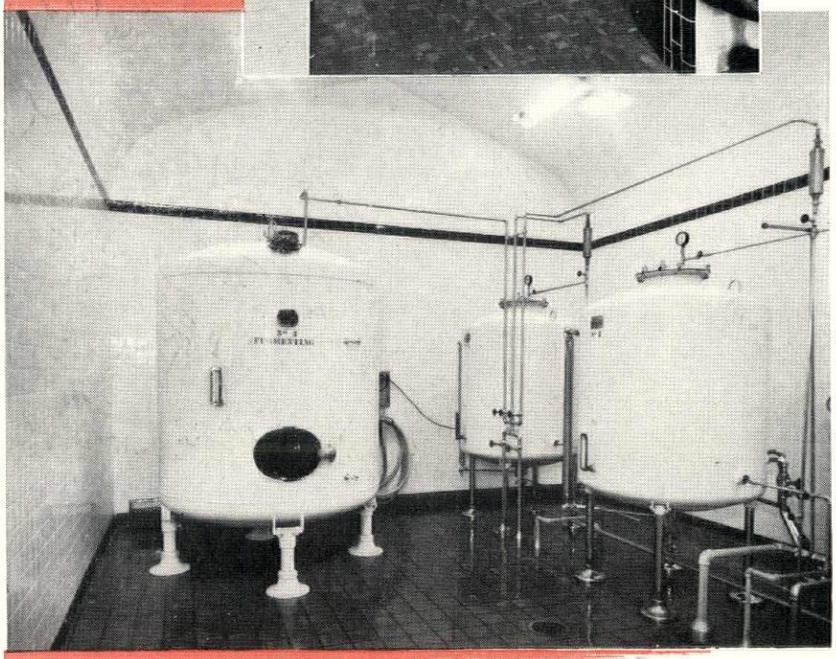
OVEMBER 1949

ARCHITECTURAL forum

MAGAZINE OF BUILDING

Right in so many places in so many ways

AT HOME—
easy to live with



IN INDUSTRY—
easy to work with

COLOR-BALANCED *Suntile*

You'll *know* you're "right," from start to finish, when you choose interiors of color-balanced Suntile.

This *real clay* tile is made "right" and installed "right."

Every step of Suntile's manufacture is carefully quality-controlled for excellence in form and finish. And Suntile follows through with installation by a professional expert—a man selected and trained to do a job you'll both be proud of—your Authorized Suntile Dealer.

Most important to you, Suntile is "right" for your clients.

With Suntile you provide an interior of outstanding beauty; fadeless, *color-balanced* beauty. Your choice in the selection of harmonious blends is almost limitless.

Your choice will be "right" for permanence and easy, low cost maintenance, too.

Suntile bonds strongly. It won't chip, crack or scratch. It lasts! There's never any scrubbing or refinishing with impervious Suntile—a damp cloth or plain soap and water will keep it like new. Year after year your client will enjoy freedom from painting, redecorating and replacement expense.

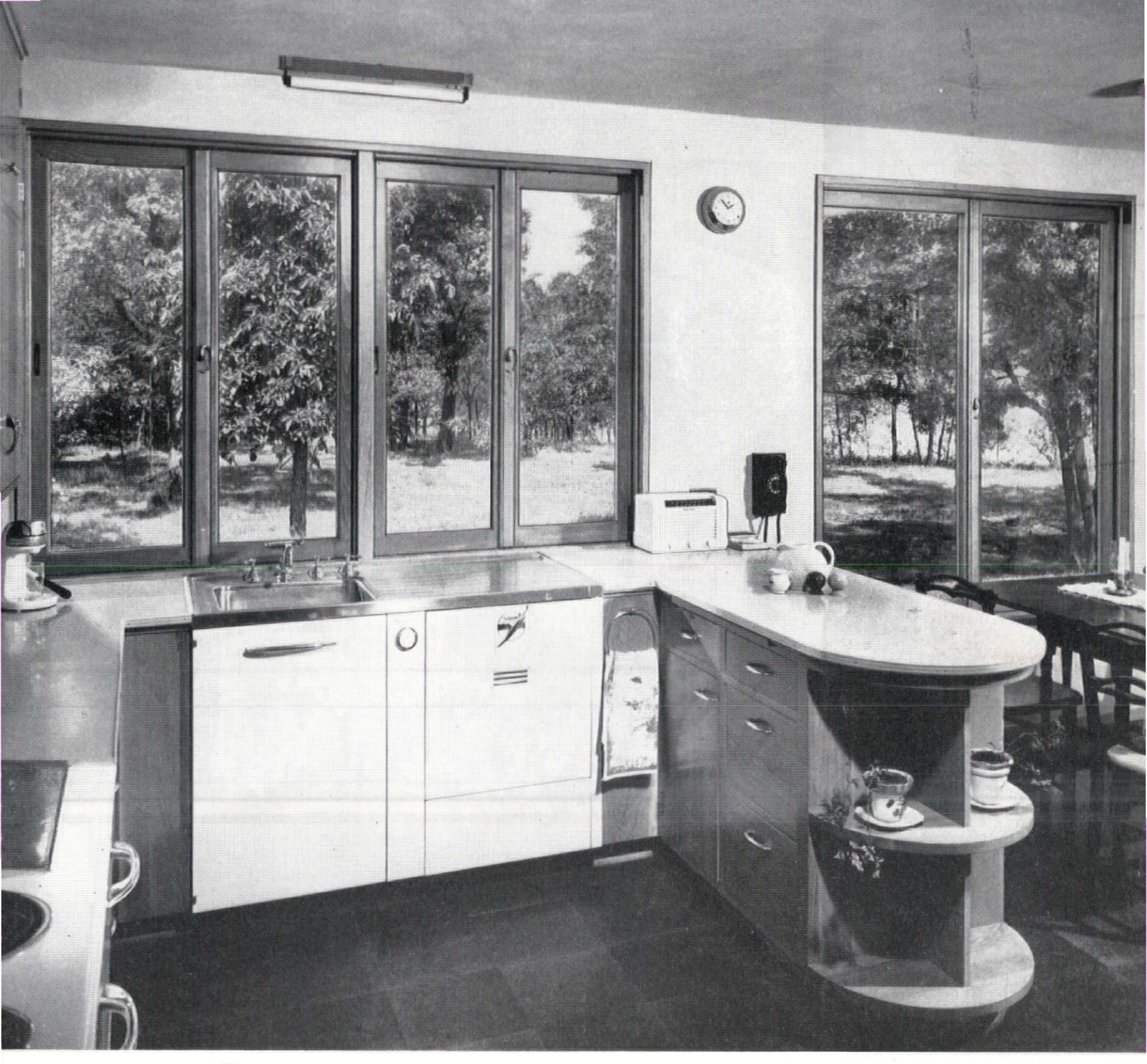
Let us send you the name of your Authorized Suntile Dealer. He has real clay Suntile in 23 wall colors. In addition he can show you impervious unglazed ceramic mosaic Suntile in 20 colors—and Suntile Camargos in 10 colors—in modular sizes. For your dealer's name and latest literature, just write us at Dept. AF-11.

See Sweet's Catalog for more complete information. The Cambridge Tile Manufacturing Company, Cincinnati 15, Ohio.

Color Balanced **Suntile**

Bright with color · Right for life

SUNTILE OFFERS YOU BOTH: BETTER TILE--BETTER INSTALLATION



ANDERSEN *Windowalls**

SPACIOUSNESS in this kitchen and breakfast room combination is brilliantly achieved through the liberal use of ANDERSEN WINDOWALLS.

These are Andersen Gliding Window Units that perform the functions of both windows and walls—framing a view, admitting fresh air and sunlight, creating a feeling of spaciousness and walling off the cold weather that assails this home nearly half the year.

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

The new Andersen WINDOWALL *Tracing Detail File will be sent at no charge to architects and designers making request for it.*

Andersen Corporation

BAYPORT • MINNESOTA

Everybody likes it!

New Bruce Ranch Plank Floor wins praise of Architects and Interior Decorators

Bertram A. Weber, Chicago Architect, says: "The new Bruce Ranch Plank Floor impresses me as being very beautiful and practical. I consider it suitable for both traditional and modern architectural types. The interesting informality of this floor, with its random widths and walnut pegs, is particularly good for rambling ranch-type homes."

Elizabeth Whitney, Chicago Decorator, says: "Decoratively speaking, the Ranch Plank Floor is a real 'find' for both traditional and modern interiors. The random widths make it especially suitable for all Colonial and Provincial styles. In modern rooms, the oak grain and walnut pegs contrast delightfully with plain-textured fabrics and the clean-cut lines of contemporary furniture."

Bruce Ranch Plank Floor

Solid oak with walnut pegs • Alternate 2¼" and 3¼" widths • New "Decorator" Finish

A distinctive floor at moderate cost

This new floor has style and glamour, along with all the natural, colorful beauty of oak. With alternate 2¼" and 3¼" widths and walnut pegs, a Ranch Plank Floor gives an effect similar to expensive random-width plank floors. It has traditional charm with a fresh, modern appearance. Yet this floor is inexpensive . . . in fact, costs little more than an ordinary strip floor and is just as easily installed. Mail coupon at right for literature with photographs in color. E. L. BRUCE CO., MEMPHIS 1, TENN.

Mail this coupon for data file

BRUCE

E. L. BRUCE CO.
MEMPHIS 1, TENN.

Send complete information on the new Bruce Ranch Plank Floor to:

Name _____

Address _____

City & State _____

ARCHITECTURAL **forum** NOVEMBER 1949

MAGAZINE OF BUILDING

Published by TIME Incorporated

EDITOR-IN-CHIEF.....Henry R. Luce
PRESIDENT.....Roy E. Larsen
EDITORIAL DIRECTOR.....John Shaw Billings

Architectural FORUM

EDITOR AND PUBLISHER
P. I. Prentice

EXECUTIVE EDITOR
Joseph C. Hazen, Jr.

ARCHITECTURAL EDITOR
Douglas Haskell

ART DIRECTOR
Paul Grotz

ASSOCIATES: Eleanor Bittermann (Research), Louise Cooper, Sighle Kennedy, George Koether, Walter McQuade, Harry J. Middleton, Mary McClure Sanders, Richard Saunders (Washington), Chloethiel Woodward Smith (South America), Madelaine Thatcher.

ASSISTANTS: Rosalind Klein Berlin, Wilson Dizard, Linn Ericson, Marilyn Grayboff, Mary Jane Lightbown, Alice O'Connor, Nina Rabinowitz, Amnon Rubinstein.

CONSULTANTS: Miles L. Colean, Ruth Goodhue, Henry Wright.

GENERAL MANAGER: Robert W. Chasteney, Jr.

MARKET RESEARCH DIRECTOR: Arthur S. Goldman.

CIRCULATION MANAGER: Walter F. Grueninger.

PRODUCTION MANAGER: Lawrence W. Mester.

ADVERTISING DIRECTOR
GEORGE P. SHUTT

The Architectural FORUM is published monthly by TIME Inc., 350 Fifth Ave., N. Y. 1, N. Y. Subscriptions may be sent to 540 North Michigan Avenue, Chicago 11, Ill. Address all editorial correspondence to 350 Fifth Ave., N. Y. 1, N. Y. Yearly subscription payable in advance. To Firms and Government departments, their supervisory employes and design staffs, engaged in Building—construction, design, finance, real estate ownership or management, materials distribution and professional instructors and students: USA, Possessions and Canada, $5.50; Pan American Union and the Philippines, $9.00; Overseas countries, $12.00. To those not connected with the Building Industry: USA, $11.00. Foreign, $17.50. Single copies, if available, (except Reference Numbers), $1.00. Reference Numbers, $2.00. All copies mailed flat. Copyright under International Copyright Convention. All rights reserved under the Pan American Copyright Convention. Entered as Second Class Matter July 17, 1944 at the Post Office at New York, N. Y., under the act of March 3, 1879. Copyright 1949 by TIME Inc.

TIME INC. also publishes TIME, LIFE and FORTUNE. Chairman, Maurice T. Moore; President, Roy E. Larsen; Executive Vice President and Treasurer, Charles L. Stillman; Executive Vice President for Publishing, Howard Black; Vice Presidents, Allen Grover, Andrew Heiskell, C. D. Jackson, J. A. Linen, P. I. Prentice; Vice President and Secretary, D. W. Brumbaugh; Comptroller and Assistant Secretary, A. W. Carlson; Circulation Director, F. DeW. Pratt; Producer, THE MARCH OF TIME, Richard de Rochemont.

VOLUME 91, NUMBER 5

NEWS 9

LETTERS 22

BEHIND THE BLUEPRINTS 52

PITTSBURGH RENASCENT 59
The biggest real estate and building story in the U. S. is set against a background of flood and smoke control, traffic and parking improvement and renewed civic interest.

PITTSBURGH'S "ROCKEFELLER CENTER" 62
On the point of the Golden Triangle, Equitable Life replaces a slum with nine cross-shaped office buildings in a park.

PITTSBURGH'S MELLON-U. S. STEEL BUILDING 66
In the heart of the city, a stylish, 39-story skyscraper of limestone and stainless steel by Architects Harrison & Abramovitz.

PITTSBURGH'S ALCOA BUILDING 68
Opposite a block-square park, another skyscraper by Harrison & Abramovitz—a versatile utilization of aluminum.

PITTSBURGH'S PARKING GARAGES 70
The only parking authority in the U. S. produces a master plan and implements it with new garage designs.

PITTSBURGH'S OPEN-AIR AMPHITHEATER 72
In case of rain, a roof unfolds to protect 9,000 people and $10,000 gate receipts—a new invention by Architects Mitchell & Richey.

HOUSES 74
A deft exposition in glass and steel by Designer Philip Johnson . . . Brickwork par excellence by Architect Paul Beidler . . . New ceiling construction by Merchant Builder Fritz Burns . . . Four demonstrations of a new material by Architects Armand Bartos, William Lescaze and Edward D. Stone.

AIRPORT 90
South Bend's pace-setting administration building is designed by Roy A. Worden to pay its way through ground revenues.

MOVIE THEATERS 95
Expert color-styling by Architect William Lescaze and low cost arched construction by Architect Lewis Wilson distinguish two attempts to bolster sagging movie attendance.

PANEL HEATING SURVEY 100
Owners, designers and builders of some 13,000 installations comment on comfort, costs and the future.

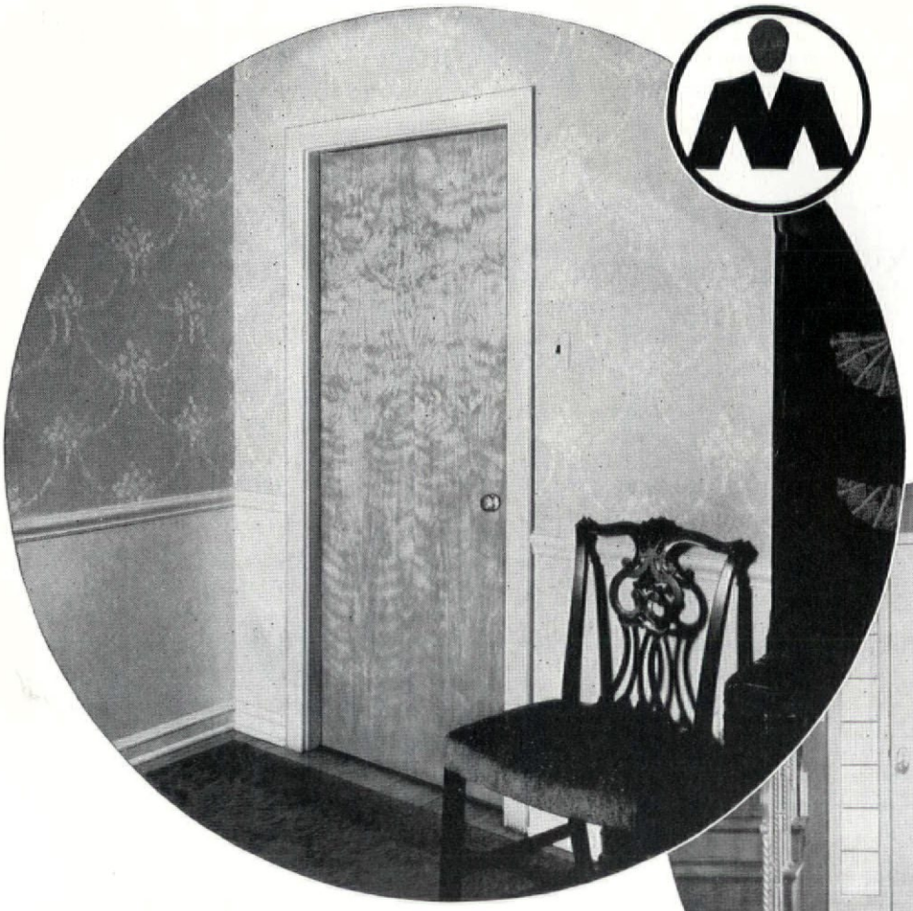
PRODUCTS AND PRACTICE 102
Pivoting windows for air-conditioned buildings . . . vertical blinds for better sun control.

REVIEWS 124

PRODUCT NEWS 144
The regular Building Reporter department with a new name.

TECHNICAL LITERATURE 166

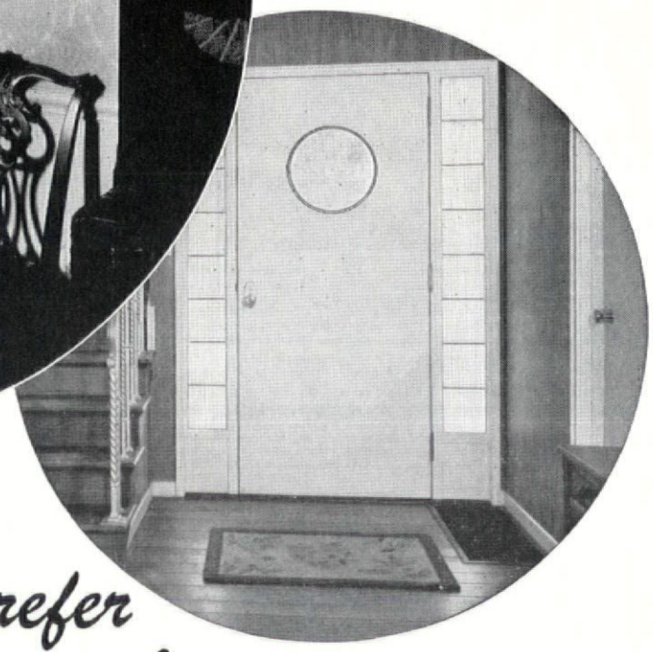
Cover design: Map, Golden Triangle, Pittsburgh, Pa. (p. 59) by Helen Benz Schiavo



HOLLOW-CORE TYPE
embodying the famous, patented "INSULOK" grid core

•

SOLID-CORE TYPE
permanently stabilized by unique slotted core-stock



Know the Facts And You Will Prefer

MENGEL *Flush* DOORS

Mengel Hollow-Core and Stabilized Solid-Core Flush Doors are designed, engineered and exhaustively tested to give *life-time* service. In both types, exclusive Mengel construction and curing processes provide utmost protection against warpage . . . hardwood stiles give maximum screw-holding strength and "take" stain, to match faces perfectly . . . keylock dovetails keep stiles and rails permanently tight . . . hot-press bonding assures virtually *everlasting* satisfaction . . . superfine belt sanding of faces and machine planing of edges reduce installation and finishing costs.

Mengel Flush Doors are the most dependable doors you can specify, *yet volume manufacture in high-efficiency plants permits really competitive prices.*

The coupon below will bring you complete details. Mail it today, and *know* the facts.

THE MENGEL COMPANY
Plywood Division, Dept. AF-4, Louisville 1, Ky.

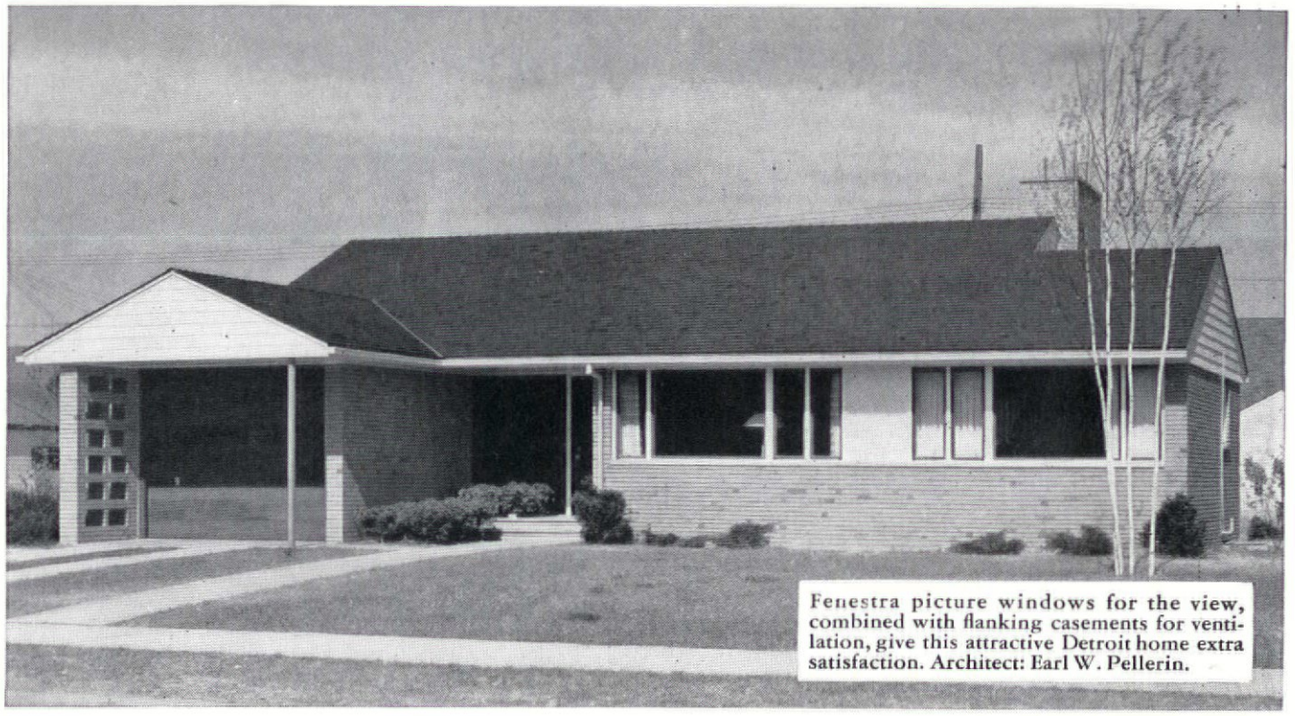
Gentlemen: Please send me a free copy of the complete "A.I.A. File" Data Book on Mengel Flush Doors.

Name_____

Firm_____

Street_____

City_____ State_____



Fenestra picture windows for the view, combined with flanking casements for ventilation, give this attractive Detroit home extra satisfaction. Architect: Earl W. Pellerin.

How to get double-barreled satisfaction ... picture windows with ventilation

Folks want homes with personality. With picture windows to bring inside their favorite view. With flanking casements, too, for cool, fresh air.

You can put that double-barreled satisfaction in your homes . . . economically . . . with beautiful standardized Fenestra* Residence Steel Casements. You save three ways: on first cost, installation cost, maintenance costs.

The sleek, slender lines of these fine windows add a graceful touch to your homes that no ordinary window can duplicate.

And Fenestra Steel Windows are modern tools designed for better living. They're easy to regulate, easy to wash and screen and stormsash from inside.

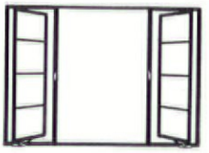
There's a right steel window for every spot, in Fenestra's Residence line—even for such special uses as over the sink or buffet. So put the satisfaction of good daylighting and ventilation into each room . . . with picture windows . . . flanking casements . . . corner windows . . . bays. Everywhere that comfort counts.

See Sweet's Architectural File, Section 16a/13, for complete information on types and sizes. Or write to Detroit Steel Products Company, Department AF-11, 2251 East Grand Boulevard, Detroit 11, Michigan. *®

WHICH IS THE RIGHT WINDOW TO USE?

For maximum economy—Type 2414N. Meets most residential needs. For all general locations. One swing leaf provides 50% opening.

For maximum ventilation—Type 2424. Provides 100% opening. Costs more than Type 2414N because it has two ventilators with Roto-Adjusters.



For maximum view—Type 4424. Picture window, plus ventilation.

Fenestra's many types and sizes provide a *right* window for every need in the home.

Fenestra

RESIDENCE STEEL CASEMENTS

OUR BUSINESS IS IMPROVING YOUR BUSINESS

KEEP POSTED ON YORK PRODUCTS

They are Business Builders and Industry Pace-Setters... thanks to continual York Research and Development.

For instance, York's new packaged air conditioning units for 1950—now available to your clients—contain many unusual and outstanding features such as a completely hermetically-sealed refrigeration system that is tamper-proof and trouble-free . . . the V-shaped Cooling Maze Coil that acts as an air wringer to give greater cooling and dehumidifying capacity *and* the Atmostat which functions as a humidity balancer at all seasons of the year. York has also perfected a complete new line of V/W Compressors in sizes from 30 hp to 150 hp for use with either Freon or Ammonia. It's to your advantage and your clients' to keep posted on these important York developments.

"See Your Architect, Engineer, Contractor First"

That's standard York Policy. Knowing that owner satisfaction is important, York asks you to consider this up-to-date policy in the light of the advantages inherent in *all* York Equipment. Behind your services York places this support:

- **a complete line of equipment**
- **competitive prices**
- **accurate, dependable product ratings**
- **technical assistance based on "case histories"**
- **cooperation with architects, engineers, and contractors**
- **practical help from York-Trained Engineers**
- **a national organization**
- **continuous product research and development**
- **certified maintenance**

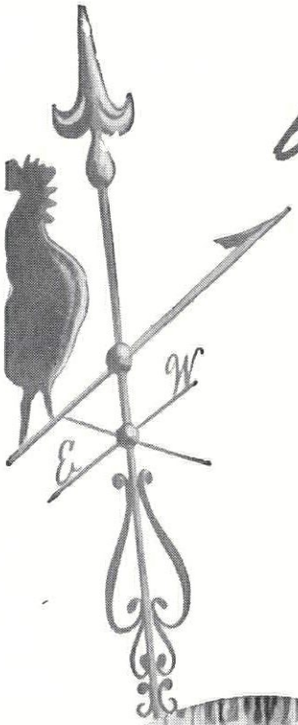
If your plans require mechanical cooling, call upon the *complete* assistance York Sales Engineers can offer. York has a wealth of technical data, obtained from thousands of installations of all types. York feels that the *personal* assistance method is the best means of getting it into your hands. Call your York District Office. York Corporation, York, Penna.

York refrigeration air-conditioning

PIONEERS IN INVENTION AND DEVELOPMENT SINCE 1874

Refrigeration and Air Conditioning

HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885



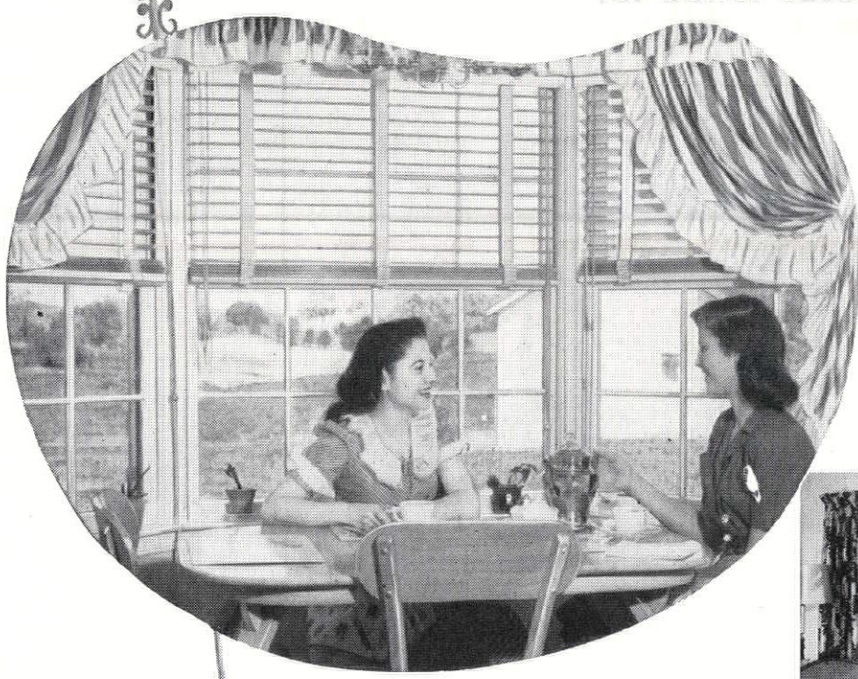
bring in the beauty

but . . . shut out the weather!

Today, you can give home-owners plenty of "view"—*plus* new, scientific protection from wind, dust, heat and cold! That's why Curtis Silentite windows are so often first choice where comfort and fuel savings are important. These Curtis windows are truly *weather-tight.*

Curtis Silentite double-hung windows have exclusive weather-stripping features, such as the patented "floating" weather-strips that press snugly against the sides of the sash...yet allow easy movement. Silentite windows, too, are *wood*—with the natural insulating qualities for which wood is well-known. Made of Ponderosa Pine, toxic and water-repellent treated, Silentite windows also provide extra durability and long-lasting value. And, of course, they have no weights, cords or pulleys to get out of order.

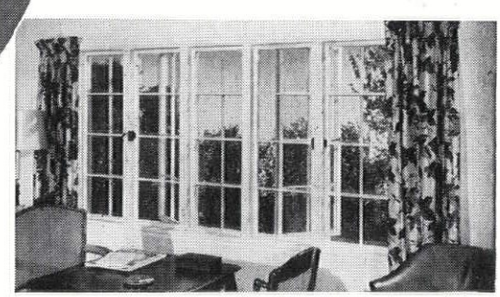
for better casements — SILENTITE!



If the owner's choice is casement style windows—investigate the Silentite casements. Here is an insulated *wood* casement with special features that assure less air infiltration than other types.

A major improvement in casement design provides draftless ventilation. The sash is thoroughly trouble-free—can't rattle, vibrate or swing in the wind. No bulky hardware on the inside—no exposed hardware on the outside. Made in several sash styles.

When in New York, visit the Curtis Woodwork Display at Architects' Samples Corporation, 101 Park Ave.



You'll want our book on Silentite windows, including casements. Just mail the coupon!

1866 CURTIS WOODWORK

SILENTITE PRE-FIT the "*Insulated*" window

CURTIS COMPANIES SERVICE BUREAU
AF-11S, Curtis Building, Clinton, Iowa

Please send me book on Silentite Windows, including casements. I am ☐ Architect, ☐ Contractor, ☐ Prospective Home Builder, ☐ Student. (Please check above)

Name.....

Address.....

City.....*State*.....

Parkview, now under construction at Collingswood, New Jersey, near Philadelphia, will embody builder E. J. Frankel's and owner S. J. Lowery's latest concept in apartment living. J. Raymond Knopf is the architect; Samuel Oshiver associate architect.

S. J. LOWERY,
Owner, Parkview

E. J. FRANKEL,
Builder, Parkview

A successful builder gives his reasons!

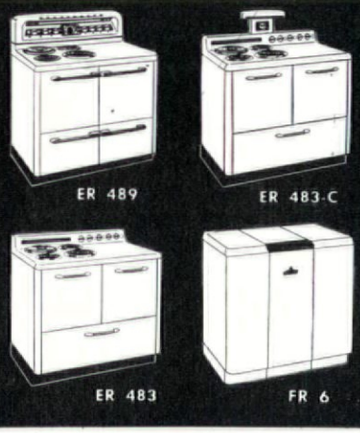
Mr. E. J. Frankel, well-known Philadelphia builder, says: "Parkview, latest concept in apartments, will have every one of its 1037 kitchens equipped with Kelvinator refrigerators. We have learned from experience that Kelvinators are so dependable that first cost is practically the last cost. We know that Kelvinator will satisfy the apartment dwellers."

Yes! From his long experience over the years, E. J. Frankel continues to choose Kelvinators for his projects today. Mr. Frankel *knows* that money-saving performance and user-satisfaction are assured with Kelvinators!

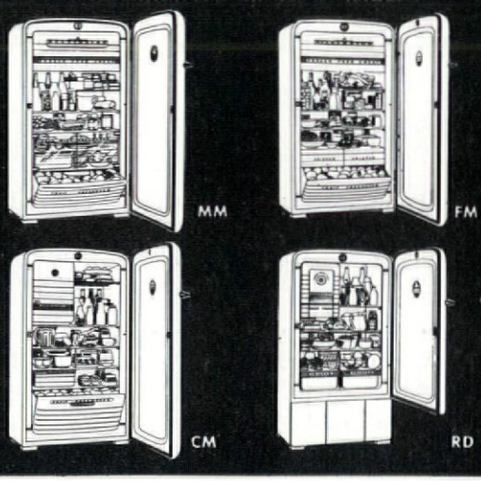
In your next building, choose Kelvinators for beauty, space-saving economy . . . and easier planning. Six different refrigerator models . . . all one width . . . fitting the identical floor space. You simplify and save!

Easier planning! Flexible Combinations! Choose from new, ONE-WIDTH KELVINATORS!

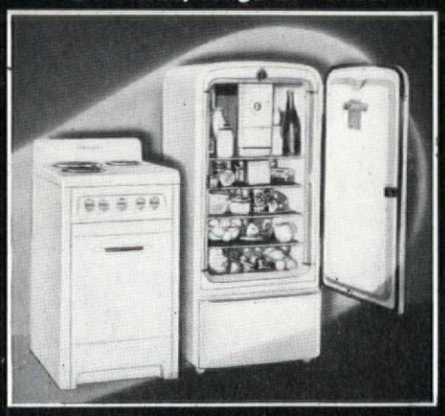
3 of the 5 Kelvinator Electric Ranges all 39¼" wide—and the Kelvinator FR6 Freezer.



4 of 6 Great Kelvinator Refrigerators that are all 31¼" wide.



Here's Kelvinator's Space Saver Package—Refrigerator 6 cu. ft., 24" wide; range 21" wide.



KELVINATOR, DIVISION OF NASH-KELVINATOR CORP., DETROIT 32, MICHIGAN

GET MORE *Get* **Kelvinator**

BUILDING BOOMS ON—housing starts exceed last year for the third straight month. The bulge is all rental units.

Even as builders crossed their fingers on the impact of the steel and coal strikes they looked at the record and grinned. New construction for the first ten months of 1949 was $15,882 million, more than 1 per cent ahead of last year. September's 100,000 housing starts chalked up another record. What's more, the rise over August's 98,000 was contra-seasonal. The private enterprisers beat their breasts, gloated: "See, we do not need public housing, the industry is meeting its responsibilities, the crack-pots who wanted direct lending are all wrong." Some optimists were betting that, strikes or no strikes, this year's housing starts would beat 1925's all-time high of 937,000, might reach a million or more. But pessimists pointed to a pattern they did not like (see charts).

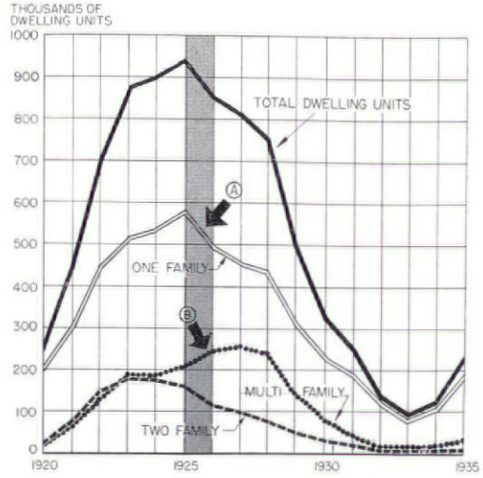
The fatal dip? Most significant feature of the housing boom was the trend away from single-family to multi-family (rental) units. As in the critical 1925-27 period, construction of single-family units dropped off at the same time rental units were rising and total starts were approaching what seemed might be the top of a cycle. BLS reported 25 per cent of all housing starts in the first six months of 1949 were rental units, compared to 20 per cent for the same period in 1948. If the trend continued through 1949, this year would wind up with 54,000 less houses than were built last year. By year's end, thought BLS, rental units might even comprise 30 per cent of the total. Said the pessimists: "that means the housing boom is largely due to the government's 'you can't lose' policy under section 608. How much credit can private enterprise claim for *that?* And just to show which way the wind is blowing, *private* residential building is down almost 8 per cent from last year's first ten months, but *public* residential building is up 139 per cent!"

The $256 billion question. Did Cassandras have a case? Optimists said "no," claimed the charts proved nothing because they overlooked today's changed America. Ten years ago experts were predicting U. S. population would level off at 160 million around 1955. Now we are almost up to 150 million and the experts have advanced their peak growth estimates to the year of 2000. As for "over building" of rental units and elevator apartments, the optimists pointed out that older people could use them. And the nation was "growing older." In 1925 the average length of life was 58.2 years. In 1947 it was 66.8 years. Sure, family formations are down, but that is temporary. On long term trend, marriages (and divorces) in the U. S. show a steady rise. All this means more housing for more people. Business, barring the big strikes, looks good. Savings are up, machine tool orders, despite losses in export markets, are up. September economic activity showed a better than average seasonal rise.

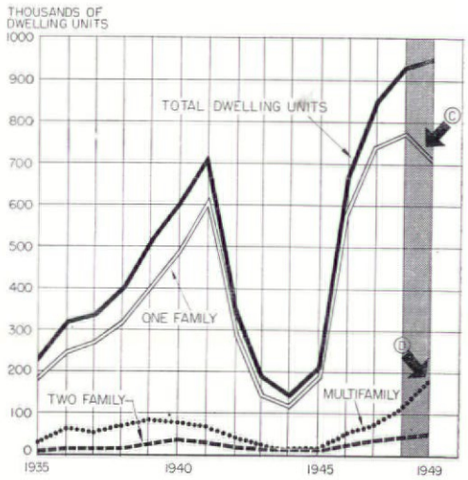
The pessimists answered: all true, but as long as we are running deficits and failing to catch up with our $256 billion debt, we will never pay for what looks like over-building of rental units.

The debt economy. Wailed a big New York savings banker: "We are not over-extended on mortgages. But we have our liabilities (deposits) insured by government and, in effect, our assets guaranteed by government, so government can say 'we might as well run you.' We're living in a debt economy. If the spinning top runs down, if we ever get 15 million unemployed again, we are through as a private bank."

The future picture for building, then, hung in a huge frame of debt. And the frame was not gold, it was paper, glued with faith. If the frame cracked the picture would crash. Could the debt be worked out? Men who should know were becoming "apprehensive." (See below.)



Bureau of Labor charts of housing starts emphasize pattern resemblance between the year 1925 (shaded gray) above and 1949, below. Note how points "A" and "B" above . . .



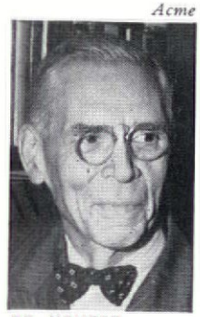
. . . resemble points "C" and "D." In both 1926 and 1949 single-family house-building recedes as multi-family rises and total starts begin to flatten out. Repetition of the 1925 slump is not, however, necessarily indicated.

WASHINGTON

DR. NOURSE HITS RENT CONTROL —approves limited public housing

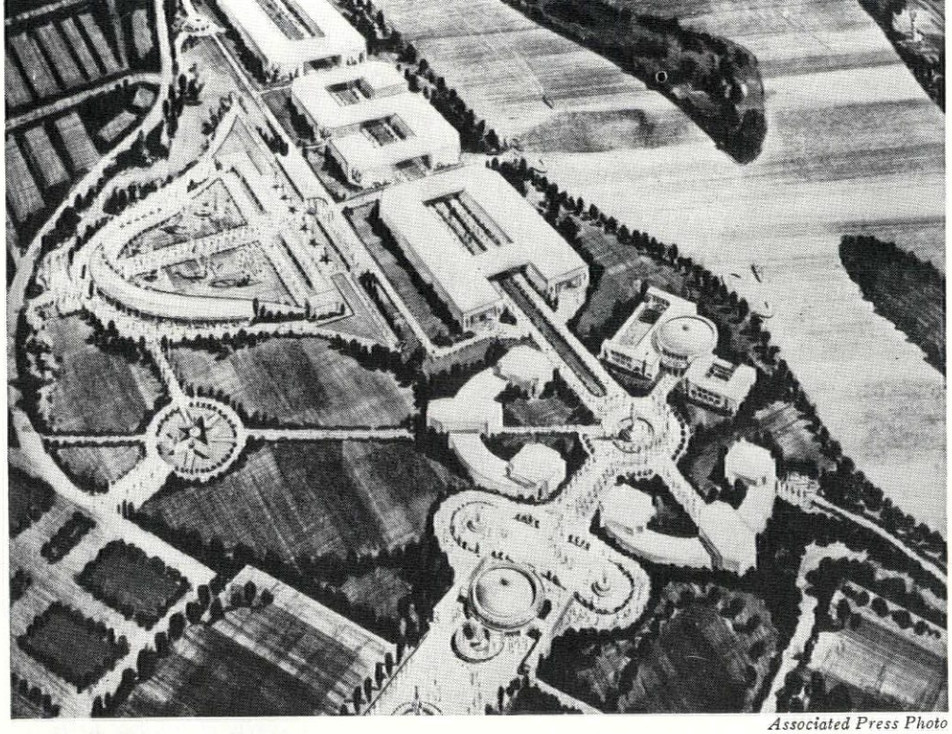
In an interview with FORUM shortly after announcing his "apprehension" toward the administration's "monetary and fiscal tricks," Dr. Edwin Griswold Nourse, erstwhile economic advisor to President Truman, expressed his views on housing: 1) the present demand is due, in part, to the government's underwriting of easy credit, but FHA's program has not been liberalized to the danger point as yet. 2) A "proper amount of public housing is desirable, but it can be carried too far." What is the peril point? When public housing reaches a volume where it competes with private building for scarce materials. 3) As for rent control, Dr. Nourse wanted none of it. He didn't believe in keeping the lid clamped down on one commodity while letting other prices seek their own level. He opposed continuation of rent control beyond the demise date of June 30, 1950.

Acme



DR. NOURSE

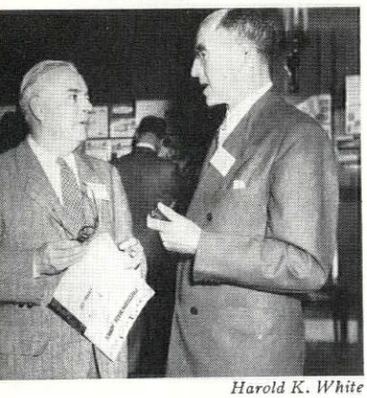
Sixty-six year old Dr. Nourse believes the burden of proof in the rent control controversy now lies on the proponents of control, that Congress should not act beyond present legislation without a factual survey of conditions following de-control.



Associated Press Photo

FREEDOM FAIR for Washington in 1950

These buildings for the Freedom Fair, celebrating the Capital's 150th anniversary, will rise next year in Anacostia Park outside the city. Congress has appropriated $3 million to advance the project which will cost more than $17 million.



Harold K. White

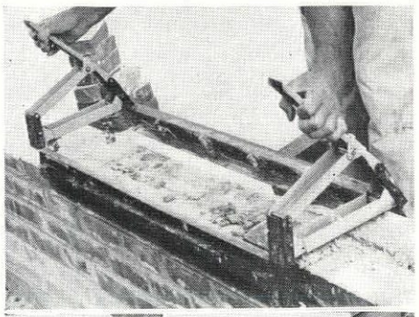
PREFABERS meet in Canada

Foster Gunnison, Board Chairman, Gunnison Homes (left) confers with Gordon E. Konantz, President of North American Buildings Ltd., at Winnipeg meeting of Prefabricated Home Manufacturers' Institute. Prefabers happily report a sharp increase in production (August shipments were one-third above August '48), due mainly to their production of Economy ($6,000-$8,000) Houses.

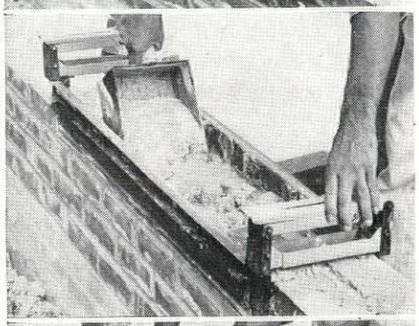
BRICK-LAYING device announced

When Hogdson-Sommers Inc. of Montgomery, Ala., announced their new Brick-Lay-R, builders perked up and labor scoffed. Photos show it in operation 1) clamped on wall, ready for use, 2) master scoop beds eight bricks at once, 3) bricks are placed by hand, 4) auxiliary screed levels mortar, grouts it deeply into joints. Brick-Lay-R is then unclamped, shifted to next position to repeat operation. Built-in levels assure constant plumb, preclude setting plumb lines and string wall guides. Manufacturer's claims: increases output three to four times (to 2,000-3,000 bricks per day), saves up to .36 cents a square foot, thus increasing market for brick and demand for masons. Contractors think Brick-Lay-R's application most useful in areas lacking sufficient skilled labor. Labor's reaction: "It's something for a man to fool with in his backyard." . . . "we'll watch it, if it takes work away from our people we'll have to fight it." Small model for six bricks sells for $39, eight and twelve brick models for $49.

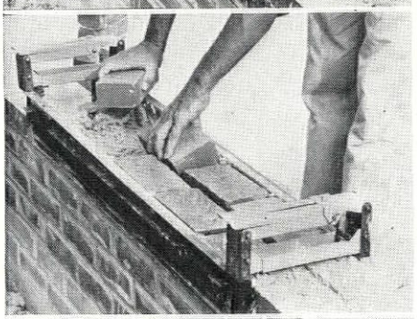
1.



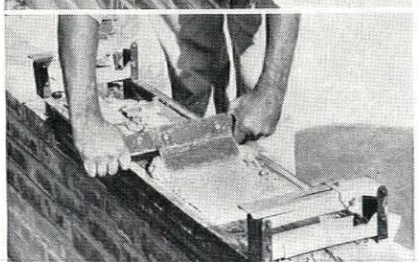
2.



3.



4.



INTERVENTION not over, despite administration's four-year victory

When the 81st Congress adjourned its first session last month, it closed out a record, as one political analyst put it, of "relief for everybody but the taxpayer." During its breath-taking 10-month tour, it enabled the Administration to win all its objectives on the housing front and suffer no defeats. It polished off a four-year battle over housing legislation which gave proponents of federal action considerably more than they had requested when they introduced the original Wagner-Ellender-Taft bill in the fall session of the 79th Congress.

Intervention-in-housing was not, however, a dead phrase. The 81st, eager to get home for Thanksgiving, had put on ice the proposal that the government make direct loans to veterans and cooperatives. The issue would come up quickly in January, perhaps this time with administration support which up to now had, surprisingly enough, been lacking. But considering the support given direct lending by labor and veterans, the administration might seize upon it, especially in an election year, if only for fear that the Republicans might grab it first.

Until the 81st blew the whistle for its second session, however, housebuilding would just have to limp along with the strange combination of aid and restriction hung around its neck in the last 10 months, and with the "stopgap" aids granted in the last hours before adjournment (extensions of FHA Titles VI and I, a $750 million boost to Title II, permission to FHA to use 35 per cent of its collections to pay for normal operating costs, permission for Fanny May—now $1 billion richer—to buy 100 per cent of a lender's VA portfolio).

* * *

Before adjourning, Congress also:

▸ Gave the go-ahead signal to the slum clearance, urban redevelopment and housing research program, authorized by the Public Housing Act. Nathaniel S. Kieth, new director of the first program, said HHFA will issue forms around the first of the year to cities applying for slum clearance aid. Twenty cities, he said, have "well developed basic plans" for slum clearance projects, 50 cities are "well along" in their plans, 100 others have "indicated definite intentions of participating . . ." First task of the research program, said HHFAdministrator Raymond Foley, will be to "accelerate some of the work already under way . . . chiefly in the field of improved building codes and the advancement of standardized dimensions in building materials."

▶ Doubled federal aid (to $150 million a year) for hospital construction, permitting government to assume two-thirds of a program's cost (instead of one-third) and extending program to 1955.

▶ Authorized $100 million for a two-year program for interest-free loans to state and local governments for planning needed public works projects which can be financed without federal construction aid.

▶ Restored $1 million of the first half of the appropriation to the Census Bureau for the 1950 housing census; with its $8,500,000 sum (half the total census cost), the Bureau can hire adequate fact finders. Still short $1 million of the amount it wanted, it will omit certain questions (rental housing, for instance) from its report.

RUSSIA'S BOMB presents no new problems for U. S. Building

"A completely atom bombproof building," said an official of the National Security Resources Board last month, "would be as unnecessary as a completely fireproof building. After all, we have been able for a number of years to build structures 100 per cent resistant to fire but we don't do it. It's not worth it."

This official's words, rising in the first mushroom puff of the explosion detonated by the President's announcement that Russia has the A-bomb, characterized fairly accurately official Washington's reaction to the news. They came as a distinct welcome to the die-hard pessimists who suspected that a nuclear explosion in the Ukraine would signal the U. S. government to an attempt to reshape completely the country's industrial and building pattern.

Washington calm. What alarm there was came for the most part from sources outside the government. A California bond analyst breathlessly waved in the face of an adjourning congress a plan for a network of underground garages which could double as bomb shelters. The state of Iowa advertised in FORTUNE its natural protection from Russian T-U bombers. The North California chapter of the Federation of American Scientists declared that "we must be prepared to spend a large fraction of our national wealth and to accept a lower standard of living" to bring about "extensive decentralization of our cities." But official Washington remained calm.

Decentralization, obviously the country's greatest protection against bombing, has been the pattern of U. S. building since the war. Industry, more to escape high taxes and union troubles than bombs, has steadily been shifting away from big cities. Under the prodding of FHA (whose eye has been on land values, not nuclear physics), housing developments have been moving to the suburbs for a long time. NSRB (whose function is only advisory, not authoritative) has seen little reason to disturb that trend. Wherever practicable, it would encourage new industry to settle in communities of less than 50,000 population. It would certainly encourage practical dispersion to the outskirts of existing cities. But it had drawn no master plan of underground cities or wholesale relocation from its brief case.

Congressional nod. Other than a quick House approval of a hike in military funds, the only legislative recognition of the atomic age's new era was the introduction of a bill providing special grants to repair disaster-stricken communities. The Congress would probably quietly pass it when it reconvened. It might also reconsider the slum clearance and urban redevelopment programs of the Public Housing Law it passed last summer. A government forced to encourage dispersion might find it incongruous to subsidize the redevelopment of close-in slum land.

MONEY

4 PER CENT MONEY returns under threat of direct lending

Congress had done little more than pick up the issue of government lending, quizzically examine it, and put it back on the shelf—for a few months at least. But like a man watching a careless guest play with a precious vase, the private U. S. lending institution had its heart in its mouth.

The lenders' response to the congressional threat was so immediate that hardly any one knew what had happened. The Mortgage Bankers Assn. went to work convincing the private lenders of the clear task before them. And all at once there was a great supply of 4 per cent money. Nine of the largest insurance companies in the country, and at least two top savings banks, promptly announced that they were interested once more in the VA 501 loan. Lender after lender confirmed the new supply of low-rate funds. Said George Bliss, president of New York City's Century Federal Savings and Loan: "As far as I can see, there will be plenty of 4 per cent money around in the immediate future." (Century's concern, of course, was with the easy-money New York area, but Bliss' prediction had country-wide significance.)

Influence unknown. Not all of this renewed interest, of course, could be attributed solely to the specter of government lending. The lenders themselves were either a little confused or a little cagey about just how much influence it had had. Said the mortgage director of one large insurance company: "Whether we would have become interested in the 501 again if this threat did not exist, I can't say."

Actually, the new activity was an elaboration of an easy money trend that started in early summer. Such maneuvers as an 8 to 10 per cent decline in the yield of high grade bonds, and a lessening in the demand for industrial expansion loans had started loosening the money market. VA loans began their climb in May. In August VA received applications for 34,960 guarantees, a 28 per cent increase over July and 85 per cent over the low point of last March.

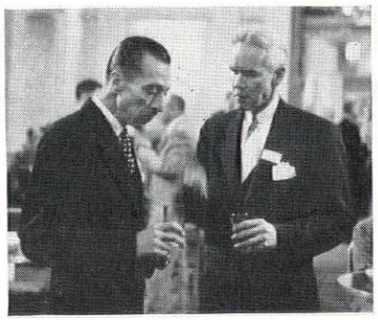
Still, the fine hand of government could be seen behind 501's latest lease on life. A new spurt in 4 per cent lending was private banking's answer to the threat.

CO-OP BUILDS successfully, with own funds and bank's—at 5 per cent

In 1946, nine people (including three vets and a conscientious objector) who were "tired of trying to finance houses before they were built," chipped in $1,000 each, formed a co-op and started selling memberships. Today their Sky-View Acres, Inc. has 152 acres (bought for $29,500) in suburban Rockland County, nine families housed on plots of one to four acres, seven more homes under construction, $100,000 invested in homes and streets and is shooting for a total investment of $500,000.

Sky-View Acres was the brainchild of a young adman, Iver Iverson, who saw in the co-op "a chance to get more land than builders offered with houses we could afford." At first the going was rough. "We waited six months for bank construction loans. They finally refused us $2,500 even with 26 signatures on our note." So the co-op, ignoring FHA, put up $18,000 of its own money, teamed up with Knickerbocker Federal Savings and Loan for additional capital, and set up a revolving fund that kept three houses under construction. Knickerbocker provides permanent financing with 15-year mortgages at 5 per cent. The co-op cut costs by bulk purchases of materials, also saved by members supplying some of their own labor.

