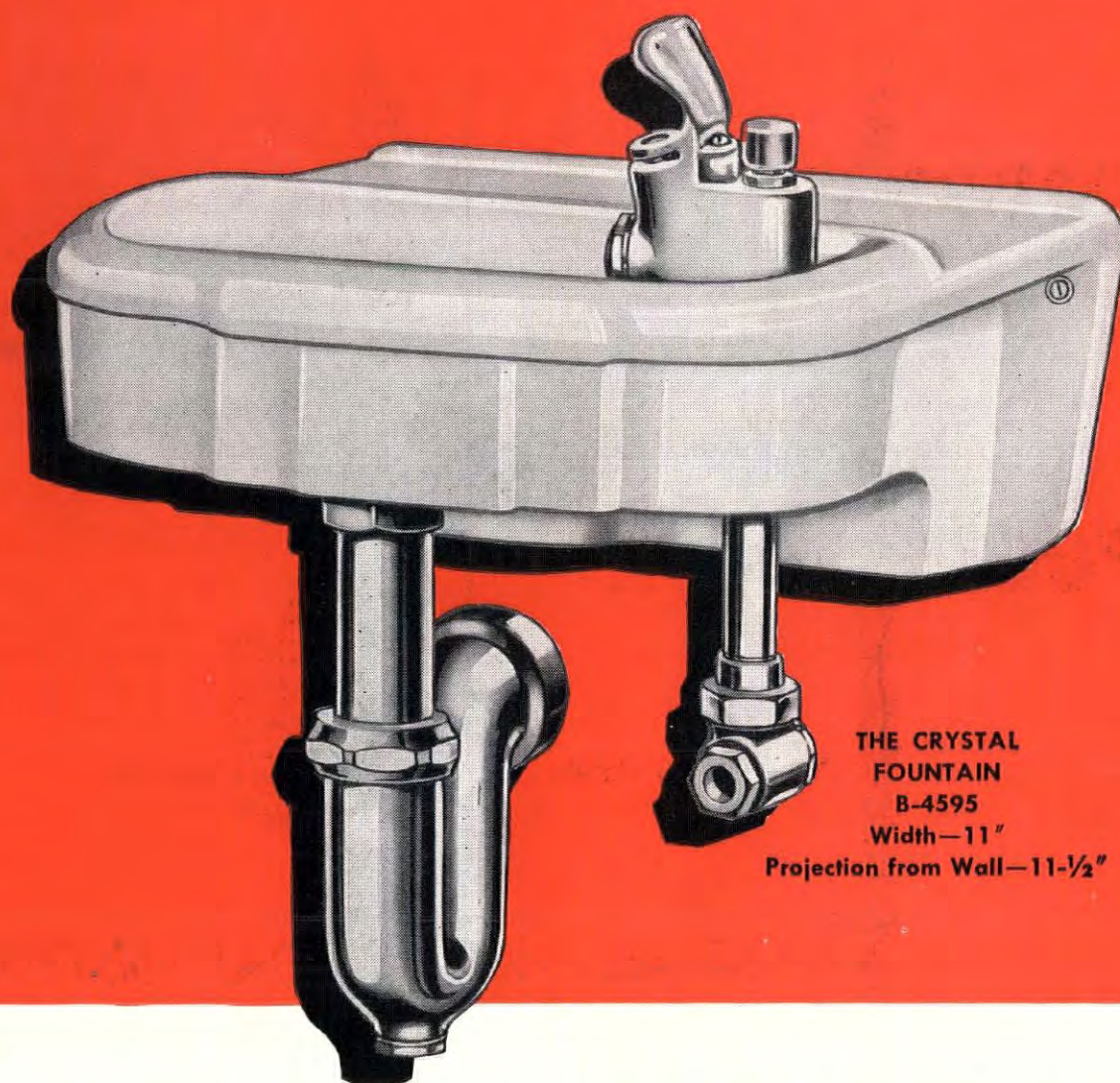
**CABINET CONVECTORS  
TRAPS**



**HEATING MEANS BETTER HEATING**

**BASEBOARD RADIATION, UNIT HEATERS  
VALVES, PUMPS**





THE CRYSTAL  
FOUNTAIN  
B-4595  
Width—11"  
Projection from Wall—11-1/2"

## Thirsty People Mean Business for You

When planning, building or remodeling practically every type of structure, you can wisely recommend Eljer Crystal Drinking Fountains. Quality is high, but the price is low.

Made of *real vitreous china*, the Crystal Fountain is easy to clean and keep clean. Fittings are chrome-plated, featuring a trouble-free strainer, sanitary bubbler, and a completely automatic regulator that maintains a steady stream height—regardless of

variations in supply pressure. Water cannot be squirted by placing a finger over the nozzle. That is a real plus-value in schools and public buildings.

Wherever it would be convenient to have a sanitary source of refreshing water, suggest the Eljer Crystal. No other fountain, in a comparative price range, equals Eljer's fast-selling Crystal. *For complete information, see your Eljer Distributor or write: Eljer Co., Ford City, Pennsylvania.*

*It pays you, it pays us—* because we specialize in Plumbing Fixtures and Brass

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# Ready

for instant duty at all times . . .

● Users of The "OVERHEAD DOOR" with the Miracle Wedge are assured perfect performance year in and year out. Durability of tracks, hardware, and all working parts qualifies the door for the most rugged service. Weathertight closure affords added protection for costly equipment which must be kept in good working condition. This door adds to the appearance of any structure — industrial, commercial or residential — and increases its usefulness. Any "OVERHEAD DOOR" may be manually or electrically operated.



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