MORTGAGE CONFERENCE panel members were (l. to r.): housebuilder William J. Levitt; Cyrus B. Sweet, president, Natl. Retail Lumber Dealers Assn.; Emil A. Gallman; N. J. Savings & Loan League; M. K. M. Murphy, U. S. Savings & Loan League; Joseph L. Wood, Johns-Manville; Warren J. Lockwood, FHA; Thomas B. King, VA; L. Douglas Meredith, National Life Insurance Co.

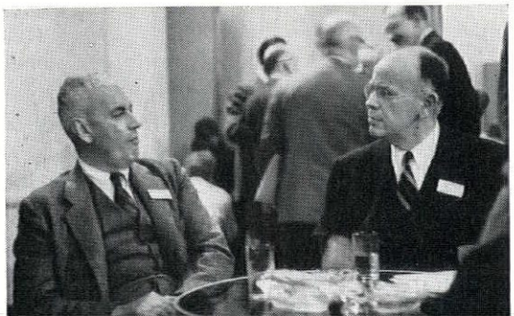


C. B. Sweet, Natl. Lumber Dealers' president, to vice-president H. R. Northrup: "Remodeling is one of our biggest sales weapons."

Discussion group (l. to r.): Frank Hardine, U. S. Savings & Loan League; Edward Nyhan, General Electric Co.; David Ford, Council of Insured Savings Associations; Louis Boecher, Knickerbocker Savings & Loan.

W. A. Clarke, Philadelphia Mortgage banker, to Milton McDonald, Trust Co. of New Jersey: "An overload of short-term credit is the second biggest reason for mortgage default."

Johns-Manville's Wood (r.) to moderator Murphy: "There is a limitless amount of business that can be obtained through use of the open-end mortgage."



IMPROVED MORTGAGE CREDIT will triple modernization sales, say lenders

The expansible house—minimum space to start and more as the buyer can afford it—may soon get an expansible mortgage. This is the latest step to give the home mortgage the flexibility it must have to meet the needs of modern housebuilding. Earlier steps, now widely established in lending practice, are the "packaged mortgage" and the "open-end mortgage." All of these are ways to make the home owner's buying dollars go three to six times as far as they can with conventional mortgage credit.

The expansible mortgage was proposed at a credit clinic called in New York last month by the FORUM. Some 300 lenders, builders and material manufacturers participated in this conference on how the mortgage instrument can be used to broaden the housebuilding market (see pictures).

Many a lender went home from the conference to study a new kind of mortgage agreement—a simple form which would provide for increasing the amount of the loan when the home owner is ready to build on another bedroom, add a garage or equipment. When the borrower under a conventional mortgage needs such additional funds, he usually has no alternative but complete refinancing which in some cities costs as much as $150. Lenders say that a mortgage agreement providing for future financing of home expansion would reduce the cost of such extra credit to zero.

Housebuilder's market. To housebuilders, who know how many low cost houses are now being planned to provide for future expansion, the expansible mortgage was big news. Easier credit terms would go far to turn this big potential market into actual building dollars.

Counsel of one of the major life insurance companies has suggested that "expansible" mortgage credit could be provided by a simple note form which would secure a maximum amount or "so much thereof as may be advanced." Horace Russell, U. S. Savings & Loan League counsel, has suggested that a workable clause might secure 1) the mortgage value of the minimum house as built and 2) additional advances for expansion up to a fixed amount.

When the Metropolitan Life Insurance Co. recently decided to make mortgage loans on "economy houses" (FORUM, August, '49), it adopted the requirement that such house plans provide for easy future expansion. Lenders point out that Metropolitan's interest in an expansible house will, therefore, inevitably demand an expansible mortgage.

Results of the New York conference showed that the "open-end mortgage," already widely used, may soon become standard practice. Unlike the expansible mortgage, the open-end mortgage does not provide for any future increase above the amount of the original loan. It is a means of financing home improvements when the home owner has accumulated enough equity to cover their value (FORUM, June, '49). It is a way of putting U. S. home owners' giant equity of $148 billion to work as an additional source of credit.

Conferees agreed that lenders, borrowers, dealers all need to know more about this inexpensive way to finance home improvements. Sample—VA loan director Thomas King told the conference what was news to many: The VA guarantee plan (Sec. 501) provides a clear go-ahead for the open-end mortgage. If an additional advance is made by a lender and approved by VA, he said, in case of default VA's claim will be secondary to the right of the lender to satisfy the "indebtedness outstanding on both the original and supplemental loans."

Most conferees left with ambitious plans to reap more of the sales promised by open-end mortgage credit. The National Association of Lumber Dealers launched a program to show its 27,000 members how to take advantage of this plan in making modernization sales. The Mortgage Bankers Association and the National Association of Mutual Savings Banks wrote all members about this financing plan.

LUSTRON blackout looks close but might be delayed by more RFC grants

"The reports of my death," Mark Twain once said, "are greatly exaggerated." Indignantly, Lustron Corp. last month echoed the same words. But dopesters and the newspapers kept right on sounding the toll of the prefab's demise.

There seemed to be fair reason. The House of Representative's refusal, right before its adjournment, to provide RFC with an additional $25 million for prefab distribution loans sounded for all the world like Lustron's death rattle. Hardly anyone could see how the sick organization, reportedly still losing $1 million a month, could hang on much longer.

But Lustron and its RFC parent as well refused to concede. RFC still has $12 million lending authority in its kitty and last month it insisted that the House action did not tie its hands at all. It might not give Lustron the whole lump sum all at once but it could keep spoon feeding its sick child for quite a while on $1 million doses.

CONSTRUCTION LOANS still represent greatest gap in mortgage finance

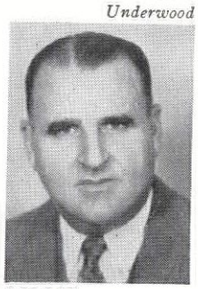
Mortgage lenders had indicated strongly that they were well able to do their job by the house buyer better than the government could (see p. 11). The nation's home builders began to wonder if now the lenders would also recognize—and act upon—their duty by the builder.

The need for construction loans to the housebuilder is certainly not a new one. But neither, say the builders, is it one which has been modified to any great extent by the private lending institutions, in spite of the many substantial improvements in home financing brought about in the last 15 years. All kinds of lending institutions—particularly outside New York and New England — still are extremely cautious about granting them. (In the case of banks, this cautious attitude has been sharpened, curiously enough, by the government. For the past two years, despite governmental insistence for more housing, the Federal Reserve Bank and the National Bank Examiners have been cautioning the banks against real estate loans.)

Problems doubled. What construction loans there are have enough limitations and stringent requirements attached to double a builder's problems. Many a harrassed home builder has had a lender go along with him so far and finally cut him off, leaving him stranded in the middle of a construction job. In many places, a builder able to get a construction loan still has to pay a fee for the privilege.

Few builders have worked more feverishly at this problem than Miami contractor Thomas Coogan, the energetic chairman of the National Assn. of Home Builders' Mortgage Finance Committee. At Coogan's and NAHB's request, the RFC began making construction loans available to merchant builders last spring.* It was a satisfactory arrangement, but Coogan still thought that job belonged better to the private lender. Last month he began pumping again for a method of "stabilizing and standardizing construction financing such as has been done by FHA in the permanent financing." Said Coogan: "An overhauling (patterned after the improvement FHA has brought) is needed in the construction or interim finance picture, and it is my hope that the investment institutions themselves will find the answer and not leave it as another problem for the government to solve."

Underwood



COOGAN

Would the private lenders solve it? It looked like a worthwhile project for the Mortgage Bankers Association to tackle.

DIRECT LENDING on state level gets started in Connecticut

Connecticut's effort to stimulate moderate priced housing by providing direct state loans to both house buyer and house builder (FORUM, Oct. '49), would, in the words of Governor Chester Bowles, be "watched all over the country." There was little doubt ex-OPAdministrator Bowles was right. The figures he quoted last month would make any expert blink.

To get 4,000 low-priced (under $10,000) houses built, Connecticut was prepared to put up money on all kinds of FHA mortgages at an interest rate of 1½ per cent (plus the usual ½ per cent FHA insurance charge.) Of the state's 1½ per cent, ½ per cent will go to pay interest on the $30 million it will borrow to finance the program, ½ for general administration, ½ to its correspondents.

In addition, the state will offer 3½ per cent construction loans to builders unable to get money in the normal channels.

* RFC construction financing works two ways. Either the RFC participates with a bank and loans directly to the builder, or, if no bank is willing to participate, makes a loan to a lending institution to be reloaned to the builder. Loans are always short-term, carry 4 per cent interest (the participating bank's share may carry a rate at the bank's legal rate), and can be granted only if regular financing is not available, and if the project is committed to FHA insurance or VA guarantee.

LAW

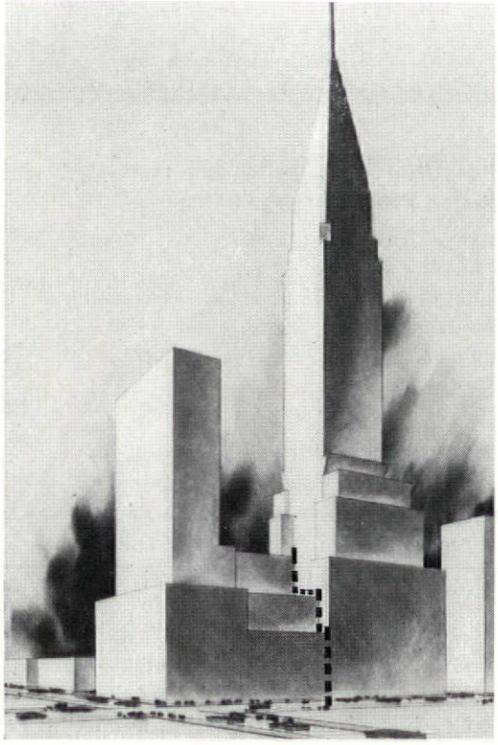
RENT CONTROL goes to the highest court of all, ruling expected this month

One day last month Frank Cheney, an enraged Birmingham, Ala., landlord, killed a woman tenant, wounded her husband and baby then killed himself. That same day other landlords, more patient, were rewarded with news of the Supreme Court's intention to review a decision by Chicago's Federal Judge Elwyn R. Shaw declaring the 1949 Federal Rent Control Act unconstitutional. The Court's decision was expected early in November.

The Court's alternatives. Three decisions were possible. The Court could 1) uphold the present law—a probability, 2) dismiss

NEW ANNEX for Manhattan's Chrysler

New York's second tallest skyscraper, the 77-story 1,046 ft. Chrysler Building is expecting a baby brother. The Chrysler family has sent out rental plans for an annex running from 42nd Street to 43rd Street on Third Avenue, with a slab tower 149 ft. 8 in. x 62 ft. 8 in., rising 32 stories. The plans were drawn by Rockefeller Center Architects Reinhard, Hofmeister & Walquist.



Harris & Ewing

LABOR—AFL sign strong settlement plan

Building labor and management last month signed a new and sharpened arrangement for the settlement of jurisdictional disputes (see story, p. 15). Seated are R. J. Gray, AFL; J. D. Marshall, Associated General Contractors; Paul M. Geary, National Contractors Assn. Standing: Herbert Rivers, AFL; John T. Dunlop, board chairman; H. R. Cole, Tile Contractors of America. Not present: H. E. Foreman, A.G.C. managing director.

WRIGHT MASTERPIECE TO WRECKERS

Museum of Modern Art

"The character and brutal power as well as the opportunity for beauty of our own age were coming clear to me," said Frank Lloyd Wright, recalling his early masterpiece, the Larkin Building, built for a mail-order firm in Buffalo in 1904. This massive brick monument to U. S. business was one of the first air-conditioned buildings ever built; it was hermetically sealed against the smoke from the N. Y. Central trains that puffed along beside it.

The first direct architectural expression of the machine age, the Larkin building exploded the fakeries that were taken for granted in the building of the day. American architects thought it monstrous, but its powerful form swept through Europe. There it ignited the design revolution which within the last 30 years has changed the shape of everything from a temple to a toothbrush.

Last month Buffalo sent the Larkin building to the wreckers. The city had taken it over on a tax foreclosure in 1945, valued it then at $138,960, finally sold it to the Western Trading Corp. for $5,000. It will be torn down to make way for a new building.

Many a present day architect wondered how the U. S. could be so indifferent. Asked Andrew C. Ritchie of New York's Museum of Modern Art, "Do we propose to sink ourselves, architecturally speaking, without a trace?"

the separability or "local option" clause—a possibility or, 3) throw out the whole law as unconstitutional—an improbability. Action No. 2 would create chaos, with tenants suing for refund of rent boosts granted under local option.

Chaos compounded. Still more headaches for landlords impended when U. S. District Judge Sylvester Ryan dissolved a temporary order restraining New York City's Housing Rent Commission from enforcing the city's Sharkey Law.

That law, passed one month before the November city elections, had superimposed local approval by the Commission on rent increases allowed by the Federal Housing Expediter. A New York landlord had promptly obtained the restraining order on grounds he had been deprived of $31,000 in rent increases allowed under the Expediter's fair net operating income formula. Now he, and all other landlords, were back behind the eight ball. Although Judge Ryan suggested a Federal Court should rule on conflict between the local law and the Federal Housing Act, he saw "no irreparable injury" to landlords "if the injunctive relief is not granted." What landlords saw was something else, for the Judge, with eloquent understatement, added: "the local law does not empower the City Housing Rent Commission to sue . . . the only sanctions are . . . fines or imprisonment, or both." Duplicated in other cities, the Sharkey-type law would at least compound the confusion, at most threaten landlords with "no irreparable injury"—merely fines or imprisonment, or both.

BUILDING CODE drive joined by NAHB

For two years, the Building Officials Conference of America has been enlisting industry help in the formulation of modern building codes (FORUM, July, '49). Last month its enlistment rates went way up. The National Association of Home Builders started raising funds to help BOCA's drive. Carl Lans, NAHB's technical director, looked for the joint NAHB-BOCA venture to "result in savings amounting to many millions of dollars in unnecessary construction items required by antiquated codes...."

LABOR

A.F.L. EYES THE PAY CHECK, the time clock and the ballot box

Building wage rates kept edging upward. In Houston five craft unions won a 12½ cent hourly boost affecting 4,000 workers. Painters in Cleveland got 7½ cents per

hour plus an additional 7½ cents employers' contribution to an insurance fund. In St. Louis, after seven months of haggling, contractors and unions agreed on 10 to 15 cents hourly raises for 1,300 building material and construction "chauffeurs". In San Francisco, 15,000 carpenters in four bay area counties won a 12½ cent boost to $2.22½. A three week strike of sand and quarry workers, which threatened to paralyze heavy building in Los Angeles, brought the strikers an average 4½ cent wage hike.

Increases in the Middle Atlantic cities ranged from 10 to 15 cents; only in New York City, Buffalo and Baltimore did hourly rates stand still. BLS reported that building wage scales rose 1 per cent between July 1 and October 1.

More pay, less work. Even as it pushed for higher wages, A.F.L. plumped for shorter hours. At the 68th Annual Convention in St. Paul its Executive Council trumpeted: "A reduction in the hours of work will be necessary over the coming years to keep our national productivity in line with our national income. This is essential if high unemployment is to be avoided."

More money, more votes. Charging its barrels for next year's election battle, the A.F.L. started packing a $2 million wad of campaign powder (potential power: more than $14 million, via $2 per capita assessment on more than seven million A.F.L. members). Big Bill Hutcheson kicked in $100,000 of carpenters' money to help defeat eight Republican senators, including Senator Taft, whose vote for public housing had helped mightily to put dollars into many a carpenter's pocket.

LABOR DISPUTES will be solved quickly by powerful Joint Board

The National Joint Board for the Settlement of Jurisdictional Disputes, established jointly by A.F.L. building labor and the Associated General Contractors in May, 1948 (FORUM, Sept., '49), was given enough teeth to handle all jurisdictional problems without having to call in the National Labor Relations Board. Last month the Board's teeth were sharpened.

The board adopted a rule requiring unions to remain at work while a method of assignment is being protested. The board will also make immediate "job decisions" assigning the work in question, but will not set precedents for other jobs or disputes.

All sides expressed gratification. James D. Marshall, representing AGC, thought the board would now be "even more effective" in holding down stoppages, settling disputes.

MATERIALS

MODULAR COORDINATION gets boost with formation of new committee

Architects and builders are by now generally agreed that the modular system of construction, if effectively used, could cut great whacks off the cost of a building job. They are also well aware of the fact that modular coordination has been withering on the vine, simply because for the last year there has been no technical service available to coordinate the dimensions of various building products and to show architects and contractors how to put the system into effect. The Modular Service Association, which did that job, folded last year with the exhaustion of the private and government funds which had kept it going.

Last month the American Standards Association, in cooperation with the A.I.A. and the Producers Council, called an emergency meeting. Six hundred industry representatives were invited; 50 showed up to sing the system's praises. A representative of Alfred Hopkins Associates told how his firm was able to construct Long Island City's Postal Concentration Center, covering 600,000 ft. of space, in 72 working days by concentrating on modular coordination. A metal window man said the manufacturers he represented used to make 30,000 products. An early standardization reduced that number first to 300, modular planning cut it to 30.

Agreeing that a body to continue the work of the Modular Service Assn. was necessary, the group appointed a 13-member committee to plan a financial campaign in support of Project A62 "with the objective of starting technical work in January 1950."

STRUCTURAL CLAY PRODUCTS producers announce Research Foundation

After struggling three years to promote a coordinated research effort, members of the Structural Clay Products Institute finally announced their Research Foundation. Purpose: to "launch a long-range, industry-wide program . . . aimed at reducing the cost and improving the quality of buildings made of brick and tile."

Each manufacturer will be asked to contribute monthly on the basis of one-half of 1 per cent of his preceding month's sales. Measured against 1948 production, this should bring in $250,000 a year, comfortably meeting the Foundation's goal of $1,250,000 within five years. However long is required to raise that much, contributors will be asked to keep on chipping in until the goal is reached.

Foundation chairman is Ermin F. Plumb, brick manufacturer of Streator, Ill.

ECONOMY

BUILDING begins to feel the strikes, gray markets return

Steel's fifth big industry-wide strike since the turn of the century had taken its toll of building late in October. Economists had estimated that by Nov. 1, 300,000 construction workers would have to be laid off; by Dec. 1, 1,250,000 building workers would be jobless. What was worse, a settlement in steel would mean little unless the coal strike ended too.

Toward month's end a big Chicago builder said: "Within two weeks our situation will be serious. Hundreds of homes are going no-place. The old gang of gray-marketers is back in business." A New Jersey builder echoed: "Hell, gray market? If this keeps up it'll soon be black as ever."

Homes were being stalled for lack of heating units, gutters, downspouts, electric conduit and pipe. Nails in some areas were selling for a 30 to 50 per cent premium. Builders, many of whom were finishing houses they'd already sold were caught with possible failure of delivery against contract. To protect themselves they were now gray-marketing up to 20 per cent of their purchases. Like an evil dream returning, the old days were back. But by month's end Bethlehem Steel had signed with the union. Soon, it seemed, there would be enough steel—if there was enough coal.

Prices up. Even before the strike, most prices had continued upward. The BLS building material index for September rose to 189.4 from 188.2 in August.

In mid-October western pine mills raised prices $2 to $5 per thousand ft. on several grades. Douglas fir was up, too, now $52 a thousand at the mill compared to $44 two months before.

Copper went up to 18½ cents a pound soon after settlement of the steel strike. Tin was an exception. The RFC dropped the price to 95 cents. In September it had been $1.03.

How far prices might rise was questionable. That they wouldn't go down seemed probable, if only for the reason that industry and dealers alike were trying to keep inventories on a hand-to-mouth basis.

NEWS

Experts look ahead. Hedging their opinions with "ifs" depending on the outcome of the strikes, 108 leading economists, queried by the F. W. Dodge Corp., posted their predictions for building next year: 1) a decline, from 1949, in number of dwelling units built 2) a decrease in private nonresidential building—counter-balanced to a degree by increased public building.

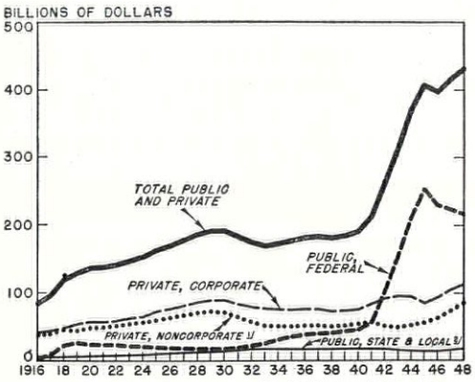
Mortgage debt not dangerous. Late last month the Department of Commerce offered reassurance to worriers who fear the nation's mortgage debt is dangerously high. Total private and public debt at the end of 1948 (latest available figure) stood at $429 billion, an all-time peak. Of this amount $232 billion was public debt and $197 was private. Mortgage debt comprised $57.7 billion of the private debt.

Biggest private debt increase, 1948 over 1947, was in nonfarm mortgages, a $7.4 billion bulge to $52.6 billion in 1948. Were the bankers worried? No. "Personal incomes are high, personal savings are high." An insurance spokesman added: "We don't think the rise has had a detrimental effect. Anything which increases home ownership in this country has a stabilizing effect on our economy."

Farm mortgage debt stood at only $5,108 million—less than half the peak ($10.8 billion) in the farm boom following World War I.

The Department of Commerce seemed to endorse their views: over the 32-year span

Public and private debt



U. S. Dept. of Commerce

from 1916 to 1948 all private debt "was reduced in relative importance" to the skyrocketing debt of the Federal Government.

PUBLIC HOUSING SURVEY shows people misinformed on facts

The public, apparently, dosen't know its elected representatives voted higher taxes when they voted for public housing. Nearly half the American people (46 per cent) believe government-subsidized housing is entirely self-supporting says the Opinion Research Corporation of Princeton, N. J. in reporting a survey conducted at the request of the U. S. Savings & Loan League.

The nationwide poll showed that only 42 per cent of the adult public realizes that government housing deficits are made good by the taxpayer. To the question: "Is it your understanding that government housing projects pay for themselves in rents taken in, or does the government take a loss?" replies were divided:

Pay for themselves	35%
Break even	11%
Govt. takes loss	42%
Qualified answers	8%
Don't know	4%

When asked if they thought government housing projects should cover all costs by charging adequate rents, or should be given subsidies to make up losses, 63 per cent said they thought rents should cover all costs while 20 per cent thought the government should make up the losses. The remaining replies to this question consisted of qualified answers on the part of 6 per cent, with 11 per cent having "no opinion."

MANUFACTURERS' EARNINGS are up for quarter, down for year to date

While earnings of 252 key industries showed a rise (third quarter over second quarter, 1949) of 6.1 per cent, building material producers, according to a survey by the *Wall Street Journal*, increased earnings by 34.6 per cent. The building group was down from last year's third quarter earnings, however, by 12.3 per cent.

NET INCOME: nine months to Sept. 30

	1949	1948
American Radiator	$10,050,000	$17,207,000
*Celotex	887,921	5,020,659
**Flintkote Co.	4,303,321	6,480,671
General Electric	67,612,879	83,893,459
Johns-Manville	10,433,027	10,845,218
Libbey-Owens Ford Glass	15,208,999	9,787,417
Long Bell Lbr. (Missouri)	5,401,780	10,208,646
†Masonite	2,688,886	7,027,335
National Gypsum	4,081,046	5,545,548
‡Owens-Illinois Glass	15,067,584	8,319,894
Penn. Dixie Cement	1,879,424	1,888,121
Pittsburgh Plate Glass	25,851,691	23,095,998
Reynolds Metals	3,370,929	5,057,153
U. S. Steel	133,223,409	88,042,150

* Net profit, 9 months ending July 31.
† Net income, 12 months, Aug. 31.
** Net income, 40 weeks, Oct. 8.
‡ Net income, 12 months ending Sept. 30.

PEOPLE

New York Governor **Thomas E. Dewey,** who once assailed the many building codes in his state as "17th Century codes" (FORUM, Jan., '49), appointed a five-man commission well capable of drawing up a sensible, 20th century state-wide code. Headed by **Col. Edward J. McGrew, Jr.,** former New York City commissioner of public works, the commission includes Architect **William Lescaze** (see pp. 88, 95), Architect **George Baim Cummings, Walker S. Lee,** superintendent of buildings in Rochester, and **Ralph A. Lehr,** attorney. By recent action of the New York legislature, the commission is empowered to draft rules and regulations for a new code which each municipality will have the authority to reject or approve.

VINTON

Another high post created by the Public Housing Act was filled last month: **Warren Jay Vinton,** an FHA staffer since 1934, became first assistant commissioner of the Public Housing Administration. His specific duties were not announced, but PHA Commissioner **John Taylor Egan** said he would be charged with the "formulation of policies. . . ."

Two of the United Nations' top craftsmen took a hand at masonry last month. At the U. N. dedication, on Manhattan's East River, Secretary General **Trygve Lie** handled the trowel while the cornerstone was laid. He was supervised by **Harry Truman** and a band of U. N. construction workers. Truman called the U. N. group "the most important buildings in the world. . . ."

Gardner W. Taylor, president of First Federal Savings & Loan Assn. (New York's largest) was among 55 crash victims in a two-plane collision over Washington National Airport.

Architect William Wurster is going back to California next fall as Dean of the University of California's School of Architecture. **Egmont Arens** was elected president of the Society of Industrial Designers.

Walter Gropius, chairman of Harvard's School of Architecture and designer of its new graduate center (FORUM, Nov., '48) took time out to explain to the public why modern buildings are needed on college campuses. Said he, in the New York *Times* magazine section: "How can we expect our students to become bold and fearless in thought and action if we encase them timidly in sentimental shrines feigning a culture which has long since disappeared?"

specify DETROIT CERTIFIED CONTROLS

GET RIGHT TO THE HEART OF GOOD HEATING!

A careful selection of heating controls is mandatory—both for the comfort of your clients and the safety of your reputation. For heating plant performance is entirely dependent on the controls—the very *heart* of good heating. That is why, today, thousands are relying on DETROIT to solve their control problems. DETROIT controls are designed and built from the accumulated experience of the finest sales and field service organization in the industry. As a result, DETROIT'S performance records are the standard of comparison for reliability.

DETROIT gives you even further assurance of satisfaction by certifying every control—a certification that is your guarantee that DETROIT stands solidly behind its every product. Truly, the *best* way to get to the heart of good heating, is to specify DETROIT.

No. V-570 "Bi-flex" Gas Valve—An electrically operated valve for main supply line to burner. Step-opening feature provides quiet ignition. Shut-off is positive, operation quiet. Controlled by No. 411 Thermostat for uniform room temperature. Write for Bulletin No. 201.

No. 411 Thermostat—A sensitive and accurate *Timed Cycling* thermostat for all types of heating systems. Provides close control of room temperature. Attractively styled, easily installed and adjusted. Write for Bulletin No. 193.

No. V-570

No 411

DETROIT LUBRICATOR COMPANY

5900 TRUMBULL AVE., DETROIT 8, MICHIGAN

Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

Canadian Representative: RAILWAY & ENGINEERING SPECIALTIES, LTD.—Montreal, Toronto, Winnipeg

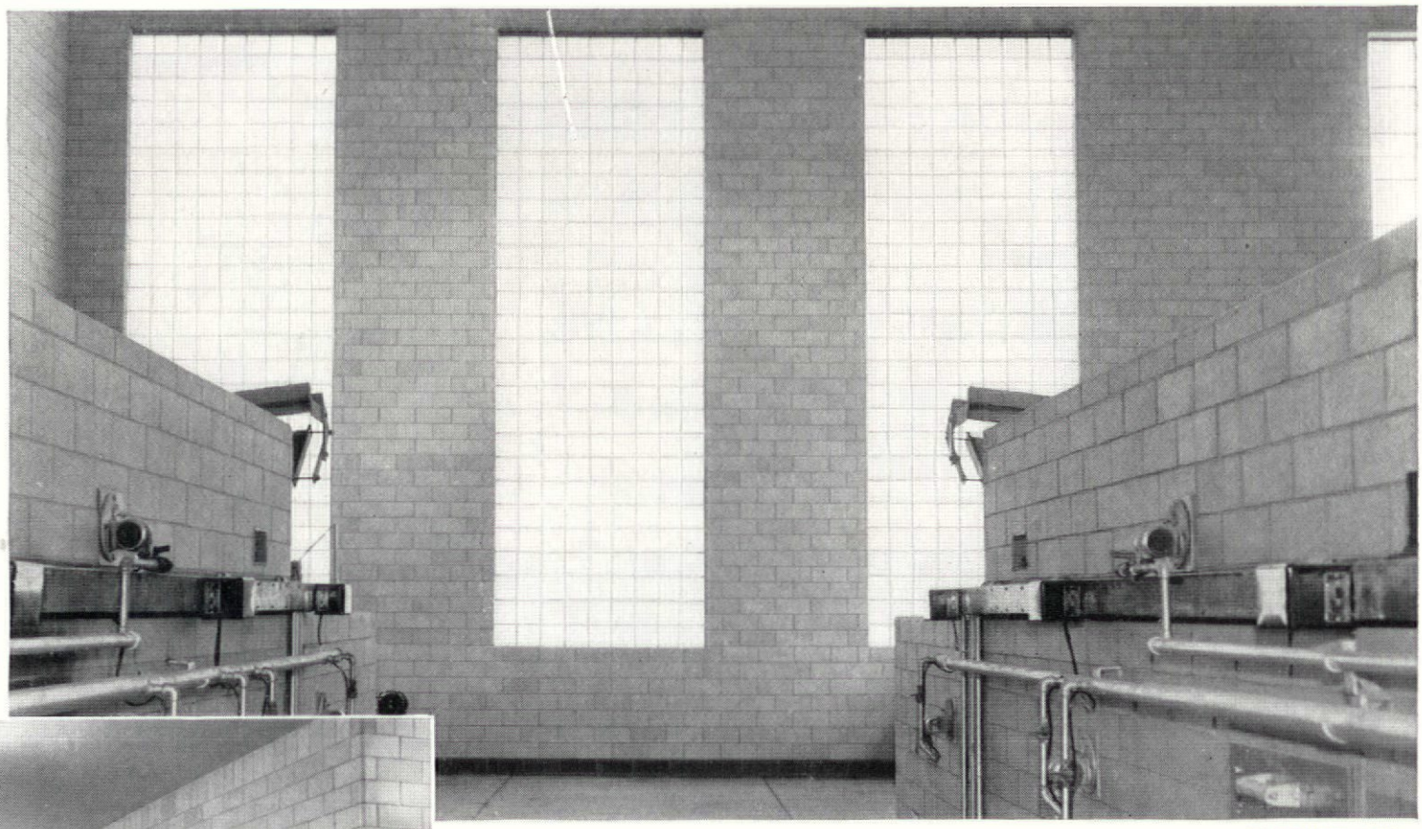
"DETROIT"

DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIPMENT • DETROIT EXPANSION VALVES AND REFRIGERATION ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

Serving home and industry AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

For the butcher, the baker or <u>any</u> food maker

Choose easy-to-clean interiors of *Facing tile*



Glazed Facing Tile

Glazed Facing Tile

Plant cleanliness is one big problem made easy for the food manufacturer when you give him interiors of Structural Clay Facing Tile.

Here is a material that washes clean, quickly and easily, with plain soap and water. Unsanitary trouble-makers find no haven in Facing Tile. It's impervious—even to bacteria!

Facing Tile is a material that contributes a lot to operating economy, too. There is no painting or decorating cost, and a minimum of replacement expense. Facing Tile will not crack, scratch or decay, even under years of hard wear.

Structurally, Facing Tile will more than measure up to your requirements. It's a load bearing wall *and* a finish in one material—fast building, durable, fireproof and sized for flexibility of design.

The many light-reflecting colors of Facing Tile will help you design a plant that is good looking, as well as efficient.

Remember these Facing Tile advantages when you want to plan a food plant at its sparkling, spic-and-span best. It's available in modular sizes, both glazed and unglazed. For complete information write the Institute, Desk AF-11, see Sweet's Catalog 4d/4, or contact any member.

SEND FOR THIS REFERENCE SOURCE

"Tile Engineering" is a handsomely bound, 450-page handbook of design, full of valuable information for the architect. It includes detailed data on properties, specifications, uses and construction techniques for Structural Clay Tile. Send $2.50 with your name and address to Facing Tile Institute, Dept. AF-11.

FACING TILE INSTITUTE

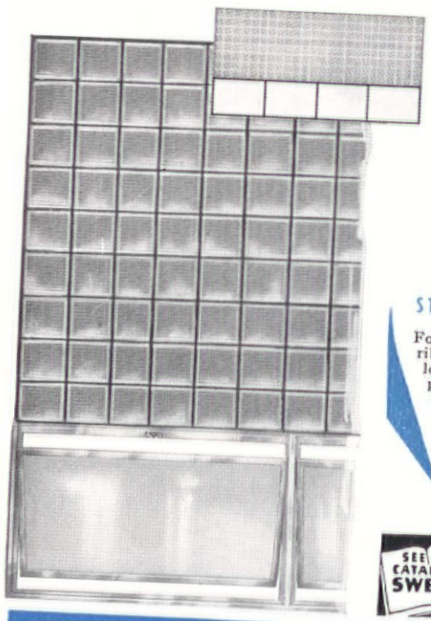
1520 18th Street, N. W., Washington 6, D. C.

INSTITUTE MEMBERS Belden Brick Company, Canton, Ohio ★ Continental Clay Products Co., Kittanning, Pennsylvania ★ Charleston Clay Products Co., Charleston 22, West Virginia ★ Hanley Company, New York 17, N. Y. ★ Hydraulic Press Brick Co., Indianapolis, Indiana ★ Mapleton Clay Products Company, Canton, Ohio ★ Metropolitan Brick, Inc., Canton, Ohio ★ National Fireproofing Corporation, Pittsburgh 12, Pa. ★ Stark Brick Co., Canton, Ohio ★ West Virginia Brick Company, Charleston, West Virginia

A VERSATILE WINDOW FOR GLASS BLOCK CONSTRUCTION

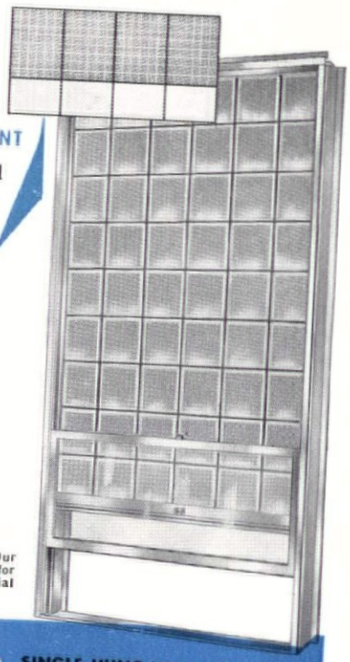
THE ALL ALUMINUM VAMPCO

Here's a new, greatly superior window that becomes an integral part of your glass brick construction. It's so *versatile* that you can use it in any type commercial or institutional building . . . so *adaptable* that it fits any space, large or small, you are likely to require . . . so *strong and rigid* that it can provide its own lintel under the glass blocks. It gives you vision — or ventilation — or both . . . with single pane or insulated glazing. Designed for use with Light Directional Glass Block. Constructed of high-tensile strength extruded aluminum alloy, it does away forever with maintenance costs . . . waterproof, weatherproof for life.



RIBBON TYPE

SINGLE HUNG



SINGLE OR MULTIPLE MULLION TREATMENT

This VAMPCO unit may be installed singly or in groups. Dimensioned for all standard glass block sizes to fit a wide variety of openings.

STRIP OR RIBBON TYPE INSTALLATION

For continuous ventilation or vision, VAMPCO ribbon units are fabricated to order up to 25 feet long and assembled ready for erection — as employed in the school building shown above. Vents may be as wide as 48 inches, up to 40 inches in height. Head and sill sections are continuous and absolutely watertight. No lintels required — deep head flanges, plus heavy mullions between ventilators, provide strength and stiffness to support entire load of glass block.

SEE OUR CATALOG IN SWEET'S

FOR COMPLETE DATA

Write for descriptive literature and full size details. Our Engineering Department will provide detailed drawings for ribbon-type installation when dimensional and material data are provided.

RIBBON TYPE

No structural lintel required . . . All-aluminum construction . . . Completely fabricated at factory—eliminating assembly of mullions and covers . . . Projected type ventilation.

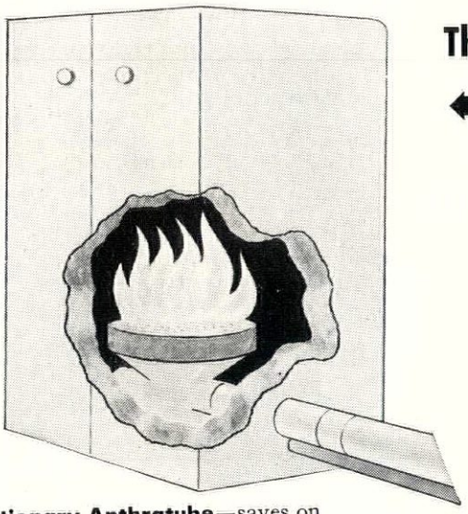
VALLEY METAL PRODUCTS CO.
PLAINWELL, MICHIGAN

SINGLE-HUNG WINDOWS

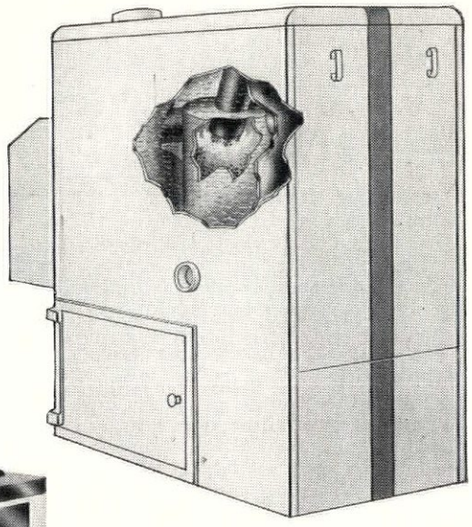
All-aluminum construction . . . Completely weatherproof and waterproof . . . Glass block in sash integral in one frame . . . Easy access for cleaning block and sash.

Show your Clients these 3 modern Automatic Anthracite Heating Units

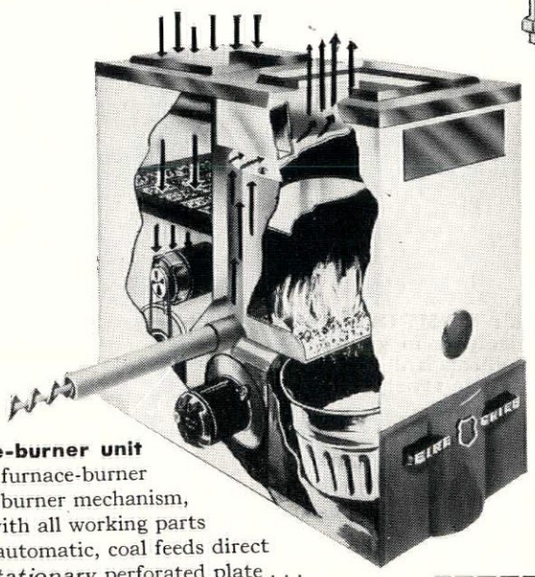
They save up to 52% annually on fuel bills



1. Automatic Anthracite Stokers—Installed in an existing boiler or furnace, or in new houses, automatic hard coal stokers deliver *plenty* of heat quickly . . . save up to 52% on fuel bills . . . eliminate fuel worries.



2. The Revolutionary Anthratube—saves on fuel bills . . . its proved efficiency is over 80%. This scientifically engineered boiler-burner unit, with "Whirling Heat" and other revolutionary features, produces quicker response, superior performance than units using other types of fuel. Fully automatic.



3. Anthra-Flo furnace-burner unit—An entirely new type furnace-burner which features a simple burner mechanism, attached by two bolts with all working parts easily accessible. Fully automatic, coal feeds direct from bin across single *stationary* perforated plate . . . ashes discharge by gravity into container within unit. Available for steam, hot-water and warm-air heating systems.

TODAY YOU CAN OFFER YOUR CLIENTS *modern* automatic heat with Anthracite equipment.

You can show your clients how to save money . . . as much as $100 to $200 every year and yet have *plenty of heat—clean heat—even heat*—and no worry about future supplies or deliveries.

For complete information about (1) new anthracite stokers (2) revolutionary Anthratube or (3) Anthra-Flo, just fill in and return the coupon below.

ANTHRACITE INSTITUTE
101 Park Ave., Dept. 11-A, New York 17, N. Y.

Please send me more information on

1. New Anthracite Stokers
2. Revolutionary Anthratube
3. Anthra-Flo furnace-burner unit

Name_____

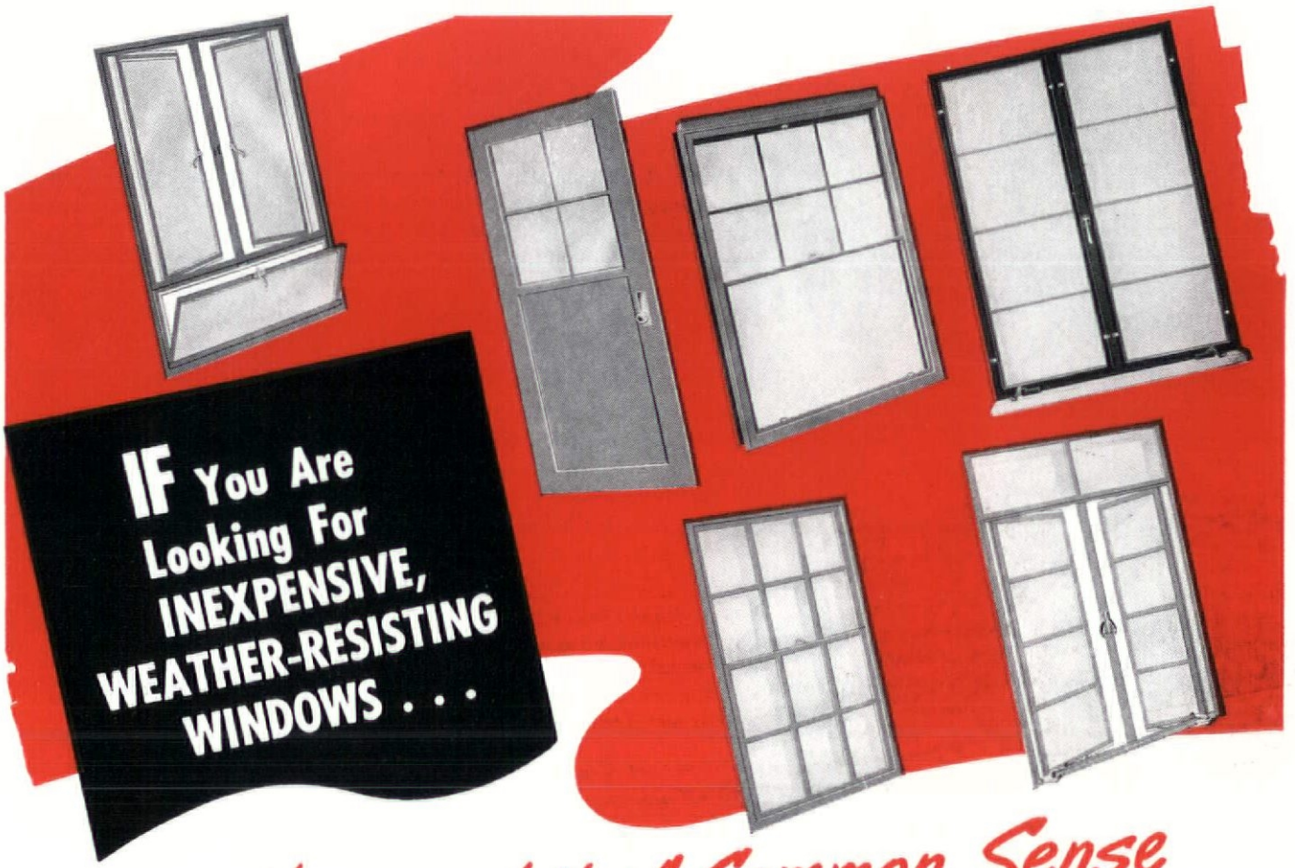
Address_____

City_____ Zone____ State_____

PLEASE PRINT

ANTHRACITE INSTITUTE

101 Park Avenue • New York 17, New York



IF You Are Looking For INEXPENSIVE, WEATHER-RESISTING WINDOWS . . .

Here's a bit of Common Sense

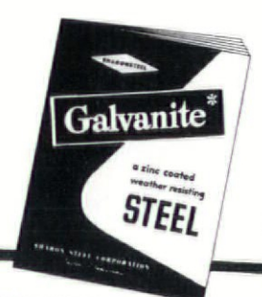
Architectural journals today are full of products manufactured of every conceivable material. This is to be expected, the building boom being what it is.

But, look at the problem objectively. The strength of steel and the resistance to corrosion of zinc are properties greatly to be desired by fabricators. It is well known that a strong, lasting, weather-resisting and economical product can be manufactured with zinc as a protective coating on steel.

SHARONSTEEL

The Sharon Steel Corporation has developed a process whereby a generous coating of zinc is bonded to quality steel in a tight everlasting marriage. The resulting product is called GALVANITE. GALVANITE has all the strength of steel plus an extremely high resistance to weather, plus a surface that is ideal for painting. Best of all, GALVANITE is inexpensive.

GALVANITE is used extensively by manufacturers of windows and window frames and doors and door frames. Why not investigate? You will find both the cost and performance of GALVANITE products unbeatable.



SHARON STEEL CORPORATION

Sharon, Pennsylvania

DISTRICT SALES OFFICES

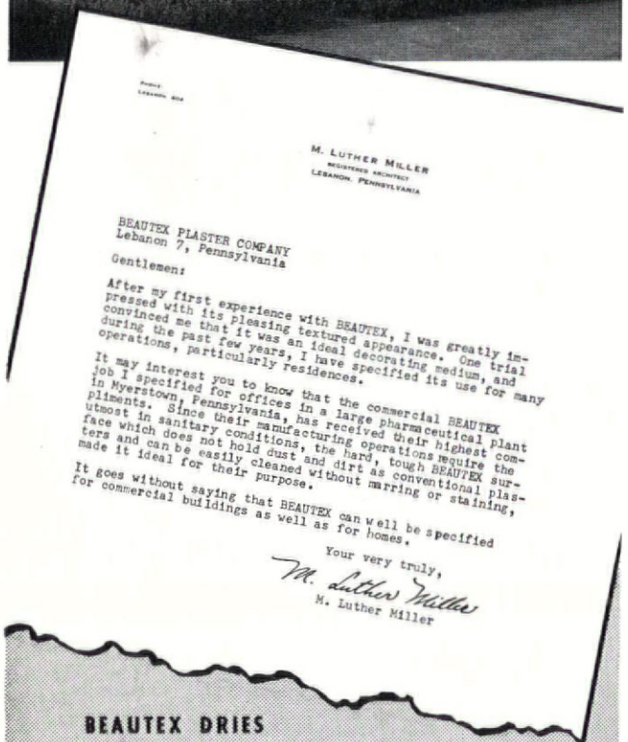
CHICAGO, ILL., CINCINNATI, O., CLEVELAND, O., DAYTON, O., DETROIT, MICH., INDIANAPOLIS, IND., MILWAUKEE, WIS., NEW YORK, N. Y., PHILADELPHIA, PENNA., ROCHESTER, N. Y., LOS ANGELES, CALIF., SAN FRANCISCO, CALIF., ST. LOUIS, MO., MONTREAL, QUE., TORONTO, ONT.

GALVANITE DIVISION,
SHARON STEEL CORPORATION
Sharon, Pennsylvania
Please send me your GALVANITE Handbook.

Name ..... Position .....
Company .....
Street .....
City ..... State .....

for Commercial Buildings

Leading Architects specify BEAUTEX COLORED PLASTER



M. LUTHER MILLER
REGISTERED ARCHITECT
LEBANON, PENNSYLVANIA

BEAUTEX PLASTER COMPANY
Lebanon 7, Pennsylvania

Gentlemen:

After my first experience with BEAUTEX, I was greatly impressed with its pleasing textured appearance. One trial convinced me that it was an ideal decorating medium, and during the past few years, I have specified its use for many operations, particularly residences.

It may interest you to know that the commercial BEAUTEX job I specified for offices in a large pharmaceutical plant in Myerstown, Pennsylvania, has received their highest compliments. Since their manufacturing operations require the utmost in sanitary conditions, the hard, tough BEAUTEX surface which does not hold dust and dirt as conventional plasters and can be easily cleaned without marring or staining, made it ideal for their purpose.

It goes without saying that BEAUTEX can well be specified for commercial buildings as well as for homes.

Your very truly,
M. Luther Miller
M. Luther Miller

BEAUTEX DRIES TO EXCEPTIONAL HARDNESS

BEAUTEX IS APPLIED DIRECTLY TO DRY GYPSUM BASE

BEAUTEX COLORS HAVE HIGH LIGHT REFLECTANCE VALUES

BEAUTEX COLORS ARE PERMANENT

Beautex is Ideal for - Stores, Offices Factories, Churches and Hospitals

Write today for complete information and Color Chart
BEAUTEX PLASTER COMPANY • Lebanon 7, Pa.

COMMENT ON SEPTEMBER

Forum:

While the report of my Ramblerette economy house as contained in the September issue of the FORUM (p. 80) was not too flattering, your magazine enjoys such a high standing in the housing field that I would have felt much worse had you ignored it completely.

TIGHE E. WOODS
Federal Housing Expediter
Washington, D. C.

Forum:

I want to tell you what an excellent presentation you have made in the September FORUM on the Saint Lo Hospital. I cannot help but believe that the publication of this hospital in such handsome form will do much to call attention of the architectural profession of this country to the important work going on outside the continental U. S. in this specialized field.

MARSHALL SHAFFER, *Senior Engineer*
Chief, Technical Services Branch
Division of Hospital Facilities
Federal Security Agency
Washington, D. C.

Forum:

I would like to compliment your editors and artists on the very fine job of presenting and illustrating the Miami Parking Garage in the September FORUM. . . . It is tops!

WALTER H. WHEELER
Consulting Engineer
"Smooth Ceilings" System
Minneapolis, Minn.

Forum:

. . . Thank you for publishing a splendid two-page article on our merchant home building project in the September issue. Needless to say, the publishing of this article will be of great benefit to our organization by increasing our prestige and making us known in the building trade and to the general public. We have already begun to receive letters from as far away as Puerto Rico asking that we build our house in San Juan.

. . . We sincerely hope that we can justify your selection of our work this year by producing even better houses.

E. A. BALLIN
Vice President
Hewlett Harbor Construction, Inc.
East Rockaway, N. Y.

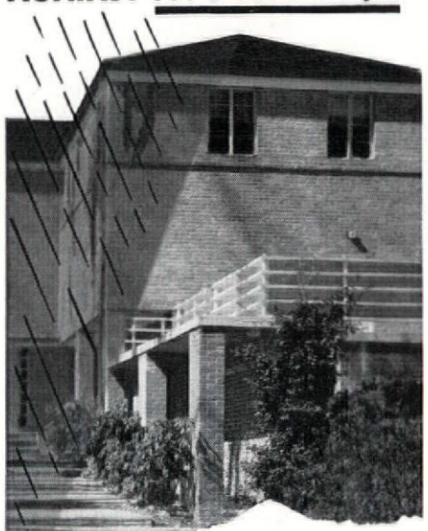
• For more on Builder Ballin's house, see p. 48. —ED.

Forum:

. . . An outstanding issue (Sept.). . . . There is, however, one painful omission:

(Continued on page 26)

WIN THE FIGHT AGAINST MOISTURE



SPECIFY CABOT'S WATERPROOFINGS

CABOT'S WATERPROOFINGS—made from naturally water-repellent substances . . . penetrate deeply . . . fill and seal pores and joints in above-grade masonry.

CABOT'S WATERPROOFINGS retard unsightly efflorescence . . . protect walls, porches and steps from the damaging effects of thawing and freezing.

CABOT'S WATERPROOFINGS are inexpensive . . . easy to apply . . . effective.

CABOT'S CLEAR BRICK WATERPROOFING.
For bricks and dark colored masonry surfaces.

CABOT'S CLEAR CEMENT WATERPROOFING.
For cement, concrete, stone, stucco and all other light-colored masonry.

Write Today...
for samples
and complete information.

Samuel Cabot, Inc.
1123 Oliver Building
Boston 9, Mass.

New 26-story addition to John Hancock Mutual Life Insurance Company, Boston, Mass. Cram & Ferguson, architects and engineers. Turner Construction Co., builders.

. . . because the pipe joints are SILBRAZ®

Owners, architects, and builders of new buildings are using all the latest building techniques at their command. That's why the brass and copper pipe runs of truly modern buildings are specified Silbraz – the modern way of joining brass or copper pipe or Type B copper tubing. Silbraz joints are silver brazed – not soldered or threaded – and form a joint that is stronger than the pipe itself. They are leakproof, permanent, and will not creep or pull apart under any condition which the pipe or tubing can withstand.

Silbraz joints actually make the brass or copper pipe or tubing into "one-piece pipelines" that save you money by eliminating leaky connections, costly maintenance, and repairs.

Walseal® Valves and Fittings for Making Silbraz Joints

The Walworth Company produces a complete line of Walseal Valves, Fittings and Flanges for making Silbraz joints – the modern method of joining brass or copper piping. For further information, see your nearest Walworth distributor, or write for Circular 84B.

Make it a "one-piece pipe line" with Walseal

SEE OUR CATALOG IN SWEET'S

WALWORTH
valves and fittings
60 EAST 42nd STREET, NEW YORK 17, N. Y.

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

"Nothing but compliments on the fine quality of Bigelow Carpeting!"

reports Mr. B. Burke, Manager
Sherry-Frontenac, Miami Beach

SINCE 1825
BIGELOW
Rugs – Carpets

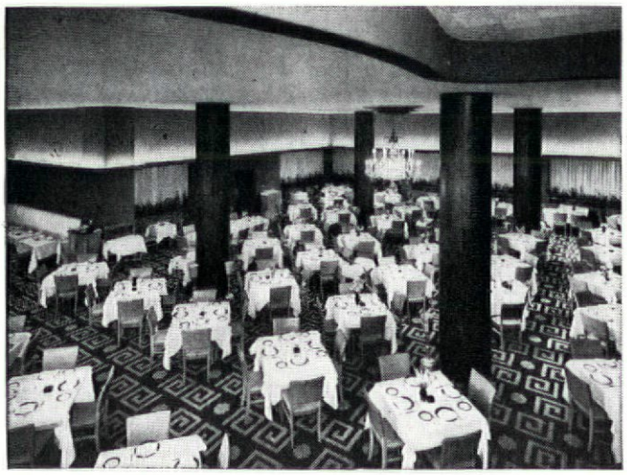
In the superb Sherry-Frontenac, newest and largest luxury hotel in Miami Beach, Bigelow Carpets add color and style to the dramatic décor.

Mr. B. Burke, Manager, writes:

"We wish to commend Bigelow on the excellent installation of carpeting . . . throughout all our public space and guest rooms, we have received nothing but compliments. Furthermore, the investment in Bigelow carpeting will mean less maintenance and replacement."

Bigelow's Carpet Counsel, which collaborated with the Sherry-Frontenac's decorator, stands ready to help you plan *your* hotel installations. One of the 26 Carpet Counsel offices is near you.

In the Sherry-Frontenac's lobby – Bigelow's rich Hartford-Saxony Carpet in a suave grey self-embossed effect. "The design and quality are such that they add much to the distinctive atmosphere of the Sherry-Frontenac," says Mr. Burke.



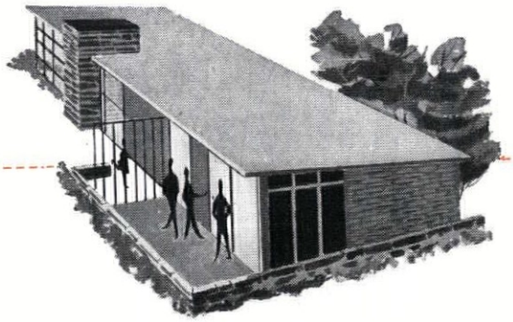
In the main dining room – Hartford-Saxony Carpet in a rich neo-classic design of grey on red. Mr. Burke says: "Our Decorator, Mr. Silverthorne, with the co-operation of the Carpet Counsel, selected what we believe to be the finest in carpeting!"

In the Pompadour Room – Bigelow's Hartford-Saxony in an unusual ribbon-motif, the ribbons grouped in clusters. "This beautifully designed carpeting blends in perfectly with our décor," Mr. Burke reports enthusiastically.

BIGELOW Rugs and Carpets

Beauty you can see . . . quality you can trust . . . since 1825

MODERN HOMES



call for COPPER soil, waste and vent lines

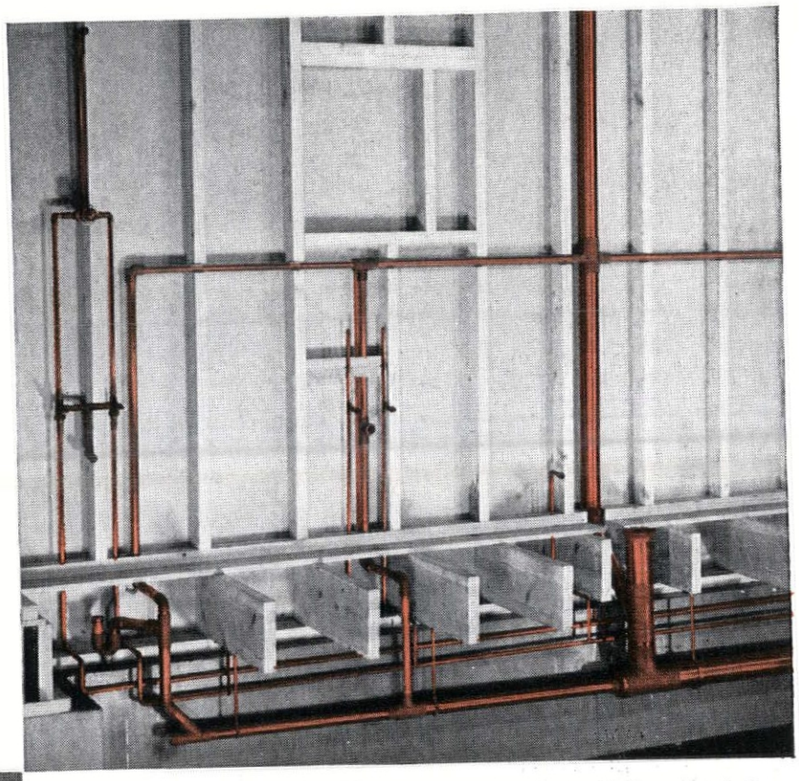
Increasingly—and for the same reasons it's being used so widely for water and heating lines—architects and owners are acknowledging that copper is the ideal pipe for soil lines, waste lines and vents. The evidence? More and more local building codes are being revised to include the use of copper tube and solder-type fittings for this purpose.

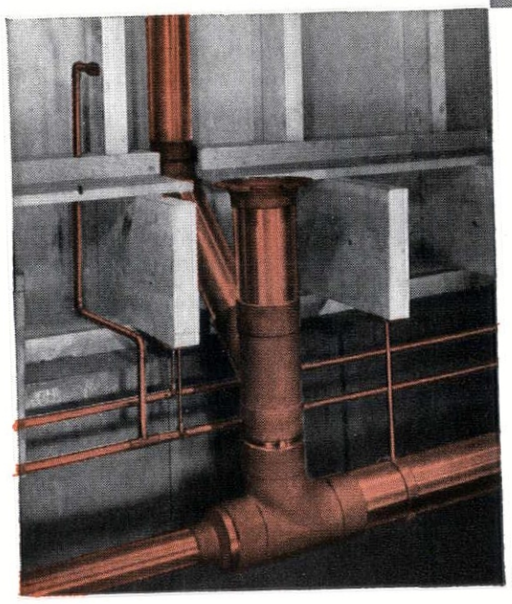
Here are the reasons in a nutshell:

An installation of copper tubes using ANACONDA Type M, which are manufactured for this purpose only, costs no more than other materials. The heavier gages, Type K and L Copper Tubes, can be installed for but little more.

Copper tubes are light, take less space—20-foot lengths simplify design, eliminate many joints.

Copper tubes give greater owner satisfaction, better performance because smooth bore drains faster, reduces possibility of stoppages.





Demonstration house-section illustrates an all-copper plumbing installation. Water supply lines are Type K. Closeup shows economical space requirements and the simplicity of using solder-type fittings.

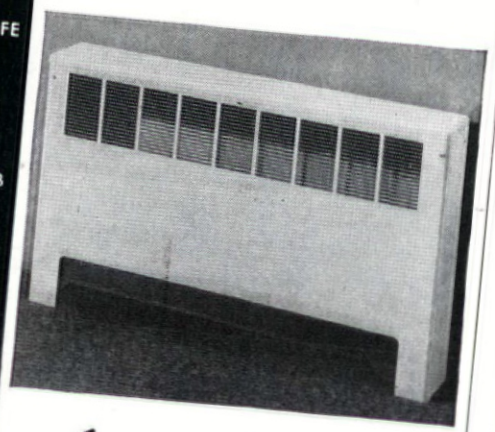
If you would like specific information or particular details, we will gladly supply them. Just write to The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario. 4904

For better plumbing . . . use

ANACONDA

COPPER TUBES

MORE with fedders



America's Most Complete Line of
CONVECTOR-RADIATORS

• NOW... Fedders offers you the *largest* selection of Convector-Radiators in America. Yes, there is an exact type and size for every kind of installation. Standardize on Fedders and you can be sure of a size and capacity to fit ANY job. Write for complete catalog.

FEDDERS-QUIGAN CORPORATION
Dept. AF-H3 BUFFALO 7, N. Y.

fedders

A Great Name Since 1896

no credit was given to Landscape Architects Eckbo, Royston & Williams for their important contribution to my house (cover and p. 59).

MARIO CORBETT, *Architect*
San Francisco, Calif.

Forum:

. . . In this office we are all delighted to see the excellent turn the magazine has taken. . . .

PIETRO BELLUSCHI
Architect
Portland, Ore.

BUILDING'S ZOO

Forum:

May I call your attention to the enclosed photograph and caption from *Astragal's* column in a recent copy of England's *Architect's Journal:*

One of the two bison at the London Zoo which have been adopted by Concrete Ltd., the makers of Bison Floors. See Astragal's comment.

Astragal says: "On the spur of the moment I can't think of any other animal trade marks in the building industry except beavers and the inevitable bulldog. . . . With a little enterprise we ought to be able to support almost the whole Zoo. Has nobody a unicorn to be kept by the steam-roller people?"

And how about American Industry? Let Bell & Gosset adopt some gossets; let Flintkote adopt some cotes.

M. VEHSLAGE PETERS
Chicago, Ill.

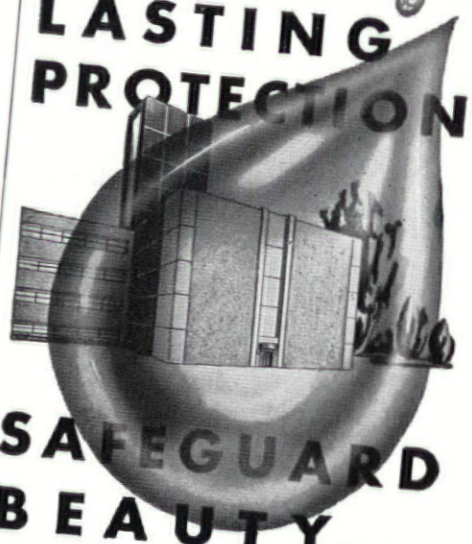
VIEWS ON VIEW

Forum:

In my work as a real estate appraiser I find that everyone (owners, brokers or advertisers of real property) places some

(Continued on page 30)

SPECIFY LASTING PROTECTION



SAFEGUARD BEAUTY... with CRYSTAL water repellent

Problems of water and moisture damage can now be prevented — *at the specification stage* — with CRYSTAL, the amazing new Silicone exterior waterproofing that actually penetrates and repels water.

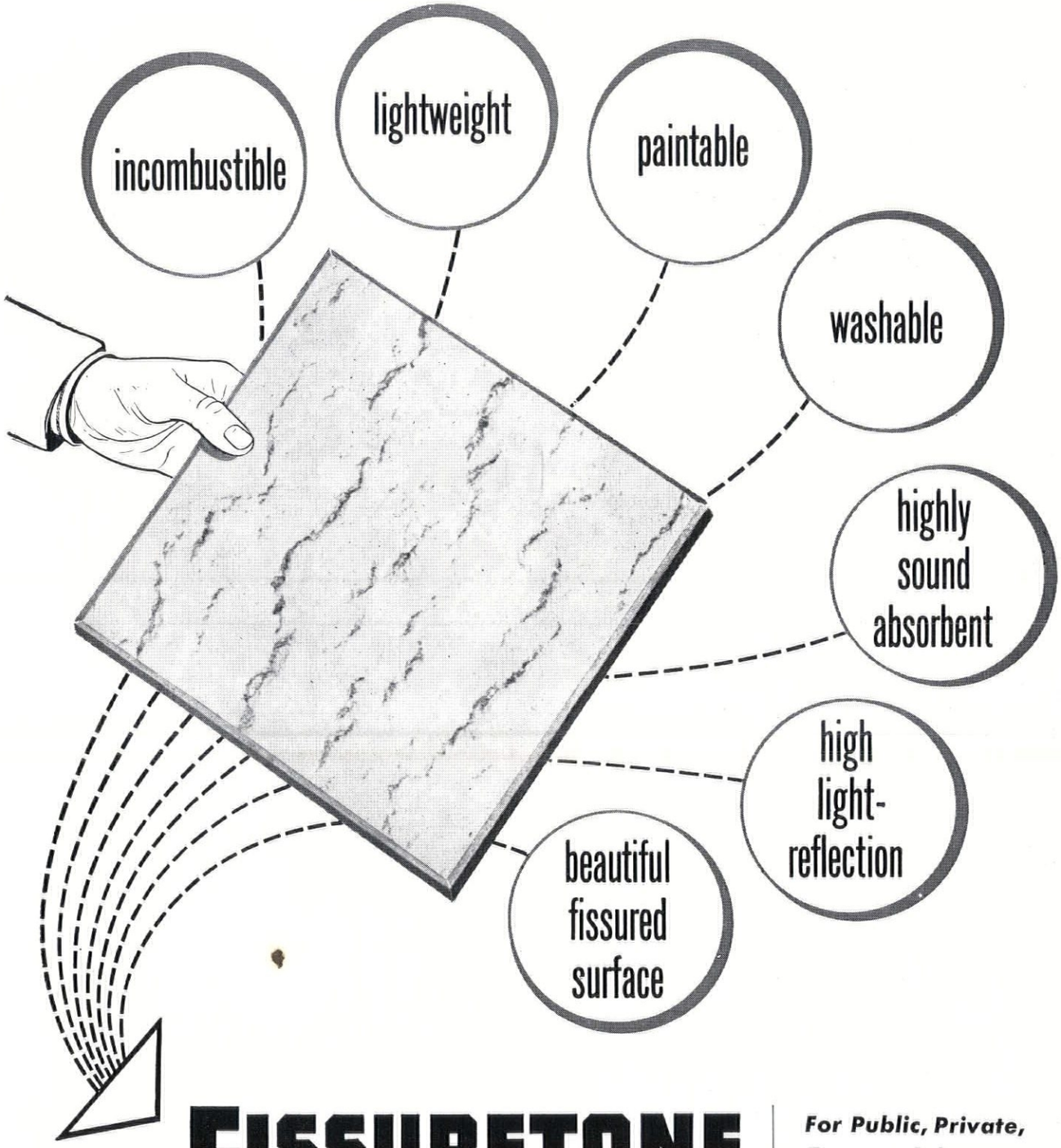
You benefit two important ways, with CRYSTAL in your specifications:

- **Materials last longer! CRYSTAL penetrates deeply, and waterproofs to the entire depth of penetraton, assuring effective, dependable protection to all man-made masonry and most natural stones year after year.**
- **Original beauty is retained! CRYSTAL is transparent — invisible after application. It does not change or discolor surface texture or color — and, makes surfaces self-cleansing and stainproof — your guarantee of longer beauty for all your jobs.**

One coat of CRYSTAL is all that's needed, *applied at any temperature!* Advantages that mean quicker, more economical application for contractors and your clients.

PROOF why CRYSTAL affords greater protection than any other exterior waterproofing is in this new Bulletin. Write for your copy today.

WURDACK CHEMICAL COMPANY
4951 Fyler Ave.
St. Louis 9, Mo.



FISSURETONE

TRADE MARK

MINERAL FIBRE ACOUSTICAL TILE

For Public, Private, Commercial or Residential Buildings . . .

Sales Distributors Throughout the World. In Canada: Dominion Sound Equipments, Ltd.

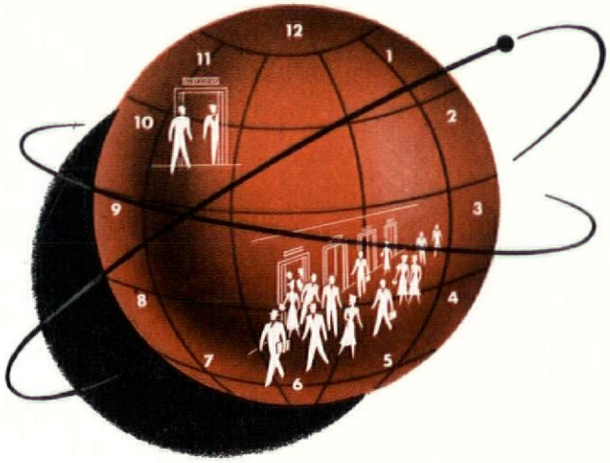
ACOUSTI-CELOTEX

TRADE MARKS REGISTERED U. S. PAT. OFF.

Sound Conditioning Products

PRODUCTS FOR EVERY SOUND CONDITIONING NEED

THE CELOTEX CORPORATION · 120 SOUTH LA SALLE STREET · CHICAGO 3, ILLINOIS



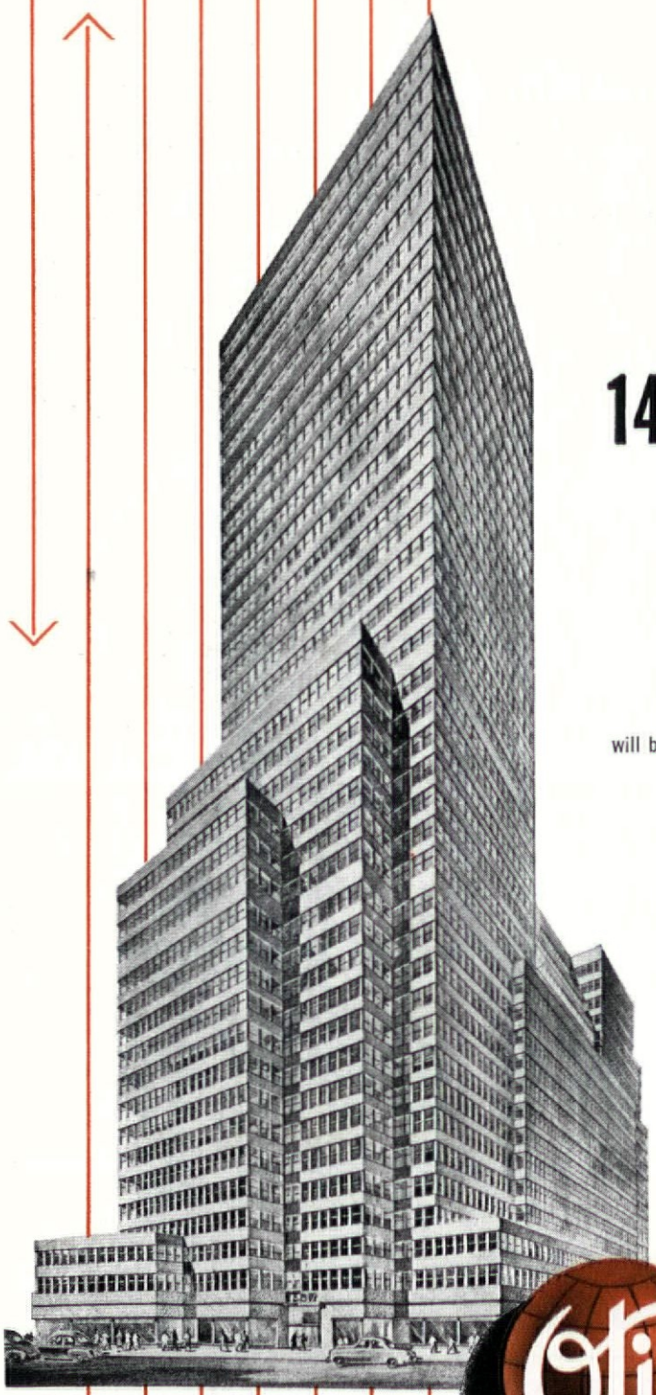
1407 BROADWAY NEW YORK CITY buys OTIS AUTOTRONIC ELEVATORING

1407 Broadway is to be the "Prestige Headquarters" of the textile and allied industries. Everything's advance-styled. Vertical transportation will be an entirely new concept of elevatoring. For Otis AUTOTRONIC Traffic-Timed ELEVATORING is the only system that is timed to the 6 traffic patterns of the entire business day. It excels at reducing passenger waiting time — not only during peak-traffic hours but also during the equally important between-peak periods.

It keeps cars evenly spaced throughout the building automatically. They can't bunch at terminals or landings. All floors, all tenants receive prompt, continuous service — with an expense-saving minimum number of cars.

In addition, Otis AUTOTRONIC Traffic-Timed ELEVATORING is dramatic! A passenger merely "touches", not pushes, an electronic directional arrow in the landing fixture. The arrow glows, the call registers, and a car arrives — as if by magic.

Otis Booklet B-721-A explains how AUTOTRONIC ELEVATORING will keep NEW or MODERNIZED buildings on preferred renting lists for years, years, years. Otis Elevator Company, 260 11th Ave., New York 1, N. Y.

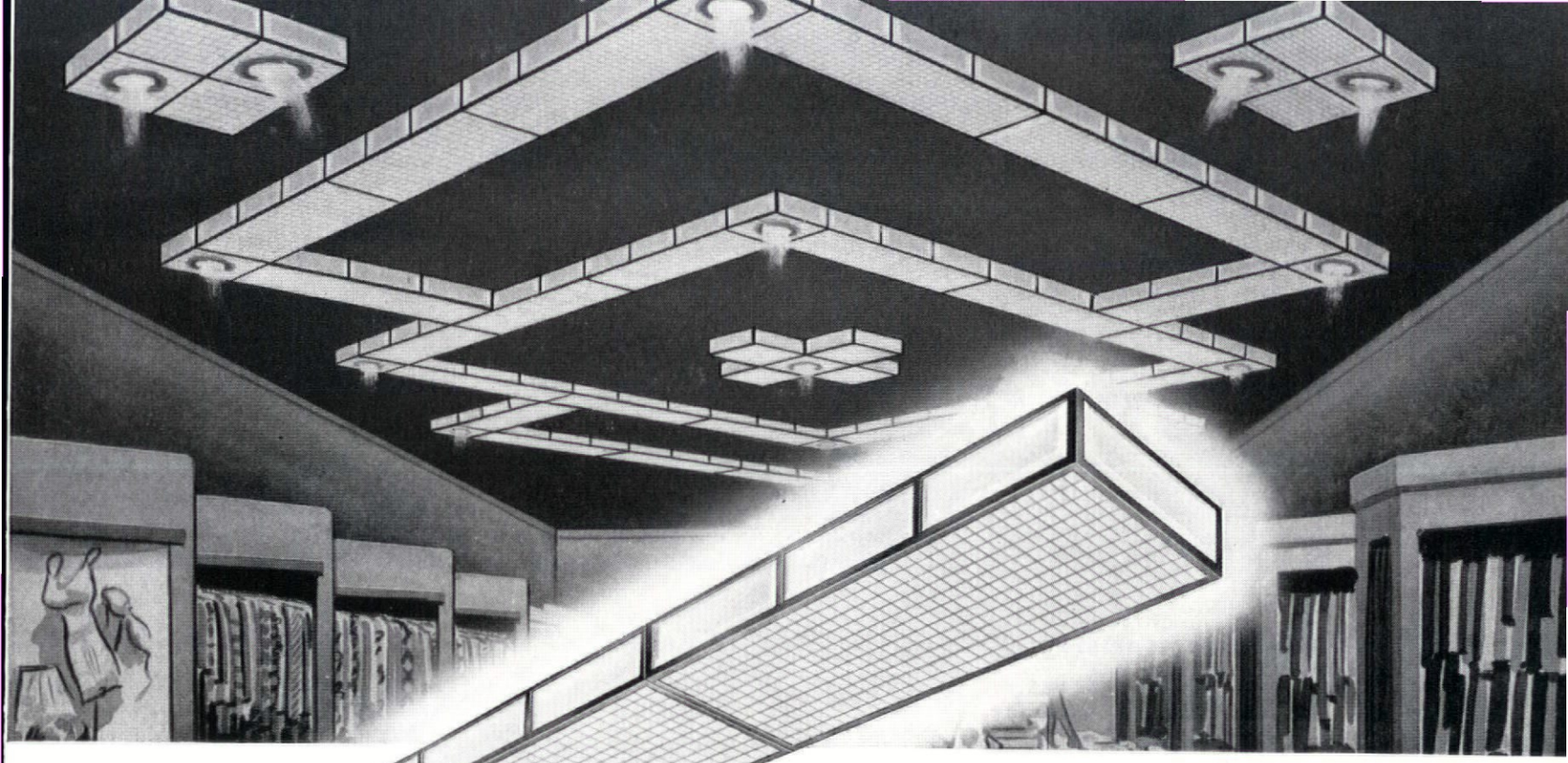


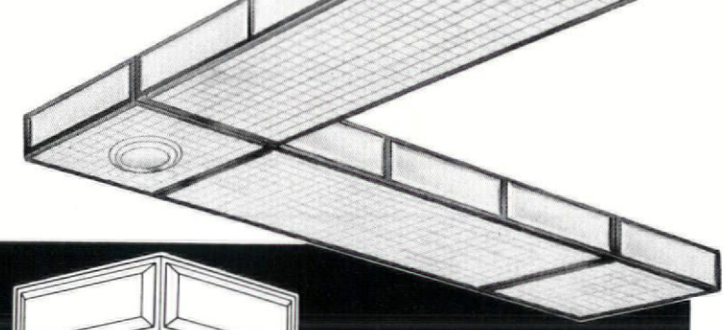
1407 Broadway Realty Corporation, Builders; William Zeckendorf, Chairman of the Board; S. M. Hirsch, President; Kahn & Jacobs, Architects.

Otis

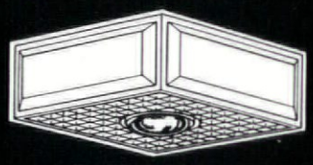
AUTOTRONIC traffic-timed ELEVATORING

31 other NEW and MODERNIZED office buildings, hotels, banks and department stores have also bought this entirely new concept of elevatoring.

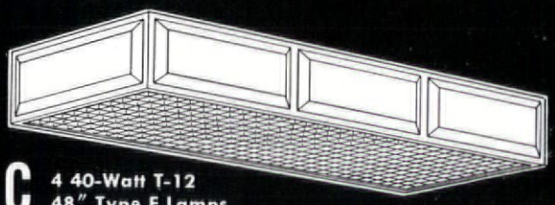




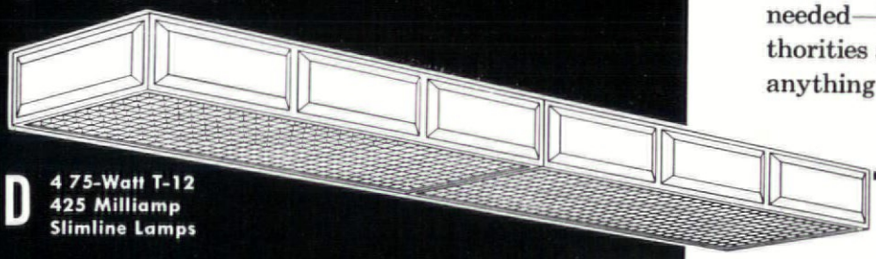
A 4 14-Watt T-12
15" Type F Lamps



B 1 32-Watt 12" Circline
Lamp, & 1 PAR Spot
or Flood Lamp



C 4 40-Watt T-12
48" Type F Lamps



D 4 75-Watt T-12
425 Milliamp
Slimline Lamps

these 4 modules are the "building blocks" of the Mitchell Module Lighting System

MITCHELL

module

REG. U. S. PAT. OFFICE

Revolutionizes Commercial Lighting Installations!

For the First Time! All the Advantages of the Finest Custom-Fitted Installations Using Low Cost, Simply Installed Stock Units!

It's amazing! See what these 4 simple, low-cost "building blocks of light" accomplish *for the first time!* Custom-fitting MITCHELL MODULE makes possible unlimited 90° lighting patterns, fits any ceiling regardless of shape or size, mixes all light sources in one harmonious system, provides equal low brightness throughout. MODULE *really* puts the light where it's needed—is recognized and acclaimed by leading authorities as truly *superior* lighting. There's never been anything like it before. For full details, write today.

Only MITCHELL makes MODULE

Write today for the free 20-page MODULE brochure which gives every detail of this revolutionary new lighting development. Use coupon at right.

MITCHELL MANUFACTURING COMPANY
2525 N. CLYBOURN AVE., CHICAGO 14, ILLINOIS
Send full details on MITCHELL MODULE.

Firm Name _____

Address _____

City _____ *Zone* _____ *State* _____

Attention:

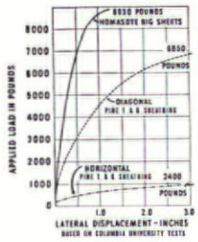
The facts show why it always pays to

SHEATHE WITH

HOMASOTE

A house should be built

STRONG



RACKING TESTS PROVE
HOMASOTE SHEATHING
. . . 33.6% STRONGER
than diagonal wood sheathing
. . . 272% STRONGER
than horizontal wood sheathing

COMPARE THE
TENSILE STRENGTH
of HOMASOTE and other
FIBRE INSULATING BOARDS

APPLICATIONS

THE AVERAGE SMALL HOUSE REQUIRES
1200 SQ. FT. OF SHEATHING

LUMBER . . . **176** BOARDS – 14 ft. LONG
OTHER FIBRE BOARDS . . . **39** – 4 ft. SHEETS
HOMASOTE . . 11 BIG SHEETS – 8 ft. x 14 ft.

NUMBER OF NAILS REQUIRED FOR		
	LUMBER	3872
	OTHER FIBRE BOARDS	2615
	HOMASOTE	1760

We invite architects and builders to send for illustrated booklet — giving physical characteristics, performance charts, specification data and application instructions.

In BIG SHEETS up to 8' x 14'

Weatherproof **HOMASOTE**

. . . oldest and strongest insulating and building board on the market

HOMASOTE COMPANY
Trenton 3, New Jersey

mystic value on the word "view." Thus far I have found no one who can define it, no one who can describe it and no one who seems to have more than a faint idea of what he is boasting about or attempting to sell. Yet "view" is, apparently, one of the most expensive fragments of the whole property.

So, I'm trying to "tie it down"—trying to establish some formula, fix some definition, approximate some percentage to use in the appraisal of real estate. Perhaps it is much like attempting to define, describe or evaluate "love," but at least there is somewhat, if only a small amount, less sentiment in "view" than there is in "love."

. . . I would like very much to receive (1) your personal *views* on "view" and (2) reference data from your files. . . . If you have even made a reference to "view" in conjunction with the "setting," "landscaping," the "picture window," or any other connotation, I'd like the reference data for detailed study. . . .

LEONARD M. COWLEY, *M.A.I.*
Dallas, Texas

• FORUM'S view on view (no house should be without it) is well documented by its frequent reference to view in its many presentations of contemporary houses—most of which are designed to capitalize on view.—ED.

HORRIBLE CONTEMPLATION

Forum:

. . . Here is a choice morsel that statistics do not bring out. We recently had occasion to take a price on a house we built ten years ago for $9,000; this year's price is $35,000. Horrible to contemplate, isn't it?

ROYAL BARRY WILLS, *Architect*
Boston, Mass.

STRUCTURAL THEORY

Forum:

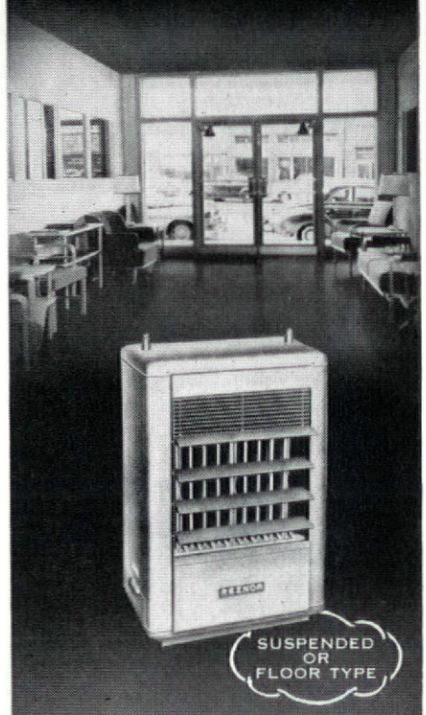
I read Weidlinger's excellent article "Tomorrow's Structural Theory" in the August issue. I liked the ideas very much and would like to read more of this sort of thing. I didn't know there were structural engineers who had cogitations along this line. Congratulations!

I have long felt that our ability at analysis had far outstripped our ability at synthesis. And I have wished for methods that would even up the discrepancy. I feel that this discrepancy exists in just about everything that man does from organizing human relationships to making machines and building structures.

I have two other comments on the article. The first has to do with deflections. I rather imagine that future design will have to have a much wider range of deflections

(Continued on page 34)

Automatic
REZNOR
gas fired unit heaters



POPULAR

Reznor engineering and production are devoted exclusively to the manufacture of gas fired unit heaters. More Reznors are bought than any other. Reznor heating is ideal for industrial plants, offices and stores. Catalog shows special features. Write today.

- FULLY AUTOMATIC
- EXTRA LARGE FAN
- SPECIAL HEAT EXCHANGER
- STRONGER CONSTRUCTION
- MORE ECONOMICAL
- LOW COST INSTALLATION
- ALUMINIZED STEEL INTERIOR UNIT

REZNOR MANUFACTURING CO.
2 UNION ST. · MERCER, PENNA.
Gas Heaters Since 1888

THE WORLD'S BEST SHOWERS

MODEL 1
(S-2250)
The latest word in shower design and beauty. Integral Ball Joint, Concealed Volume Control. ½" size.

COME FROM THE FAMOUS ORIGINAL

SPEAKMAN

Anystream

SELF-CLEANING

Shower Heads

MODEL 2
(S-2250)
Pat. Pending
Small, light, compact for low cost installations. Integral Ball Joint. ½" size.

see our CATALOG in SWEET'S FILE ARCHITECTURAL

And here's why—

A TURN OF THE LEVER GIVES:

Needle Spray for stimulation — *Normal Spray for relaxation* — *Flood Spray for thorough rinse*

SPEAKMAN COMPANY
Wilmington, Delaware

ON DUTY 20 YEARS

these VITROLITE WALLS still sparkle like new

Keep maintenance costs to a minimum with *Vitrolite** walls. They are long-term assets in any building . . . last a lifetime, glow with never-fading beauty.

Vitrolite is *glass* paneling. It can't "wear out". It won't craze, fade, rust or warp . . . is easy to keep immaculate. Quick sponging with water or window cleaner makes it sparkle like new. Even crayon, ink and pencil marks whisk right off. No painting or refinishing is ever needed. Dirt, germs and moisture just can't penetrate *Vitrolite's* hard, smooth surface.

For corridor, lobby, washroom and kitchen walls, *Vitrolite* is both beautiful and practical. Applied in large ashlars, there are few joints. For details, write for our *Vitrolite* book.

*®

CORRELATED COLORS SUGGEST DISTINCTIVE DECORATIVE IDEAS

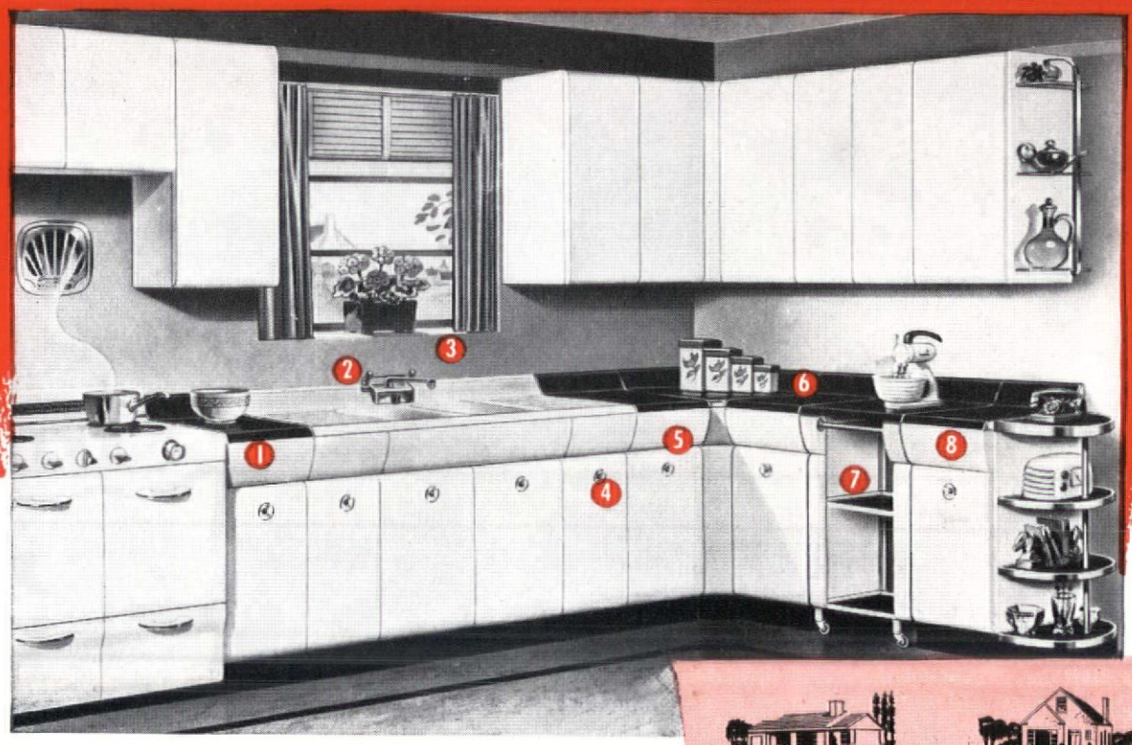
Sky Blue
Cadet Blue
Light Gray
Dark Gray
Jade
Cactus Green
Alamo Tan
Peach
Mahogany
Red
Black and White

Installed in 1929! Yet the only care this *Vitrolite* wainscoting has needed is easy cleaning with sponge and water. It's in the De Paul Building, downtown location of De Paul University, Chicago. Architects: K. M. Vitzthum and Co., Chicago, Ill.

VITROLITE

MADE BY
LIBBEY•OWENS•FORD GLASS COMPANY
41119 Nicholas Building, Toledo 3, Ohio

American KITCHENS BIG FAVORITES IN CHICAGO HOME FESTIVAL 2nd SUCCESSIVE YEAR!



Compare and See Why Leading Architects and Builders Prefer Famous American Kitchens!

It's a fact that many women judge houses by their kitchens. So it's to *your* advantage as well as ours to choose American Kitchens. Units easily combine to fit rooms of all sizes, all shapes, thus eliminating hours of detailed planning and costly installation. Actually, American Kitchens cost *less* per running foot than quality wood cabinets! You can make even further savings with American's new Economy Sinks, at the country's lowest cost for this high quality! And, remember—no other kitchen has so many of these plus features women want most!

1. One-piece drawers—*rounded* inside for easier cleaning.
2. Modern lever-type faucet—on or off with flick of finger.
3. Back-splash faucet mounting—no dirt-catching ledge; permits larger bowl.
4. Concealed cutting board, divided cutlery drawer, 2 hidden drawers.
5. Concealed pulls—extra beauty, easier cleaning.
6. Flush-sealed linoleum counter tops—waterproof, dirtproof between cabinets.
7. Smart new Serv-Cart—combination serving cart and mobile work center.
8. Extended counter tops—ample knee room for natural stance.

FREE! Architects-Builders File. New edition—just off press. Gives complete specifications and roughing-in diagrams. Ask your nearest supplier. If you don't know his name, write us.

SEE OUR CATALOG IN SWEET'S

American KITCHENS
STYLED IN STEEL

AMERICAN CENTRAL DIVISION AVCO CONNERSVILLE, INDIANA

La Grange Park
Wm. Joern & Son

Chicago
Shekelton Homes, Inc.

Deerfield
American Construction Co.

Chicago
Finitzo Brothers

A FEW OF THE MANY AMERICAN KITCHENS HOMES FEATURED BY CHICAGO HOME FESTIVAL BUILDERS

Chicago
J. E. Merrion & Co.

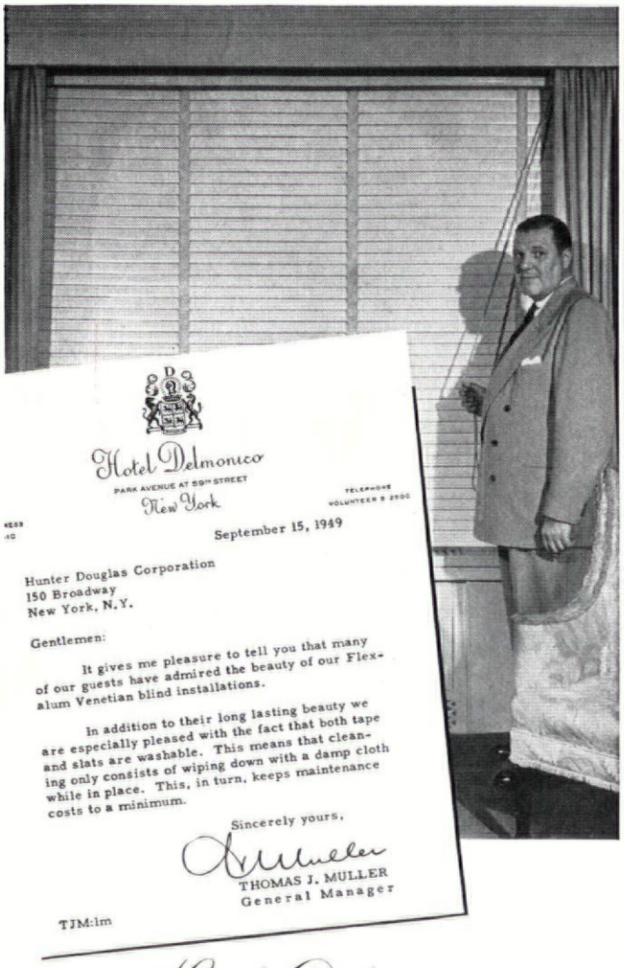
Lansing
Blount Brothers

Chicago Heights
John Mackler

Chicago
Schavilje & Knuth

Downers Grove
A. J. Erickson

Evergreen Park
Wiegel & Kilgallen



Hotel Delmonico

gives a tip to **architects**

Thomas J. Muller, manager of the Delmonico, has found what your client is looking for—beautiful venetian blinds that require a minimum of maintenance time and money.

Amazing new Flexalum vinyl plastic tape* is the first completely washable venetian blind tape. It keeps its clean-as-new beauty practically forever.

Beautiful Flexalum aluminum slats are the only spring-tempered slats—light as a feather, yet stronger than steel slats. In laboratory tests, they've proven themselves longer-lasting than any other slats made.

Assure your client of lovelier, longer-lasting venetian blinds. Specify FLEXALUM tape and slats—the tape and slats that never need replacing.

See Sweet's Catalog for the whole story on FLEXALUM. Or write today for free tape and slat samples with detailed information.

*U.S. Pat. No. 2,405,579
Other patents pending

The Flexalum "Visible-Invisible" trademark is your assurance of quality

Flexalum®

Spring-tempered slats and new vinyl plastic tape

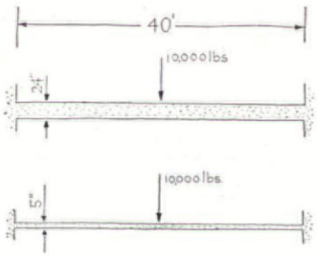
Stay Beautiful because they Stay Clean

Guaranteed by Good Housekeeping

HUNTER DOUGLAS CORPORATION

Riverside, California and 150 Broadway, New York 7, New York

than at present. This is prompted by a very literal interpretation of the illustration of the "super-strong" concrete. Assuming that E (the elastic modulus) was a linear function of the strength, the deflection of the 5 in. slab would still be roughly 25 or 30 times that of the 24 in. slab. And also, what of plastic flow, and what about the reinforcing? My guess is that we'd be in for some rather radical changes in design assumptions and reinforcing arrangements. The second has to do with the remark that history has shown that evolutions (in techniques, etc.) have created only temporary unemployments, and by inference, that the future would be more of the same. This process has acted well in the past, but I rather feel that present evidence indicates that in another two to five generations, this process will cease to operate. Our society is built on the assumption of a continuously expanding economy which I feel cannot be maintained indefinitely.



RAYMOND H. F. BOOTHE
Structural & Civil Engineer
Los Angeles, Calif.

QUESTION FROM BRAZIL

Forum:

To us here in Brazil, the vast exploration into the field of architecture that the U. S. has made is a hope and a challenge for all of us; and may I say that it is with great pleasure that I read the FORUM each month and try to catch the great moving spirit which carries the trend of modern design and architecture.

In the July issue you quoted Architect Frank Lloyd Wright as telling the students of the Carnegie Technical school to go home and make something of themselves. And then, correlating it with the bits of information that I have about his students at Taliesin, I confuse myself with his own admonition to the young men of design and engineering not to be copists, but to find their own idea and develop their own technique.

Could he be making but more than copists of them in trying to preserve his own style?

ROSS VIEHWEG
Curitiba, Parana, Brazil

(Continued on page 38)

8 Basic Models
36
Different Ranges
in
Universal's
BALANCED LINE OF GAS RANGES

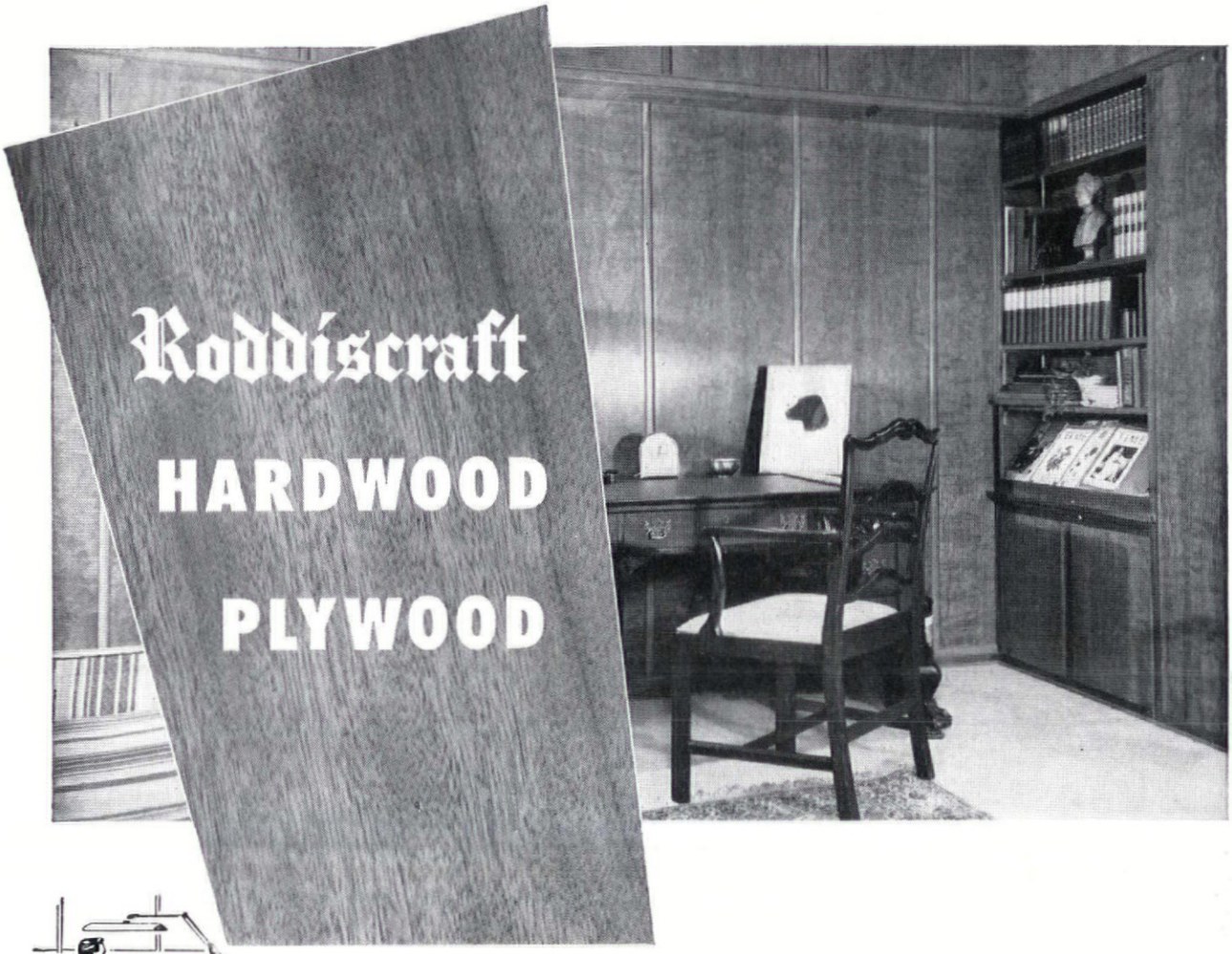
The separate high broiler
BERKSHIRE

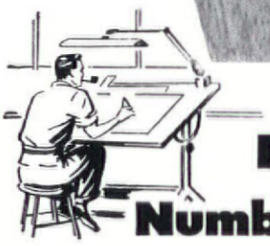
Architects know Universal Gas Range quality. They know, too, that any good feature of comfort and convenience is quickly considered, carefully adapted to gas ranges, and thoroughly tested by Universal's research engineers before releasing to the public. Now Universal also offers variety. 8 models of equal quality in 4 sizes and many forms allow the architect to specify just the range to fit his plans—and take quality for granted.

With widths of
19"—36"—40"—43"

There is
A Range to fit the specifications
A Range to fit the appropriation
Specify—

Universal
GAS RANGE
write for full details
CRIBBEN & SEXTON CO.
700 North Sacramento Blvd., Chicago 12, Ill.





Perfectly Matched Hardwood Panels Numbered for 'Round-the-Room Continuity

Roddiscraft Hardwood Plywood in paneling complements the craftsmanship that goes into your architectural designs. Panels are matched by number in strict accordance with your blueprints. *Roddiscraft* Plywood is manufactured from the best veneers available — both domestic and foreign — cut, classified, and matched with painstaking care by experts who take pride in an established tradition of craftsmanship. Their thorough attention to detail assures you paneling that's perfectly uniform in color, figure, and continuity.

You can pre-select your exact Roddiscraft paneling. Flitch samples will be furnished from which you can make your selection. Mark your choice, and the finished plywood will exactly match the sample.

Ask your *Roddiscraft* representative for samples of Hardwood Plywood. He is ready to serve you on any installation problem.

NATIONWIDE Roddiscraft WAREHOUSE SERVICE

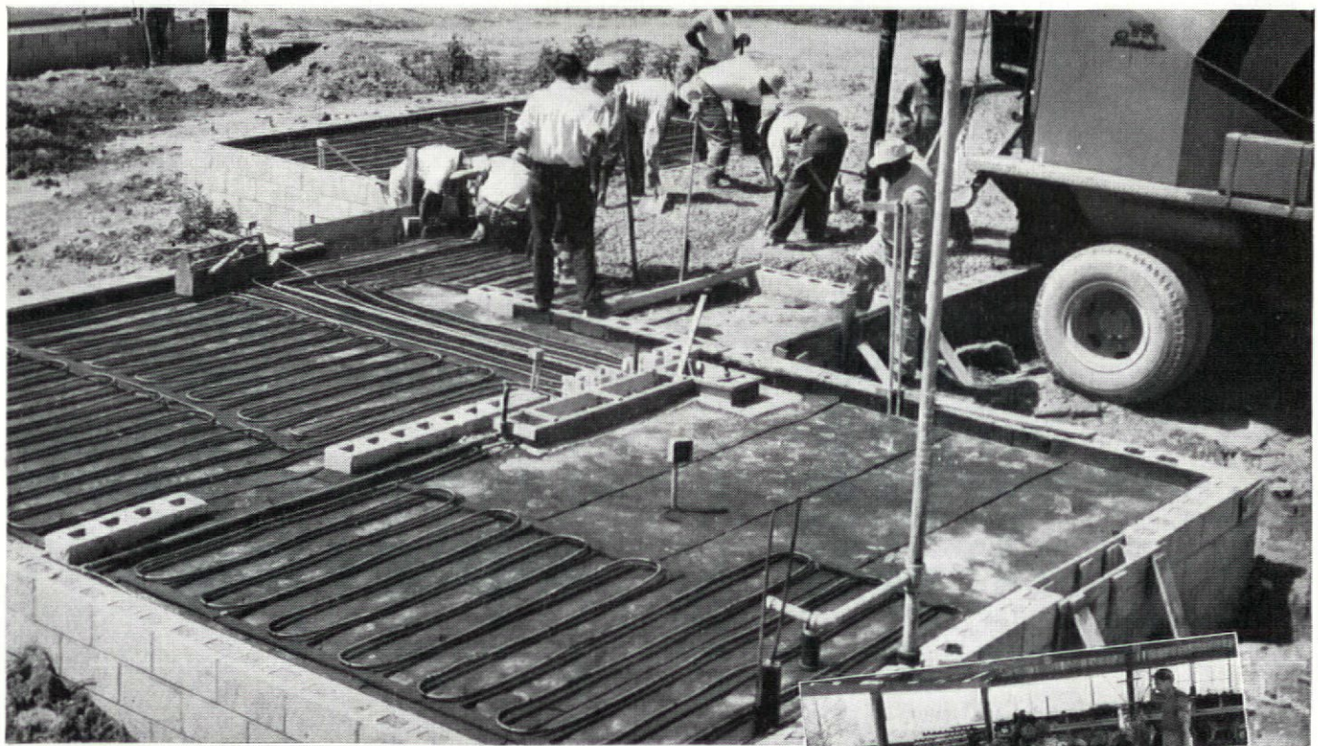
Cambridge 39, Mass...229 Vassar St.
Charlotte, N. C.....123 E. 27th St.
Chicago 32, Ill.....3865 W. 41st St.
Cincinnati 2, Ohio...457 E. Sixth St.
Dallas 10, Texas.....2800 Medill St.
Detroit 14, Mich. .11855 E. Jefferson St.
Houston 10, Texas...2425 Sabine St.
Kansas City 3, Kan. 35-53 Southwest Blvd.
L. I. City, N. Y. Review & Greenpoint Ave.
San Francisco 24, Cal. 345 Williams 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.
Philadelphia, Pa., Pier 5, N. Delaware Ave.
St. Louis, Mo.....4453 Duncan Ave.
San Antonio, Texas..727 N. Cherry St.

Roddiscraft

RODDIS PLYWOOD CORPORATION

MARSHFIELD, WISCONSIN

102½ MILES OF REVERE COPPER WATER TUBE AT OAK RIDGE, TENN.



500 Permanent Homes to be heated by RADIANT PANEL METHOD

This huge project of 500 permanent homes being built for the U. S. Atomic Energy Commission at a cost of $6,500,000.00 by John A. Johnson & Sons, Inc., Oak Ridge, Tenn., will consume 540,900 feet of Revere Copper Tube to be used for radiant panel heating, water lines and service connections.

As more and more radiant panel heating systems are being installed, more and more contractors and builders are finding out that they like to work with Revere Copper Tube. They have found they can trust it to guard against leaks, inadequate flow and faulty circulation . . . that it is unusually easy to handle and bend, has full wall thickness and close dimensional tolerances so essential for tight soldered joints. And, installed, Revere Copper Tube costs little or no more in the first place . . . may be much less in the long run.

NEW REVERE BOOKLET MAKES IT EASY TO DESIGN FOR RADIANT PANEL HEATING

This booklet, "A Simplified Design Procedure For Residential Panel Heating," contains the most simple, rapid method of design for panel heating ever devised. Send for your *free* copy today!

REVERE

COPPER AND BRASS INCORPORATED

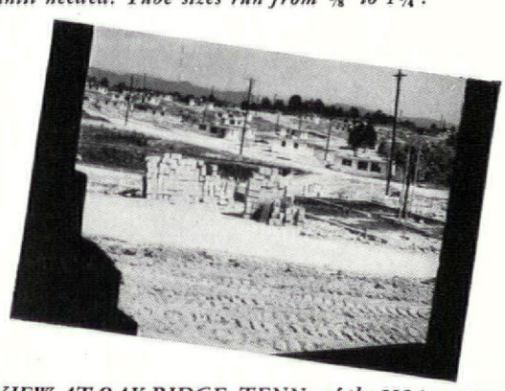
Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

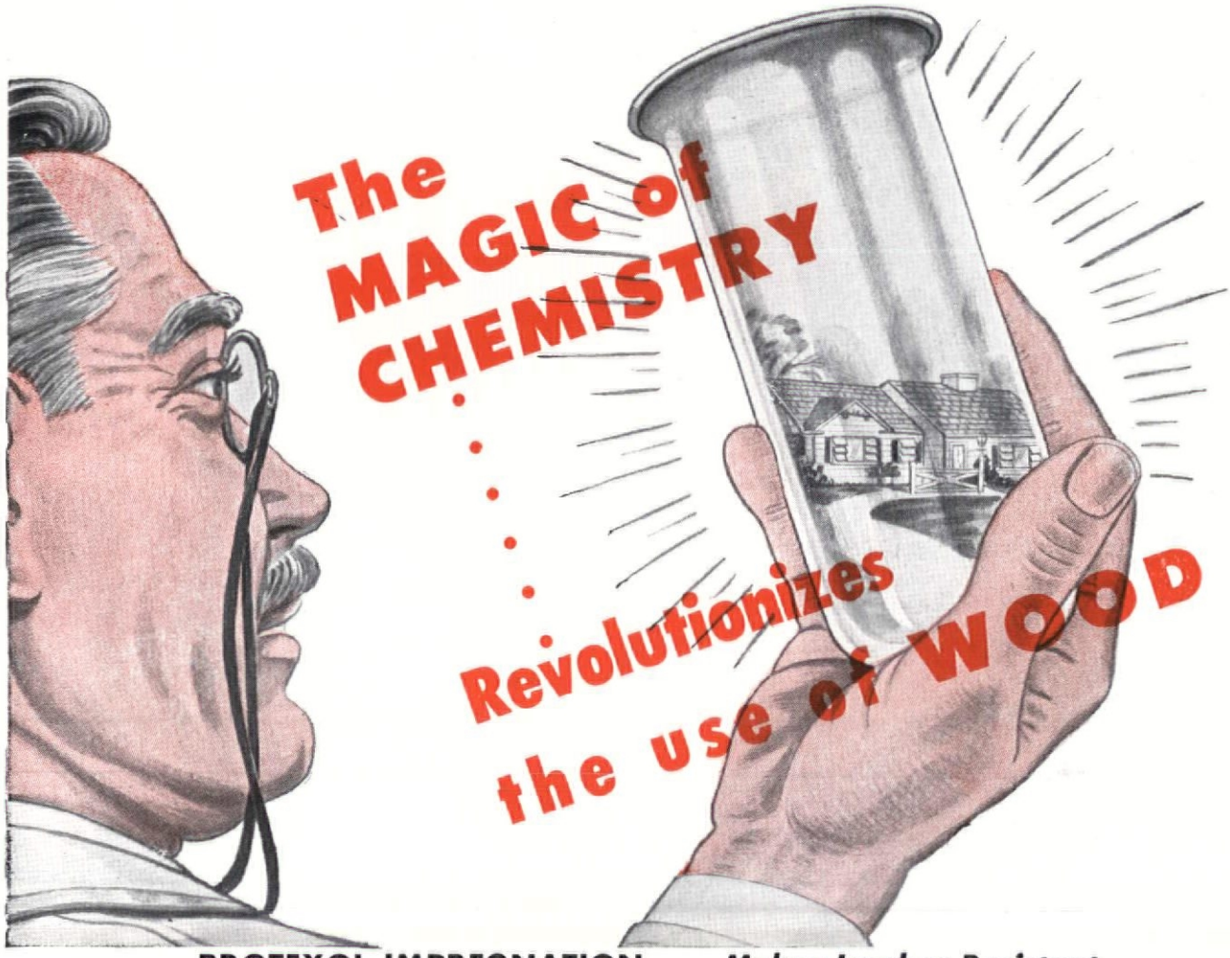
• • •

Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities, Distributors Everywhere.

TO SAVE TIME AND MONEY IN HANDLING and installing the radiant panels for heating, the Revere Copper Water Tube was speedily bent into wooden forms by hand, then wired to temporary frames and stacked flat until needed. Tube sizes run from ⅜" to 1¼".



VIEW AT OAK RIDGE, TENN., of the 500 permanent homes built for the U. S. Atomic Energy Commission. Architects—Skidmore, Owings & Merrill, Chicago, Ill., Oak Ridge, Tenn. Plumbing Contractor—Brown Plumbing & Heating Co., Birmingham, Ala. Revere Tube furnished by Crane Co., Birmingham, Ala.



PROTEXOL IMPREGNATION . . . *Makes Lumber Resistant to Fire, Rot and Vermin . . . . . and Dimensionally Stable*

New and broader horizons for the use of wood in all its greater natural beauty are opened to you by the amazing Protexol Process.* New factors of safety and strength . . . combined with longer lasting beauty can be utilized in your buildings with lumber given these *added* advantages through Protexol impregnation:

• **FIRE RESISTANT.** Protexol-impregnated wood cannot burn, assures safer and better construction.

• **DIMENSIONAL STABILITY.** Normal dimensions are retained, and checking and grain raising are stopped.

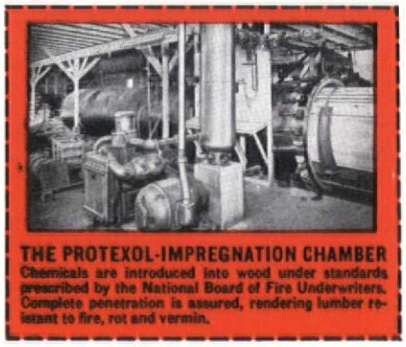
• **NON-ROTTING.** The beauty of your structures can be protected from damage by decay, mold and mildew.

• **VERMIN-RESISTANT.** Structural strength *and* beauty are retained, wood is protected from termites, borers and other vermin.

The Protexol process does not affect the color or beauty of wood in any manner — actually makes it *better* structurally. And, our large-scale treating facilities assure convenient, economical service — at a cost well within every builder's budget.

Write today for complete information . . . we'll gladly send you details and cost estimates at no obligation

**Listed as Standard by Underwriter's Laboratories, Inc.*



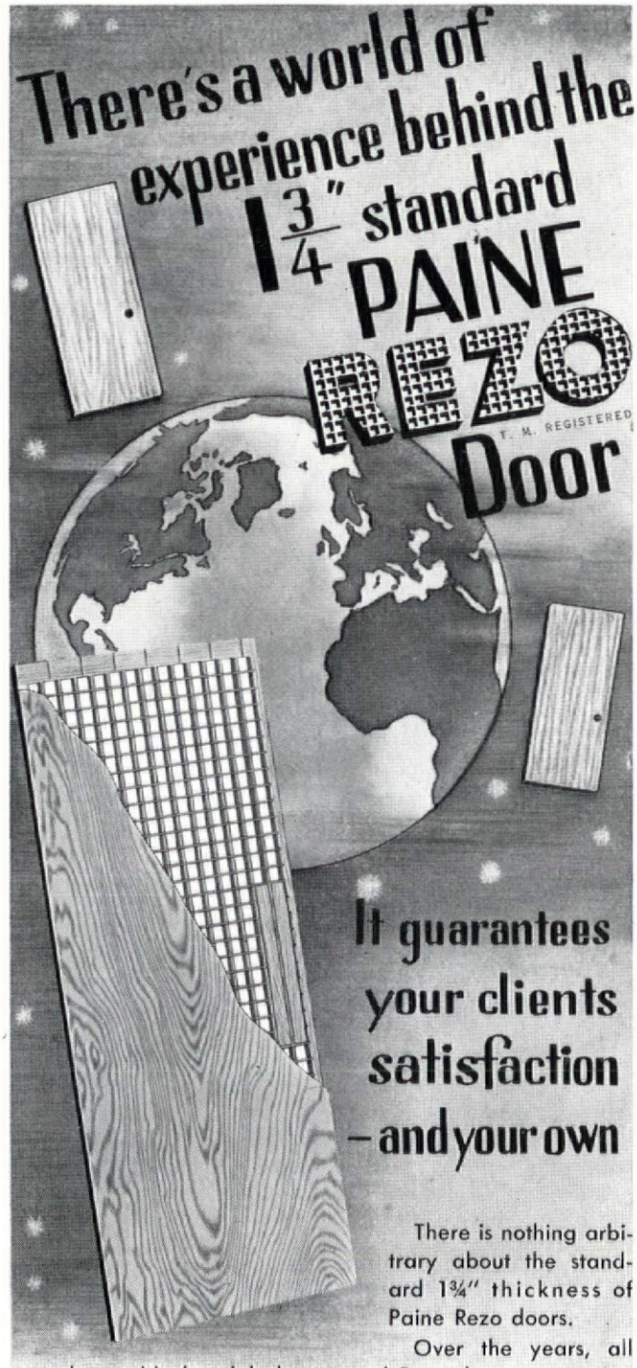
THE PROTEXOL-IMPREGNATION CHAMBER
Chemicals are introduced into wood under standards prescribed by the National Board of Fire Underwriters. Complete penetration is assured, rendering lumber resistant to fire, rot and vermin.

FOX MADE

FOX BROS. MFG. CO. ☆ *75 Years Experience*

2713 SIDNEY STREET • ST. LOUIS 4, MISSOURI

Custom-built Millwork



There is nothing arbitrary about the standard 1¾" thickness of Paine Rezo doors.

Over the years, all over the world, the global, patented Rezo door construction has proved to be most stable, most free from dimensional change. That's why Paine specifically recommends this thickness — because it's *right*.

Why accept a lesser *doubt* when you *get a fact* that's GUARANTEED . . . for every Rezo door carries an unconditional warranty of satisfactory service by the world's largest exclusive producer of air cell flush doors. These time-tried and time-proved doors are now obtainable at all dealers. Specify them. See Sweet's catalog for an informative data bulletin, or a copy will gladly be mailed to you for the asking.

Manufactured by the
PAINE LUMBER CO., LTD. *Oshkosh Wisconsin*
ESTABLISHED 1853

OPEN-END MORTGAGES

Forum:

We have read with a great deal of interest your article on Open End Mortgages (FORUM, June, p. 102) and heartily agree that this source offers a great opportunity to everyone connected with the building industry.

As we are contractors ourselves and also finance other contractors, both in the new construction and remodeling fields, we would like to lend whatever cooperation we may to this program. . . .

We have discussed your article with many of our associates in the construction field and it is generally felt that an opportunity such as this should be pressed at this time (so that the present momentum of the building market may be taken advantage of) rather than waiting until such time as there may be a lag in the construction business.

Please accept our congratulations on this article and our wishes that the success of the program be national in scope.

LEO F. JARVIS
Lakeview Investment Corp., Inc.
Fresno, Calif.

• For a progress report on the open-end mortgage, see *News*.—ED.

LOVE AFFAIR

Forum:

After reading in the August FORUM Roger Allen's letter quoting the *Weekly Bulletin of the Michigan Society of Architects*, I was willing to admit that FORUM had been surpassed in the department of "rich, beautiful prose."

However, seemingly in retaliation, FORUM regained its composure in its article on large houses in the September issue from which I quote: ". . . Basically the composition is a love affair between two great sweeping horizontal planes—and a sheltered space between them. . . ."

As an attention gainer, the use of such terminology might be justified, but I wonder if you aren't "missing the target" when you describe a composition as a "love affair."

FREDERICK P. CHAEL
University of Nebraska
Lincoln, Nebraska

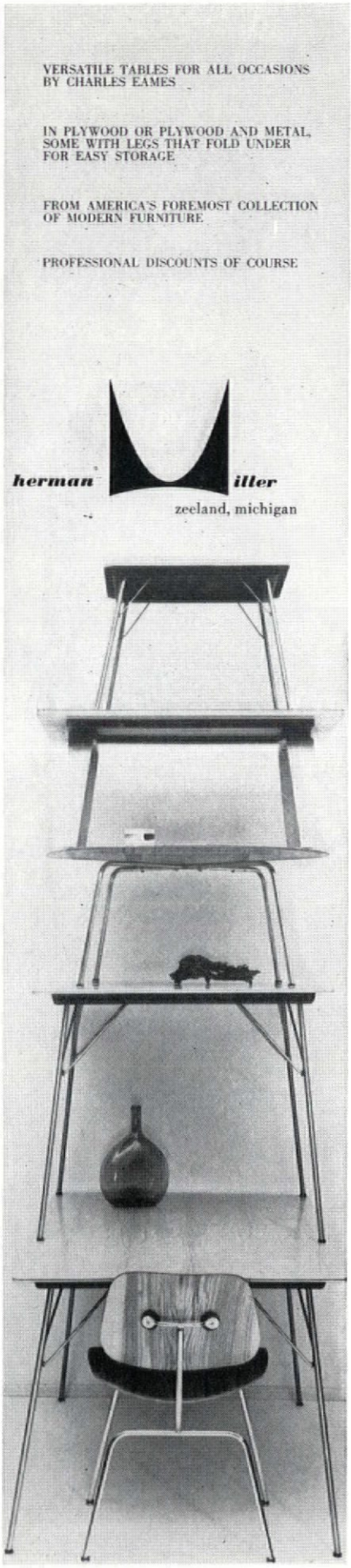
• It was strictly platonic.—ED.

MASSACHUSETTS' 12 HOUSES

Forum:

The September issue of FORUM states that Connecticut is the first state to build houses for sale. Apparently, your researchers are unaware that in 1920 Massachusetts

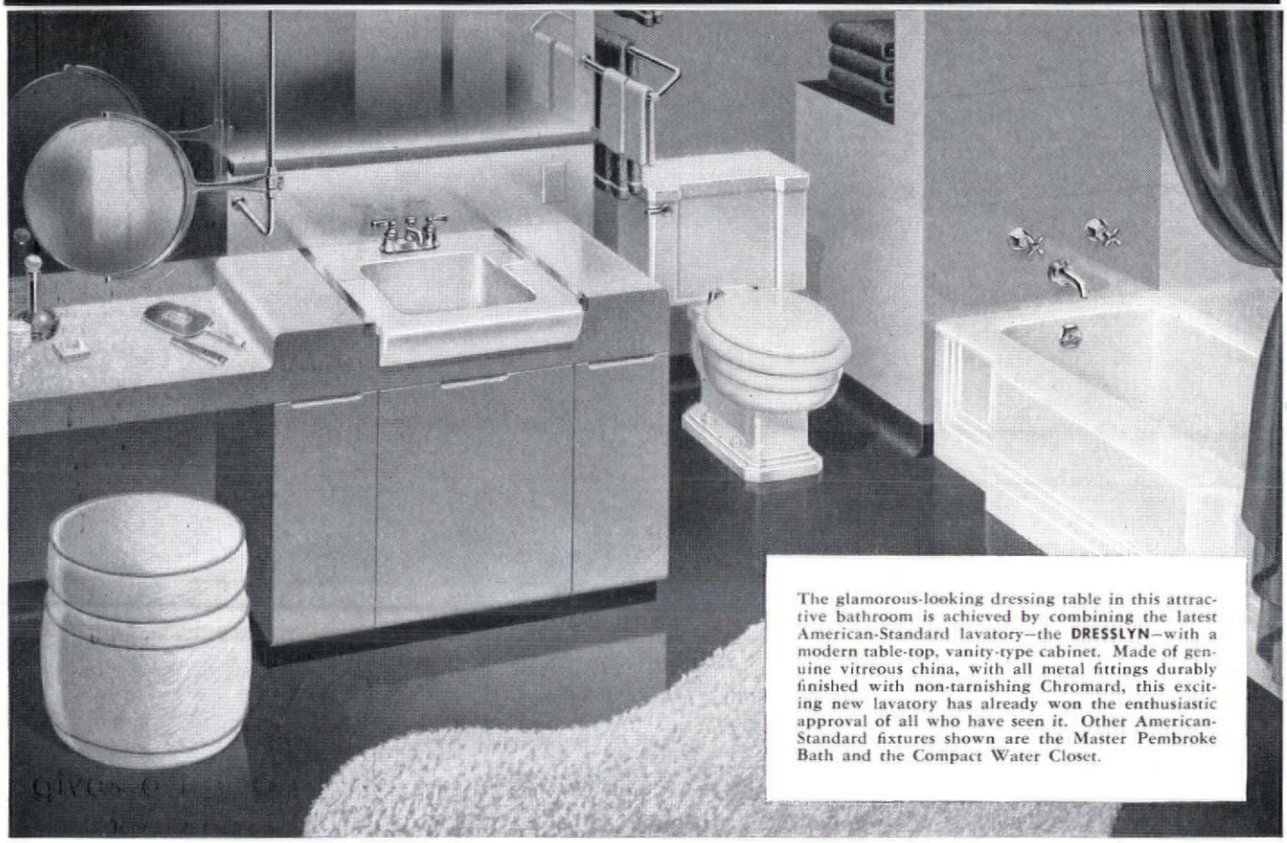
(Continued on page 42)



show rooms — one park avenue, new york — 622 merchandise mart, chicago — exhibitor's building, grand rapids — 8806 beverly boulevard, los angeles

AMERICAN-Standard

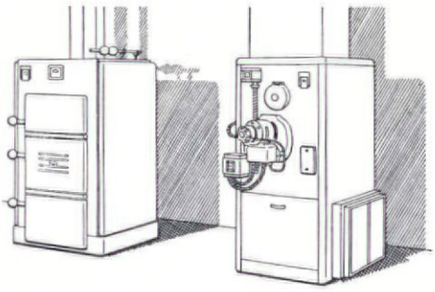
First in heating . . . first in plumbing



The glamorous-looking dressing table in this attractive bathroom is achieved by combining the latest American-Standard lavatory—the **DRESSLYN**—with a modern table-top, vanity-type cabinet. Made of genuine vitreous china, with all metal fittings durably finished with non-tarnishing Chromard, this exciting new lavatory has already won the enthusiastic approval of all who have seen it. Other American-Standard fixtures shown are the Master Pembroke Bath and the Compact Water Closet.

Designed with the ladies in mind . . .

■ American-Standard Heating Equipment and Plumbing Fixtures have eye-appeal as well as readily recognized engineering and construction advantages. The ladies are especially pleased to find that the extensive American-Standard line covers designs and styles to fit in with any type of architecture, any room arrangement, and any decorative scheme. For example, the ultra modern and strikingly feminine Dresslyn Lavatory shown above and the compact, attractively jacketed heating units are designed to give both you and the homeowner the widest latitude in home planning. For details of the complete American-Standard line, contact your Heating and Plumbing Contractor. **American Radiator & Standard Sanitary Corporation,** P. O. Box 1226, Pittsburgh, Pa.



American-Standard Heating Equipment covers units for every type of heat and for every kind of fuel. Here you see the **SEVERN** Boiler which is available for coal in either hand fired or stoker fired models, and for oil. At the right is the **WINTERGLO** Winter Air Conditioner from the Sunbeam line, a utility unit of the "highboy" type for small homes and individual apartments.

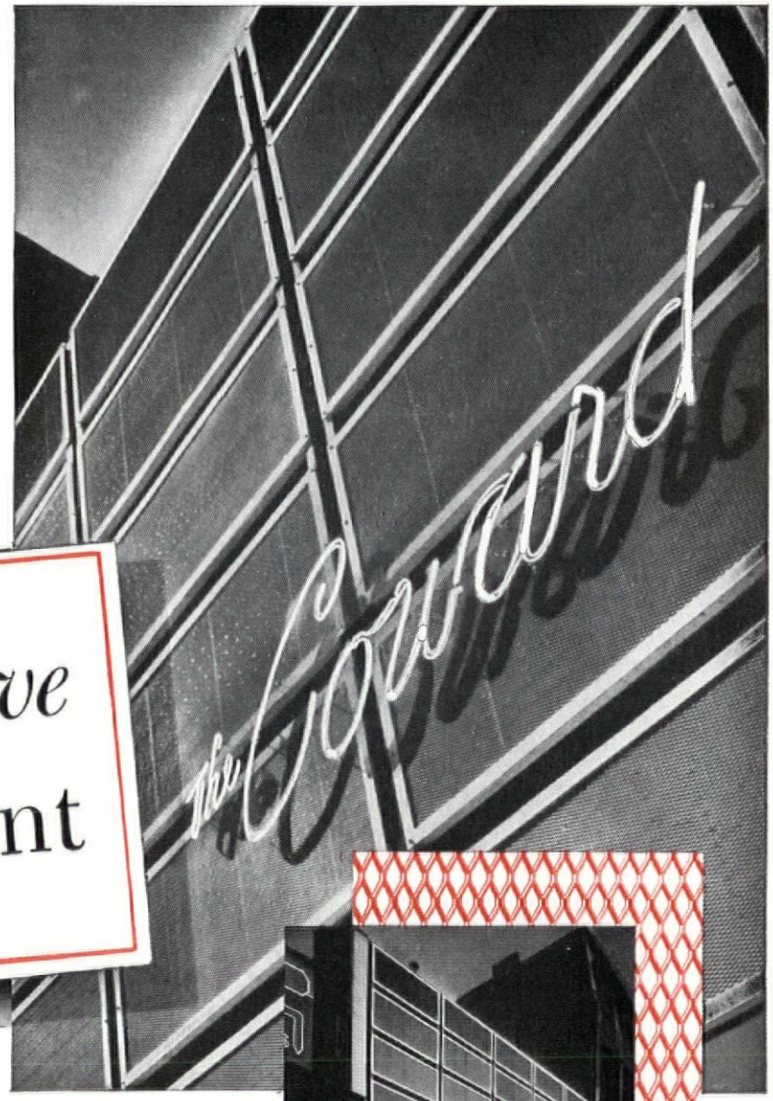
Look for this American-Standard Heating · Plumbing *Mark of Merit*

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

Made with
WHEELING
Expanded Metal
at low cost...

A Distinctive Store Front



Sanders and Malsin, Architects

Appreciating the decorative texture of Wheeling Expanded Metal, architects Sanders and Malsin utilized it for this unusual Coward Shoe Store facade in Brooklyn.

ExM panels, shipped cut to size, framed and painted by Wheeling, were installed by two men in a day. Total cost was nearly ⅓ less than any alternate type of treatment. A feature is the ease of mounting special store front displays attached to the rigid mesh, or even by substituting other panels bolted to the supporting steel.

The ExM weathers evenly without streaks, preserving its interesting texture. Available in many weights and mesh sizes, easily shaped, it offers many architectural possibilities. Your inquiries will be welcome.

WHEELING EXPANDED METAL is expanded from a solid plate of steel into flat sheets of diamond mesh fabric. Available in many weights and sizes for a wide variety of uses from stair treads to ventilator grilles.

WHEELING CORRUGATING COMPANY
WHEELING, WEST VIRGINIA

Atlanta • Boston • Buffalo • Chicago • Cleveland • Columbus • Detroit • Kansas City
Louisville • Minneapolis • New Orleans • New York • Philadelphia • Richmond • St. Louis

Wheeling CORRUGATING COMPANY Reg. U.S. Pat. Off.

Surgeons' Scrub-Up Sinks of Crane Duraclay, San Gabriel Valley Hospital

duraclay*

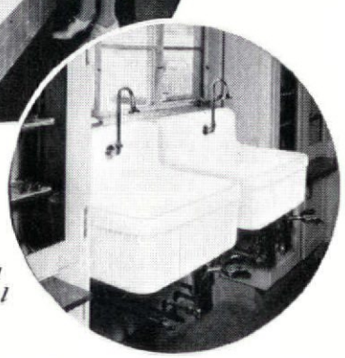
"EXCEPTIONALLY TROUBLE-FREE SERVICE"

SAN GABRIEL VALLEY HOSPITAL

"...We have had exceptionally trouble-free service from our Crane plumbing fixtures. The Duraclay pieces, such as wash-up sinks, service sinks, and bathtubs are as free from scratches, discoloration, and abrasive wear as they were when installed. We feel definitely that our confidence in Crane quality has been justified."

D. W. Lawrence, Supt.,
SAN GABRIEL VALLEY HOSPITAL ASSOCIATION, INC.

Duraclay Pattern Bath, San Gabriel Valley Hospital



Duraclay Wash-Up Sinks, San Gabriel Valley Hospital

Easy to clean, acidproof, immune to thermal shock, Duraclay is entirely different from any other material used in hospital fixtures.

Selections in Duraclay sinks and baths are included in the Crane Hospital Catalog. For special requirements, see your Crane Branch or Crane Wholesaler.

* *Duraclay exceeds the rigid tests imposed on earthenware (vitreous glazed) established in Simplified Practice Recommendations R-106-41 of The National Bureau of Standards.*

San Gabriel Valley Hospital is an outstanding example of the modern small hospital. Here, as for the largest institutions, Crane supplies not only a full line of Duraclay items, but also the washroom fixtures, plus a vast array of specialized plumbing equipment.

CRANE

Plumbing & Heating • Valves • Fittings • Pipe

FOR HOSPITAL USE

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

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

HERE are fine softwoods from the member mills of the Western Pine Association that you can specify and buy with confidence. Manufactured, seasoned and graded to exacting Association standards, they've proved dependable through the years—and best for many construction uses.

Well manufactured

Skilled handling and modern methods feature every step from forest to loaded car. Milled after seasoning for precise, uniform sizes.

Thoroughly seasoned

. . . at the mill in accordance with the most improved practices and under supervision of specially trained Association personnel.

Carefully graded

. . . under the Association's published rules. Grading is constantly supervised and checked by the Association's Grading Bureau.

• Copy of 1949 "Standard Grading Rules" available at 25 cents.
Refer to 1949 Sweet's File, Architectural Section 5a-4

* **These are the Western Pines**

Idaho White Pine

Ponderosa Pine

Sugar Pine

* **These are the Associated Woods**

Larch

Douglas Fir

White Fir

Engelmann Spruce

Incense Cedar and Red Cedar

Lodgepole Pine

WESTERN PINE ASSOCIATION
YEON BUILDING, DEPT. 217-V • PORTLAND 4, OREGON

appropriated $50,000 for the construction of houses by the state for sale at cost to "wage earners, laborers, and mechanics." Some 12 houses were actually built under that "first state program."

Presently, we have in Massachusetts two programs, one a rental program and the other a rental-sale program. Over 54 projects are already under construction under the Massachusetts $200,000,000 state-aid rental housing program. The rental-sale program, which antedates the Connecticut program, provides for construction by the cities, with a 10 per cent capital grant from the state, for rent for five years and sale thereafter.

HAROLD ROBINSON, *Director*
State Housing Board
Boston, Mass.

• FORUM overlooked Massachusetts' twelve 29-year-old houses, thanks Reader Robinson for setting the record straight.—ED.

ARCHITECTS AND THE LAW

Forum:

Your magazine should spend a little more time advocating, sponsoring and stressing the importance of the architect and also advocating rigid enforcement of registrations laws as they apply to architects.

As it is now, anybody can file plans. The Registration Law of the State of New York was specific on that point but little or no (I have never heard of any) enforcement has been attempted.

Engineers, carpenters, "builders" developers, even the Government, real estate operators and "owners" circumvent the law, so where can an architect of training and experience get off—and try and stay in business?

Doctors and dentists, who have the same certificate that we do, are protected. Why not the architects?

Whether you are willing or not to admit it, the building construction industry from top to bottom, has been since the beginning of the last war nothing but a racket and practiced by persons having little or no training or experience, and these persons and groups have been aided and abetted by the Government and financial institutions.

I have been registered in the State of New York since shortly after the enactment of the Registration Law. Because of the lack of profit incentive in the architectural profession and the tendency of the Government to advocate the elimination of the architect I was forced, to my regret, to discontinue my office.

WALTER M. MASON
Riverside, R. I.

(Continued on page 48)

MANY
ways to ship...
but only **ONE**
RAILWAY EXPRESS

Before you ship—
Ask yourself these questions—

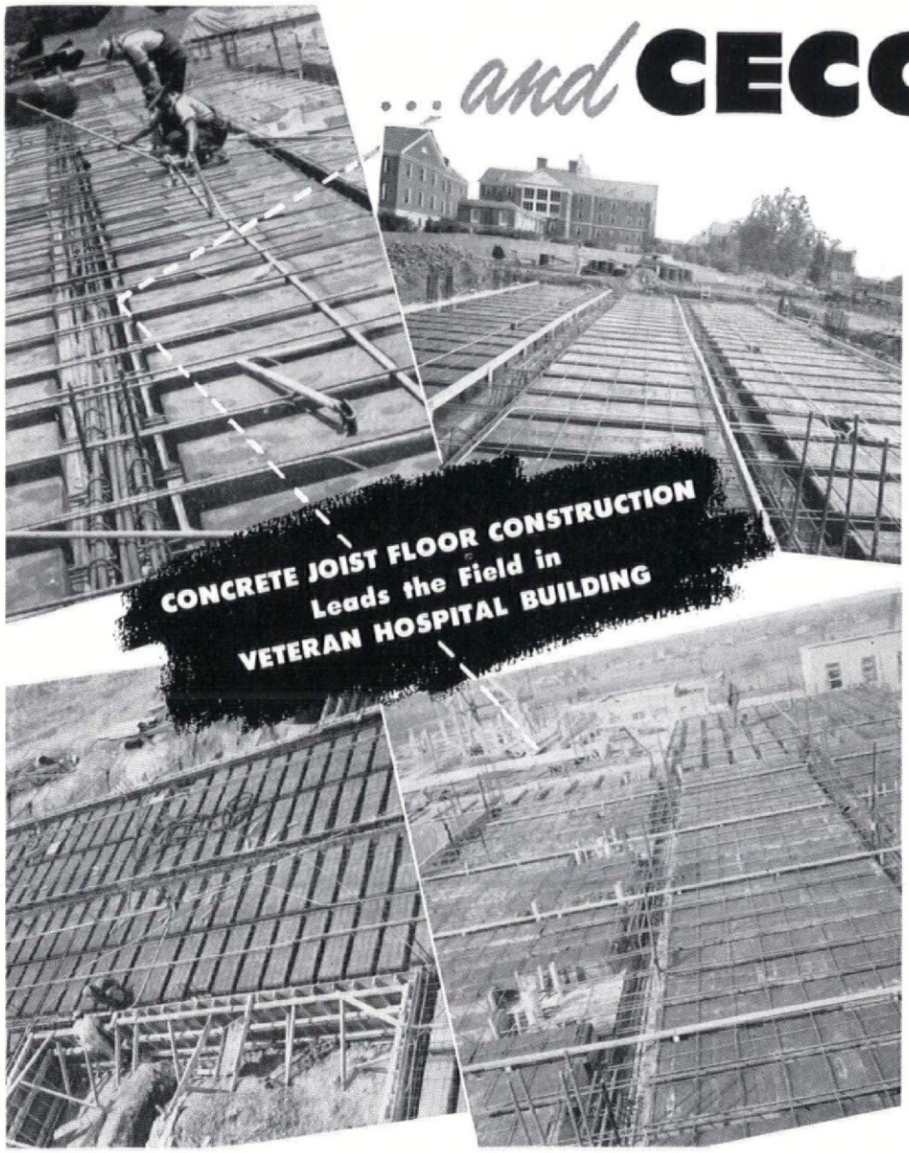
1. Will the carrier be able to handle my shipment, regardless of its size or weight?
2. Is it a complete service, with pick-up and delivery?
3. Is it a dependable service, with national coverage?
4. Will I be dealing with one responsible carrier?
5. Will the charge be all-inclusive?

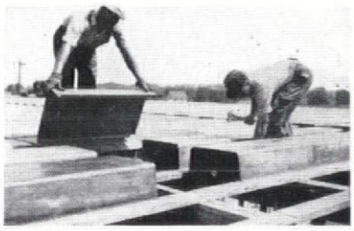
You can say YES to every question when you use RAILWAY EXPRESS, America's COMPLETE shipping service, because only RAILWAY EXPRESS can offer you ALL these advantages. For dependable, economical, shipping, where and when you need it, specify and use RAILWAY EXPRESS every time!

RAILWAY EXPRESS AGENCY

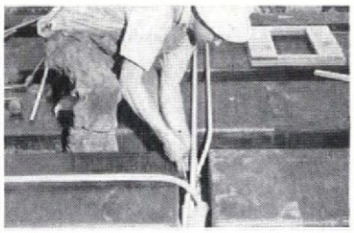
NATION-WIDE RAIL-AIR SERVICE

...and CECO is first in Service

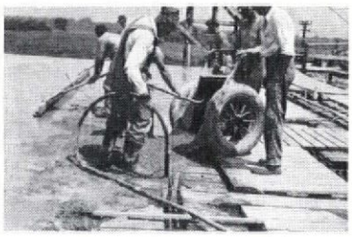




Erecting steelforms on open wood centering preparatory to placing reinforcing steel. Use of steelforms mean a saving in lumber.



Placing electrical conduits in a bridging joist. All conduits are thus placed, eliminating necessity of extra space for service ducts.



Concrete is being poured here over the steelforms and around the reinforcing steel. The final step is removal of steelforms and lumber after concrete sets.

As a building method, concrete joist construction leads the field in the Veteran Hospital Building program. Here, as in other buildings, strength and durability are of prime importance. Concrete joist construction meets the need in supplying rigid, strong floor constructions which are fire resistive and sound proof. Construction costs are low since steelform jobs require less concrete, less lumber, less labor. Steelforms are used over and over again at a nominal rental charge.

As the originator of the removable steelform method of concrete joist construction, Ceco is first in the field. So, for concrete joist construction, call on Ceco, the leader over all.

CECO STEEL®

CECO STEEL PRODUCTS CORPORATION

General Offices: 5601 West 26th Street, Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities

In construction products **CECO ENGINEERING** *makes the big difference*

Bendix Airport, South Bend, Indiana.
Architect: Roy S. Worden. *Contractor:* S-L-A-B Construction Co., South Bend, Ind.

The Adlake Aluminum Windows installed in the new Bendix Airport, South Bend, Indiana, will save plenty of money in coming years because they *eliminate maintenance costs!* In fact, over a period of time, they'll pay for themselves. For Adlake Windows require no painting, no maintenance other than routine washing—and they'll last as long as the building.

Only Adlake Windows have the combination of woven-pile weather stripping and patented serrated guides that assure minimum air infiltration and absolute finger-tip control. And Adlake Windows never warp, rot, rattle, stick or swell. They keep their good looks and smooth operation for the life of the building.

For full information on how Adlake Aluminum Windows can give you worry-free, no-maintenance service, drop a post card today to the Adams & Westlake Company, 1101 North Michigan Avenue, Elkhart, Indiana. No obligation, of course.

ADLAKE ALUMINUM WINDOWS have these "plus" features

- **Minimum Air Infiltration**
- **Finger-tip Control**
- **No Warp, Rot, Rattle, Stick**
- **No Painting or Maintenance**
- **Ease of Installation**

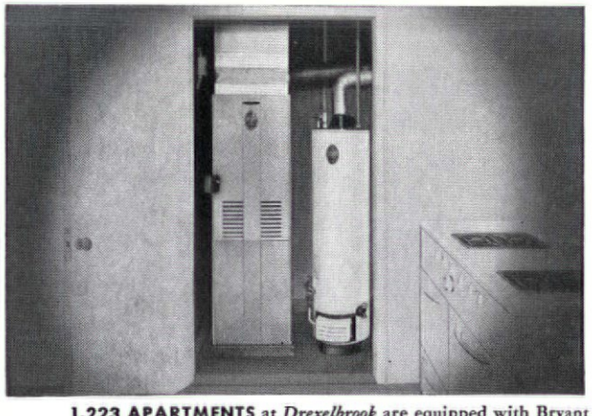
Adlake TRADE MARK

THE Adams & Westlake COMPANY

Established 1857 • ELKHART, INDIANA • New York • Chicago

View of *Drexelbrook,* Drexel Hill, Pa. *Architect:* James G. Ludwig, West Chester, Pa. *Builders:* Daniel G. Kelly and Fred P. Meagher, both of Upper Darby, Pa.

...with 1,223 Personalized heating systems



1,223 APARTMENTS at *Drexelbrook* are equipped with Bryant *Personalized Heating.* Shown are the Bryant Model VS-304 Winter Air Conditioner and Bryant *Red Seal* Automatic Gas Water Heater in closet installation. 50 community laundries also are equipped with Bryant Water Heaters.

New evidence of the ever-increasing acceptance of *Personalized* Heating for apartments comes from *Drexelbrook,* where the Bryant name plate appears more than two thousand times.

This 137-acre wonderland of garden-style apartments is one of the largest and most modern developments of its kind in the world. It is a product of far-sighted planning that provides unsurpassed comforts and conveniences for its occupants.

Bryant *Personalized Heating* stands high on the list of tenant advantages at *Drexelbrook.* Each family enjoys *independent, automatic control* of all heating in its own home. Living areas are never overheated, never underheated. There is always plenty of hot water on tap—at the temperature desired by the user; for each family has its own *individual* hot water service.

Aside from its advantages for occupants of multi-family housing, Bryant *Personalized Heating* also provides these advantages for *management:*

Personalized Heating is maintained at *low* cost; large staffs of janitor-firemen or heating maintenance men are unnecessary and, in most cases, a single custodian is master of *all* equipment. Service or repair, if necessary, is entirely local, handled within a period of minutes and at *minimum* cost. Waste heat is virtually eliminated, and there are few, if any, tenant complaints.

These advantages of Bryant *Personalized Heating* benefit *all* who finance, invest in, build or manage multi-family housing. Ask the Bryant Distributor nearest you to tell you the complete story.

Let the pup be furnace man
... and water boy, too!

bryant

AUTOMATIC HEATING

BRYANT HEATER DIVISION
AFFILIATED GAS EQUIPMENT, INC.
Cleveland, Ohio • Tyler, Texas

"AN AID TO CONSTRUCTION"

says the Drexelbrook construction team, DANIEL G. KELLY, Realtor, and FRED P. MEAGHER, Builder

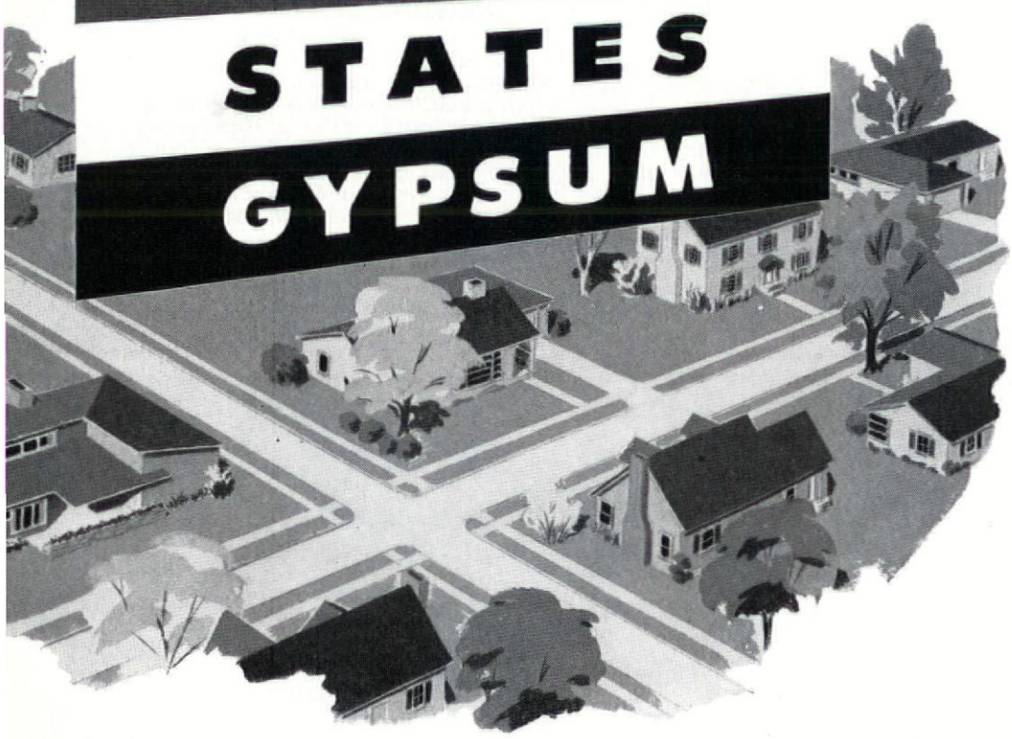
"Bryant *Personalized Heating* aids construction by affording tremendous space savings. This outstanding equipment provides the same advantages in heating for apartment dwellers as those enjoyed by occupants of individual homes."

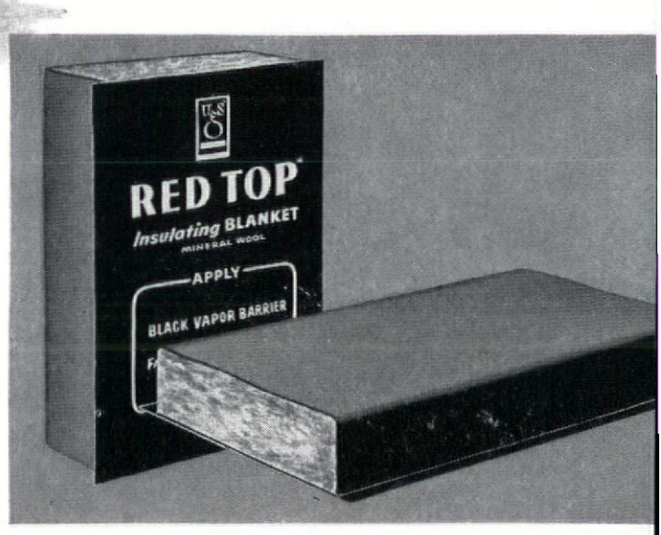
Specify with

- PLASTER
- LATH
- LIME
- WALLBOARD
- INSULATION
- ROOFING
- SOUND CONTROL
- PAINT
- STEEL

Reg. U.S. Pat. Off.

UNITED STATES GYPSUM





NEW RED TOP*
BLANKET BATTS

Here's the fire-resistant mineral wool insulation that fulfills every modern, thermal insulating requirement. New, triple-strength nailing flange permits fast, economical application. Then, too, RED TOP Blanket Batts are enclosed for clean, easy handling. All have efficient built-in vapor barrier, all are uniform in thickness and density. Always look for the bright red jacket—it means RED TOP and signifies the best in insulating mineral wool value!

Confidence... Specify USG

THE GREATEST NAME IN BUILDING

You specify a great deal more than quality products and up-to-date building systems when you specify USG. You also provide for your clients' protection every advantage of scientific research done in the famous United States Gypsum laboratories.

And no less important, by specifying USG you assure for your clients the lasting benefits of precision quality control that begins at the point of raw material selection, and carries through to the final rigid inspection.

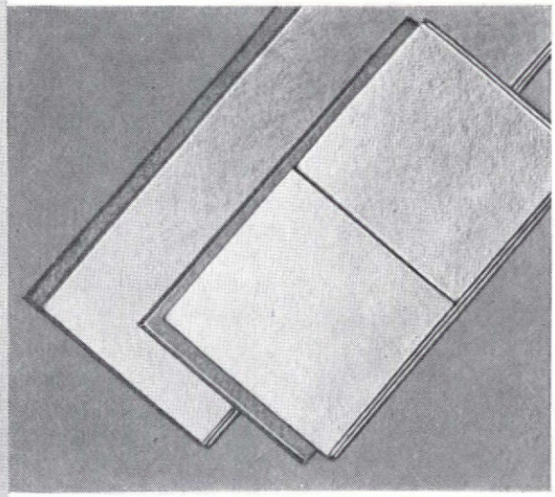
That's why the United States Gypsum crest has been the symbol of quality in the building industry for nearly 50 years. That's why you specify with complete confidence when you specify USG.

For technical details on USG products and building systems, consult your Sweet's Architectural Catalog or A.I.A. files. If you need further information, contact your local U.S.G. representative, or write United States Gypsum, Chicago 6, Illinois.

If your requirement is

INSULATING MATERIALS

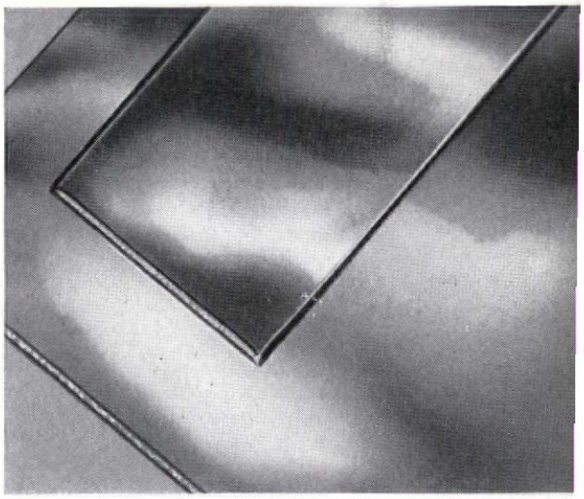
United States Gypsum offers a complete line to meet your specification requirements. Four popular types are shown and described on these two pages, covering a wide range of needs—whether you're interested in industrial, commercial, residential or public building design and construction. See the new U.S.G. Directory of Building Materials for more detailed description and data.



WEATHERWOOD*

INSULATING BOARDS

Build low-cost walls and ceilings that insulate as they decorate—in one quick, easy application. Now available in the new Twin-Tile—two tiles go up as fast as one conventional square tile! Also come in the popular rectangular Panel Tile, and distinctive random-width Plank. All have new Kwik-Lok Joint that can be stapled or nailed. New, cleanable Hi-Lite (ivory) resin-coated finish; or famous BLENDTEX*, a variety of rich, mellow tan tones.



INSULATING SHEETROCK* WALLBOARD

INSULATING ROCKLATH* PLASTER BASE

Two interior wall and ceiling building systems that do double duty: (1) provide effective, year-around insulation, (2) are superior vapor barriers. Moreover, both products are fireproof. These are just a few of the many advantages that make Insulating ROCKLATH the ideal plaster base, that make Insulating SHEETROCK an outstanding dry-wall construction method. In new building or remodeling either material offers this unique 3-way protection.

*T. M. Reg. U. S. Pat. Off.

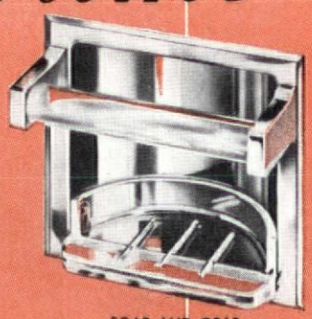
IT'S EASY TO PUT SPARKLING NEW BEAUTY IN BATHROOMS

TOWEL BAR
NO. 192

HALL-MACK
*TRADE MARK REG. U.S. PAT. OFF

Crystalcrome

With its tasteful designs that combine lustrous chrome on solid brass with clear, sparkling crystal, Hall-Mack Crystalcrome adds a dramatic new touch to bathroom styling. It is fast becoming the choice of more and more architects, builders and contractors for fine bathroom accessories...accessories that are *new* in appearance, *new* in design, *yet made for a lifetime of practical daily use.*

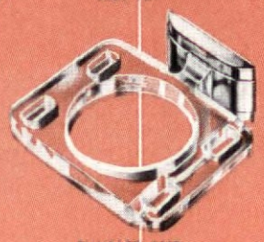


SOAP AND GRAB
NO. 165

Crystalcrome Accessories are available for all bathroom needs, from towel bars, soap dishes and paper holders to shelves, robe hooks, and toothbrush holders—and in regular wall and recessed types. If you have not received your copy of the new Crystalcrome Catalog, *write today.*

ROBE HOOK
NO. 181

Crystalcrome Accessories are a part of the complete Hall-Mack line. Standardize on Hall-Mack—and know that in *one line* you can find accessories and cabinets that meet your most exacting requirements whether you're planning a millionaire's mansion or a low-cost housing project.



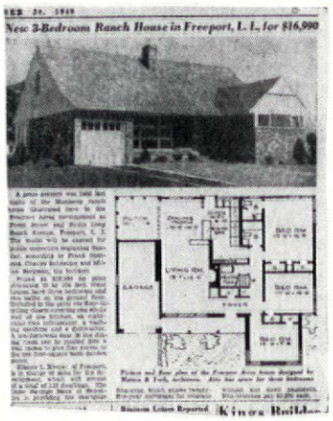
TUMBLER AND
TOOTHBRUSH HOLDER
NO. 130

HALL-MACK COMPANY

1344 WEST WASHINGTON BOULEVARD, LOS ANGELES 7, CALIFORNIA
7455 EXCHANGE AVENUE, CHICAGO 49, ILLINOIS

LETTERS

"FUNNY COINCIDENCE DEPARTMENT:" Two identical

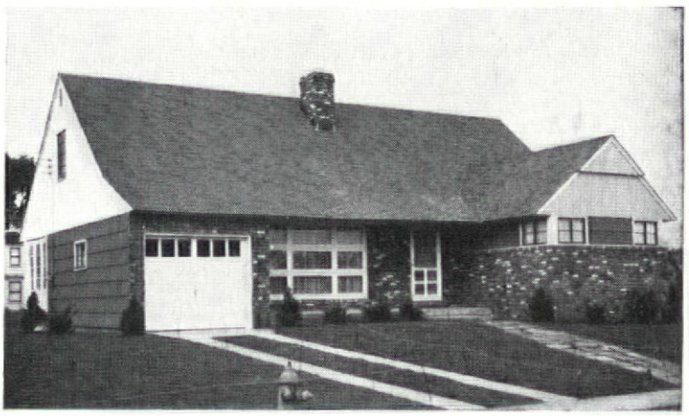


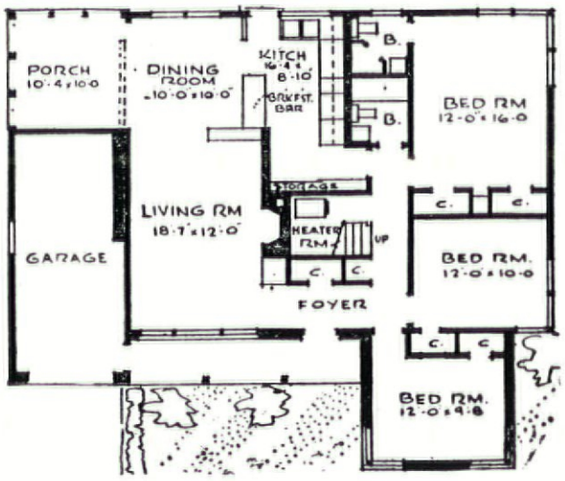
New 3-Bedroom Ranch House in Freeport, L. I., for $16,900

Forum:

Here is a clipping from the New York *Herald Tribune* of September 30th. You might be interested in comparing it with the house on pages 78-79 of the September FORUM. Either Emmanuel Ballin "designed" it, or Matern & York "architected" it, or else it belongs in the *New Yorker's* Funny Coincidence Department.

HENRY S. CHURCHILL, *Architect, New York, N. Y.*





Herald-Tribune Story: ". . . the Monterey ranch house . . . Freeport, L. I. . . . Frank Spinetta, Charles Schneider and Milton Bergman, the builders . . . Priced at $16,900 . . . [including] . . . refrigerator, a washing machine and a dishwasher. A 10 ft.-wide door in the dining room can be pushed into a wall recess to give free access to the 10 ft.-square back-garden porch . . . the development . . . will consist of 110 dwellings . . . designed by Matern & York, architects. . . ."

Forum:

My house is 100 per cent original; I had it on the boards two years before I finished the plans on January 18, 1949.

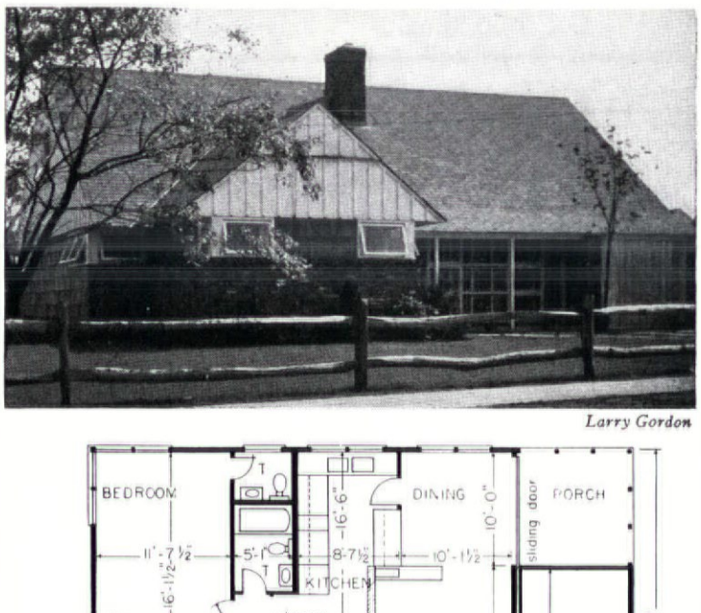
I don't see how architects so prominent in this area (Matern & York) had the nerve to do it. It was such a direct snitch that they copied a mistake we had on our original plans which we changed before we started building: one of the bedrooms was originally 9 ft. 8 in. x 12 ft., but we changed it to 10 x 12 ft. because it sounded better from a sales viewpoint.

This isn't the first time this has happened with this house. I can show you houses in Merrick, Woodmere and here in Rockaway which are almost exact copies. The fellow in Freeport, I hear, is selling my plans for $65 apiece. The Woodmere copy was made from plans that were traced directly from mine. Here in Merrick a builder is putting up 300 houses exactly like mine. (My original plans were readily available from my subcontractors, also from my purchasers.)

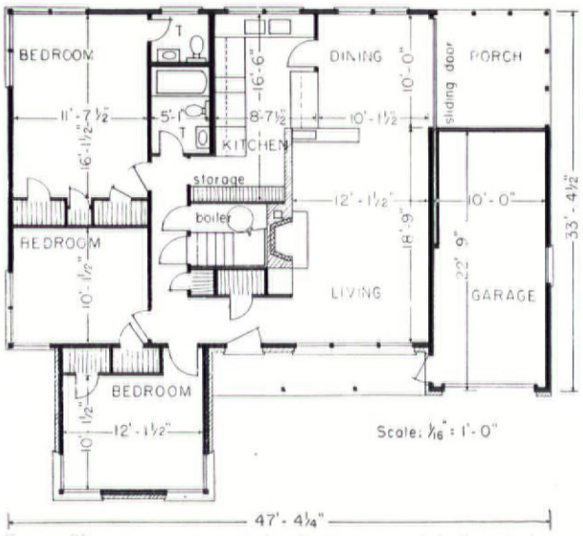
Ethically and legally, it's wrong. Anything I can do to help the FORUM to stop this practice, I will do.

I'm considering building my next house under a tent!

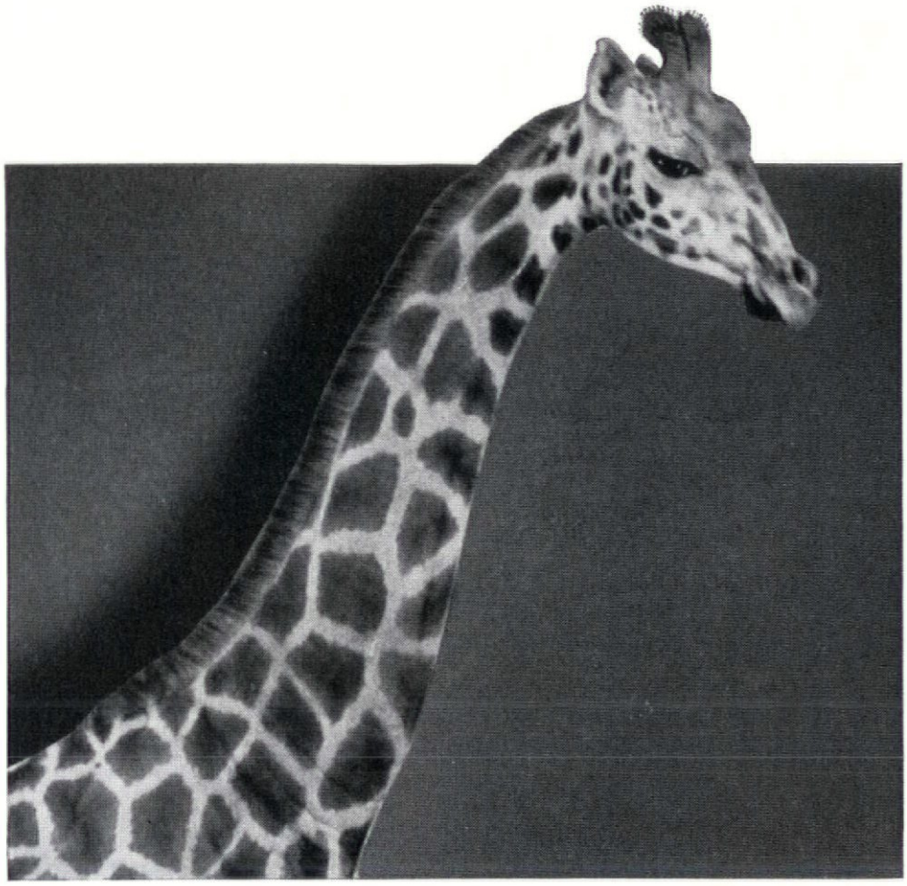
E. A. BALLIN, *Vice President*
Hewlett Harbor Construction Inc.
East Rockaway, L. I., N. Y.



Larry Gordon



Forum Story: ". . . Long Island's Emmanuel Ballin, designer and builder of the house, virtually sold out his 67-unit project the day he opened his model house . . . Ballin's $15,990 price tag . . . includes . . . refrigerator, dishwasher, clothes washer . . . and a wall which disappears into the garage to combine the dining room and screened porch. . . . Leslie Lowey, engineer . . ." Major differences between the two plans: dimensions of the bathrooms and smallest bedroom and location of the back door.



Sorest distance between two points

An Ohio zoo had large animal trouble.

Their giraffe couldn't stand drafts. And both he and the elephant continually tangled with high-speed heater fans, placed dangerously low. Problem: to get a really efficient heating system that would be safely out of reach.

Then Trane equipment came into the picture. Now Trane Projection Unit Heaters are spaced down the center aisle of the zoo building, all twenty feet or more above the floor. The room is heated evenly. And all the occupants are happier and safer, thanks to the same equipment that makes air more efficient, more comfortable, more usable in thousands of offices, stores, plants.

Perhaps your problem is not concerned with a hoarse giraffe. But—if it has to do with air—Trane engineers know air. How to dry it, humidify it, warm it, cool it, clean it or move it. If, in any of your own projects, air is a factor, your local Trane representative will be glad to work with you.

THE TRANE COMPANY • LA CROSSE, WISCONSIN
TRANE COMPANY OF CANADA LTD., TORONTO

TRANE
THE HOUSE OF WEATHER MAGIC

MANUFACTURING ENGINEERS OF HEATING AND AIR CONDITIONING EQUIPMENT • OFFICES IN 75 CITIES

THE NAME OF THEIR DREAM IS—

The General Electric

Complete Kitchen Package

AND IT MEANS FASTER SALES FOR YOU...

CONVENIENCE . . . COMFORT . . . SANITATION . . . ECONOMY!

Under the easy-to-sell "packaged mortgage" plan, the home-buyer adds just a few dollars extra a month—usually an average of about $4.80—to his regular home mortgage.*

That pays for the *kitchen completely*—because it's a *basic part* of the house—and *part* of the price too!

The day the new owners move into a G-E equipped home, their kitchen-planning problems are over—because there is nothing else to buy.

They need not worry about future installation costs. They need not worry about heavy short-term installment payments—because they're paying over the years instead of over the months! And General Electric Appliances run so economically, so dependably, the savings can offset the slight extra monthly payments.

These are powerful selling points when you show a house with a General Electric *Complete Kitchen Package.*

So plan to include the features your prospects will be looking for, insisting on—the features that will help you sell faster, build prestige—the features that come only with a General Electric *Complete Kitchen Package!*

Put them in your *next* home-building project.

"Packaged Mortgage" helps you sell!

Those are the things today's home-hunters are looking for . . . a *modern*, leisurely way of living that takes the toil, time and trouble out of homemaking.

And General Electric's *Complete Kitchen Package* ranks first among the desirable features of today's new homes . . . because it brings them *all-electric living!*

And that's *better* living! That's why the G-E *Complete Kitchen Package* makes your homes *easier*-to-sell—and *faster*-selling too!

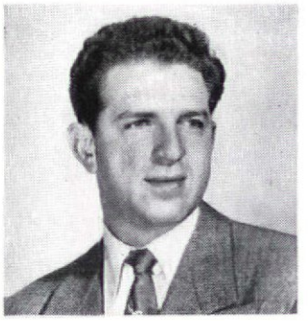
America's home-seeking millions realize that the General Electric kitchen provides freedom from drudgery—and is *easy to pay for!* They're sold on it . . . completely!

General Electric Home Bureau success story of the month

E. A. Ballin of Hewlett Harbor Construction, Inc., East Rockaway, L. I., N.Y., says:

"*Architectural Forum* and *Family Circle* featured our model house, and thousands of people visited it. The item which caused the greatest comment was the kitchen with its G-E equipment. In future developments, we plan to include ever increasing amounts of G-E equipment to insure super-salability of our homes."

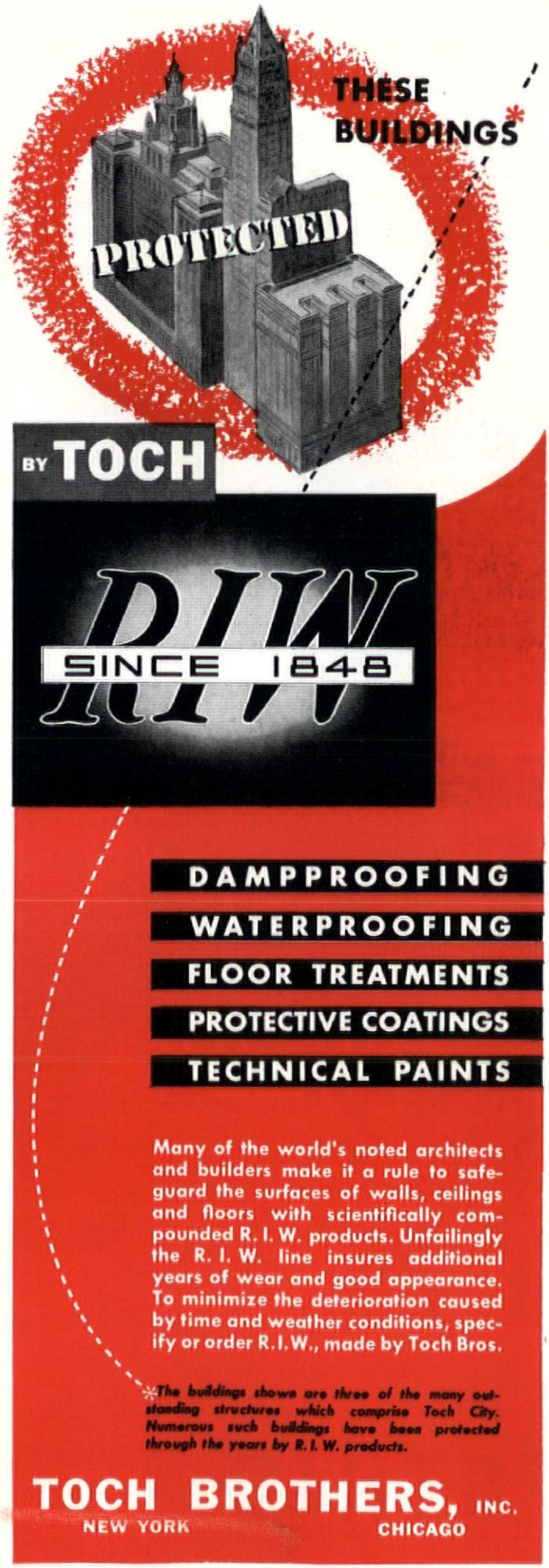
Let General Electric Home Bureau help make *your* next project a success story! Write to Home Bureau, General Electric Company, Appliance and Merchandise Department, Bridgeport 2, Connecticut.



*When equipment is included in a long-term mortgage.

You can put your confidence in —

GENERAL ELECTRIC



BEHIND THE BLUEPRINTS

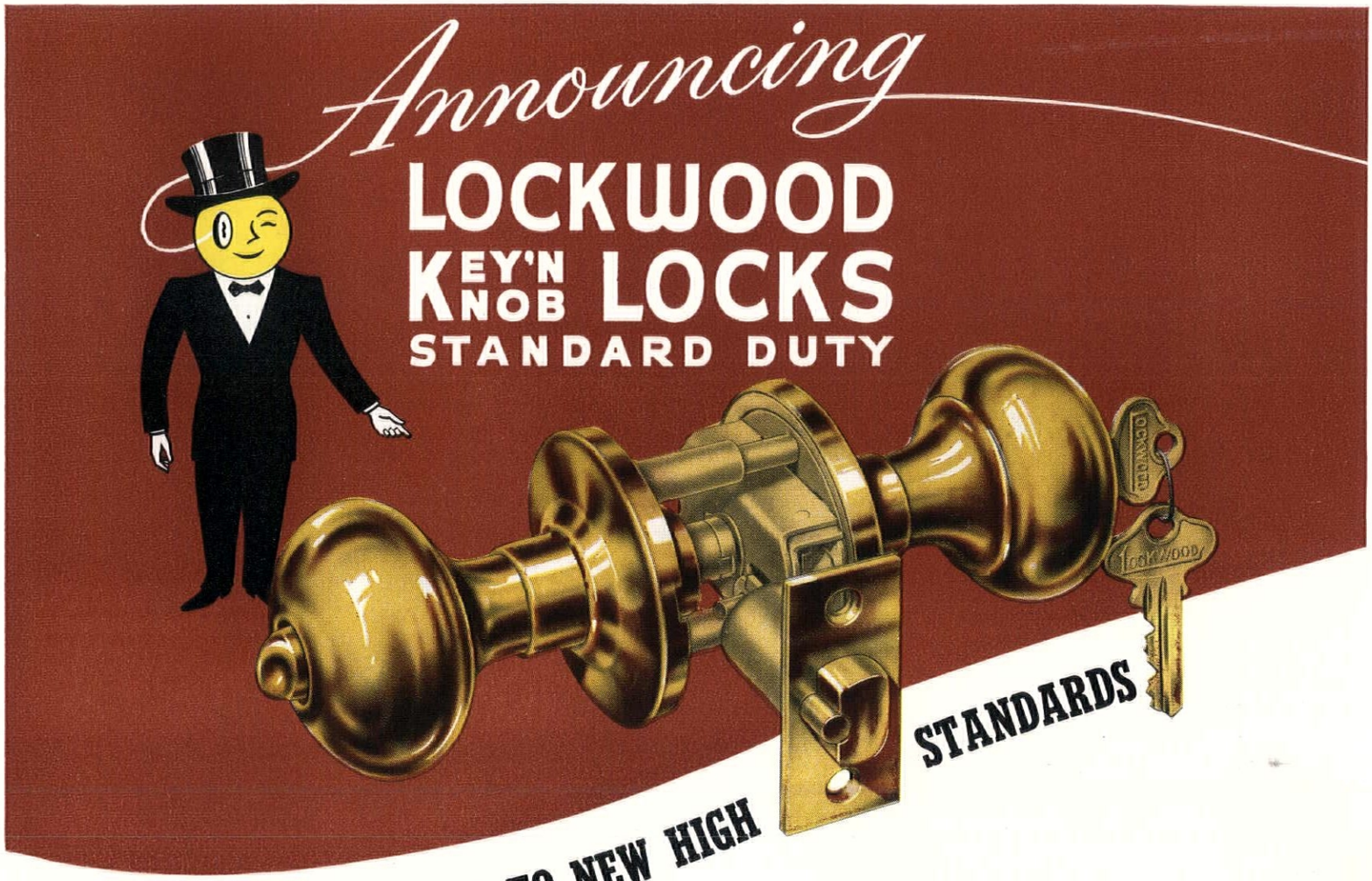
DAHLEN K. RITCHEY and **JAMES A. MITCHELL,** Pittsburgh architects, trained for the profession at Carnegie Tech ('32), have won at least ten medals, prizes and scholarships between them. Starting in college, their professional careers have closely paralleled each other, for both studied and traveled in Europe, both are faculty members in architectural design at Carnegie Tech, and both were naval officers in World War II. Partners since 1938, their office designed the Broadhead Manor Defense Housing Project selected by a national housing committee as one of the country's 20 outstanding projects. They are currently designing a new opera amphitheater (p. 72), underground parking garage and plaza for Pittsburgh (p. 71).

Cleveland-born architect **PHILIP JOHNSON** was an early protagonist for modern architecture in America, furthering its cause as chairman of the Museum of Modern Art's Department of Architecture (from 1932 to 1934) and as co-author, also in '32, with Henry Russell-Hitchcock of *The International Style: Architecture Since 1922.* Johnson received his Bachelor of Architecture from Harvard University in 1943 and in that same year started a wartime stint in the Army Engineer Corps. Since the war's end, he has divided his days between his New York design office and the Museum of Modern Art, Chairman, once again, of its Department of Architecture and Design. The glass house near New Canaan, Connecticut (p. 74), is the third Johnson abode to receive wide press coverage.

Architect **PAUL BEIDLER** hails from the Pennsylvania Dutch country around Lehighton, Pa. A 1931 graduate in architecture of the University of Pennsylvania, he spent several years making archeological expeditions to Egypt, Iraq, Palestine and Italy, studying the ancient ruins and modern buildings of each, before returning to the U. S. in 1934 to become a Frank Lloyd Wright apprentice at Taliesin. Then came various architects' offices in California and Honolulu, and finally his own in 1938, back in Pennsylvania. In 1946 he established Northeon, a rural studio six miles south of Easton, Pa., with primary emphasis on experimentation and research, where architectural fees are systematically ploughed back into the group's research fund (p.80).

WILLIAM LESCAZE was born in Geneva, Switzerland in 1896 and studied architecture at the Zurich Polytechnic Institute under Europe's famed Karl Moser. An *émigré* at 24, Lescaze came to this country in 1920, took a job with a firm of conservative Cleveland architects, painfully designing "cathedrals of commerce." Three years later he opened his own office in New York and in 1929 started a brilliant, five year partnership with George Howe which was to produce one of the country's first truly modern skyscrapers, the Philadelphia Savings Fund Society Building. Since 1934, Lescaze has practiced alone, authored several books on architecture, and designed a variety of distinguished schools and theaters (p. 95), a chain of radio stations, several upper east side Manhattan town houses and a bevy of country homes (p. 86).

LEWIS E. WILSON was born in Excelsior Springs, Mo., and spent a Midwestern boyhood conscientiously working for his father and uncle, both architects. After studying architecture at the University of Arkansas, he headed west in 1924 to hang out his shingle in Los Angeles where he is still in private practice. Prominent in public housing, he has been consultant to the Los Angeles City Housing Authority and is a member of the architect's committee, Public Housing Administration. His firm has designed seven major housing projects in the Los Angeles area, including Baldwin Hills Village, done with Reginald D. Johnson and consultant Clarence S. Stein. That community's theater (p. 98) is one of four done last year. Five more are presently under way.



ENGINEERED TO NEW HIGH STANDARDS

ANOTHER NOTEWORTHY MILESTONE

LOCKWOOD'S long-range program of product development has produced the following outstanding contributions to better builders' hardware:

UNIFAST, "Sectional" Trim; POLYFLEX, forged brass KNOBS with interchangeable decorative tops; HEAVY DUTY AND UNIVERSAL SERIES OF MORTISE CYLINDER LOCKS, of standard dimension; CAPE COD LOCKSETS, with Colonial thumb latches; BALL BEARING DOOR CLOSER, of advanced design; BOR-LOC SETS, for low-cost installation; AMBASSADOR HARDWARE, with concealed screw escutcheons.

To these we now add LOCKWOOD "KEY 'N KNOB" cylindrical type locksets, the result of years of careful planning by Lockwood engineers; tested and produced to provide greater durability, simplicity, security.

It is with a sense of fine accomplishment that Lockwood now announces the availability of its new line of Standard Duty KEY 'N KNOB LOCKS. The engineering program behind this development has been a long and intensive one pointed at the elimination of known failures and weaknesses of the past, and the invention of several advancements in design and performance. The heftier design of parts throughout; the use of brass and rust-proofed steel only for all working parts, together with the several original design features, exclusively Lockwood, guarantee greater durability, security and simplicity of installation.

This latest addition to the Lockwood line will greatly accelerate the ever-growing trend toward the confident use of Lockwood Builders' Hardware as the standard of quality and service for buildings of all kinds.

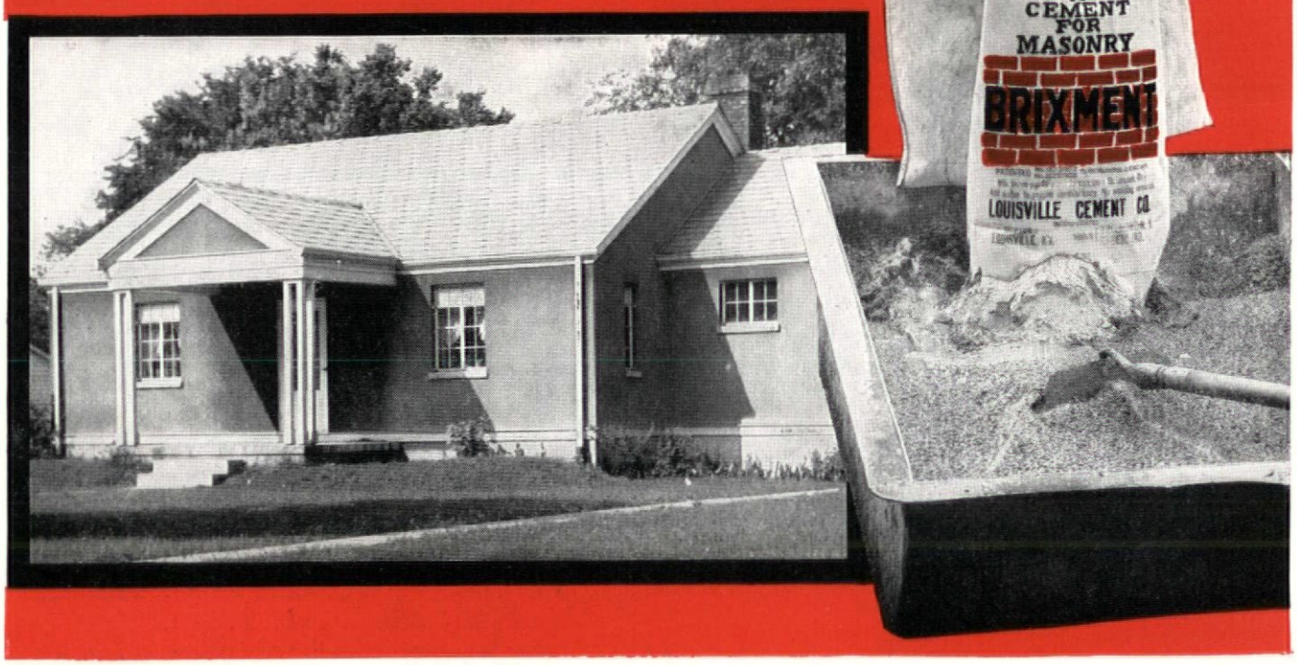
LOCKWOOD HARDWARE MFG. CO.

FITCHBURG • MASSACHUSETTS

Lockwood

NOW . . . a complete line of mortise, rim, tubular, cylindrical locks and padlocks, under one master key system

BRIXMENT
makes better
STUCCO
and
PLASTER,
too!



You yourself know, probably from years of experience, that Brixment has many advantages for masonry — unusual plasticity, strength, bond, water-retention and freedom from efflorescence.

Brixment is equally superior for stucco and plaster, too. It can be used in leaner mixes, hence practically eliminates hair-checking and crazing. Its greater plasticity permits faster and smoother application. It also resists moisture. It is mixed and applied exactly like Portland-cement stucco *except that no lime is required.*

Brixment is being widely used with lightweight aggregate for interior plaster, because it is extremely economical, moisture-resistant and durable.

This 119-year-old company manufactures Portland cement and lime as well as Brixment. We ourselves use Brixment for stucco and plaster in our own construction. We recommend it to you. Write to us direct or ask your dealer for a copy of the handbook, "*Brixment for Stucco and Plaster.*"

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

MORE DATA ON ALCOA EC ALUMINUM

on the job Today

Lighter weight, lower cost

Q *How much voltage drop do you get with ALUMINUM?*

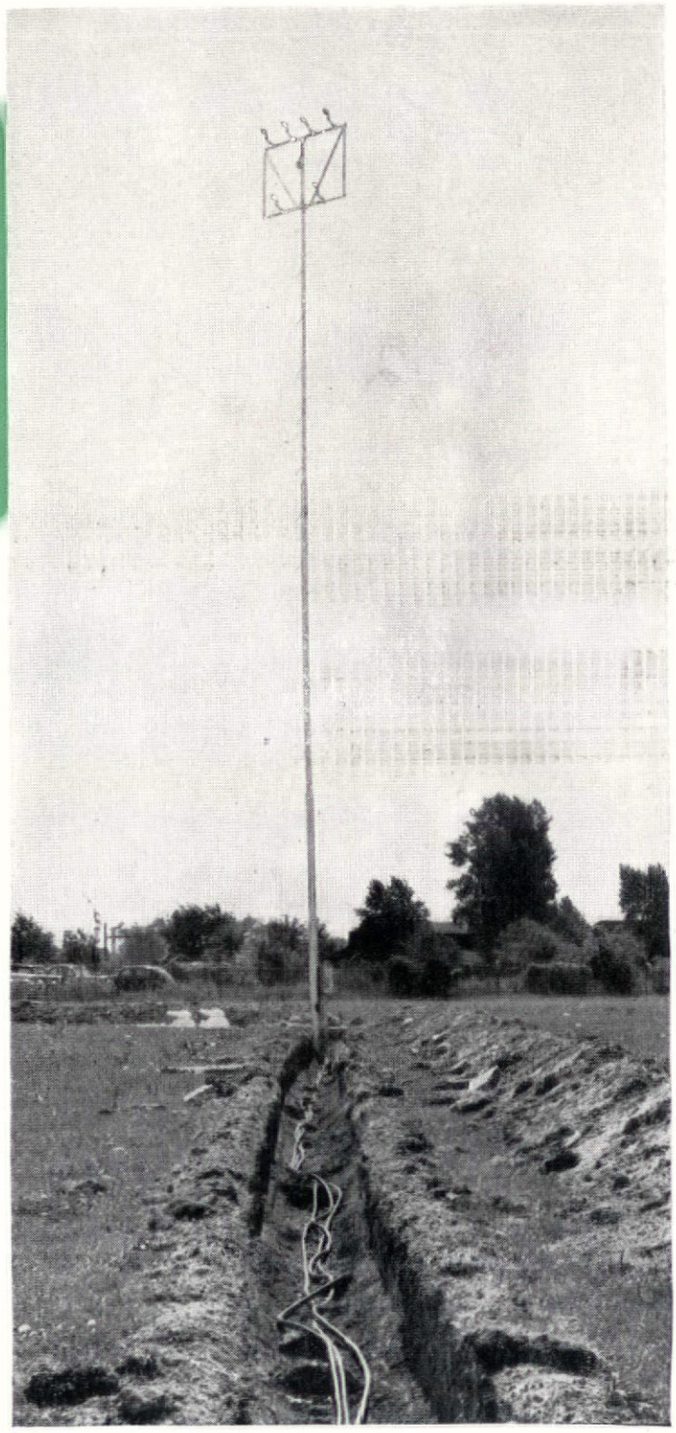
A *Aluminum conductors two AWG sizes bigger than copper give you the same voltage drop . . and cost less, weigh less*

wire and cable with Alcoa E.C.* Aluminum conductor give you lighter weight and lower cost, even when specified two AWG sizes bigger. And this gives you greater current-carrying capacity.

Similarly, aluminum two sizes bigger has tensile breaking strength greater than insulated copper. Joints and terminals can be soldered, welded, or made mechanically by standard methods with standard tools. Aluminum is easier to handle on the job because it weighs so much less.

Alcoa makes light, strong, conductive E.C. Aluminum; leading wire manufacturers draw, strand and insulate it, and sell it under their own trade-marks. Investigate the savings Alcoa E.C. Aluminum can give you! Ask your wire supplier about it, or write ALUMINUM COMPANY OF AMERICA, 1475L Gulf Building, Pittsburgh 19, Pennsylvania.

*E.C.: *Electrical Conductor* Aluminum



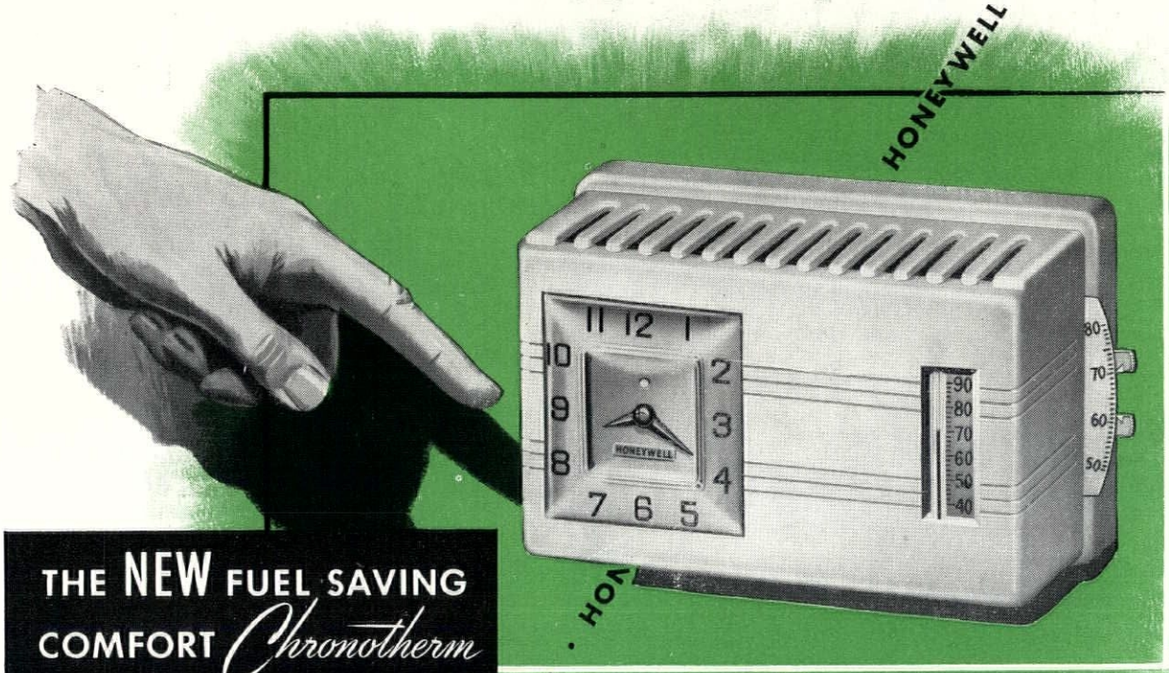
220/110-volt secondary feeders for a softball field lighting system. Maximum run, 375', maximum voltage drop, less than 2 per cent. 300 mcm aluminum, insulated, direct burial.

Insulated and sold by leading wire manufacturers

ALCOA EC ALUMINUM

FOR ELECTRIC WIRE AND CABLE

The Thermostat That Has Everything



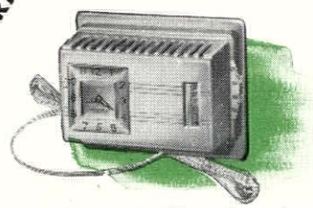
THE NEW FUEL SAVING COMFORT *Chronotherm*

HONEYWELL CHRONOTHERM • • HONEYWELL CHRONOTHERM • • HONEYWELL CHRONOTHERM

ALL in one package—sensitive, accurate temperature control, with automatic night shut-down for fuel saving, and gradual morning pick-up for twenty-four hour, care-free home heating comfort.

You give your clients all these important advantages when you specify Chronotherm, Honeywell's completely automatic electric clock thermostat. Point out to them the convenience and comfort of Chronotherm control. It's a "plus" that can be *felt* to be appreciated. And it soon pays its own way in fuel savings.

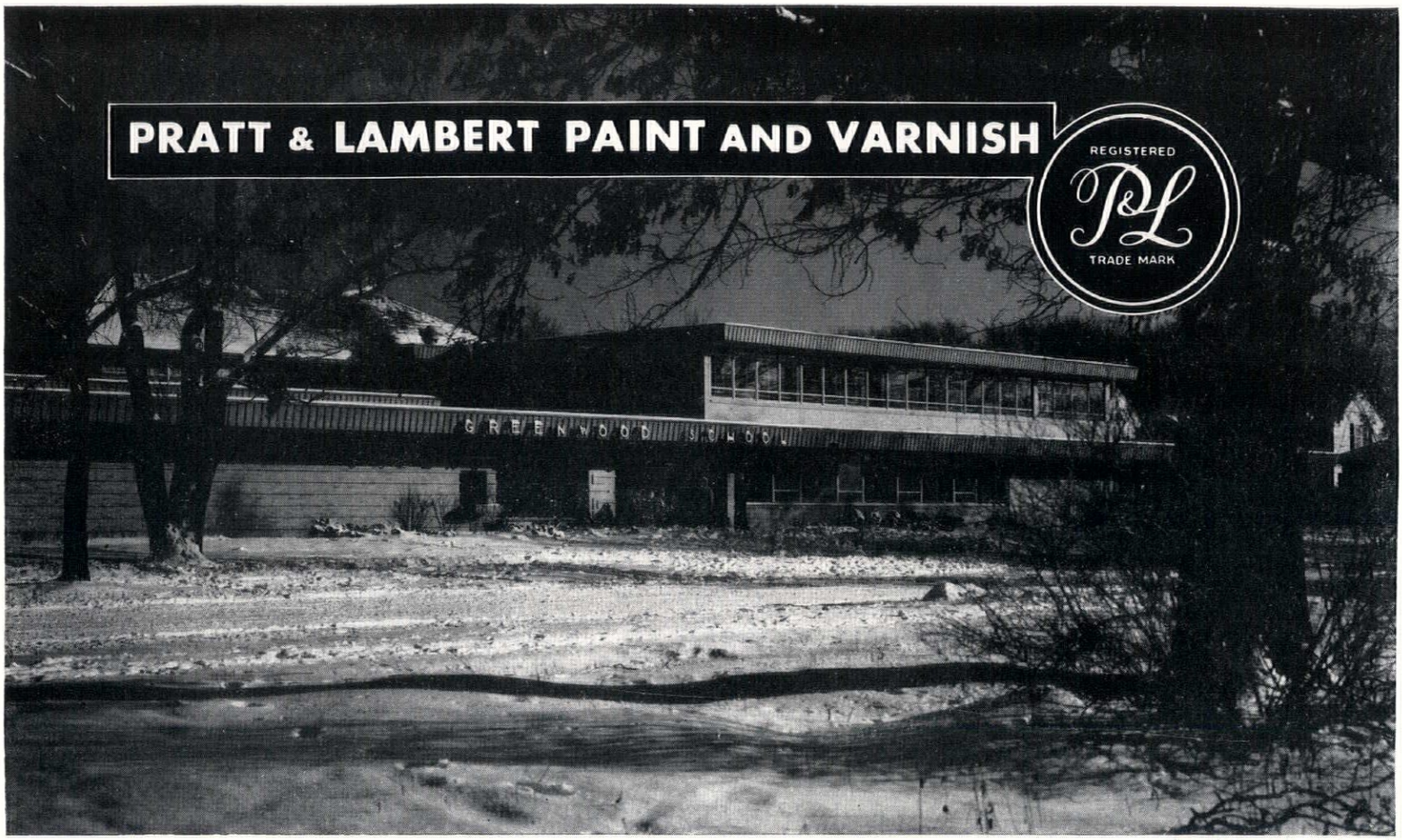
So do as others everywhere are doing, specify Honeywell's famous Chronotherm in every home you design. Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Leaside, Toronto 17, Ontario.



The new Plug-In Chronotherm is designed to replace all manual thermostats. All the advantages of the regular Chronotherm. Anyone can install it in a few minutes.

MINNEAPOLIS
Honeywell
CONTROL SYSTEMS

77 BRANCHES FROM COAST TO COAST WITH SUBSIDIARY COMPANIES IN: TORONTO • LONDON • STOCKHOLM • AMSTERDAM • BRUSSELS • ZURICH • MEXICO CITY



Photo, John Paul Studio, Waukegan, Ill.

GREENWOOD SCHOOL, WAUKEGAN, ILLINOIS

GANSTER & HENNIGHAUSEN, Architects, Waukegan · PETER W. PETERSEN & CO., General Contractor, Waukegan · ASSOCIATED PAINTERS AND DECORATORS, Painting Contractor, Chicago

CROWDED against the street, for lack of space on the lot, this school is held to intimate scale and given cheerful character by reduced heights, natural materials and bilateral light. The architects achieved their purpose in designing a building that would not be overwhelmingly institutional in a residential area.

The north-south direction of the street, controlling the orientation, brought the large classroom windows into an eastern exposure. This scientifically unorthodox arrangement is offset by wide overhangs which cut off much direct morning sunlight and sky-glare.

Eight distinctive, Lyt-all Flowing Flat colors were used throughout the building for stimulation rather than for reflectivity — including a dark gray blue and medium blue; light and dark brown; turquoise; Swedish red; pinkish gray; and yellow. End-wall colors vary from room to room.

Because of its great durability, Lyt-all Flowing Flat may be washed repeatedly, without leaving streaks. Washing not only restores its beauty, but cuts maintenance costs by making repainting unnecessary.

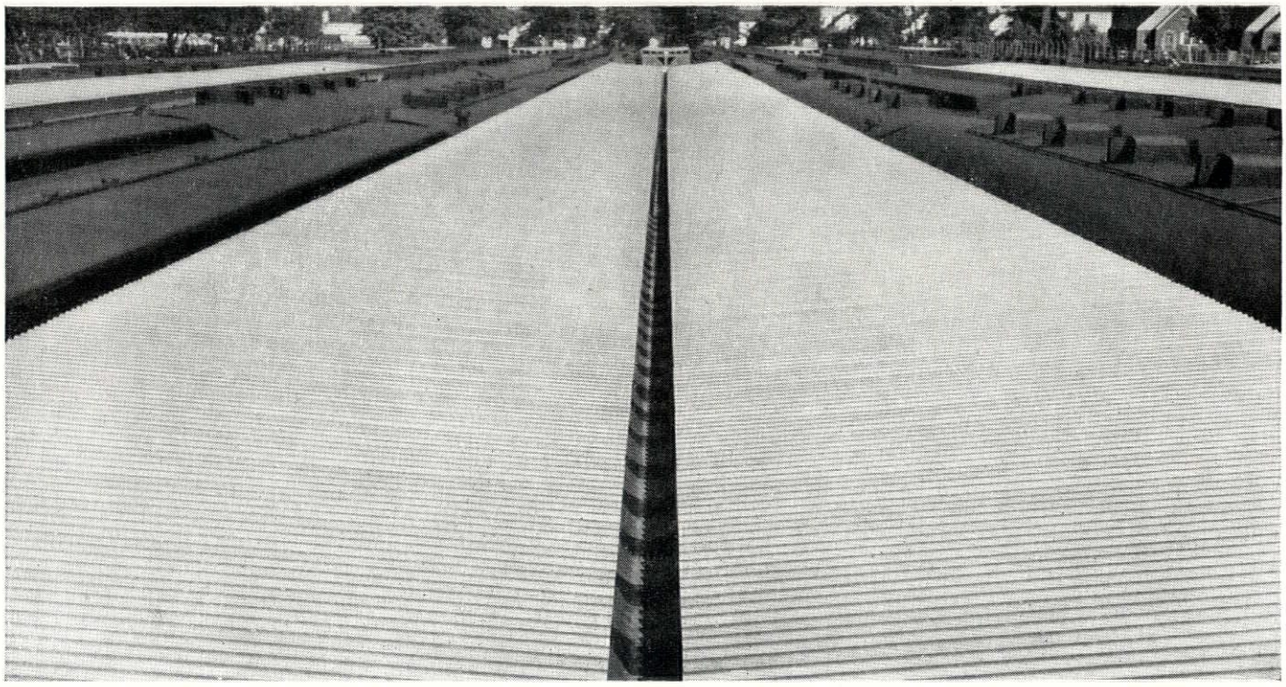
Regardless of the size or type of structure, the Pratt & Lambert Architectural Service Department will aid you in planning authoritative decoration.

PRATT & LAMBERT-INC., Paint & Varnish Makers
NEW YORK · BUFFALO · CHICAGO
FORT ERIE, ONTARIO

Save the surface and you save all!

1849 — Pratt & Lambert One Hundredth Anniversary — 1949

FOR THE LONG VIEW



REYNOLDS *Lifetime* ALUMINUM INDUSTRIAL CORRUGATED

Shown above are the new canopies of the Long Island Railroad station at Belmont Park Race Track —designed by the railroad's Engineering Department, built by Salson Construction Corporation of Jamaica as general contractor, with Marquart Bros. of Floral Park as roofing contractor.

Roofs are Reynolds *Lifetime* Aluminum Industrial Corrugated in 8-foot lengths, 35" wide. 2,000 running feet of box type gutters are installed with Reynolds Aluminum. Thus the entire top surface of these structures is the rustproof, corrosion-resistant metal that needs no protective painting... the metal that practically eliminates maintenance: aluminum.

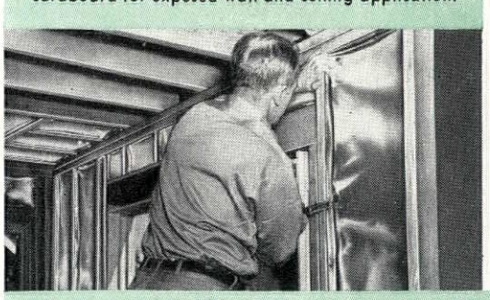
This Industrial Corrugated is .032" thick, with extra deep corrugations for greater strength. It is widely used for both roofing and siding. It is easy to apply over any type purlin. Reynolds supplies all accessories for complete installations. Write to the address below for A.I.A. file folder, or for technical assistance on specific problems.

Or call any office of **Reynolds Metals Company** ... in 32 principal cities.

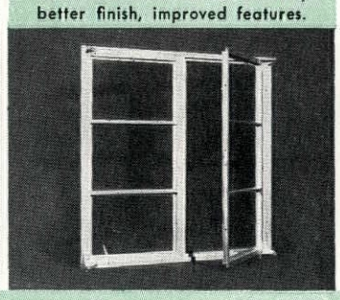
IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM

REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

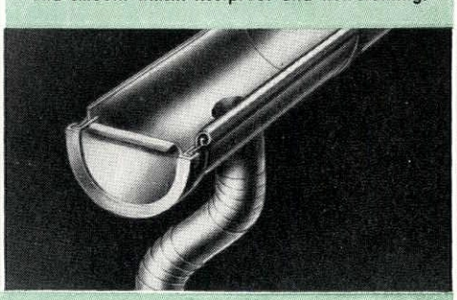
REYNOLDS ALUMINUM REFLECTIVE INSULATION—Aluminum on one or both sides of heavy paper, for general use; also aluminum on cardboard for exposed wall and ceiling application.



REYNOLDS ALUMINUM WINDOWS—Residential Casement, Fixed and Picture types, now with flash-welded corners, better finish, improved features.



REYNOLDS *Lifetime* ALUMINUM GUTTERS AND DOWNSPOUTS—Half-round and Ogee styles in both stipple-embossed and smooth finish. Rustproof and non-staining.



REYNOLDS METALS COMPANY • Building Products Division • 2019 South Ninth St., Louisville 1, Ky.

ANOTHER BUILDING OF PROMINENCE SLOAN EQUIPPED

they built

as they teach . . .

plan now for future savings

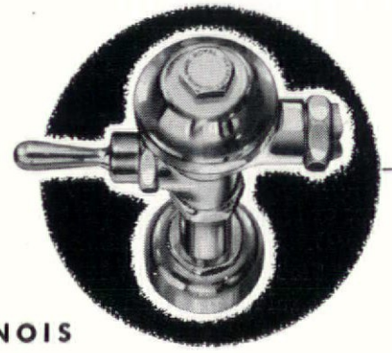
The magnificent new 26-story home of John Hancock MUTUAL LIFE INSURANCE COMPANY, Boston, is an impressive example of maintenance savings. Adopting their own business creed as their planning policy the owners placed emphasis on operating and up-keep economies.

To achieve sizeable maintenance savings they adopted movable partitions with a baked-on enamel finish . . . exterior windows which can be washed from the inside . . . lavatory floors untouched by pipes, partitions or fixtures to minimize cleaning labor . . . service closets lined with washable glazed tile . . . and other notable cost-saving innovations.

SLOAN is especially proud that its Flush Valves were selected on the basis of both faultless performance and exceedingly low maintenance cost. Unequalled records show Sloan Flush Valve maintenance costs as low as ¼¢ per valve per year!

CRAM AND FERGUSON, Boston
Architects and Engineers
TURNER CONSTRUCTION CO., New York
General Contractors
M. AHERN COMPANY, INC., Boston
Plumbing Contractors

more **SLOAN** *Flush* **VALVES**
are sold than all other makes combined



SLOAN VALVE COMPANY • CHICAGO • ILLINOIS

The Sure Winner!

This Modern Method for Cold-Applied Built-Up Roofing Saves Time and Money...Provides a Better Finished Job

Specify *Spray* . . . and you'll take "win," "place" and "show" in any built-up roofing contest.

You'll *win* because spray-applied built-up roofs go on fast. No time-consuming heating. No slow hand application. Actual tests show that spray application can save clients up to 50% in roofing costs, because of reduced labor costs.

Flintkote Spray-Applied Cold-Process Roofs stay in *place* for two reasons. First, the mineral colloid asphalt emulsion does not flow under heat, or become brittle and crack when it's cold. And even after years of exposure to the weather, it shows no signs of carbonization or "alligatoring." Second, spray application gives the entire roof film a tighter bond. Difficult, out-of-the-way spots are easy to reach and cover permanently with spray . . . no blisters or bubbles to cause future trouble.

And for *show?* You'll get a better-looking job every time. Smooth surfaces and uniform thicknesses are the rule rather than the exception with Spray-Application.

Get full particulars on this Flintkote-pioneered process that speeds up cold-applied built-up roofing. Sweet's gives complete specifications and application data. Or write us. We'll answer immediately. THE FLINTKOTE COMPANY, Building Materials Division, 30 Rockefeller Plaza, New York 20, N. Y.

HERE ...IN A NUTSHELL ARE SIX REASONS WHY YOU SHOULD SPECIFY SPRAY!

1. Roofing costs are cut from 25% to 50%, because spray application *really* speeds up the work.
2. Improved finished jobs, because of more uniform coating to required thicknesses.
3. Easy to eliminate high and low areas, streaks and bare spots which often result with squeegee and brush application.
4. Areas difficult to cover by old methods are easy to reach with spray application.
5. Waterproofing of parapets and application of protective coatings to metal roofs are quicker and easier with spray.
6. Impact of the spray results in a tighter bond on spray-applied roofs.

FLINTKOTE

FLINTKOTE BUILDING MATERIALS

the extra years of service cost no more!

PITTSBURGH RENASCENT

The biggest real estate and building story in the U. S. today is Pittsburgh.

Five years ago, Pittsburgh was a soot-covered relic of a great age two generations past. The city which 53 years ago laid the foundation of American economic supremacy by underselling Birmingham in the London market was fast becoming a backwater of bygone splendors. Most of its early millionaires—the Schenleys, the Fricks, the Phippses, the Carnegies—had shaken its soot from their feet and moved East to Newport, to Long Island or to England. Even the great wartime steel expansion added nothing to Pittsburgh's own aging capacity—the new mills were built somewhere else.

Architecturally, Pittsburgh's best buildings were a jail designed by H. H. Richardson in the eighties and a fourteenth century Gothic church by Ralph Adams Cram. The only important new construction since 1932 had been public housing. Real estate valuations were still dropping, nearly 25 per cent below the peak. The Steel Corp. was getting ready to move its headquarters—some urged to Chicago, others to New York. Westinghouse was thinking of a similar move, and the Aluminum Co. had actually bought a site and developed the plans for a new headquarters building on New York's Park Avenue.

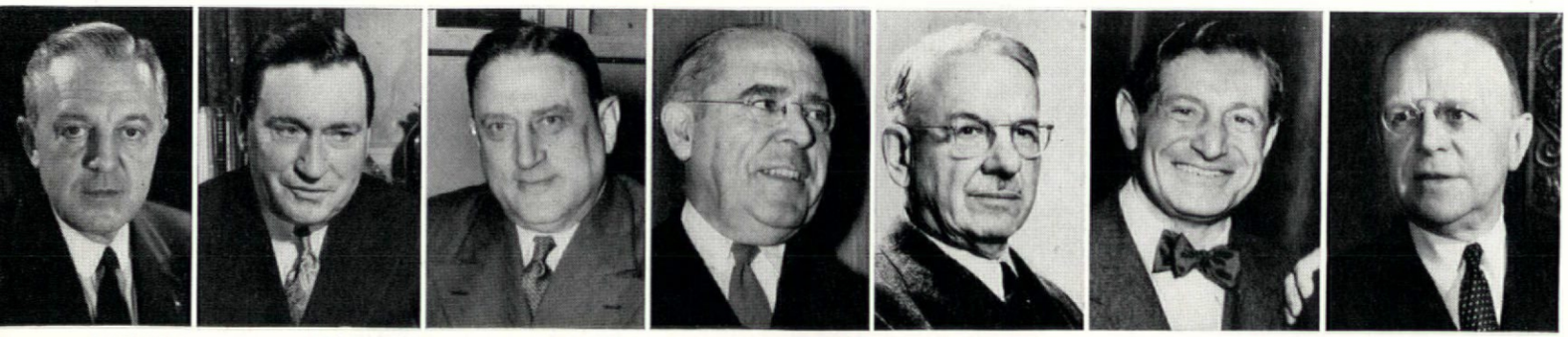
Yet today there is more progress evident in Pittsburgh than in any other city in America. The booster spirit is more rampant than even in Dallas. Almost daily, Pittsburghers read of new plans to make their town a better place to live in, and everywhere there is evidence of how fast these plans are being turned into reality. Specifically:

Something drastic and effective, usually to the tune of many millions of dollars, is being done about Pittsburgh's floods, about Pittsburgh's river pollution, about Pittsburgh's parking problem, about Pittsburgh's airport, and about Pittsburgh's parks.

Pittsburgh is getting something like $150 million worth of new expressways to end its highway congestion and preserve Pittsburgh's position as the great shopping center all the way from Johnstown to Youngstown. Pittsburgh is getting a marvelous plastic umbrella (see page 72) to pull up over the crowds at its open-air light opera in case of rain, and Pittsburgh's children are getting a wonderful children's zoo with the aquarium inside the body of a whale and the mouse house inside a piece of cheese.

New and old industries are spending close to a billion dollars for new or modernized Pittsburgh plant. U. S. Steel, Westinghouse, and Alcoa, instead of moving away, have decided to concentrate still more of their headquarters' operations in Pittsburgh. In the heart of the Golden Triangle, Pittsburgh is erecting the two smartest new skyscrapers in the country (see page 66), and at the tip of the Triangle Pittsburgh is pioneering the concept of an office building redevelopment whose sponsors promise to outdo Rockefeller Center—a development whose nine cross-shaped towers will each be set in a two-acre park (p. 62).

Pittsburgh's smoke is becoming a thing of the past. A new city smoke ordinance is being enforced to make Pittsburgh's air as clear as the air of New York, Chicago or Boston; and, as the smog cleared away, people could see for the first time in two generations that Pittsburgh,



MELLON FAIRLESS MOREELL LAWRENCE ROBERTSON KAUFMANN HUNT

with its hills and rivers, has perhaps the most beautiful location between the Alleghenies and the Rockies.

When you ask the average Pittsburgher what he thinks of all these changes, he says: "It's high time somebody did something. God knows there has been enough wrong with this town." But Andrew Robertson of Westinghouse says reflectively: "Arnold Toynbee is the man who would understand what is happening here now. In his study of history he shows again and again how any great advance is almost preceded by a long period of withdrawal. For more than a generation nothing happened here. The city just lay fallow and waiting."

The change began about six years ago because a small group of Pittsburgh leaders made up their minds they were not going to follow the Carnegies and the Fricks in their exodus; that Pittsburgh was their personal home and their business home, and that it was high time something was done to make Pittsburgh a fine place in which to live and work. In the forefront of these men were Richard K. Mellon and his brother-in-law Alan Scaife; Ben Fairless of the Steel Corp.; Andrew W. Robertson and Gwilym A. Price of Westinghouse Electric; H. J. Heinz II of 57 Varieties; Edgar Kaufmann of the department store; Hiland G. Batcheller of Allegheny-Ludlum; Roy A. Hunt of the Aluminum Co.; Arthur Van Buskirk; Frank Denton, President of the Mellon Bank (R. K. Mellon is its Chairman); and, more recently, Admiral Ben Moreell of Jones & Laughlin, General Brehon B. Somervell of Koppers, and Richard Mellon's own special planner, Tugwell-trained Wallace Richards. Together, these men organized the top business owners and executives of Pittsburgh into the Allegheny Conference, which Dick Mellon cheerfully describes as "a group of expediters."

Plans and politics

Like almost every other big city in America, Pittsburgh for years had a proliferation of city plans, some of them going back to 1910. But almost nothing ever got done about them until Dick Mellon took over the presidency of Pittsburgh's Regional Planning Board in 1941, just before the war called a halt to civilian construction. The story goes that when Colonel Mellon came back from his war service in clean, smokeless Washington, his welcome home was a black smog, thick with smoke and soot. He and his wife could not see even the lights of the Mellon National half a block away. Said she: "I had almost forgotten how bad it is. Now I understand why a lot of people leave it and why a lot of people will never come back to it. . . . you have a lot of ideas about it. Will they ever get done?" His reply: "They *must* get done."

But all the power and drive of Dick Mellon and his business friends could hardly have brought Pittsburgh back if things had not broken right on the political front just when political help was needed most.

In 1945 David W. Lawrence, the Democratic boss of the state, was elected Pittsburgh's mayor, and in 1946 James H. Duff, a Pittsburgh man, was elected Republican Governor of Pennsylvania. "Sometimes you get into queer complications when you try to graft a reform movement onto a political machine" is the wry comment of one of Dave Lawrence's closest advisers. But Boss Lawrence has risked his political power to work closely with Dick Mellon on his whole program of civic betterment.

Beggars and givers

Except for the big program of industrial and office building expansion, most of the money for Pittsburgh's revival has come from the state and federal treasuries. "When Pittsburgh pays so much in taxes, it makes me tired to have to go down to Washington hat in hand to get some of our money back," growled one top executive. But Mayor Lawrence says more cheerfully: "We have been good beggars." When the begging was done, it always helped to have Democrat Lawrence standing side by side with Republican Duff and the Republican tycoons. It also helped to have bi-partisan support when Pittsburgh asked the 1946-1947 state legislature to approve "the Pittsburgh package"—a long list of enabling legislation for such essential changes as large scale real estate investment by insurance companies, county-wide smoke and pollution control, the municipal parking authority and the Urban Redevelopment Authority.

But not all the money has come from the government. "We have a long list of ideas for making Pittsburgh a better city," an Allegheny Conference director explains. "Every month we get more good ideas. Then we sit down and figure out who would be most interested in this or that particular project and then try to get them to put up the money to carry it through."

Ever since Andrew Carnegie set out to give away his fortune, Pittsburgh's millionaires have been generous givers. And so in recent months, for example, it was Mrs. Scaife who gave the money for the children's zoo, the Hillmans who gave the city three children's playgrounds on condition the taxpayers would foot the bill for two more, and Edgar Kaufmann pledged half of the $1 million cost of the plastic umbrella for the light opera crowds.

Four of the most interesting projects under way in Pittsburgh today are reported in some detail on the pages that follow—the Point Park office buildings, the Mellon towers, the parking garages, and the light opera umbrella. Other important projects:

Highways. *State and Federal Governments are putting up $150 million for a 27 mile expressway right through the heart of the city and on out to the new airport, with a loop around the Golden Triangle and spur running off from the point to connect with the Ohio River Boulevard to the northwest. These new roads from the east, northwest, and the southwest will make the heart of Pittsburgh more accessible than the heart of any other city of its size.*

Flood control. *The Federal Government is spending more than $100 million for eight dams on the upper Allegheny and Monongahela. Six of them are already operating. When the $44 million Conemaugh dam is finished in 1952, flood stage will have been reduced 10 ft. and Pittsburgh need no longer fear floods.*

River pollution. *By 1960 Pittsburghers hope it will be safe to swim in the Allegheny and Monongahela for the first time in over a century. (The glacier stopped far short of Pittsburgh, so there are no lakes within 100 miles.) River pollution is a tough problem, but already 129 communities in Allegheny County have been pulled into one County Sanitary Authority which has a $70 million construction program. The Pittsburgh city government is building a modern sewage disposal plant, and Pennsylvania has entered the Ohio compact to end pollution all along the Ohio.*

Airport. *The huge greater Pittsburgh airport, second only to New York's Idlewild in size, is being rushed to completion 19 miles to the southwest at a cost of nearly $26 million. Its terminal building will be a small city in itself, with 70 hotel rooms, three restaurants, a small theater, a cocktail lounge and a huge observation deck (see model).*

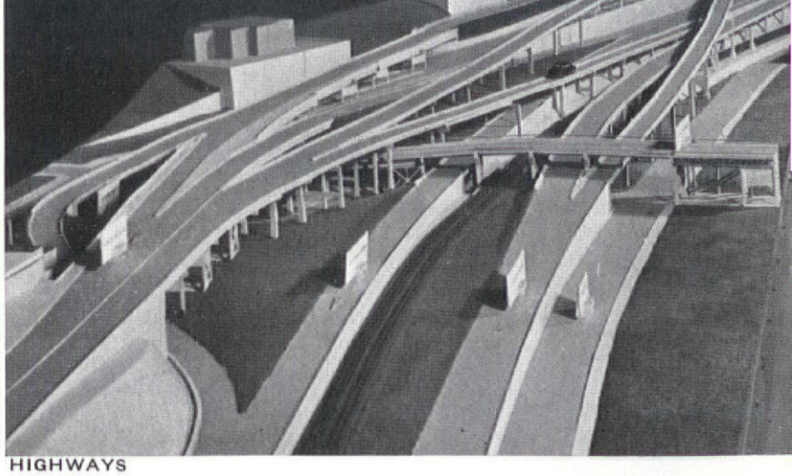
Theaters. *The Heinz family has given $1½ million for a playhouse now being designed by Jo Mielziner to replace a small playhouse on the Carnegie-Tech campus area. But Pittsburgh's only legitimate theater, the ancient Nixon, is being torn down to make way for the Aluminum Co.'s building.*

Industrial Development. *One of the chief assignments for J. P. Robin and the Urban Redevelopment Authority (which can take by condemnation land it cannot buy at a fair price) is to recapture the blighted housing areas for commercial and industrial use. Two years ago they kept Jones & Laughlin's $42 million expansion and modernization program in Pittsburgh by acquiring 60 blighted acres alongside its present mills. Pittsburghers cheerfully talk about a billion dollars worth of new or expanded industries, and this much is true. Since the Basing Point decision forbade Pittsburgh mills to absorb freight costs, several big manufacturers have decided to establish new plants right in Pittsburgh—notably General Motors ($20 million) and Continental Can (perhaps $10 million). Pittsburgh still has slightly more steel capacity than any other center.*

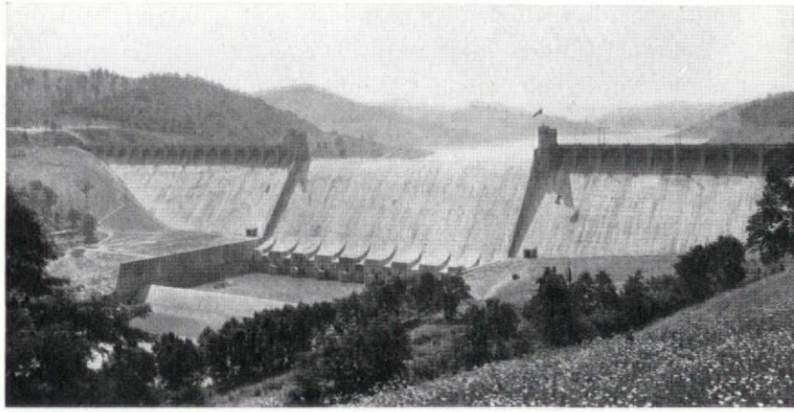
Colleges. *Carnegie Tech is in the middle of a $15 million expansion for its 12,000 students, Pitt in the middle of a $30 million expansion for its 27,000. W. L. Mellon has given $8 million to set up a school of business administration at Carnegie Tech and the A. W. Mellon Educational & Charitable Trust has given $13.6 million to start a school of public health at Pitt with ex-U. S. Surgeon-General Thomas Parran as Dean.*

Museums. *The Carnegie Museum is having its face lifted under the personal direction of Dick Mellon's special planner, Wallace Richards. Mellon himself put up the first $50,000 towards this and Heinz gave $133,000.*

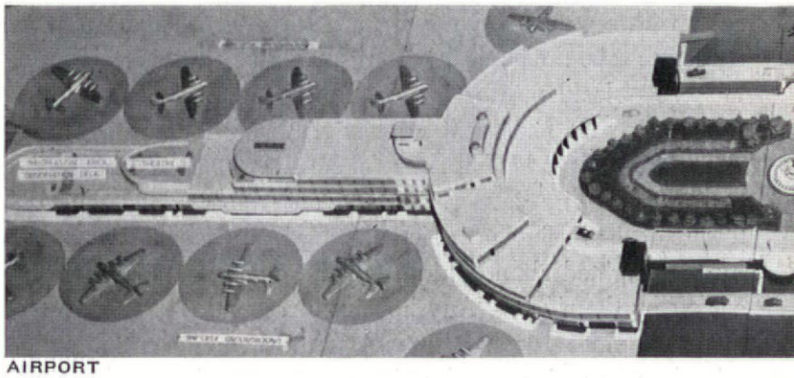
Photos: (p. 60) Dyosejh, Stewart Love, EWS Pictures, Associated Press, Westinghouse Photo, Pittsburgh Press, Harris & Ewing; (p. 61) Dillon Ferris, George Flegal; (p. 61 & 70) Newman-Schmidt.



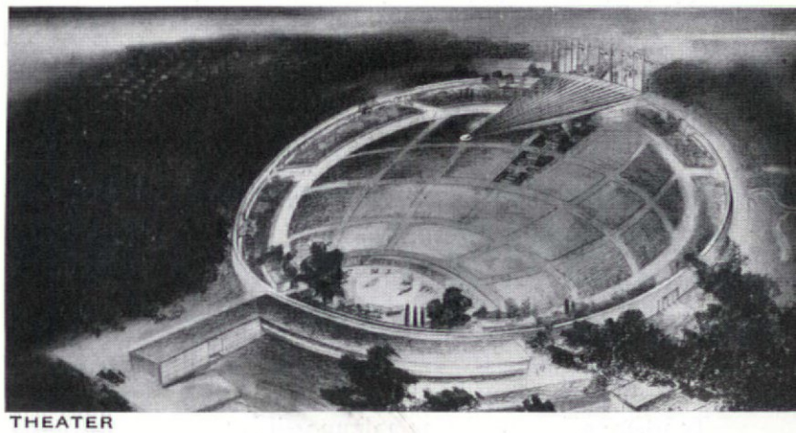
HIGHWAYS



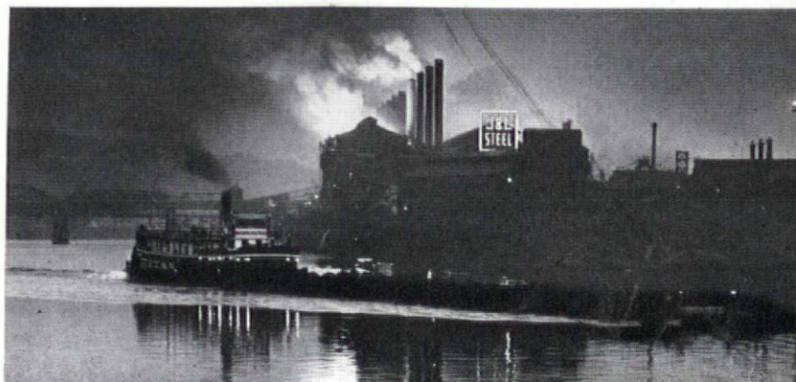
FLOOD CONTROL



AIRPORT



THEATER



POINT PARK DEVELOPMENT

Equitable Life proposes a new office building concept: a 23-acre park around nine cross-shaped towers

PARKINSON EKEN DOWLING

One Sunday morning in April 1947, two visitors from New York went down to take a last look at the blighted tip of Pittsburgh's Golden Triangle—59 acres of old warehouses, railroad yards, garages and shacks. The smaller of the two men was Andrew J. Eken of Starrett Bros. & Eken, builder of more insurance company apartments than any other man living. The taller and younger man was Robert W. Dowling, president of the biggest real estate investment firm, the City Investing Co.

Eken and Dowling had come to Pittsburgh the day before because Thomas I. Parkinson, President of the Equitable Life Assurance Society, wanted to do something for Pittsburgh—and the Mayor and the Allegheny Council had joined in appealing to the Equitable to redevelop 23 of the blighted acres with a great garden apartment project. (The State had agreed to take the other 36 acres for a historic shrine around the 1764 blockhouse of old Fort Pitt.)

The two men had spent most of Saturday looking over the site and had found it hopeless for housing. On the east it was cut off from any good residential neighborhood by the tall towers of the business district running from river to river and by the blighted slum behind. On the other two sides it was cut off by the rivers. "Any housing project there would be a breeding place for hoodlums," said Eken. "There are no schools, no movies, no churches, no community facilities of any kind. There would be nothing for boys to do except throw stones through windows for amusement."

Dowling insisted, however, that Parkinson meant business about doing something for Pittsburgh and would not take "no" for an answer. So, early on Sunday they went back to the Point to see if they could not suggest some better plan.

Offices, not houses

That morning was born the most revolutionary new idea for business district redevelopment since the planning of Rockefeller Center. The office congestion in Pittsburgh was as great as the housing congestion. In fact, there was hardly a city where office space was as impossible to rent—and half of Pittsburgh's 5,400,000 sq. ft. of office space was ancient and obsolescent. If Pittsburgh's housing shortage could not be solved by redeveloping the tip of the Triangle with garden apartments, why not meet Pittsburgh's office shortage by redeveloping the area with office buildings, each set in two acres of park? Why not redevelop the Triangle slum as the finest business district in America?

Rockefeller Center had won world-wide acclaim by dedicating a little over 12½ acres to its nine office buildings with 5.7 million rentable sq. ft. of office space (more than all the office space in Pittsburgh today). Between its towers Rockefeller Center had covered its entire area with low buildings except for a private street and a one-acre sunken garden.

The 23 acres in Pittsburgh offered an opportunity to carry the Rockefeller Center concept much further, and so Eken's and Dowling's recommendation to Parkinson was this: that the Equitable could combine an important public service with a profitable investment of $70-80 million by acquiring the 23 acres and covering something like one-sixth of the area with nine office building towers which would ultimately add about 2¼ million sq. ft. of office space to Pittsburgh's business district.

Parkinson was quick to see the possibilities of the proposal and gave it his enthusiastic endorsement and support. And so the long, long process of turning an idea into a reality began.

Ideas to plans

First the city government of Pittsburgh must approve the change and find some other place for its housing plans (public housing will go to vacant land on the city line—the city also has its eye on a decaying neighborhood out beyond the University for an insurance company apartment development for white collar workers). Then the Allegheny Conference must promise its wholehearted support and, more particularly, some of the big corporations must give assurance that they would move their headquarters to the new development. The Urban Redevelopment Authority must undertake to acquire the land at a reasonable price (around $10 million, or about $10 a sq. ft.). Endless hours must be spent translating the business men's promises of support into actual leases. Perhaps most important of all, the idea must be translated into a plan.

The extraordinary thing about all the planning that has gone on over the past 29 months is that no architect has been retained or even consulted about anything.

All the plans have been worked up in the real estate department of the City Investing Co., whose primary assignment has been to develop the scheme which would have the greatest long term rental value. So far, 14 different building shapes have been studied—including a square, an oblong, a slab, a T, an H and a U. All of these were discarded in favor of a

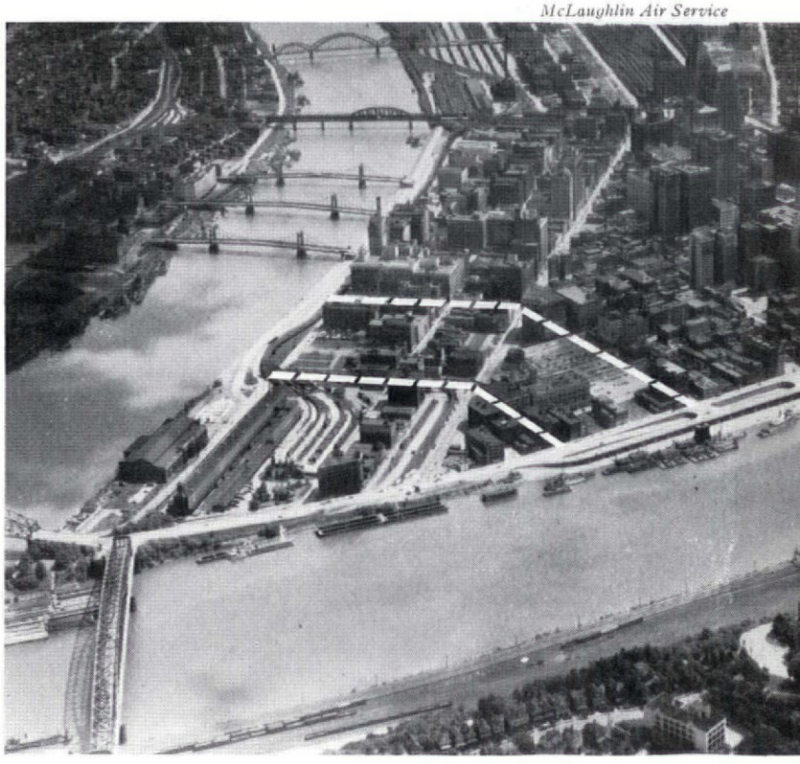
cross, and then half a dozen different cruciform plans were tried out, before Dowling decided he had found the one plan which would best suit the needs of both large and small tenants. All the plans were gone over very carefully by the construction experts of Starrett Brothers & Eken—and then the cruciform plan which seemed most promising was submitted to a panel from the National Association of Building Owners & Managers and was modified to incorporate some of NABOM'S suggestions. But still no architect! Instead a Board of Design is being projected similar to the Board of Design for Parkchester, Stuyvesant Town and other big insurance company building operations. It would include architects or architectural firms along with the builder, the engineers and the owner's representatives.

The board of Design will be given the floor plans finally approved by the Equitable and the seven original tenants. They will be given a three page memorandum of requirements, detailed right down to the point of fixing the floor-to-floor height at 11 ft. 9 in. (up 3 in. at the insistence of the tenants to allow a little more duct space) and spacing the columns 24 ft. apart along the sides and 16 ft. apart across the wings. They will be told: "There is the chassis. Now let's build the finest possible car around it".

Most architects will say this is not the best way to use

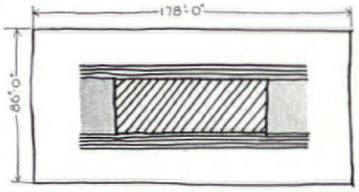
Equitable project will occupy 23 blighted acres between a new park at the point of the Triangle and the highly developed downtown commercial area. Existing bridges at the point will be replaced by two new ones which will lead suburban traffic directly to the Triangle's new circumferential expressways. Dotted lines in air photo below enclose the area to be redeveloped by Equitable.

McLaughlin Air Service



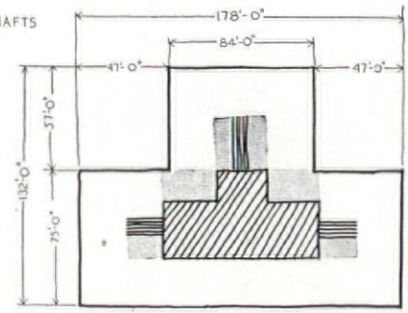
Evolution of a floor plan — some of the 14 stages through which the Equitable towers passed

ELEVATORS, ELEVATOR HALLS, TOILETS, FIRE ESCAPES AND SHAFTS
OTHER CORRIDORS
DEEP SPACE



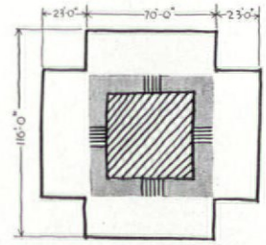
1.

This 86 ft. slab wasted space by duplicating corridors on each side of the service core, produced secondary space (i.e., space more than 25 ft. from the window) at either end—especially on the upper floors after the low rise elevators dropped off.



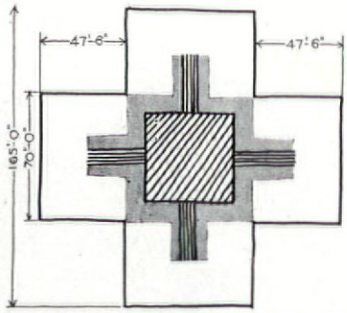
2.

The T was an early step towards the cross. With narrower dimensions and more perimeter it produced less secondary space. (All schematic plans, Nos. 1 through 8, are drawn to the same scale.)



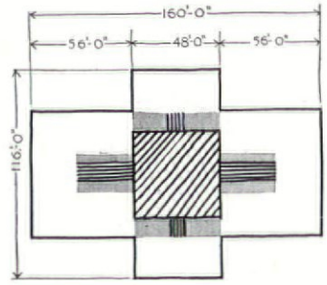
3.

The first cross plan had stubby wings 70 ft. wide, put almost as much area into the windowless crossing as into the wings.



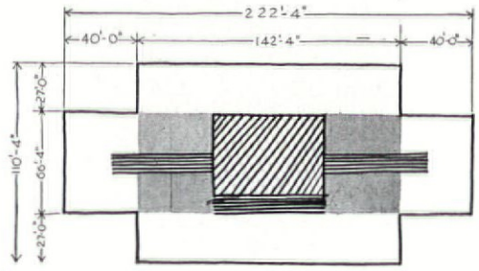
4.

Lengthening these wide wings added almost as much secondary space as primary space. In the early planning stages anything up to a 30 ft. depth on either side of a 12 ft. corridor was considered satisfactory. Hence, the 70 ft. width. Later the standard was raised to about 22 ft. with a 6 ft. corridor.



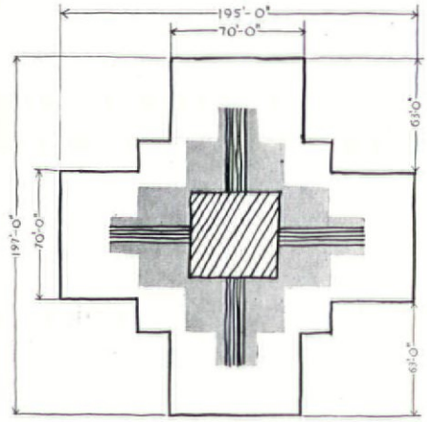
5.

This is the first time a narrow wing was tried. It cut the area of the windowless crossing nearly a third, but the space in the 70 ft. wings was still pretty deep.



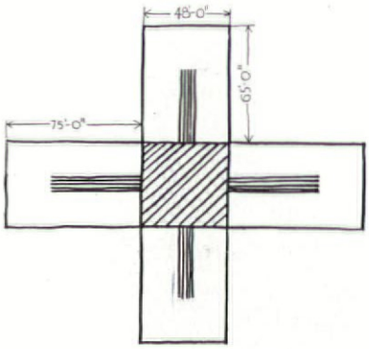
6.

This was a wrong move, for it made the windowless crossing bigger than ever.



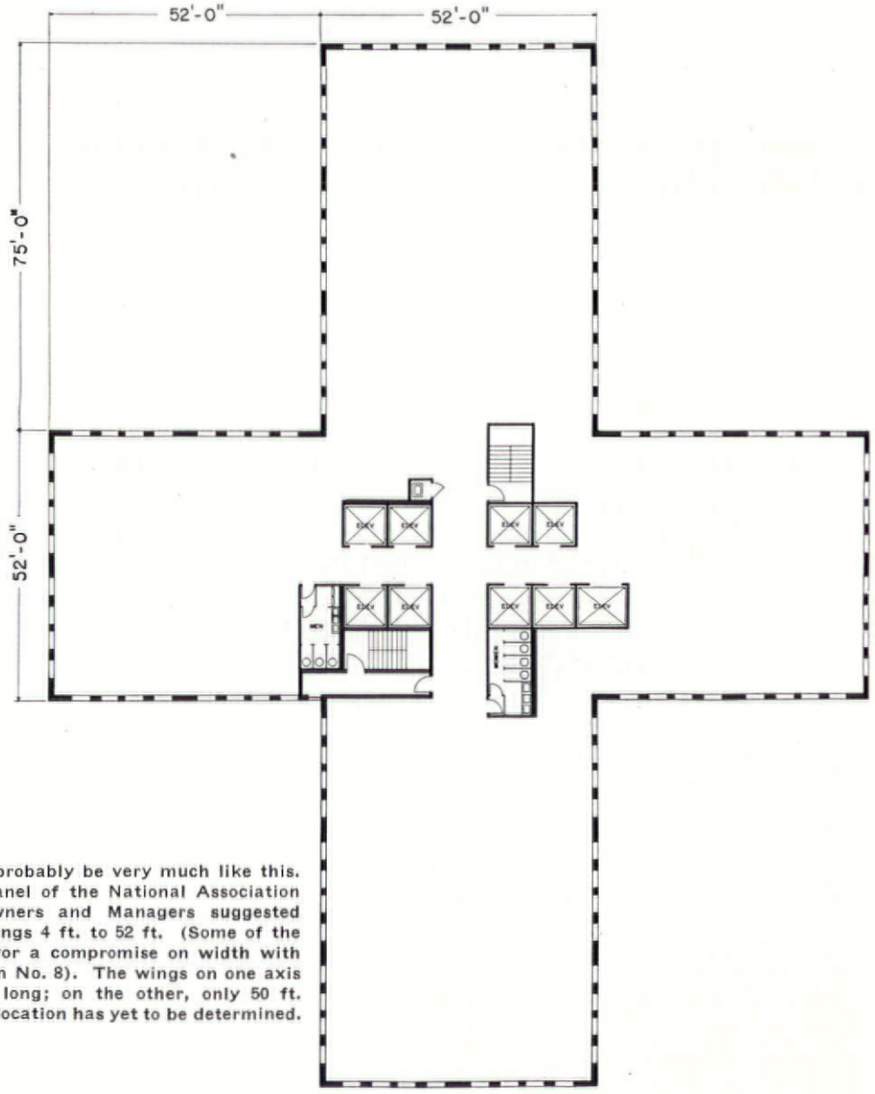
7.

Back to plan No. 4, except that the wings are a little longer, and four more corners have been added.



8.

This is a tremendous change—the wings are only 48 ft. wide, the windowless crossing is only half as big (hardly big enough to hold the service core), and every square foot outside the core is within 23 ft. of a window.



Final plan will probably be very much like this. The advisory panel of the National Association of Building Owners and Managers suggested widening the wings 4 ft. to 52 ft. (Some of the tenants still favor a compromise on width with the 48 ft. of plan No. 8). The wings on one axis are now 75 ft. long; on the other, only 50 ft. interior column location has yet to be determined.

their talents and training; will feel very strongly that the project would have benefited if the caliber of architectural thinking applied over the past 29 months had matched the caliber of real estate and construction thinking; will fear that one of the greatest architectural opportunities of a generation will not quite be realized because the architects were consulted too little and too late.

To this Dowling would answer that they have just been working out a clear statement of the problem and the cost limitations within which the architects must work. The grouping of the buildings, their uniform or varying decorative treatment, their orientation, their varying heights (between a low limit of 15 stories and a high of 25), their relationship to the ground floor stores and garages—all these problems are being left to the architects to solve.

$9 million a year in rents

Space in the Point Park office buildings is being rented to charter tenants as open floors on 20-year leases at $4 a ft. with an adjustment up or down after three years for changes in taxes and after ten years for changes in operating costs. The Equitable is required by law to charge off 2 per cent a year for depreciation and pay any profit earned over 4 per cent into a kitty for writing down its total investment on this class of building. If all nine buildings in the Triangle project are built, and if all the 2¼ million sq. ft. is rented at the $4 rate, the rent roll would be $9 million a year. Interest and amortization payments of 6 per cent on $80 million would come to $4.8 million a year. Operating costs at $1.20 a sq. ft. would come to $2.7 million a year, leaving $1.5 million for taxes and profit.

Space is being rented on an open floor basis. The $4 rent includes rubber tile on the floor, a plaster hung ceiling, incandescent lighting, and chilled water for air-conditioning. If the tenant prefers some different flooring he gets a credit for the budgeted cost of the rubber tile. If he wants some other kind of hung ceiling, he gets a credit for the budgeted cost of the plaster hung ceiling. If he wants fluorescent lighting, he gets a credit for the unused incandescent fixtures. (The buildings will be wired for 4½ watts per sq. ft.)

The first three units are scheduled for occupancy in January 1952, with construction starting next fall. Charter tenants will be Westinghouse Electric, now housed in seven buildings, which will take between 70,000 and 90,000 sq. ft; the Jones & Laughlin Steel, now crowded in three buildings; People's Gas, whose present building will be torn down to make room for the new Mellon park and its underground garage; Pittsburgh Plate Glass; and National Supply, Westinghouse Air Brake and Union Switch and Signal. The Horne department store wants 39,000 sq. ft. of retail space, and the Mellon Bank will open a branch in the project. (The buildings will have an average net rentable area of 250,000 sq. ft. and a cubage of 4.2 million.)

Leases call for brick and limestone buildings, but Eken feels and has told the tenants that in the steel center of the world a real effort should be made to erect the buildings with a skin of steel. For the past four years he has been working with various steel makers and fabricators on a stainless steel curtain wall. He is now erecting a small building with such an exterior, and by next spring he hopes to announce that all the Equitable towers will have a stainless steel wall that will be functional rather than a decorative cover for brick (as in the Mellon-U. S. Steel Building).

The leases similarly provide for double hung windows, but by spring this specification will probably be changed to one of the new-type pivoted windows (p. 102).

The cruciform plan was, of course, suggested by the various apartment house projects Eken had planned and built, notably Parkchester and Stuyvesant Town in New York. Its advantage is that all the utilities, like elevators and fire stairs, can be concentrated in the crossing, leaving the four wings unobstructed. Its advantage over the narrow slab is that the distances between the outermost points are very much less.

From the beginning, Equitable's planners have had only one assignment—to develop the most desirable and most flexible office areas, and the first criticism offered by the National Association of Building Owners & Managers was that the buildings would have too much prime space and not enough secondary space for storage, etc. To this, City Investing's reply was that secondary space costs almost as much to build as prime space and there is no use deliberately building any floor area which cannot command a top rent.

In the plan on which the finishing touches are now being put, the exterior width of the wings is 52 ft. and the interior width 49 ft. to make possible 21½ ft. of office space on either side of a 6 ft. corridor. The overall width was increased from 48 ft. to 52 ft. at the suggestion of NABOM to make possible a 9 ft. secretarial office inside a 12 ft. executive office if desired, but the width may still be reduced to 49 ft. or 50 ft. at the insistence of some of the tenants, notably Pittsburgh Plate Glass. One disadvantage of the 48 ft. width is that this small change reduces the area of the crossing 15 per cent and closes the passage between adjoining wings outside the service core. In the earlier plans the wings were all the same length, but later it was found that varying sizes of tenants or departments could be better fitted in if the wings on one axis were 75 ft. long to create a 3,750 sq. ft. area and the wings in the other axis were 50 ft. long to create a 2,500 sq. ft. area.

From a 1906 pattern

Any idea of using either a modular system or continuous fenestration in these buildings was given up when some of the tenants asked for minimum offices 8 ft. wide, whereas others said the narrowest office they could use would be 9 ft. 6 in. Instead, there will be four windows 4 ft. wide in each 25 ft. bay with enough wall space between to allow considerable latitude for the location of partitions. By borrowing a little space at the columns where necessary, the 25 ft. bays can be subdivided into two offices 12½ ft. wide, one office 10 ft. wide flanked by two offices 8 ft. wide, or in several other ways. This fenestration was suggested by the Adams Express Building on lower Broadway, built by Dowling's father in 1906, which, he says, has had the best rental record of any building in lower Manhattan.

TWO NEW SKYSCRAPERS

HARRISON & ABRAMOVITZ, Architects

No tall commercial buildings erected in this country since the war have had cleaner design or smarter contemporary styling than the two towers the Mellons are now putting up —the 39-story $28½ million Mellon Bank—U. S. Steel Building (official name: 525 William Penn Place Building), which is now under night and day construction, and the 30-story $10 million Aluminum Company Building which is now in final planning stages.

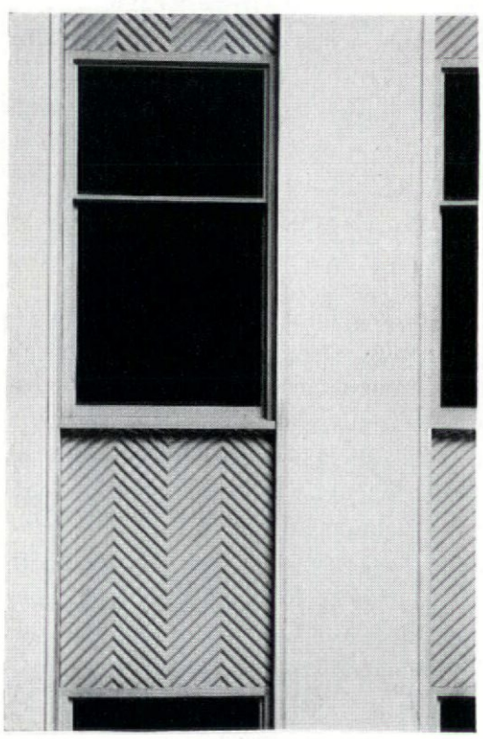
These two buildings will stand in the very heart of Pittsburgh's present business district at the opposite side of the Golden Triangle from the point the Equitable is redeveloping, and within two blocks of where the Triangle abruptly gives way to the blighted Hill district. Thus they will be hemmed in between other tall buildings 10 to 22 stories high, but the Mellons are doing everything possible in that location to give them light and air.

$4 million park

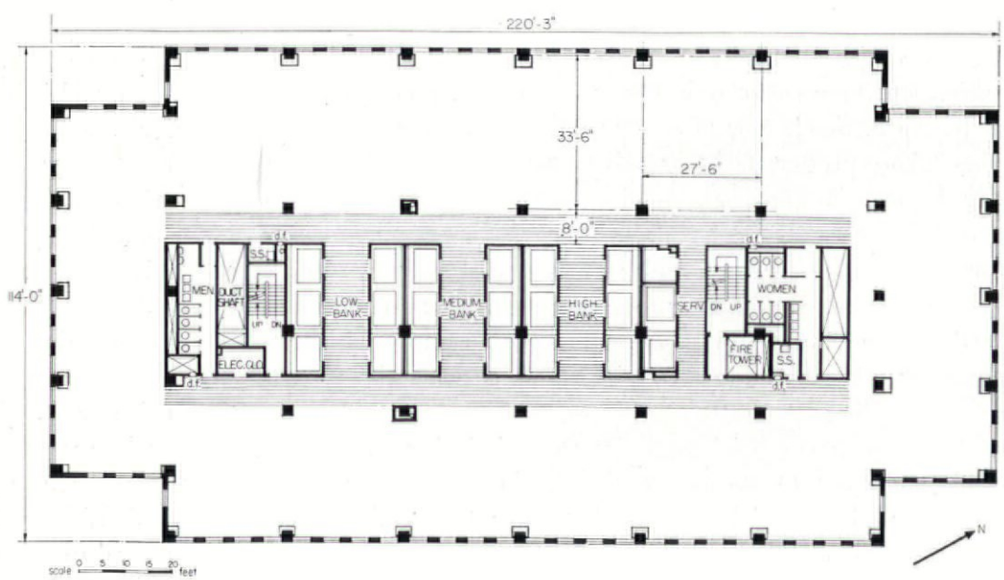
To that end they have given the city $4 million to buy the entire city block between their two new buildings to create a park atop a five-story underground parking garage (page 70). And they have set both buildings back from the street (one of them 14½ ft.) with provision for a narrow strip of planting between the base and the sidewalk.

This readiness to open up the area around the new buildings had an important architectural by-product, for in exchange for the Mellons' willingness to set back the walls of the lower floors, the Pittsburgh zoning authorities are expected to allow slightly larger floor areas above the 265 ft. height than a strict interpretation of the zoning ordinance would have permitted. This exchange (see diagram) is what makes possible the clean lines of the two buildings, which will rise sheer without a setback.

For somewhat different reasons, both the Mellon buildings will break with the current vogue for continuous windows. In the Steel tower, the architects wanted uniform masonry piers 2 ft. 7 in. wide between every window to emphasize



Close-up of wall shows unequal sash of window and stamped stainless steel spandrel of the Mellon-U. S. Steel Building. Turner Construction Co., General Contractors.



of smart, clean design will flank a new mid-city park

the verticality of the simple slab. They were also interested in holding down the requirement for air-conditioning window units, which would have been increased 50 per cent by continuous fenestration. At Alcoa, where the windows are frankly designed for view only, they wanted to cut down the sun load on the cooling equipment and to get added latitude for placing partitions against the exterior wall.

A cautious use of steel

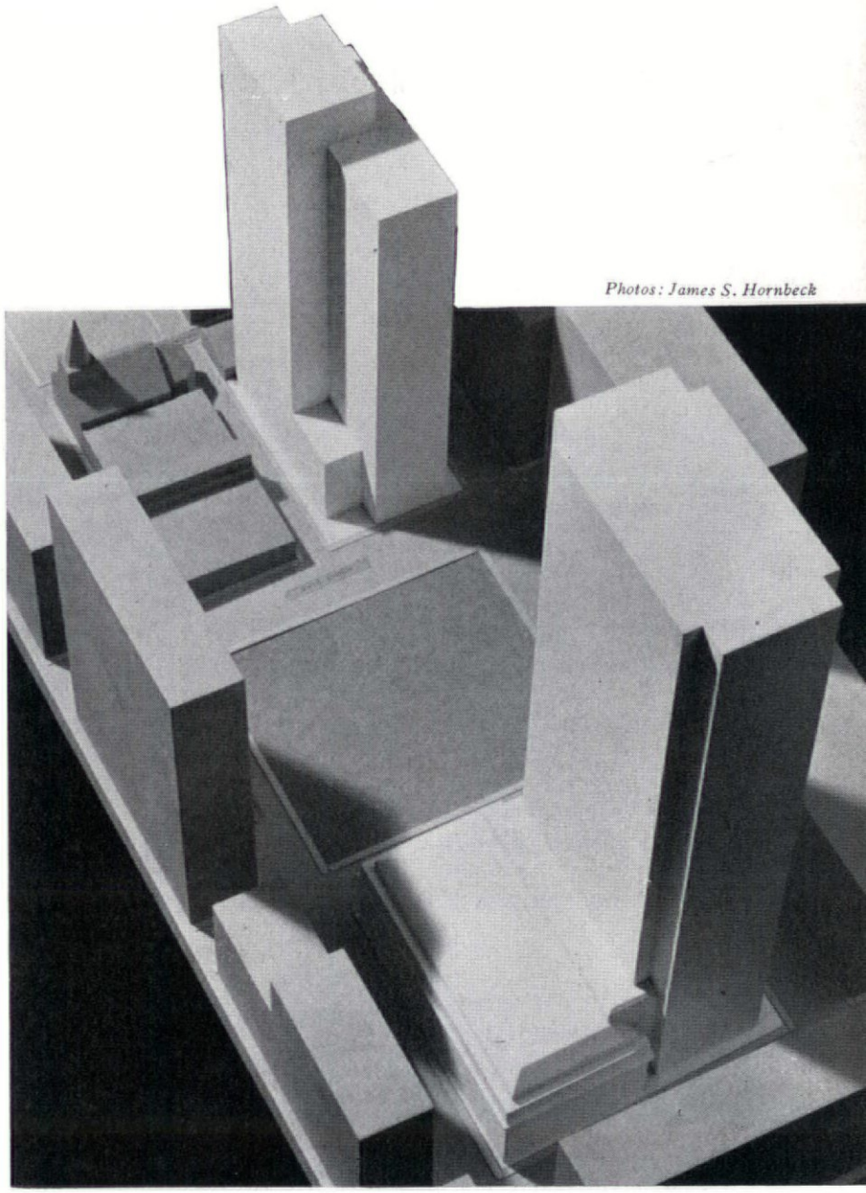
Because the two buildings facing each other across the park will house respectively the biggest steel company and the biggest aluminum company, it was commonly expected that the Steel Building would be sheathed in stainless steel and the Aluminum Building would be sheathed in aluminum. The corporation, however, decided that the stainless steel curtain wall should be tried out on many smaller buildings before it could prudently be used on such a large and costly structure. Consequently, the Steel Building will use stainless steel only for its windows and for a decorative stamping that will conceal the brick work of its spandrels. A great deal of effort was put into the development of both windows and stampings, and the cost of the latter was brought down to $23 per spandrel, or only a little over $1 per sq. ft. Between the windows, the walls will be faced with limestone flanked by stainless steel fins and tied to the brick by stainless steel anchors outside a 2 in. air space.

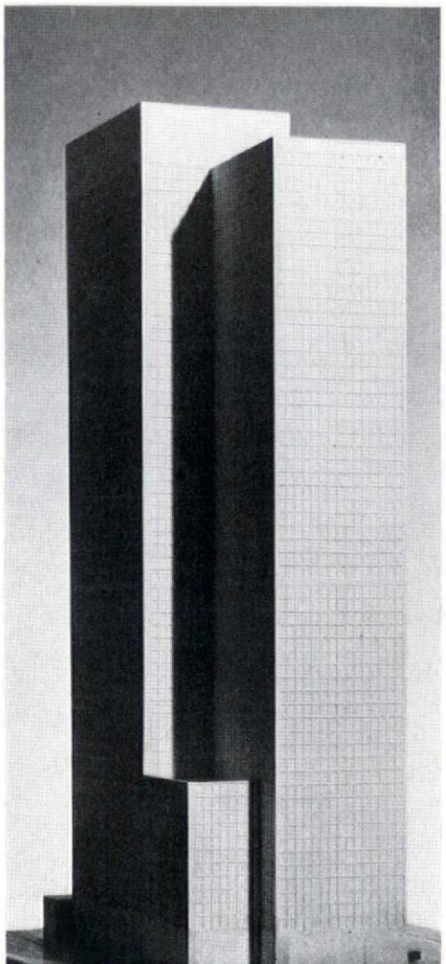
Because both the bank and the corporation insisted on a cautious approach, their building is largely contemporary with Rockefeller Center (1932-1939), from which its only important differences will be its air-conditioning throughout, its substitution of stainless steel stampings for aluminum castings as spandrel decorations, and its use of steel panel flooring instead of concrete arches. Like all the towers in Rockefeller Center, it is a simple slab building with the service core in the center and practically no office space more than 30 ft. from a window. It is 220¼ ft. long, 114 ft. wide, giving it a net area of from 17,504 to 19,716 sq. ft. per floor—more than any tower in New York except the two biggest in Rockefeller Center.

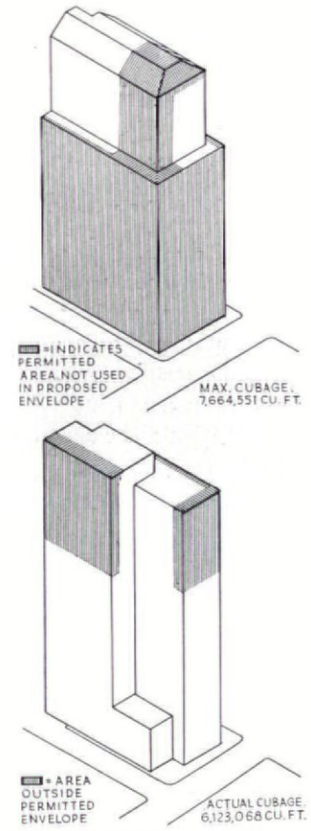
The eight lower floors will be occupied by the Mellon Bank (which will own these floors outright, as in a cooperative apartment), and for security reasons these eight floors and their elevator bank can be completely separated from the rest of the building. The rest of the building will be owned by The 525 William Penn Place Corp. The top floor will house the private offices of T. Mellon & Sons. The 30 floors between will be rented to the corporation, which will concentrate here all the operations now scattered in six Pittsburgh office buildings, plus several departments which for a generation have been housed in New York or Chicago.

The building will be connected throughout its entire length with the present three-story neoclassic headquarters of the Mellon Bank. Not the least of the architect's achievements is his success in making his slab so simple that it will serve as an effective backdrop for the bank instead of overwhelming it. In this simplicity, the uniform width of the masonry piers, whether they cover a steel column or not, will be an important factor.

Photos: James S. Hornbeck







ALCOA BUILDING

Alcoa building is an experiment in aluminum

The Aluminum Building will be as advanced and experimental as the Steel Building is conservative. The Aluminum Co. has found its biggest single market in the building industry, and both President Roy Hunt and his vice-president in charge of building products, Fritz Close, are experiment-minded. Thus, they were more than ready to make this building, like their smaller factory-office in Davenport, Ia. (FORUM, May '49) do double duty as a demonstration of aluminum's excellence as a building material.

As far back as 1941 they set Architects Harrison & Abramovitz to work on plans for an aluminum tower at Park Avenue and 59th Street in Manhattan. This same firm designed the Davenport offices, and when the New York project was abandoned in favor of Pittsburgh, they just picked up in the new location where they left off in the old. Consequently, more than eight years of careful study lie behind the experiments which will be put on display in their new building.

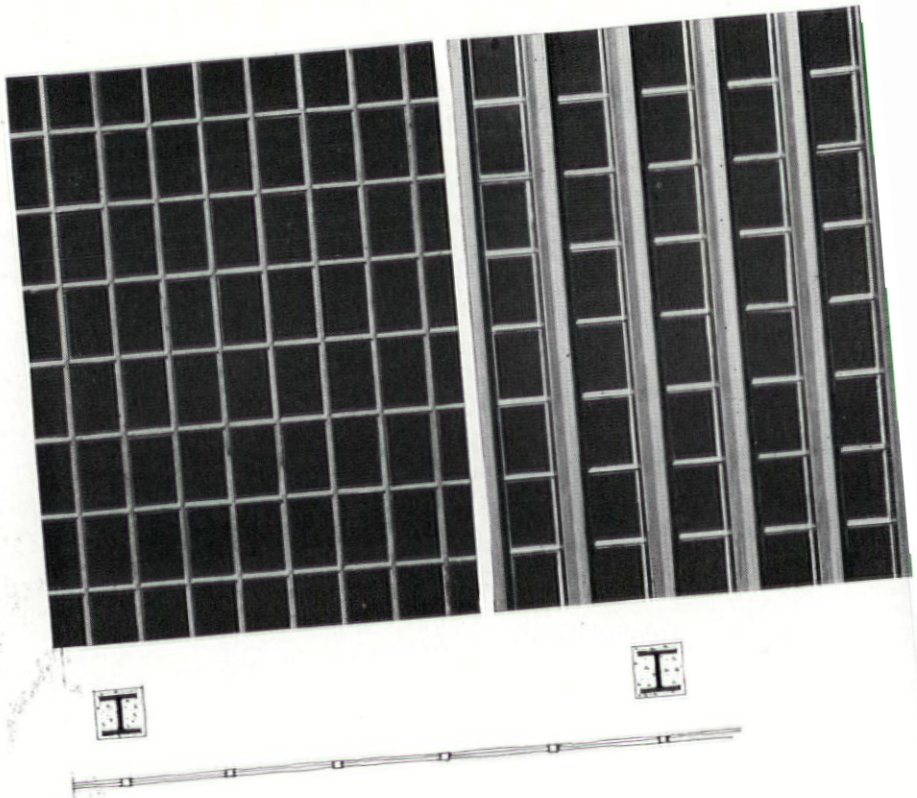
The five uses of aluminum in which they are all most interested are the aluminum skin, aluminum reversible windows, aluminum ceiling, and the aluminum wiring system, and the use of activated alumina to dry the air and so reduce the cooling load.

Aluminum skin

Some of the 16 different aluminum skin treatments the architect developed are shown in the photographs on these pages. They fall into two basic types: some are designed to utilize deeply embossed aluminum stampings which would run in a single sheet from column to column. The others are an adaptation of the glass and aluminum wall design of the United Nations' Secretariat (FORUM, July '49), with this important modification: instead of putting black paint behind the spandrel glass, crinkled aluminum foil would be used. Protected from the air by the glass, this aluminum foil could be expected to keep its brightness as long as the building stands, at the same time performing functionally to reflect most of the sun heat and to supply an excellent exterior vapor seal.

Present indications are that one of the first alternative group will be selected. If so, this will be the first building in which comparatively thin aluminum stampings are so used instead of heavy castings, and it will be the first in which the metal spandrels for each bay are erected in a single piece, relying on the depth of the embossing to take up the expansion and contraction from heat and cold.

In the Davenport offices the columns were set back inside the window line, but most of the exterior designs studied for the Pittsburgh building put the columns on the outside to get a flush interior wall. To keep these exterior columns from giving the structure a muscle-bound look, the structural engineers, Edwards & Hjorth, developed a special built-up column only 14 in. deep, using half an H-section, a heavy plate, and two angles (see drawing). In some of the exterior designs this shallow beam simply disappears into the deep embossing of the aluminum skin. In the others it would project not much further than the 4 in. limestone facing between the windows of the Mellon-U. S. Steel Building across the park.



Behind the aluminum or glass-and-aluminum facing there will be a thin lightweight curtain wall to meet the fire test requirements. This may be made of lightweight precast concrete blocks held together with dowels as at Davenport. It may be a lightweight concrete and foam glass sandwich 4 in. thick, which is being marketed at an erected cost of only $1.60 per sq. ft., or it may be 2 in. of perlite sprayed on either side of a metal lath integrated with a new steel wall-framing unit. This frame unit would run from floor to ceiling to support the windows and give the necessary wind load stiffness to the wall, while the perlite would take care of the heat transfer requirements.

Reversible aluminum windows

The Alcoa Building will be the first to use a new type of completely reversible window originally developed for the proposed TIME & LIFE Building in New York City. (Details of four such windows are shown on page 102.) Its importance lies in three factors:

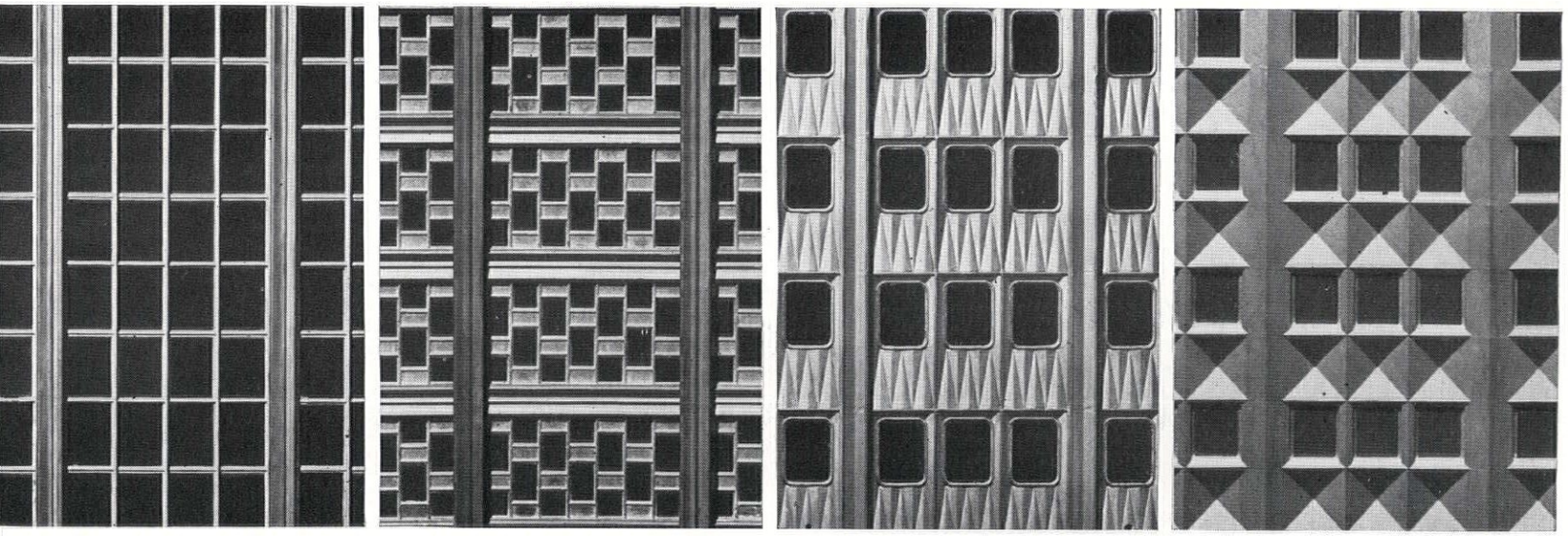
1. It can be washed from the inside at a great saving in maintenance cost;

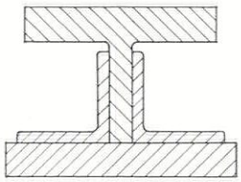
2. It permits a completely unobstructed view, without resorting to such expedients as unequal upper and lower sash as in the windows for the Mellon-U. S. Steel Building, where the crossbar of the double-hung window was put above the center to get it above eye level;

3. It makes it easier to use a lower window height than is customary with double hung windows, where the upper pane is usually nullified by Venetian blinds. (Every additional foot of window height on the sunny side of an air conditioned building imposes a serious added load on the cooling system for that zone.) In the Davenport building, the window height was 4½ ft. This has proved so satisfactory that in Pittsburgh the windows may be lowered another 3 in. if the lower window fits better into the exterior design.

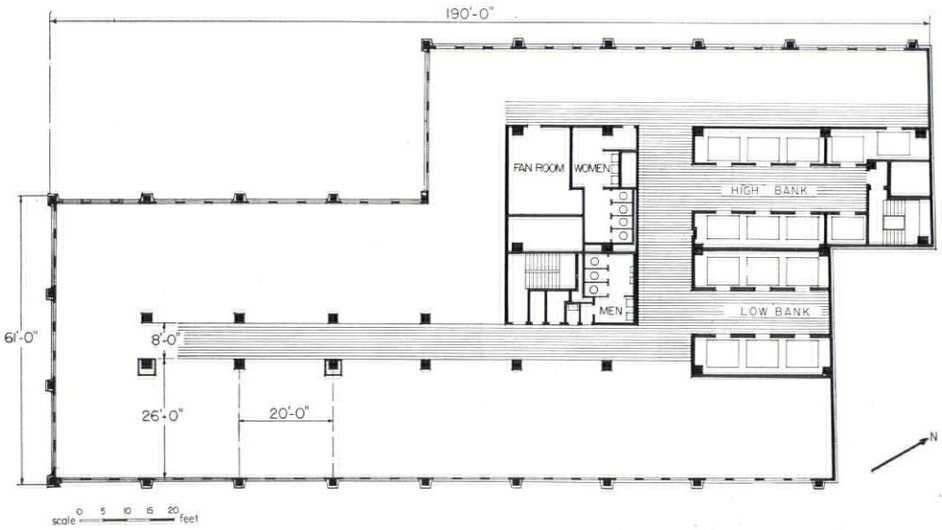
Green heat-absorbing glass will be used throughout; partly because the color gives a more pleasing effect against

(Continued on page 110)



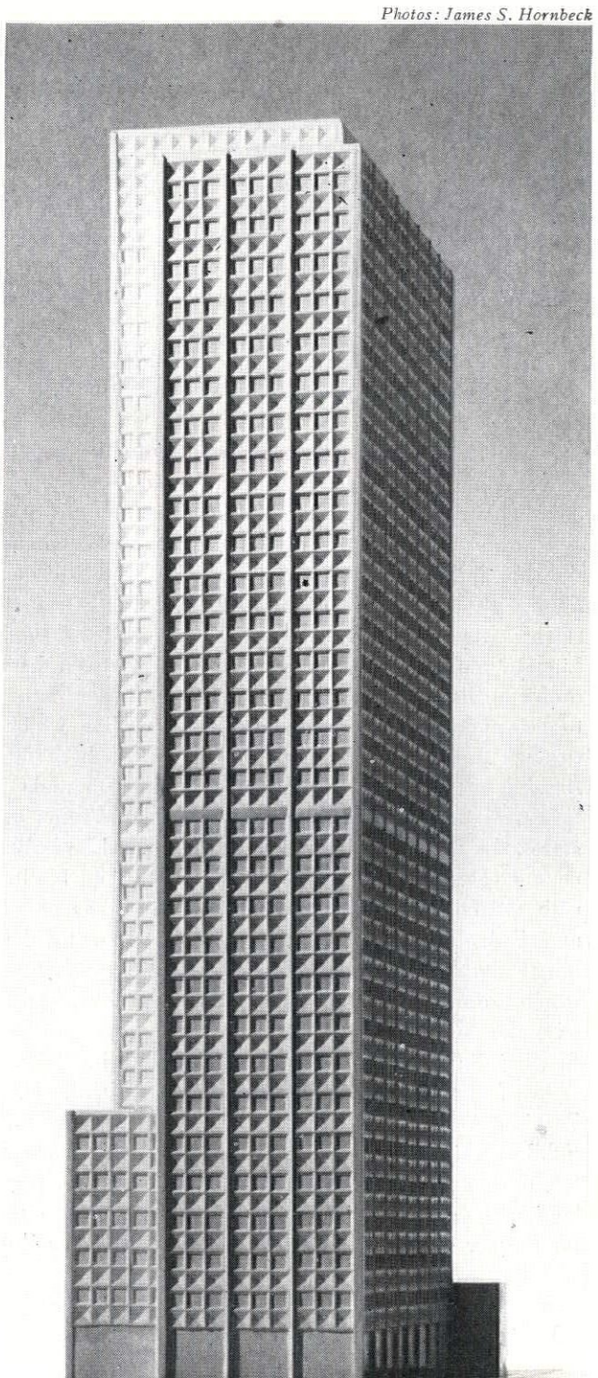


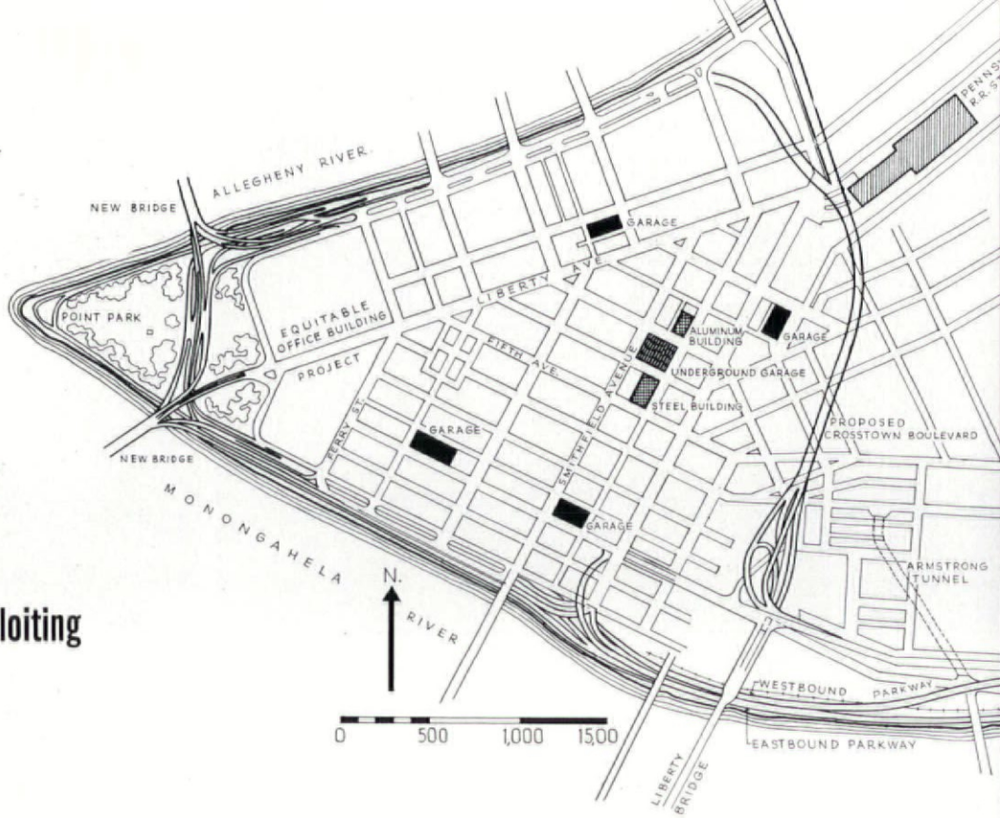
Six skin treatment experiments (above) show three combinations of glass- and aluminum-foil-covered spandrels (left) and three different types of aluminum stampings (right). Two additional patterns are shown on page 110. Wall sections show three different studies of column size and location: 1) regular-size columns set back from the wall; 2) regular columns projecting out from the wall; and 3) shallow columns within the wall. Final design will probably use shallow columns (detail, left) concealed in the deeply embossed pattern of the sixth stamping, whose over-all effect is shown in the model at the right.



Floor plan comprised of overlapping slabs eliminates dark, deep space which would have resulted from filling in the upper-left corner to form a rectangular plan. Moreover, covering only a portion of the site influenced the local authorities to waive the usual requirement for a set-back at the 265 ft. level—see sketches, page 67. George A. Fuller Co., General Contractor.

Photos: James S. Hornbeck





OFF-STREET PARKING THAT PAYS FOR ITSELF

The nation's first Parking Authority is exploiting new ideas in garage design

When Richard King Mellon leaves his office in the Mellon National Bank Building at the heart of Pittsburgh's Golden Triangle, his long black Cadillac is usually waiting at the curb. Once inside, Mellon, like every other five o'clock driver in the Golden Triangle, is at the mercy of one of the worst traffic clots in the U. S.

As the cars crawl through the cobble-stoned streets of the business district, hundreds of curb parkers are trying to head into the traffic stream; others, restaurant diners and theater goers, are hopefully cruising for a vacant curb space. A few late trucks are double-parked, and their drivers are wearily threading a path through the solid line of cars at the curb to make deliveries. Sometimes traffic comes to a complete stop as dozens of cars emerge at once from a parking lot. By the time Mellon's Cadillac has climbed out of the business district and by-passed the ancient slums of the Hill, he may find that more than 30 minutes has passed—although 40 miles of his 50-mile drive to his home on Laurel Mountain still lie ahead.

Like other Pittsburgh drivers, Mellon could reflect, as he waited for the cars ahead to move, that things would be a lot better soon. For almost a year he had heard the roar of dynamite under the Hill, where the highway builders were blasting the tunnel link of the $80 million Lincoln Parkway job. More than most Pittsburghers, Mellon was aware of the vast program of street and highway improvements soon to get underway—the crosstown thoroughfare which would route through traffic out of the crowded streets of the Triangle, the high-speed boulevards which would stretch out to main highways and bring shoppers from Johnstown to Youngstown into Pittsburgh's great stores, the fast traffic interchanges that would be built as part of the park development at the Triangle's point. And Mellon could reflect with satisfaction that he and the rest of Pittsburgh's business planners had already taken a big step toward curing the rest of Pittsburgh's smothering traffic problem—what to do with the automobiles which the new highways would bring into town. Last month architects and engineers were at work on four huge parking garages—the first building job of the new Pittsburgh Parking Authority.

The fact that Pittsburgh is the first city in the U. S. to set up a Parking Authority to build and operate a coordinated system of public parking garages can be attributed to the clear-cut way in which the Mellon team faced their city's problems. As every business man knows, clogged traffic and lack of a place to park is the chief reason for the decline of a central business district. The Golden Triangle, bounded on two sides by the Alleghany and Monongahela rivers and on the third by the steep rise of the Hill, is worse off than most cities. There is no room for horizontal expansion; for generations expansion has been in a vertical direction. But the skyscrapers which compose the financial heart of the great steel empire spring from alley-like streets which haven't been widened since horse-and-buggy days. Shoppers were tired of fighting their way to the big downtown stores, and both shopping and building dollars were flowing to the suburbs. In 1927, 297,000 persons entered the central business district on a business day. By 1942, this had shrunk to 247,000.

Short-term parker is vital

Pittsburgh's business planners early realized that one of the biggest needs of the Triangle area was off-street parking facilities. Unlike planners in many another city, they also decided not to rely on zoning ordinances and other means to persuade individual property owners to provide their own off-street parking facilities. Not only would this be the most expensive way to provide off-street parking, they believed, but haphazard garage entries might mean even more street blocking. They thought that big parking garages built to serve the whole district could support themselves—if they were located and planned on the basis of a careful study of parking need.

Way back in 1943 the Allegheny Development Conference asked the Pittsburgh Regional Planning Association to make such a study. The planners found that one-third of the automobile traffic entering the Triangle was through traffic, about 16 per cent were drivers working in the area, and all the rest—over 50 per cent—were shoppers and business callers. This last was the group whose parking needs were of first importance to the continued health of the business district—and they were the group least served by existing off-street parking facilities. By 9:30 in the morning, space in downtown garages and parking lots was filled with the cars of those at work, and the shopper, arriving later, was left to cruise for space.

Provision of enough short-term parking space, the planners pointed out, involved a number of factors which couldn't be adequately handled by independent garage owners. One of these—the fact that short-term parkers won't walk more than three or four blocks to their destination—means that the garages must be located on high-priced land. The cost of such land (except in the last depression, when park-

UNDERGROUND PARKING GARAGE

Proposed for a square block between the new U. S. Steel and Alcoa Buildings in the heart of Pittsburgh's business district, this garage would cost $3.5 million (not counting land), according to studies prepared for the Regional Planning Association by Pittsburgh architects Mitchell & Ritchey. George Richardson was engineering consultant.

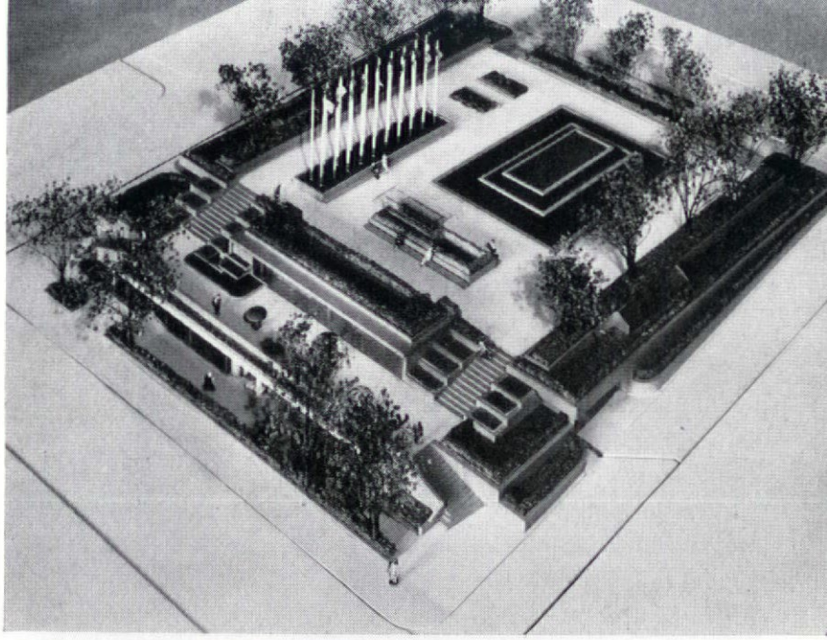
According to this scheme, 1,090 cars could be parked on six split-level floors, which include space for street frontage shops, auto accessory sale.

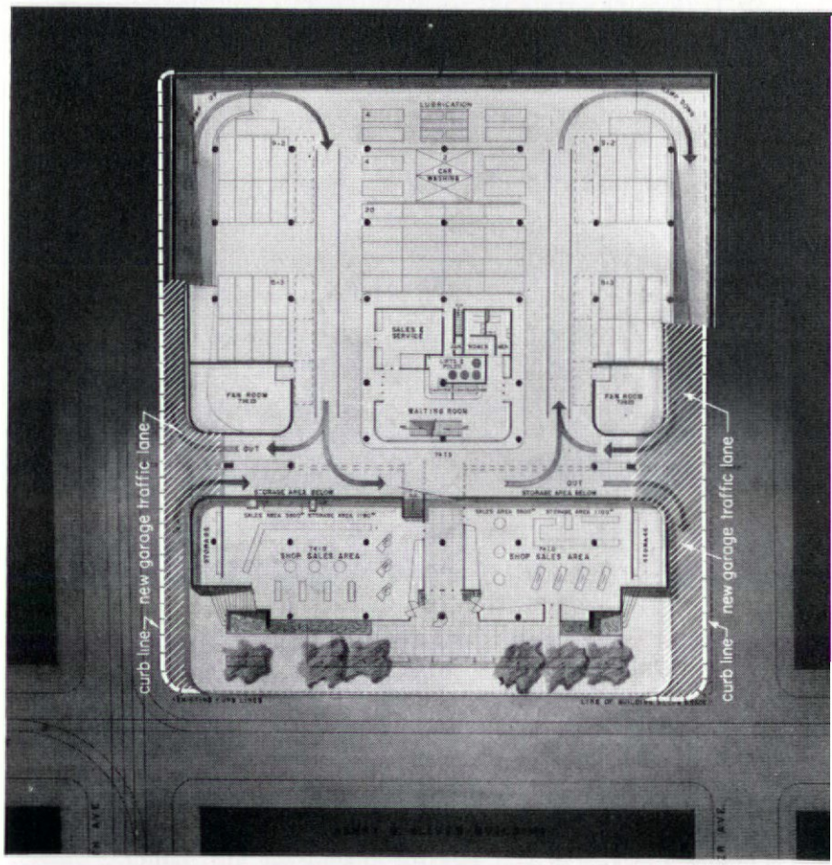
Like San Francisco's famed Union Square garage, this garage would be set back from the curb line to provide extra traffic lanes for garage entry. But garage entry will be on only two sides of the block—entry from all four sides in the Union Square garage created too much traffic confusion. Pedestrian sidewalks have been carried over garage entries as walks through the park.

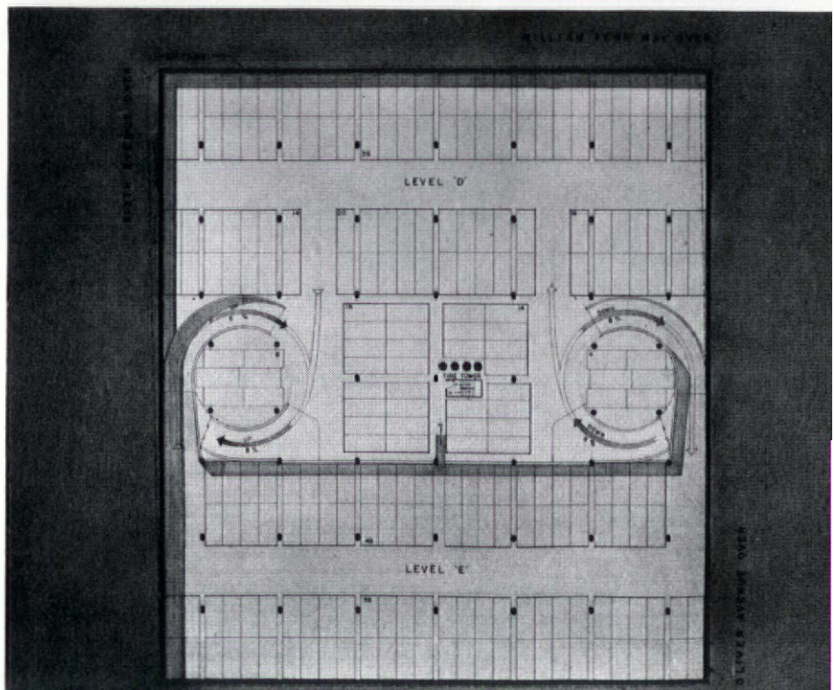
Another point drawn from Union Square experience is the more ample provision for entry reservoir space: This scheme's three lane reservoir, long enough to hold 27 cars, promises to cut pick-up time (see center plan).

The staggered floor plan proved to increase garage capacity by some 40 cars per floor over level schemes which the architects studied for this 225-ft. long site. Shorter distance between floors also reduces ramp cost.

Underground the ramps project beyond the building line to take advantage of the space allocated for setback on the street level. Another noteworthy feature: wider column spacing to fit today's bigger cars. Estimated cost is $3,669 per car space, as compared with Union Square's $1,000 per space in 1941.







ing lots were born) is usually more than a single garage operation can support and suggests the need both for the public power of eminent domain and the long-term financing possible through revenue bonds like those of New York's Port Authority. The planners also foresaw the need for a parking rate schedule which would kick up sharply after the first few hours and so prevent all the space intended for shoppers from being grabbed by all-day parkers—a principle not in use in any of the city's existing privately operated parking garages. Moreover, they wanted to accomplish a number of specific planning features—building setbacks to allow for street widening so that an extra traffic lane could be provided for garage entry, exploitation of Pittsburgh's hilly sites to carry pedestrian sidewalks over garage entries, open-deck buildings which require no ventilating, heating or sprinklers and can have an economic 7 ft. floor-to-floor height.

For all these reasons, Pittsburgh decided to set up a Parking Authority and secured state enabling legislation that assured a sound legal footing for the venture. The Parking Authority was empowered to build and operate parking facilities, to issue tax-exempt revenue bonds, and to acquire land by eminent domain. A directing committee composed of a steel company executive, the university president, a city councilman and the city solicitor was appointed by the Mayor, and engineer Donald McNeil was made acting director. The first act of the new Parking Authority was to ask Parsons, Brinkerhoff, Hogan & MacDonald, the famous New York engineering firm, to make a report on the economic feasibility of building the first garages.

$3½ million park

After an eight-month study, Parsons-Brinkerhoff recommended construction of a group of six coordinated garage facilities in the central business district and produced the figures showing that these could be built at a cost of $9 million and operated to earn an annual net of $760,860 for debt service. This study was submitted to the First Boston Corp. as the basis for a financing program.

First Boston is counseling with the Parking Authority on the terms of its first bond issue. First of their kind, these bonds may have a 30-year term, pay as high as 4 per cent. How much market interest they generate will go far to determine how many other cities follow Pittsburgh's lead in setting up a Parking Authority.

The Parsons report recommended open-deck garages (which can

(Continued on page 112)

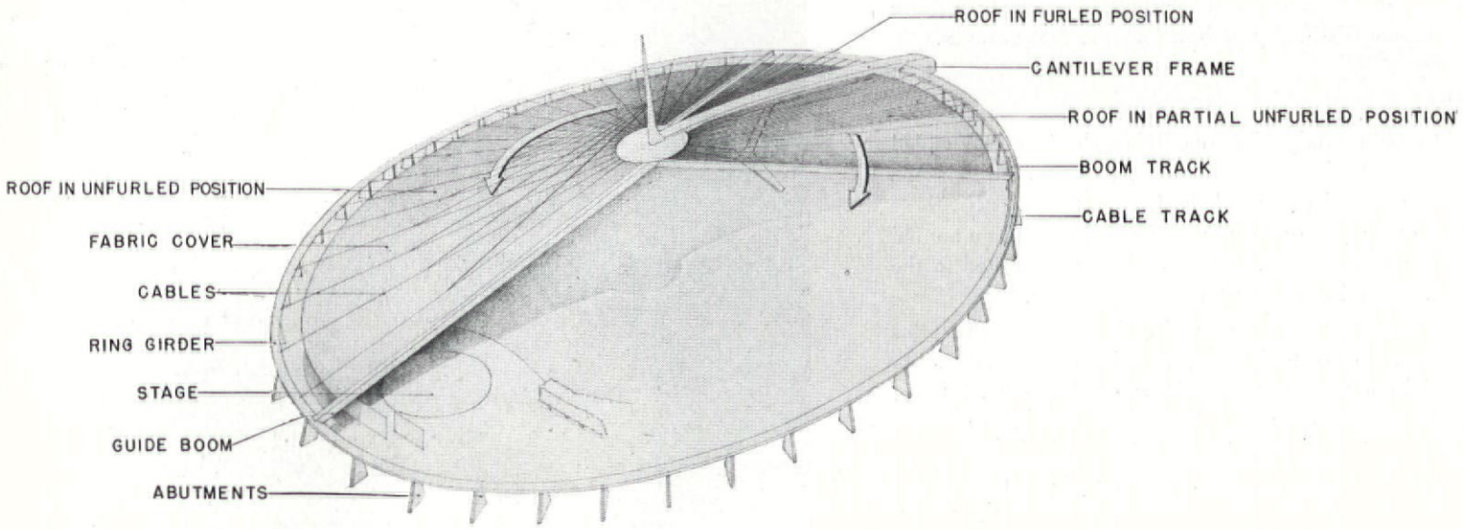
AMPHITHEATER UMBRELLA unfolds in 2½ minutes to protect 9,500 light-opera listeners against rain, the management against the $10,000 loss of a rained-out performance

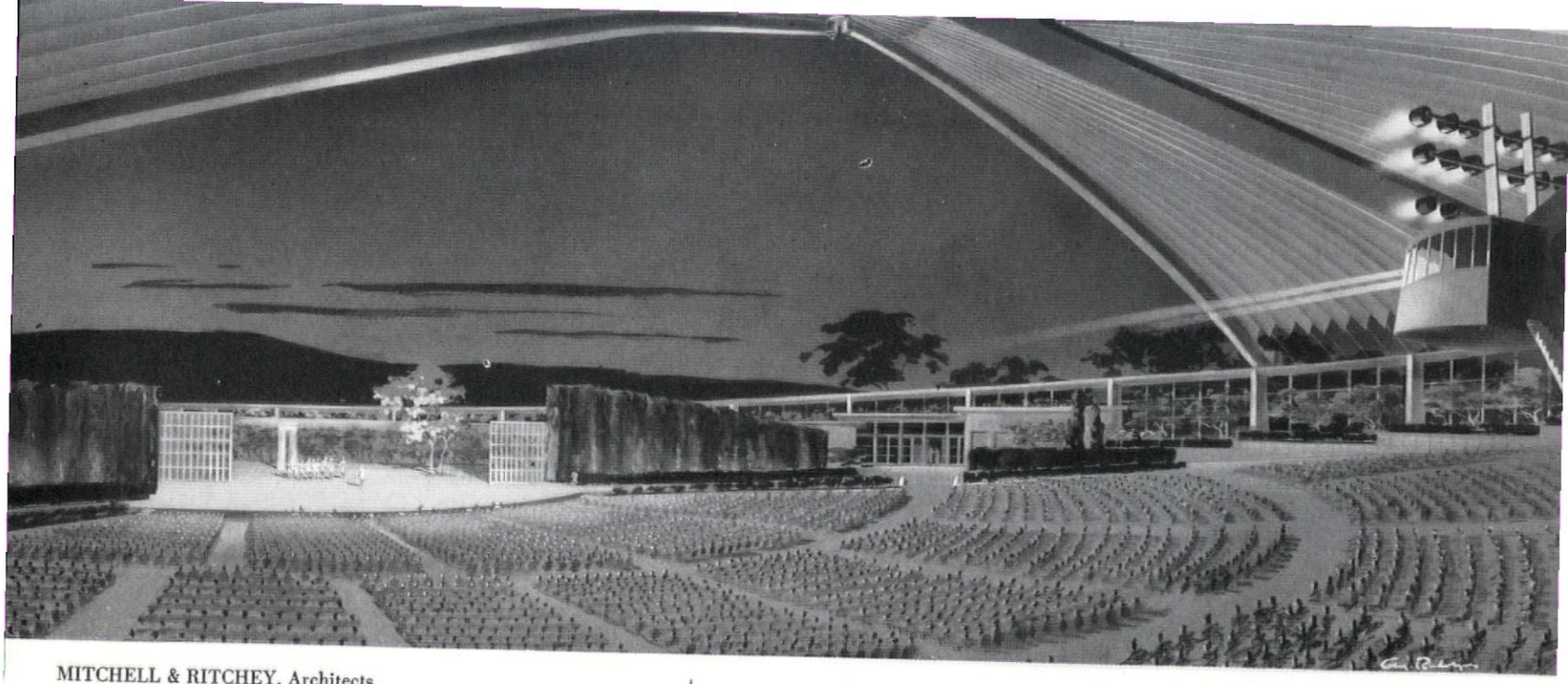
If there is anything drearier than an open air theater in the rain, abandoned and glistening, it is the manager's woeful little notation: "rained out." Until now, such dousings have canceled five or six performances in each of the Pittsburgh Civic Light Opera Association's brief seasons at the University of Pittsburgh stadium. The loss: $10,000 to $12,000 per night. Even a mildly threatening forecast over the local radio succeeded in substantially cutting attendance. To unglue the Civic Opera from the red side of the ledger, president Edgar J. Kauffman and his co-officials determined to construct a rain-defiant outdoor amphitheater in which the gimmick would be an unfolding fan-like roof. Despite a keen head for business, like many other music lovers he respects the esthetic satisfaction derived from listening to good music under the stars. One of modern architecture's leading protagonists, client of such distinguished architects as Wright and Neutra, Kauffman donated half the needed funds—$500,000. The balance will be furnished by the city. Accordingly, the spring of 1950 will see ground broken for yet another major feature of Pittsburgh's rejuvenation program: the new Municipal Outdoor Amphitheater. Its seating capacity: 9,500.

Obviously, practical requirements for an unfolding roof on a theater entail an unobtrusive system of support, clear of sight lines, scenery and backdrops. In this case, the architects' solution is a giant steel cantilever frame projecting from the rear to the center of the amphitheater overhead and bearing a mast to which the roof's supporting cables are attached. The roof is virtually a flexible fabric tent comprised of pie-shaped segments which fans out on both sides from its furled position on either side of the cantilever frame. Tracks to carry the cables supporting and guiding the fabric are mounted on a ring girder supported at 30 ft. intervals by abutments which circle the amphitheater at a radius of 200 ft. The fabric roof, however, has a radius of only 180 ft., leaving a 20 ft. gap inside the ring girder where a huge circle of planting pockets acts as a continuous gutter. Two rigid structural members or booms, serve as the leading edges of the roof. These are propelled by a pair of 50 h.p. friction-drive electric trolleys operating on the ring girder's boom track. To provide alternately for pressure and suction under wind action, a dual cable system was worked out, the upper cables supporting the dead load and external wind pressure on the fabric, the lower ones resisting internal wind pressure. In other words, the roof construction embodies the basic elements of parachute design. Complete enclosure of the amphitheater will be noiselessly achieved in less than 2½ minutes.

A central control booth, measuring 22 x 11 ft. and suspended from the cantilevered truss houses the operating mechanism for the roof, sound control machinery and spot lighting. The last will be augmented by peripheral illumination. Because of the visual interference of the cantilever support in the center of the parterre, no seating is located behind it. Instead this space is utilized as an inner lobby.

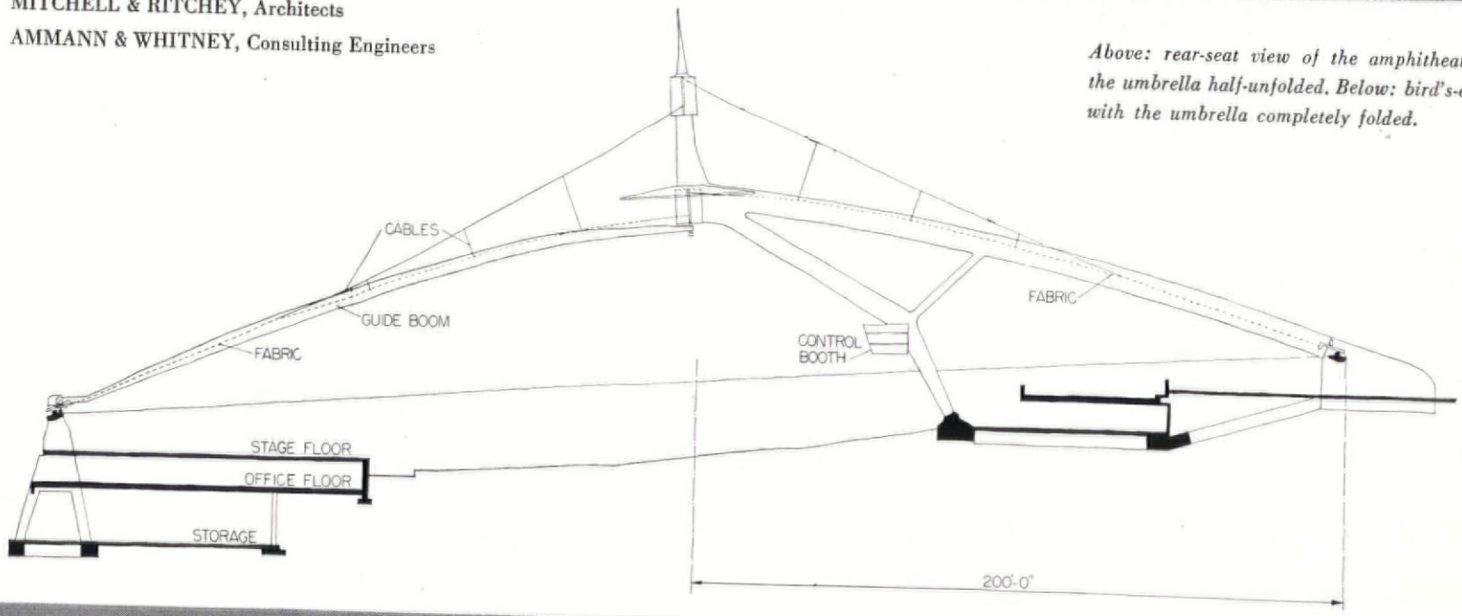
In connection with the roof material, extensive research and tests are now being conducted at the Mellon Institute to determine the most suitable type of fabric. Vinyl resin and neoprene coatings are also being tested on a variety of cloths for such properties as tensile strength, flax resistance, sun resistance and many others. It is anticipated that the roof fabric will have to be replaced every five to ten years at a cost of about $100,000. Though this may seem astronomical at first glance, it should be remembered that this figure parallels the financial loss of only ten rained-out performances under the present unsatisfactory conditions.

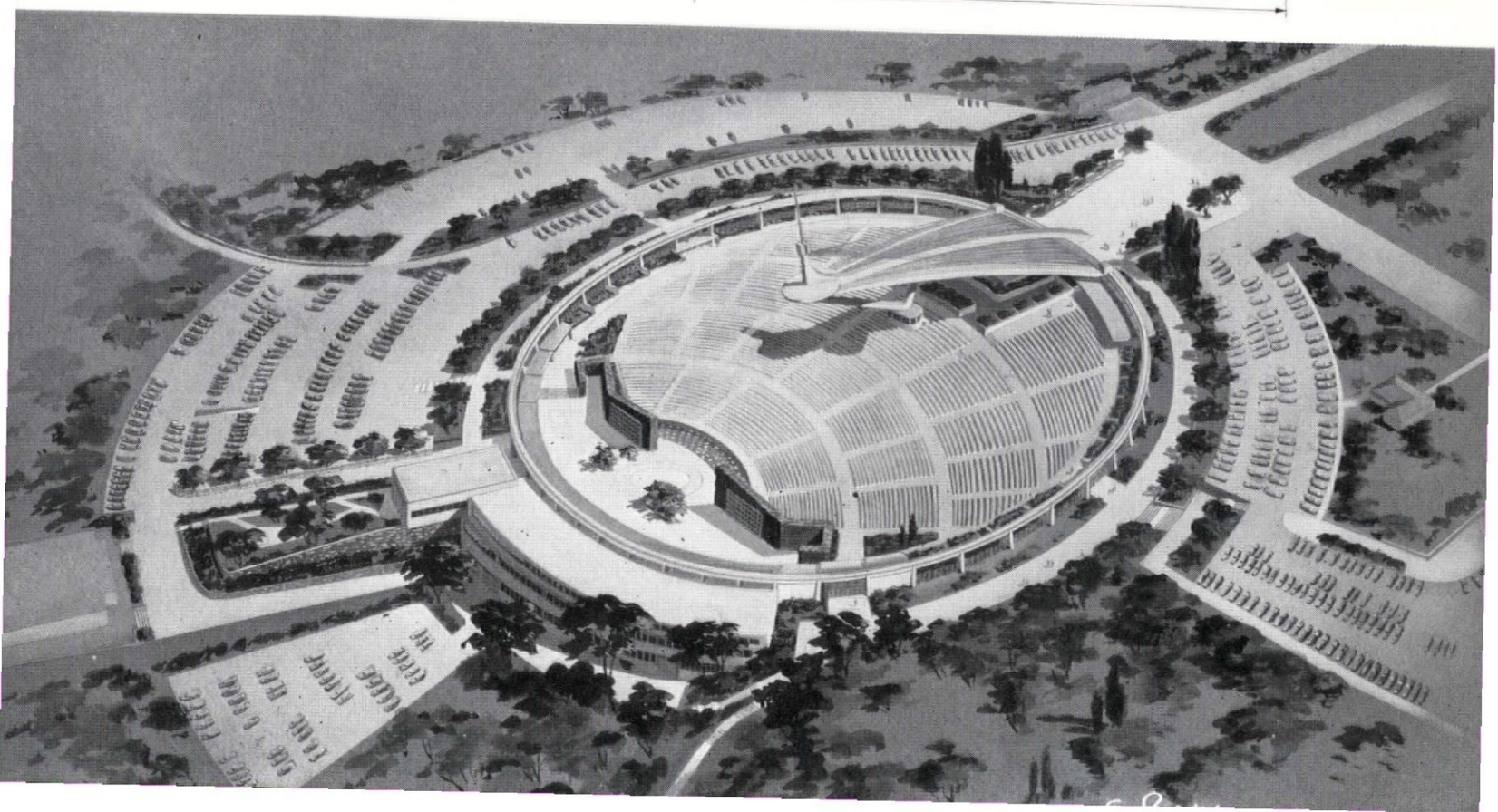




MITCHELL & RITCHEY, Architects
AMMANN & WHITNEY, Consulting Engineers

Above: rear-seat view of the amphitheater with the umbrella half-unfolded. Below: bird's-eye view with the umbrella completely folded.





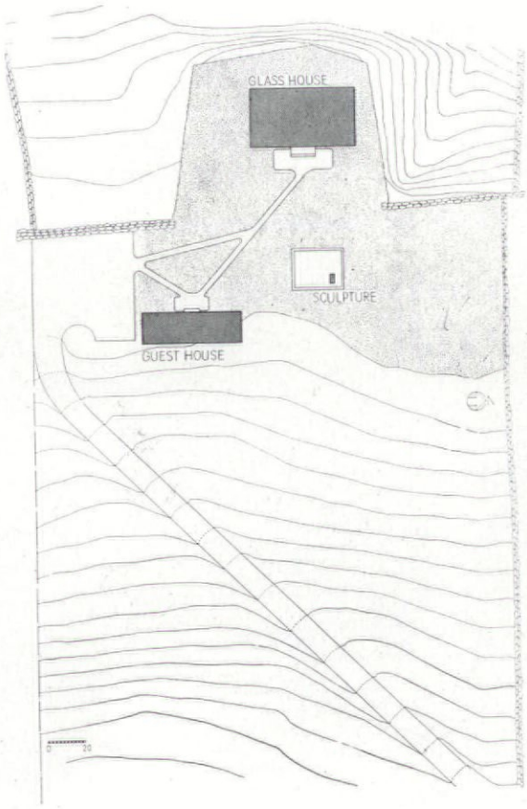
GLASS HOUSE permits its owner to live in a room in Nature

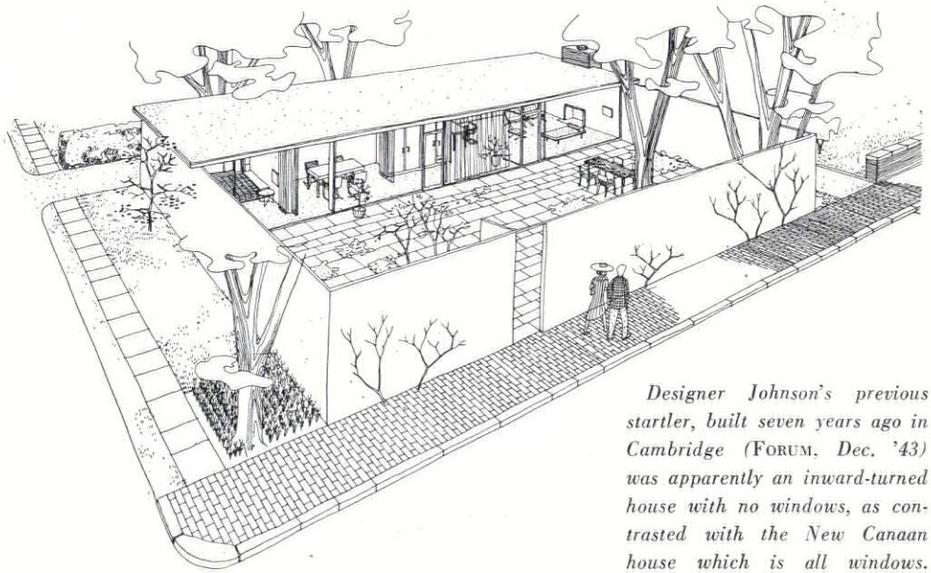
By surrounding his house with all glass instead of much glass, Philip Johnson has stepped through the mirror. It is unlikely that glass houses will instantly multiply, yet the curiosity and wonder that have been aroused are enormous.

The glass house comes almost exactly 100 years after Paxton's Crystal Palace; but the obsession of the western building world with glass goes back more than eight centuries. In 1247 Ste. Chapelle, the all-glass Gothic church, was built as the multi-hued prism of heaven. By 1711 the age of "enlightenment" was using sheets of clear glass in big window ranges, in such buildings as the Zwinger Palace, to break down visual barriers for open-eyed princes exploring Nature. By 1851 Paxton gave the fruits of this exploration to the masses in his exposition of the new industrial power. By 1925 Gropius, seeking to flood the world of industry with the light of art, symbolized this with the great glass pavilion of the Bauhaus. Johnson, using these industrial techniques, now proposes to live in a crystal in Nature. These are all symbols of exploration, not utilitarian achievements. The Gothic builder was exploring heaven; the Baroque builder exploring Nature. The industrial age explored working with Nature; the present age explores living with it.

The exterior view of the Johnson house is made fascinating by the paradoxcial material: one looks at it, and into it, and at Nature reflected in it, and (more important) at Nature seen through it. But the open secret is that the house alone is not the complete dwelling unit. The real living space is the tree-bounded, three-level piece of land. The glass pavilion sits on a grassy shelf which drops abruptly on one side into a sea of trees (upper photo) and which rises park-like on the other toward the highway (photo at right). On this grass floor are three "objects" of "furniture" in triangular arrangement: the glass pavilion, a brick guest house, and the sculpture. The use of surrounding space and of complementary structures is an integral part of the glass house idea.

LOCATION: New Canaan, Conn.
PHILIP C. JOHNSON, Designer and Owner
JOHN C. SMITH, INC., General Contractor

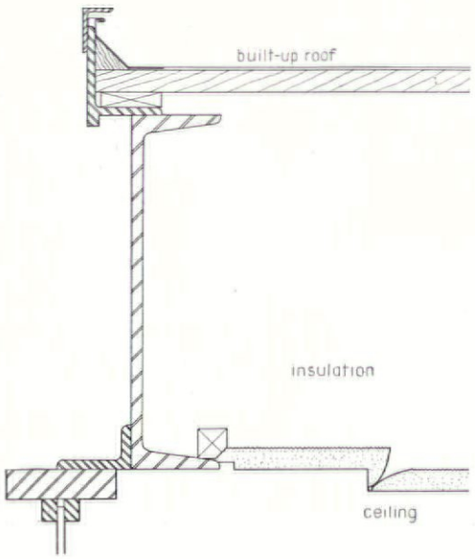




Designer Johnson's previous startler, built seven years ago in Cambridge (FORUM, Dec. '43) was apparently an inward-turned house with no windows, as contrasted with the New Canaan house which is all windows. Really the difference is not so great. The earlier house looked out on an intimate garden and was protected against intrusion by a board fence; the present house looks out on park-like surroundings protected by a rise and drop in the land and by a loose ringed fringe of trees.

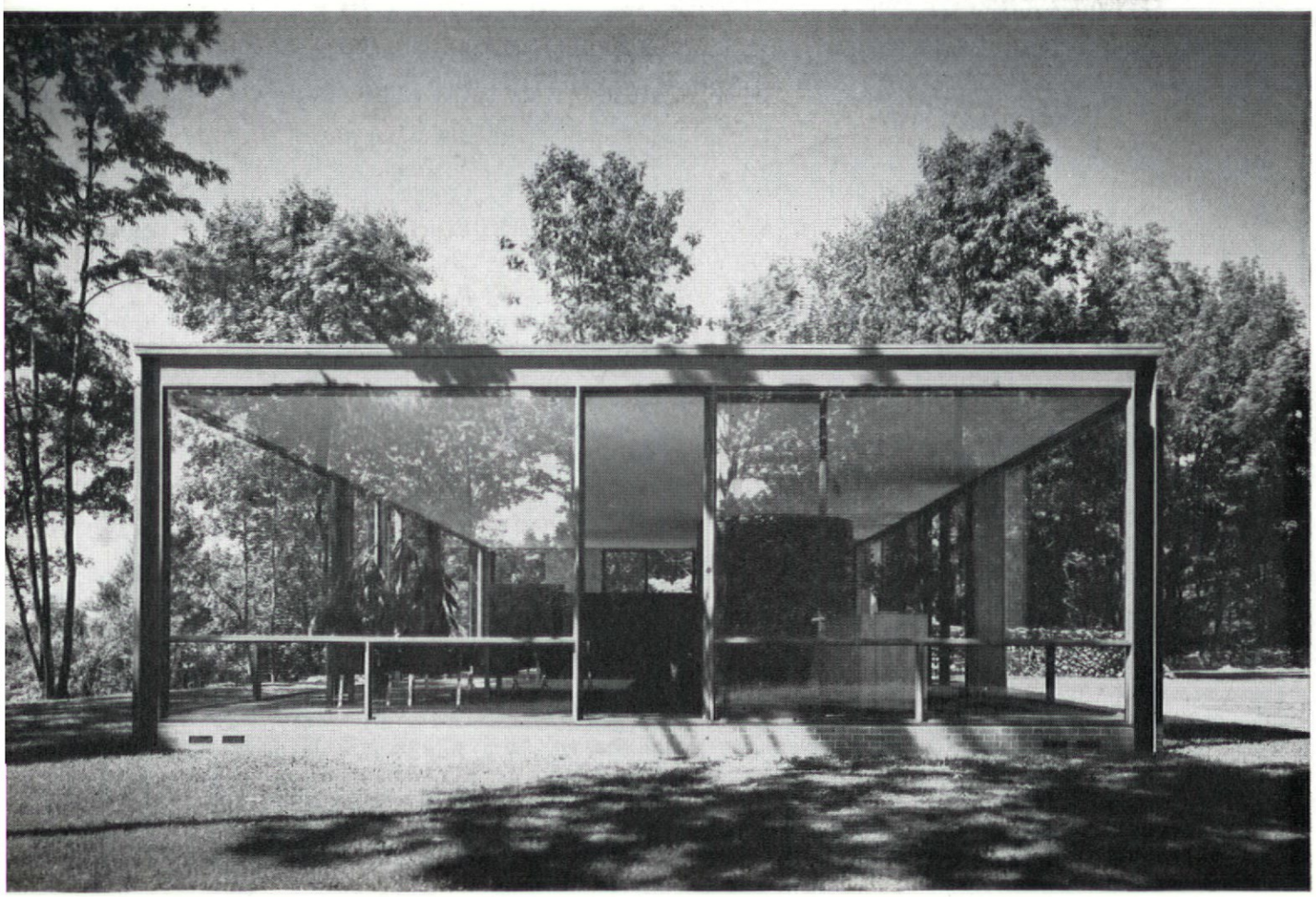
Photos: Ezra Stoller—Pictor

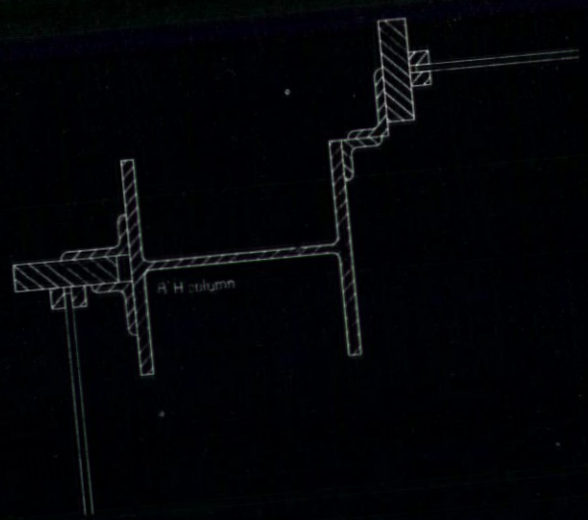
The transparency of glass has played tricks with scale. From the inside the pavilion looks big; from the outside, small. Being able to look right through from the outside, robs the house of the volume of its interior. But from inside the same transparency makes the house seem to annex surrounding Nature. So, too, the proportions of a classical elongated cubical shape (32 x 56 ft. and 10½ ft. from floor to ceiling) as seen from the exterior, diminish the apparent size of the house while increasing the force of its impact. From the interior they magnify both.

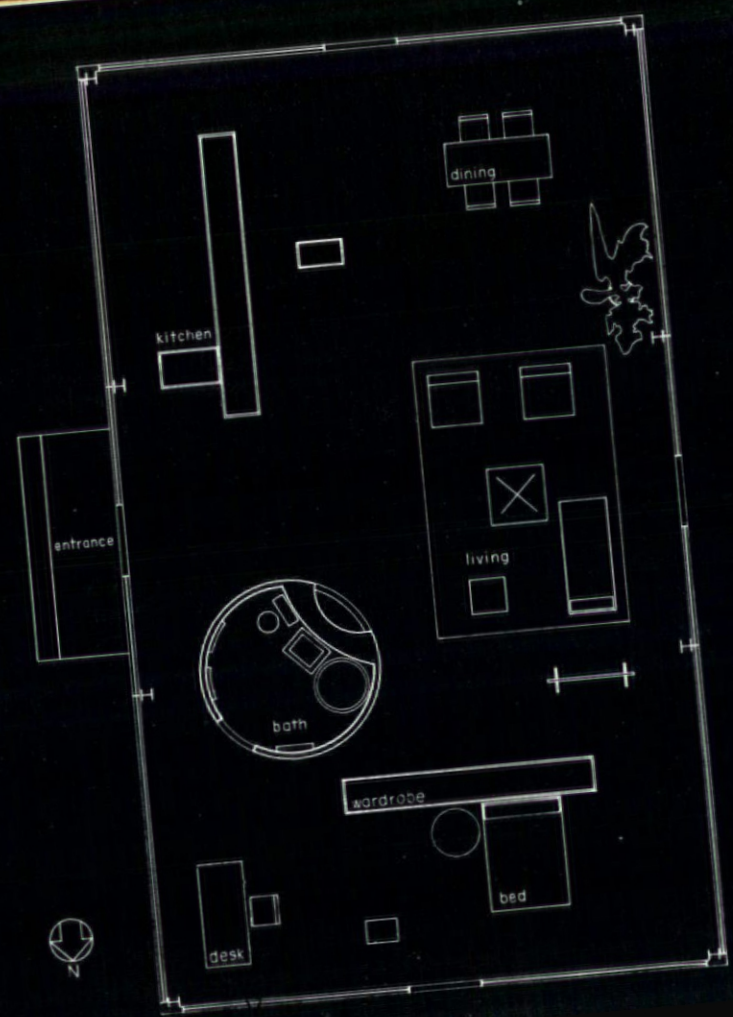


As contrasted with current trends which give an exact separate form to every function, a house all in one room shows the enormous economies (already explored by Mies van der Rohe) of providing a big simple space and subdividing it by arrangement and suggestion. Like sentries who define the invisible line of a state boundary by their presence plus the shooting range of their rifles, individual objects in the glass room establish points and areas by the influence of their own natural radiation —and not without whimsy. To the left of the entrance, a buffet bar, in this precise atmosphere, becomes a culinary altar. A white wool rug on the polished herringbone brick floor becomes a "raft" for conversational voyages conducted in Mies van der Rohe chairs that are stainless steel renditions of a Roman tradition. A set of walnut plywood faced storage cabinets marks off the bedroom. A pair of gay papier-maché Nadelman ladies puts a chatty double exclamation point between the social and dining area. But the chief counterfort to the labile and transparent glass wall is a great brick cylinder 10 ft. in diameter, carefully off center, which spikes down the house as securely as did Ulysses' tree trunk bedpost, and serves as combined hearth, medieval fortress allusion, and house belly containing the sanitation and plumbing.

The emptiness and precision necessary to Johnson's effect of serene exhiliration have not been won without labor. As the photographs show, the framing pays strict attention to scale, shadow, coherence, simplification. But the cross-sections show what concealed intricacy attends such simplification.




R H column


dining
kitchen
entrance
living
bath
wardrobe
bed
desk

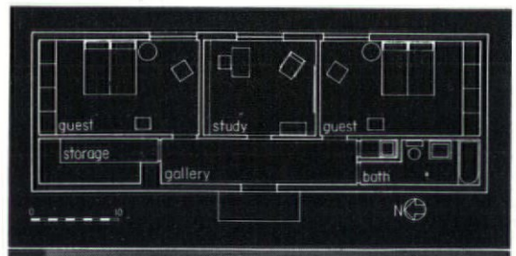
10
0
N

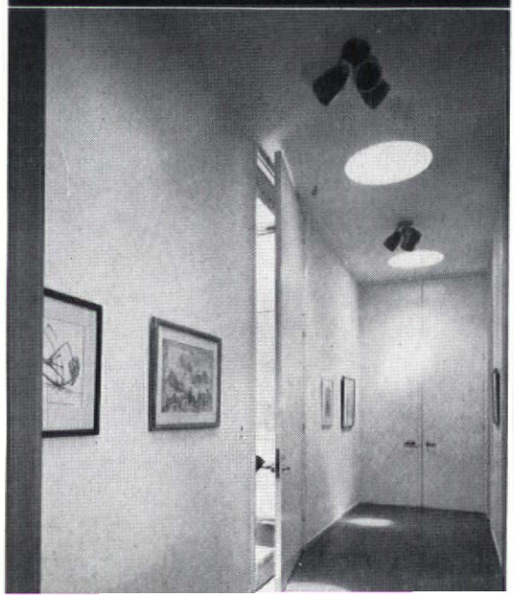
Those who would dismiss Johnson's glass house as the sport of a wealthy, scholarly, and very precise bachelor, have not noticed how far the light shines beyond the particular architect and the immediate occasion. To begin with, such a house could perfectly well be planned for family living. The little brick house annex, so essential and so easily forgotten, does for privacy what the crystal room does for sociability. The heated connecting walk is essentially a corridor to a bedroom wing. All other family needs could be supplied by the same process of disassociation and recombination of spaces, that are really the old familiar spaces.

The far more important function of such a house is to point a more distant ideal — of Nature's ultimate domestication. Though Johnson vocally scorns "environmentalists," his own house is basically a handful of environment captured and rendered habitable for the enjoyment of the rest. True, such environmental engineering as his floor and ceiling radiant heating system overdoes and underdoes; solar heat drives occupants hither and yon; ventilation through only unscreened doors is capricious; and sound control is obtained almost exclusively by distance. And yet the ideal is there, grasped in the name of art: the ideal of being able to live *with* sun and rain and weather and people instead of fighting against them: man in command of his earth. A Danish publicist, seeing American houses with a good deal less glass than this, marvelled none the less at the implied security both physical and social. A glass house bespeaks more security than a stone house because the owner can afford to dispense with the safety of stone. The liberty to build openly implies trust, too, in neighbors. In 1930 a young enthusiast declared, "The greatest architect would be that godlike man who could shelter a space using no materials at all. Architecture without buildings . . . would be paradise. By this last magic of a consummate civilization we should be united in freedom with the most primitive hunter for whom all Nature is home. Our only difficulties"— in a moment of candor—"an excess of perfection." The glass house does not so suffer but it points to this liberty.

Photos: Ezra Stoller

Arnold Newman

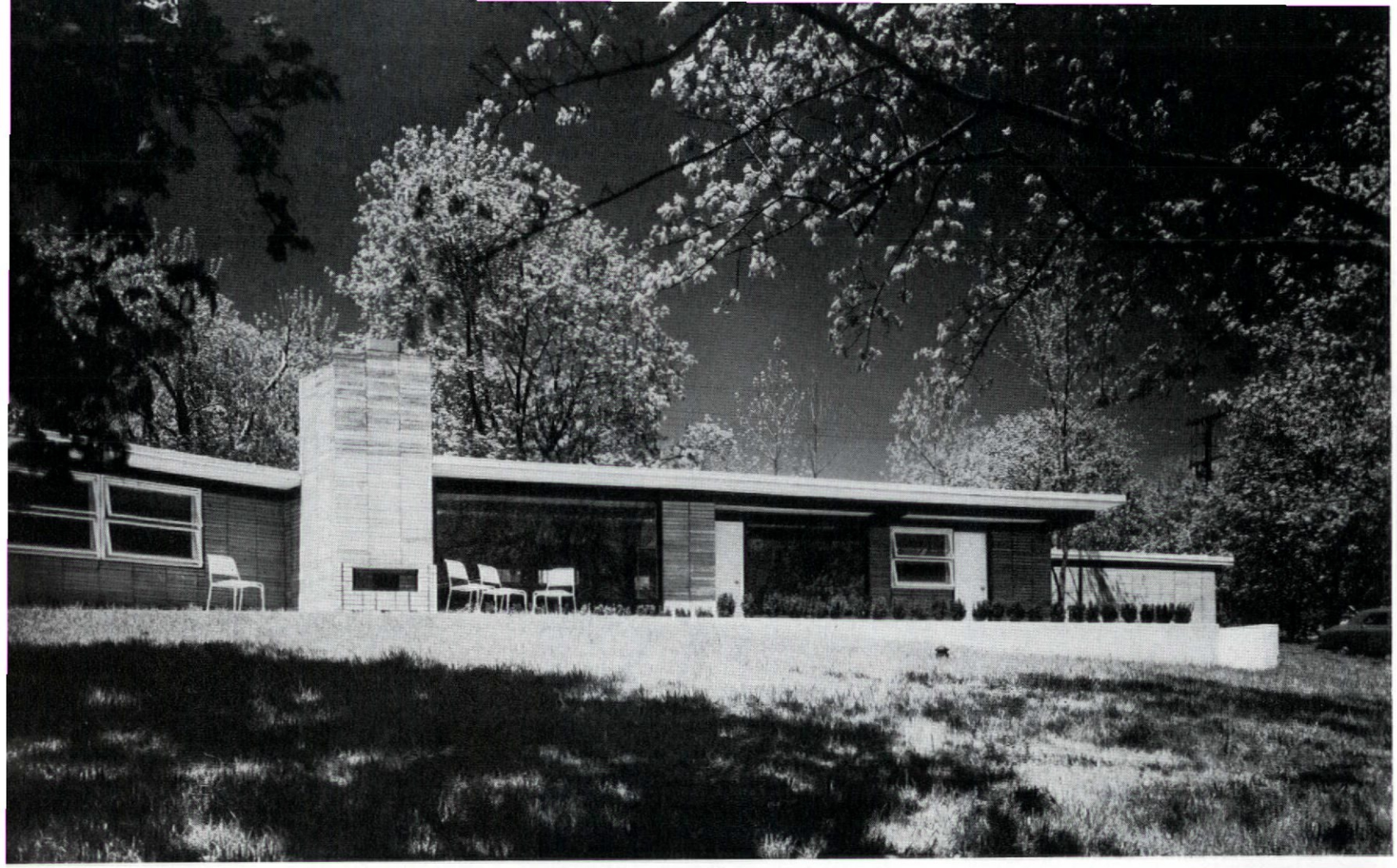


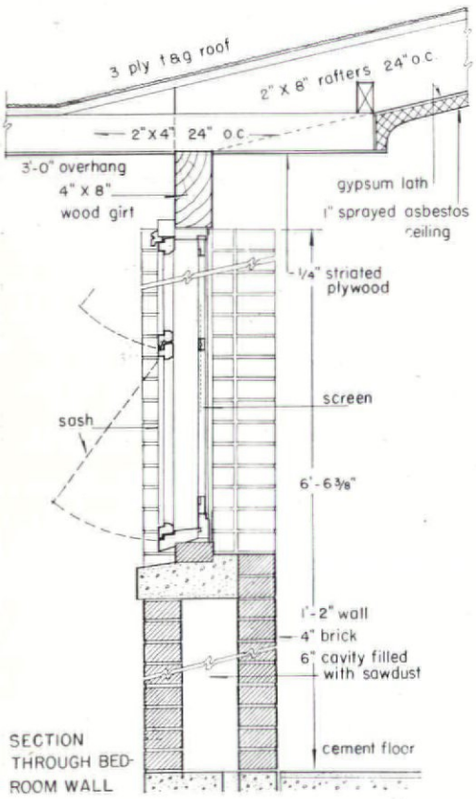


Ezra Stoller

The owner's far ranging scholarship and love of different periods has resulted in the 18th century allusion of a Poussin painting and a medieval allusion from his own candelabra (left). Electric light thrown on trees attempts a curtain of privacy supplementing the movable pandanus cloth, the only other screening.

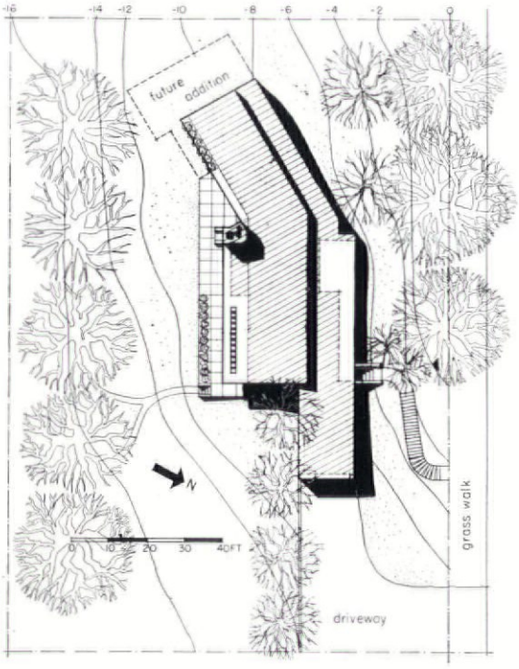
The corridor shown at the right is in the brick guest house. The round skylights are echoed in the rooms by large circular windows, more "neutral" in long-term effect than rectangular openings. So consistent is the Roman balance of this house that the left-hand closet door seen in this picture is a dummy.





SECTION THROUGH BEDROOM WALL

"Brick" house exploits structural and esthetic values of its materials



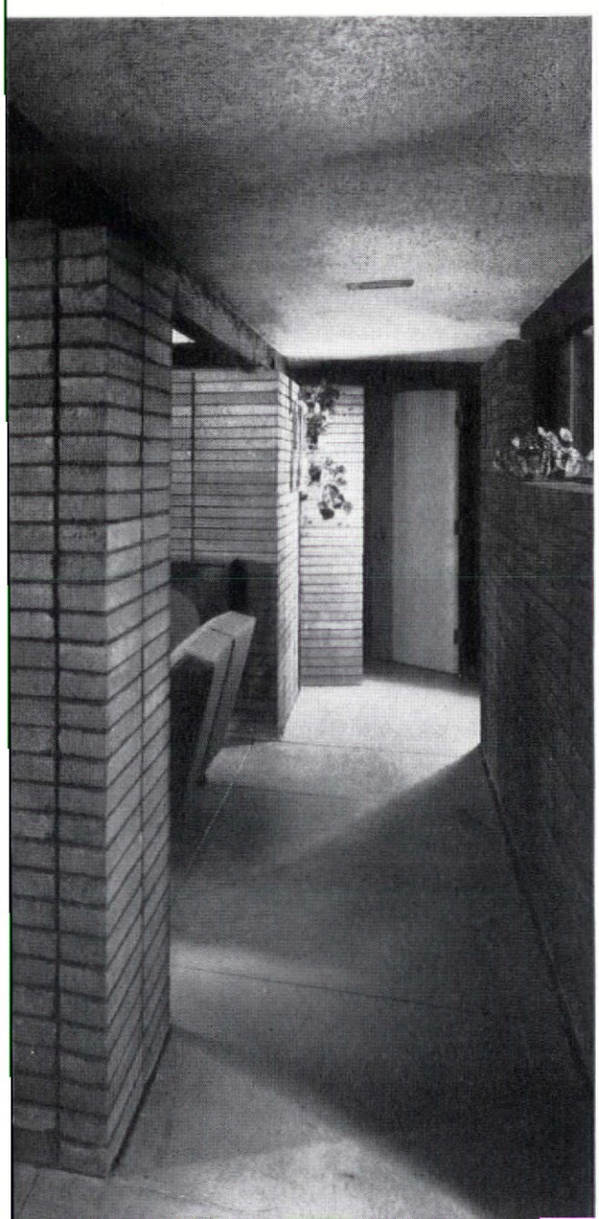
LOCATION: Easton, Pa.
PAUL BEIDLER, Architect

Here is a new variation on an old theme—a brick house with a difference. The architect has used this commonplace building material as if it were an invention straight from the patent office—with a clear, fresh appraisal of its esthetic and structural values. Choosing a cast-concrete type of brick, he laid it in double courses 6 in. apart to form both the exterior and interior finish of the walls. The cavity between these two courses is filled with insulating sawdust. Each wall is reinforced by iron straps running horizontally along every fifth course, and the two walls are tied together by continuous horizontal strips of metal lath embedded in mortar.

The brick was obtained in 16 in. double lengths, a detail which emphasizes its horizontal quality as well as the character of the low-slung house itself. The color, two shades of gray, is the result of careful deliberation, too. A light shade is used for the open, south side of the house; a dark one for the north, entrance side. Placement in straight "Roman" rows (one brick directly above the other) lends an unusual, almost classic, dignity to this material. It is also a neat construction technique, requiring no tricky piecing around window and door openings.

The other materials used in the house show signs of the same care-

Photos: Lionel Freedman-Pictor

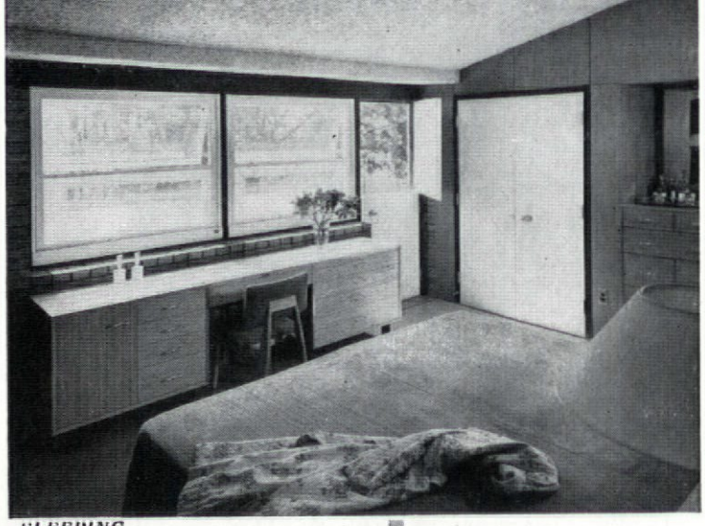


ful handling given to the brickwork. The concrete floor slab, in which radiant heating pipes are laid, is left in its natural color. A thorough sanding and several applications of wax, however, brought a handsome glow to its surface. The ceiling, also a neutral color, represents the first use of sprayed asbestos in an individual home. It was chosen as a logical ceiling material for a house with highly reverberant surfaces (concrete, glass and brick) whose acoustics might otherwise be unpleasant. Its extra cost is minimized since it replaces not one, but three materials used in the conventional ceiling (insulation, plaster and paint).

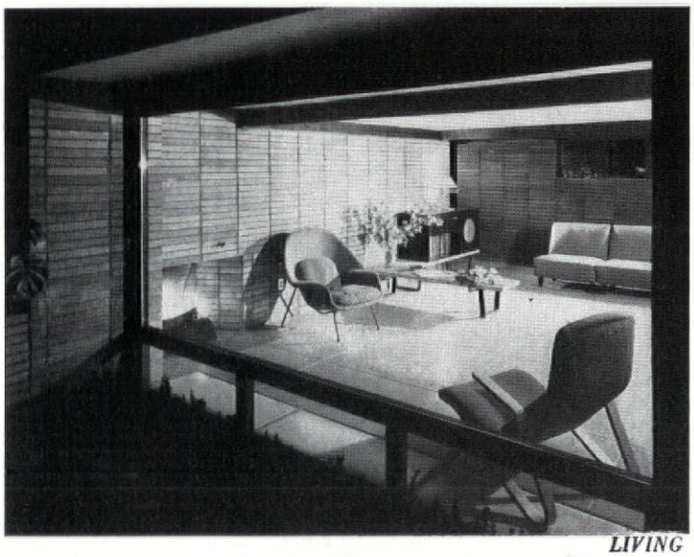
The deep brown color of the house beams, which were left in their rough-sawn, creosoted state, accents the neutral tones of the other construction elements. The same rich color is repeated in the partitions of polished oak plywood, which form a striking foil for the bright colors of upholstered modern furniture.

Careful attention to materials was no mere esthetic exercise, but one carefully geared to the particular needs of the owners, a young couple with one child. Their requirements were simple but all-embracing: lots of sunshine, easy maintenance, adjacent indoor-outdoor living areas, expandibility and economy. As the plan reveals, every room faces south. Durable construction materials assure easy maintenance. Additional bedrooms can be added to the west wing.

Local builders were dubious about Architect Beidler's use of the simple but unfamiliar method of hollow brick construction—a fact which somewhat slowed building time. The cost of $11.50 per sq. ft. was not exorbitant, however, for such a tailored job, and Easton Trust Co., a local bank, showed an enterprising spirit in supplying a $15,000 first mortgage.

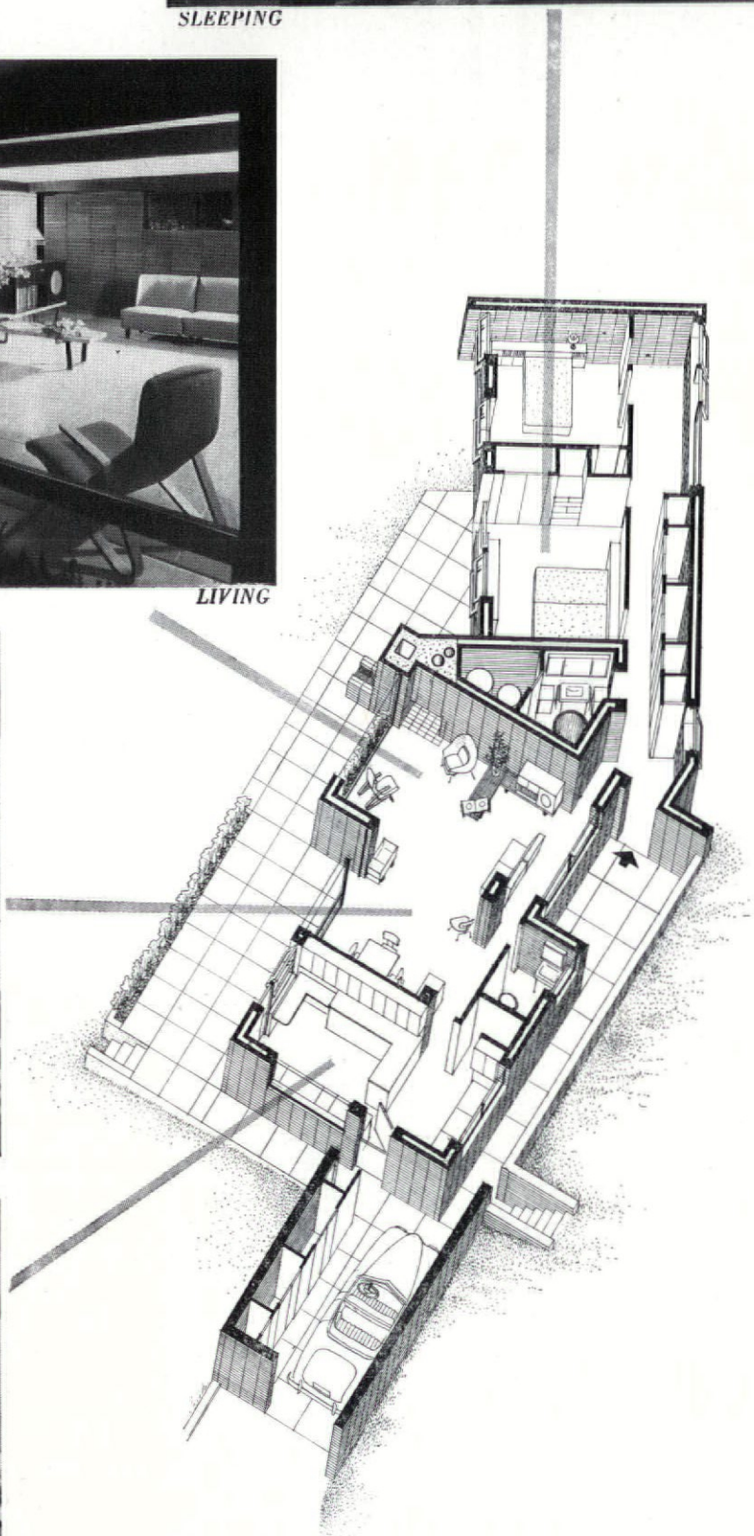


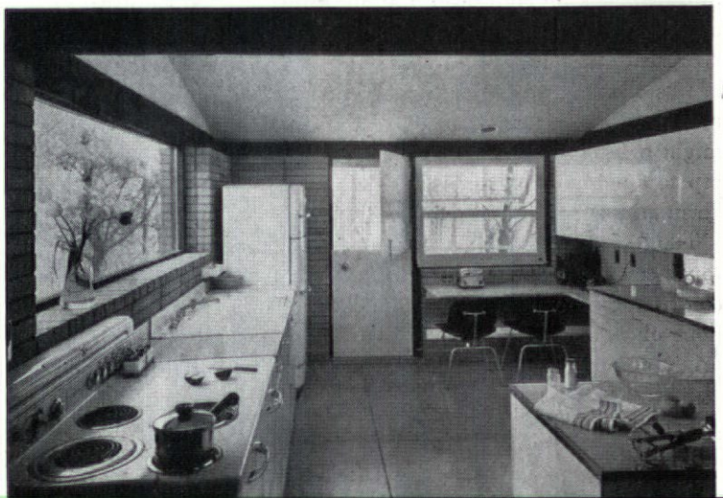
SLEEPING



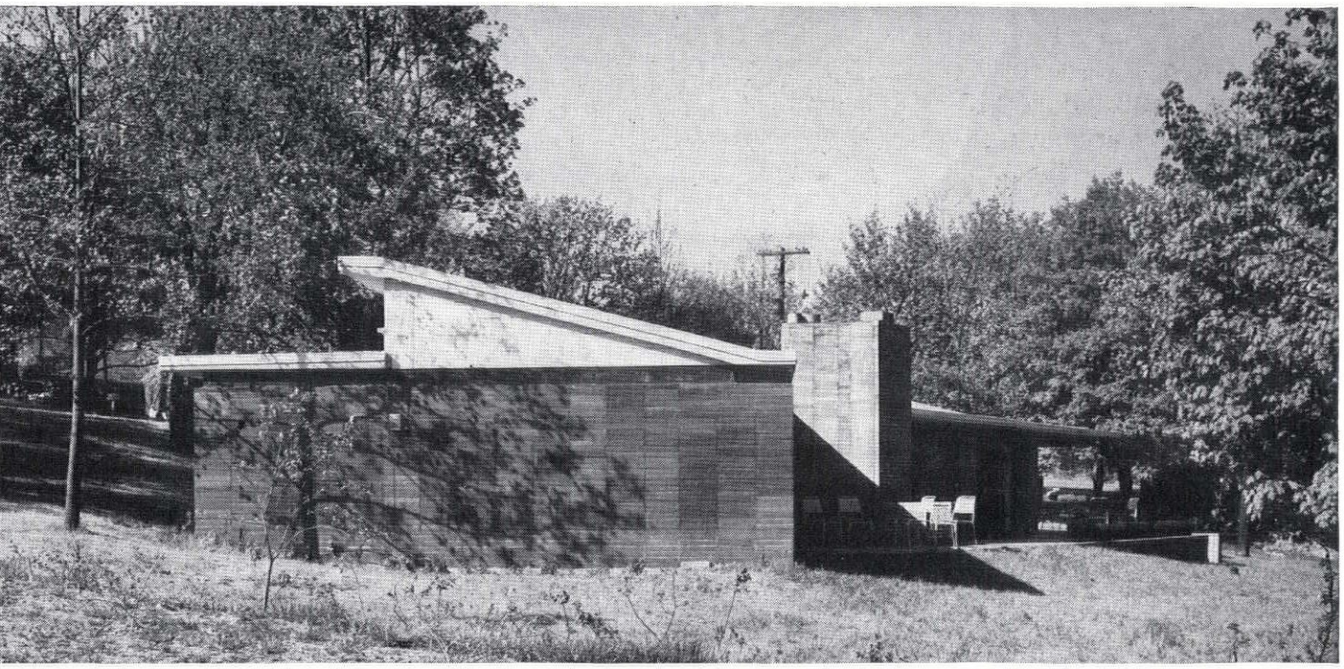
LIVING

DINING





CONSTRUCTION OUTLINE: Foundation — reinforced concrete, Alpha Portland Cement Co. and Bethlehem Steel Co. Exterior walls—brick, Dunbrik Co. Ceilings—1 in. sprayed asbestos, Sprayed Insulation Co., on Rocklath, U. S. Gypsum Co. ROOFING—Barrett Co. SHEET METAL WORK—Armco Co. WINDOWS: Sash—wood, awning, Gate City Sash & Door Co. Glass—Twindow and quality B, Pittsburgh Plate Glass Co. WALL COVERINGS: Brick—Dunbrik Co. Plywood—U. S. Plywood Corp. PAINTS—E. I. duPont de Nemours Corp. HARDWARE —Schlage Lock Co. ELECTRICAL FIXTURES — Kurt Versen. KITCHEN AND LAUNDRY EQUIPMENT—General Electric Co. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Corp. Shower — Plexiglas, Rohm & Haas. Cabinets—Charles Parker Co. HEATING —hot water radiant system. Water heater, etc.—General Electric Co.



FRITZ BURNS' 500 NEW HOUSES

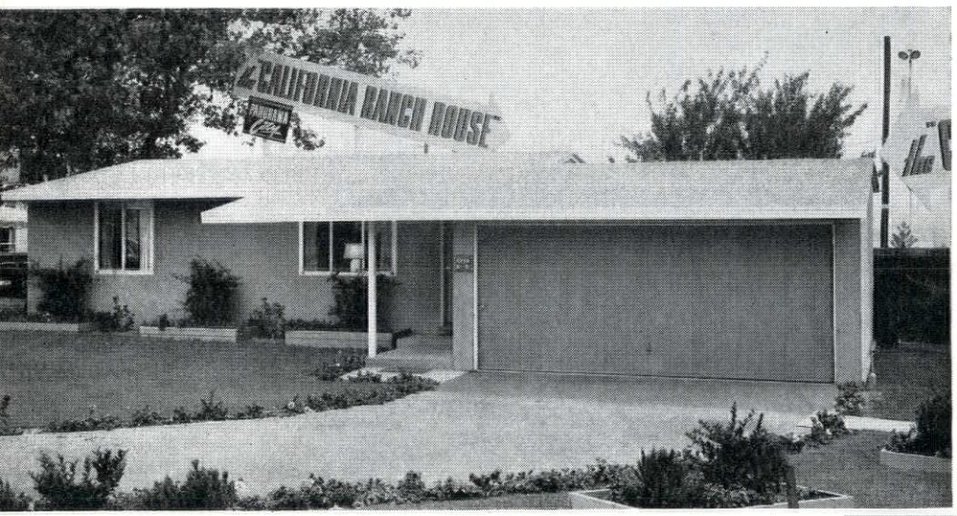
feature plank and beam construction and convertible two-car garages, sell for $8,250

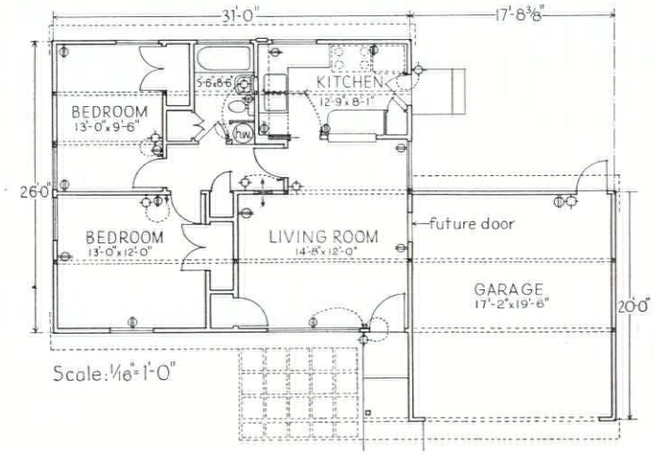
LOCATION: Los Angeles, Calif.
KAISER HOMES, INC., Builders
WURDEMAN & BECKET, Architects

Spectacularly announced by means of a full-scale model at the Los Angeles Home Show and a four-color cover on *Better Homes and Gardens,* the new house which Fritz Burns' Kaiser Homes, Inc., is now building by the hundreds has two big sales features: 1) Its new plank and beam system of ceiling-roof construction gives a long, low look to the exterior and a substantial look to the interior, thus allaying the public's suspicions about the quality of construction in houses which sell for as little as $8,250. 2) Its 360 sq. ft. garage adds to the apparent size of the small 800 sq. ft. house and is merchandised not so much as a two-car garage, but as a place to accommodate future expansion of the house.

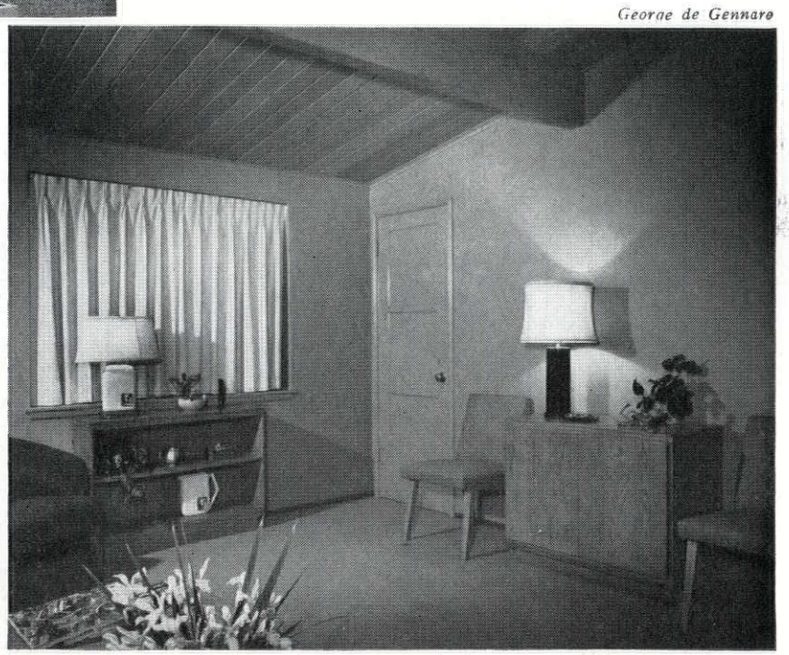
Other notable features: 1) aluminum and steel casement windows with the heads kept low to match the scale of the house; 2) a pass-through counter between dining space and kitchen; 3) molded plastic kitchen counter tops; 4) double-door closets; 5) a sliding door to the kitchen; 6) a sales price $1,000 below that of the 1948 two-bedroom model of the same size. At $8,250, the price includes a plot which Burns values at $2,000, a $1,000 garage, but only a minimum of kitchen equipment—a double-bowl sink, a dining table and wood cabinets. Financing terms are $300 down, $54 per month, and the public is buying. The first group of 200 houses has already been built and sold; a second group of 300 is under construction, and half of them are already gone; 150 more will be launched next month.

"Dick" Whittington

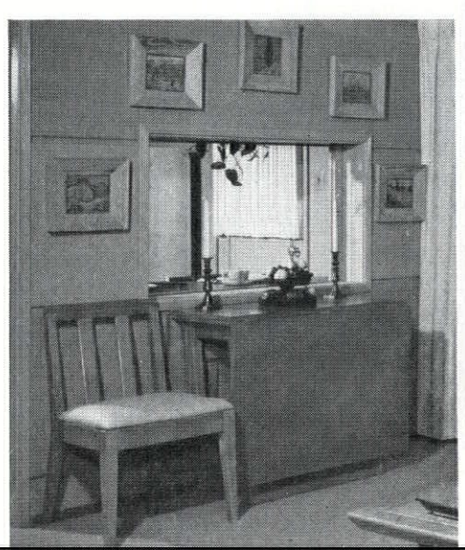




George de Gennaro



Living room finishes are stained and varnished wood on ceiling, painted plaster walls (right) and mahogany paneling around the glass doors of the kitchen partition's 2 x 4 ft. "pass-through" (below).



Although Builder Burns' new ceiling-roof construction would seem to be a big cost saver, he claims that the saving is insignificant, that the decision to use it was based rather on a desire to improve the house's appearance, inside and out. Burns buys 2 x 6 in. tongue and groove Douglas Fir planks by the carload, sorts them into two piles according to appearance. Choice planks go into the ceiling where they are supported by 4 x 8 in. and 4 x 12 in. beams and are finished natural as part of the rooms' decorative scheme. (Atop these planks go three layers of hot-mopped felt and white, green or coral colored pebbles.) Planks of secondary quality are used in the diagonal sub-floor, which is supported by 4 x 6 in. beams on concrete piers, and is covered with a hard wood finish.

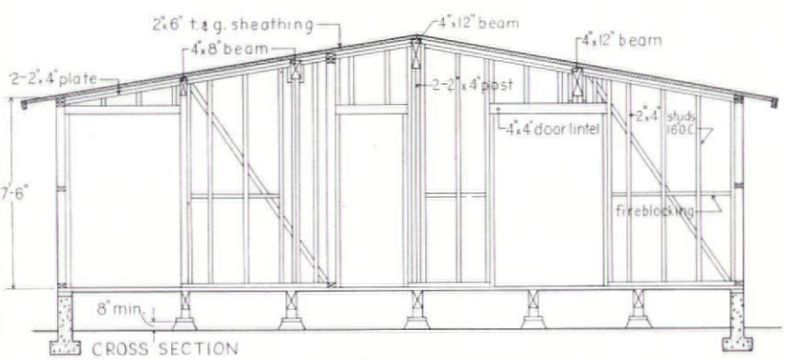
Nicknamed the "dreadnaught deck" by his salesmen, Burns' floor construction has a solid, substantial feel which is reflected in the appearance of the ceiling's exposed beams and planks. This ceiling construction is somewhat reminiscent of the ceilings in California's native adobe houses—an effect which Burns proudly compares with what he calls the "borax" style of California ranch houses now springing up in every part of the country. Moreover, the sloping ceiling is claimed to relieve the small horizontal dimensions of the rooms—its height varies from 7 ft. at the plate to 9 ft. at the ridge.

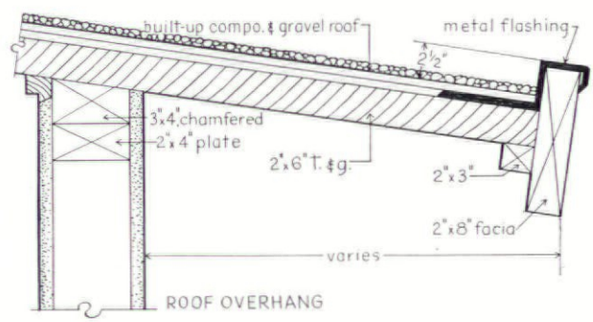
On the outside these ceiling planks are carried about 2 ft. out beyond the plate to lower the house's lines and to protect the windows from sun and rain. Reaching down within 8 ft. of the ground, a 2 x 8 in. facia along the eave emphasizes the low, solid appearance of the house and serves as the form for a concealed integral gutter—a cost-saving device detailed in the right-hand section, below.

The big garage of the little house is designed and constructed for easy conversion into habitable space. Overhead is the same beam and plank ceiling which characterizes the other rooms. The common partition is already plastered on the garage side and within it is a roughed-in future door opening. Thus, to convert the garage into one or two bedrooms, the owner need only bang through this door, finish off two walls, replace the overhead door with a window wall and paint or otherwise finish the concrete floor. Burns says that half of the garage could be converted into a bedroom, lavatory and closet (see plan No. 1, p. 114) for $940, including $225 for plumbing, $340 for other materials and $375 for other labor. (Overall length of the house at 48 ft. leaves sufficient room on the 60 x 100 ft. lot for a driveway to a new rear-yard garage.)

Kaiser Homes makes such a to-do about the expandability* of its little house that it thinks of it as a big six-roomer. Says Burns, "This is the first time a four-bedroom house has been provided in the low price field."

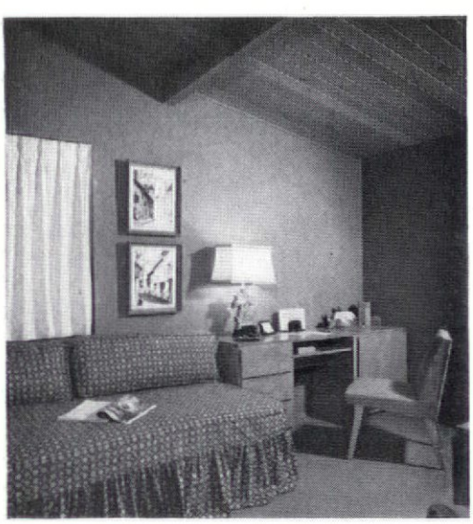
* When informed that the dictionary contains no such word as expandable, Burns promptly applied for a copyright.





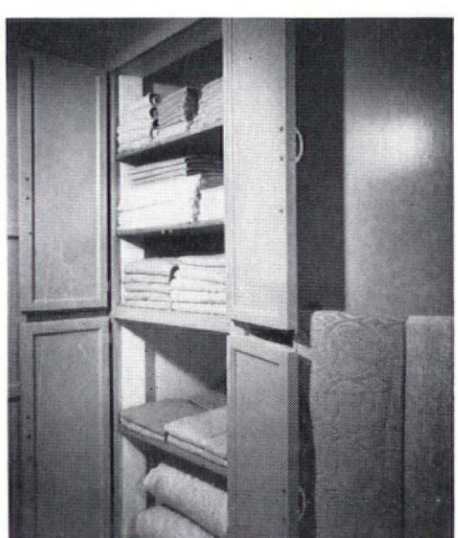
Built-in gutter (above), consisting of metal flashed 2 x 8 in. facia board, drains into conventional down-spouts at corners of house. (Orthodox gutters and down-spouts were left off 1948 model to save $140, but appearance of house suffered. Present gutters and down-spouts cost only $70.)

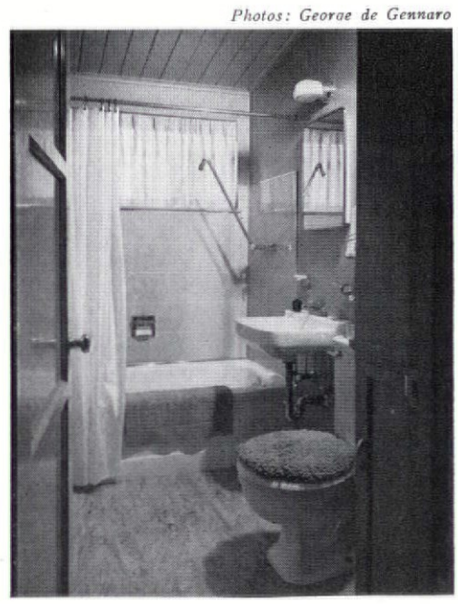
Photos: George de Gennaro



Bedrooms feature wide, double-doored, floor-to-ceiling closets containing two shelves. They are cheaper replacements for the prefabricated storage partitions which appeared in Burns' earlier models.

Bathroom boasts gray plastic paneling around tub, an adjustable combination faucet and shower head (right), a double-decked linen closet which may be converted into a shower stall, also a 2 ft. square closet for additional bathroom supplies.





FOUR EXPERIMENTAL HOUSES by modern designers demonstrate the application of a new

Builders and architects have long sought a material to replace the layers of paint, plaster, insulation, lath and other materials which comprise the conventional wall. Durisol, Inc. of New York believes that it has a product which goes a long way toward meeting this tough specification. It is a lightweight material consisting of cement and chemically mineralized wood shavings which are precast as blocks and panels of various sizes and shapes.

To demonstrate the application of this new material in house construction, the manufacturers called upon the imaginations of three contemporary architects: Armand P. Bartos, William Lescaze and Edward D. Stone. As shown in the following pages, these architects have produced four different houses located near Garrison, N. Y. whose design and construction reflect, in different ways, the advantages and limitations of the new material.

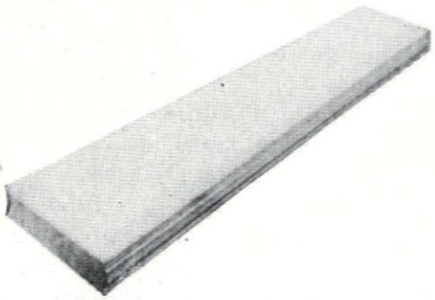
The Material. The product's formula is an import from Europe where it was developed in the early thirties and has since become widely accepted in building construction there. Early this year, the first U. S. plant started production in a factory in Beacon, N. Y. which has a capacity of 250 cu. yd. of the finished material per day. The plant will use up 300 carloads of wood shavings a year—a new and significant use of a material that was largely waste up to now.

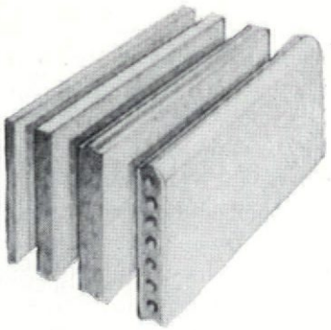
The virtues of the product read like an old patent-medicine label that promises relief from all the ills of mankind. The only difference is that *its* claims are backed with reports from reputable testing laboratories throughout the country. These reports show that it is insulating, fire-resistant, sound-absorbing, lightweight and termite- and moisture-proof. (For a description of its properties, see table right.) The material can be sawed where non-modular units are needed. It can be nailed, screwed, clipped, or mortared into place. An unfinished panel can take smooth plaster directly since it has the same adhesion qualities as a scratch coat. Finally it can be molded into most of the conventional building forms for lightweight construction. (Presently available: roof planks, soffit blocks, exterior curtain wall panels, partition blocks, acoustical tiles and sheathing slabs.)

A particularly interesting use of the product—not used in the demonstration houses—is as soffit tiles in a ceiling where the tiles are set on an open timber framework to be used as the form for standard reinforced concrete joist construction. After the reinforcing steel is placed and the concrete poured for the floor or roof, the material remains in place to furnish a highly sound-absorbent ceiling below without the added expense of a hung ceiling.

The Houses. The four demonstration houses represent an honest attempt to present an industrialized building product for what it is. In this—and in their use of contemporary architects—the manufacturer is avoiding the pitfall into which a maker of new materials often stumbles—that of trying to present a new material camouflaged in accordance with old building designs and construction (examples: aluminum disguised as clapboards and asphalt siding dolled

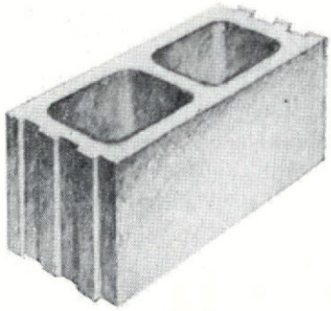
(Continued on page 116)





PHYSICAL PROPERTIES

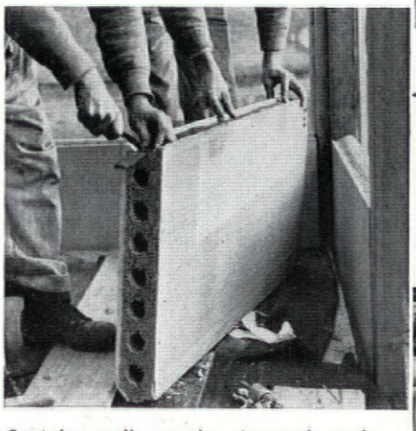
Compressive strength (lbs. per sq. in.)	145
Bending strength (lbs. per sq. in.)	125
Weight (lbs. per cu. ft.)	35
Thermal insulation	
K (BTU per hr. per sq. ft. per in. thickness	0.75
C (2 in. slab)	0.375
U (3⅝ in. coated slab)	0.20
Noise reduction coefficient (2 in. slab on floor)	0.65
Density (per cent of water, for hollow slab)	0.60



Planks 3 in. thick are nailed directly to roof timbers, with a built-up roof applied directly to the planks. Underneath, the panel may be left unfinished, or unpainted, to form acoustical ceiling.

Photos: Roy Stevens

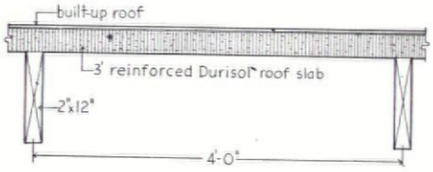
Large lightweight roof planks are easily handled by two men, but roller conveyors assist in moving them long distances.

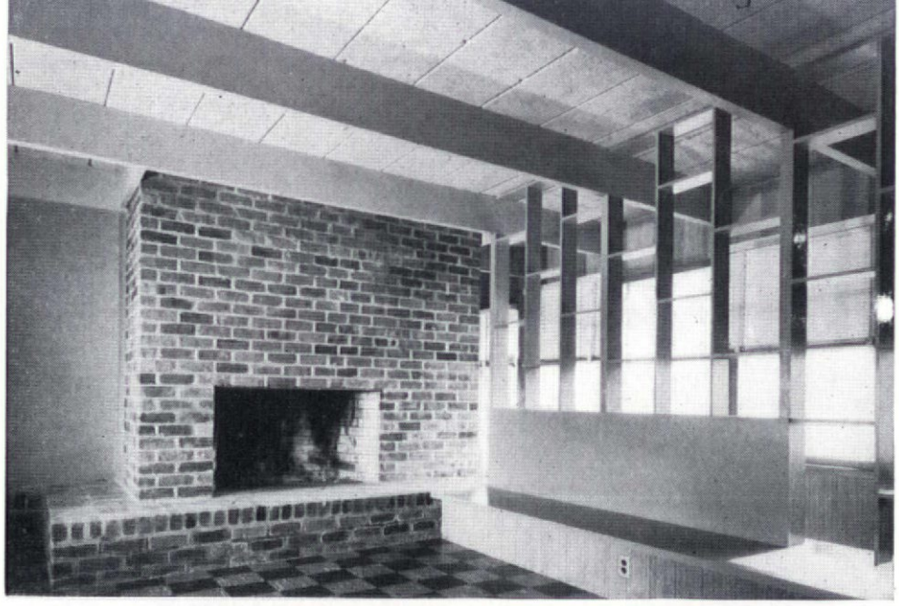


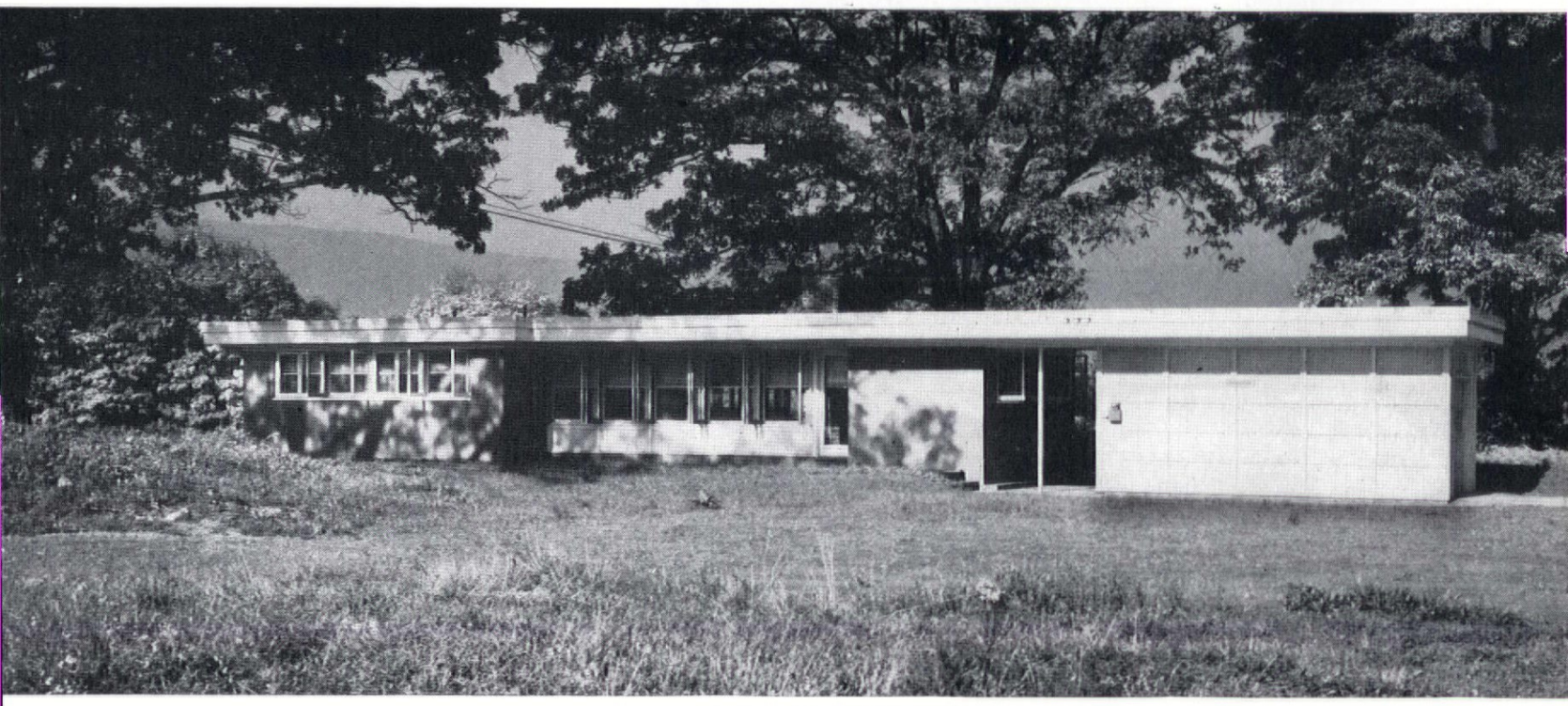
Impregnated felt strips are placed in the horizontal joints of curtain wall panels for waterproofing. On a large project, strips can be cut to size and stapled in place beforehand to speed operation.

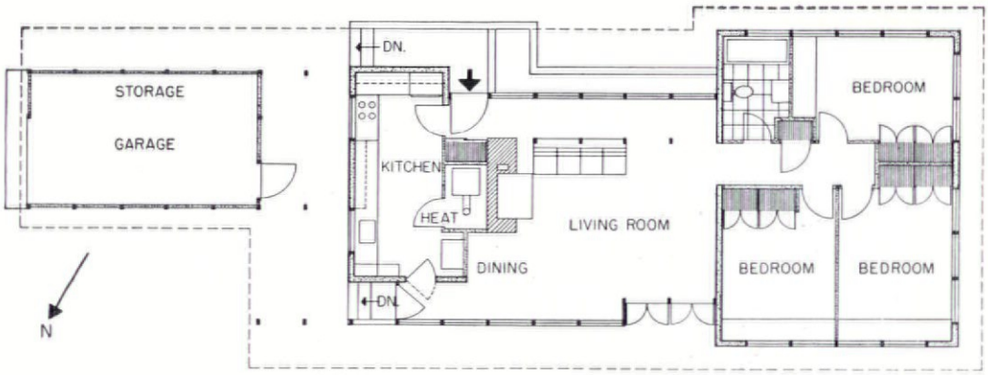
Curtain wall panels, tongued and grooved on the long edges are slipped into place. Mastic is applied along batten edges to insure waterproof joint.

and versatile building material

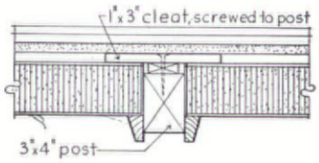






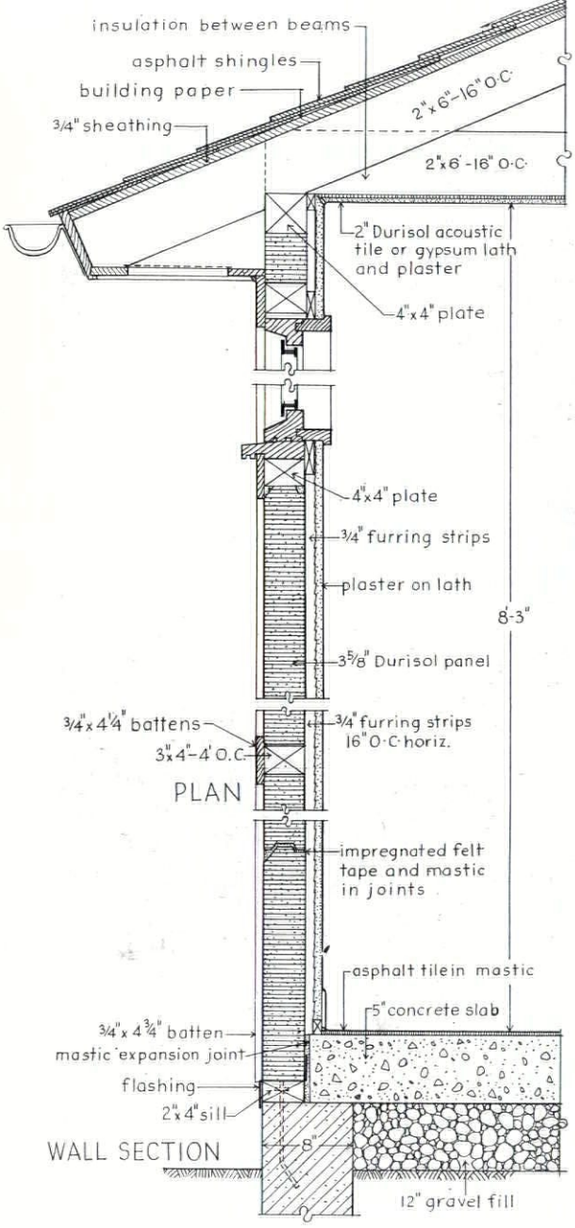


EDWARD D. STONE, Architect
KARL HOLZINGER and ROY JOHNSON, Associates

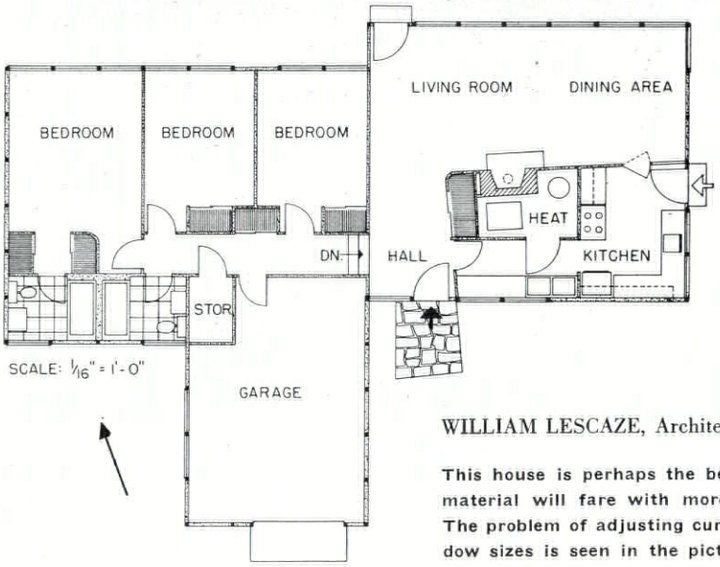


Photos: Ben Schnall

Hollow blocks of the new material, 7 in. thick are used to form part of the walls of this house. For bearing strength, cores of block are filled with poured concrete; steel reinforcement is used at the corners. Direct applications of plaster and stucco form the inside and outside wall finish, respectively. In addition to hollow blocks, this house employs curtain wall panels underneath living room windows and in garage walls. (See batten detail, above right.) Roof plank in living room is left exposed. Cost: $10.50 per sq. ft.

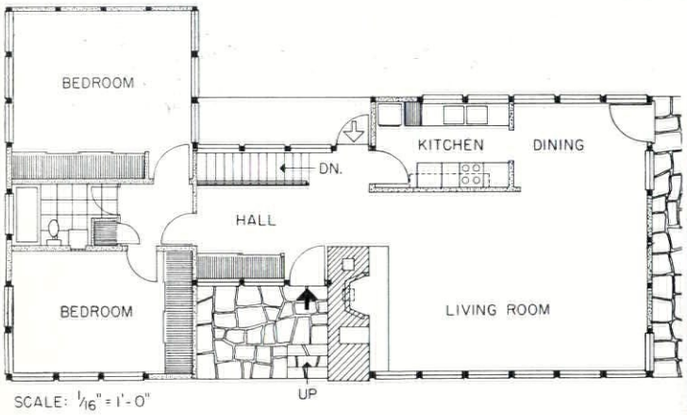


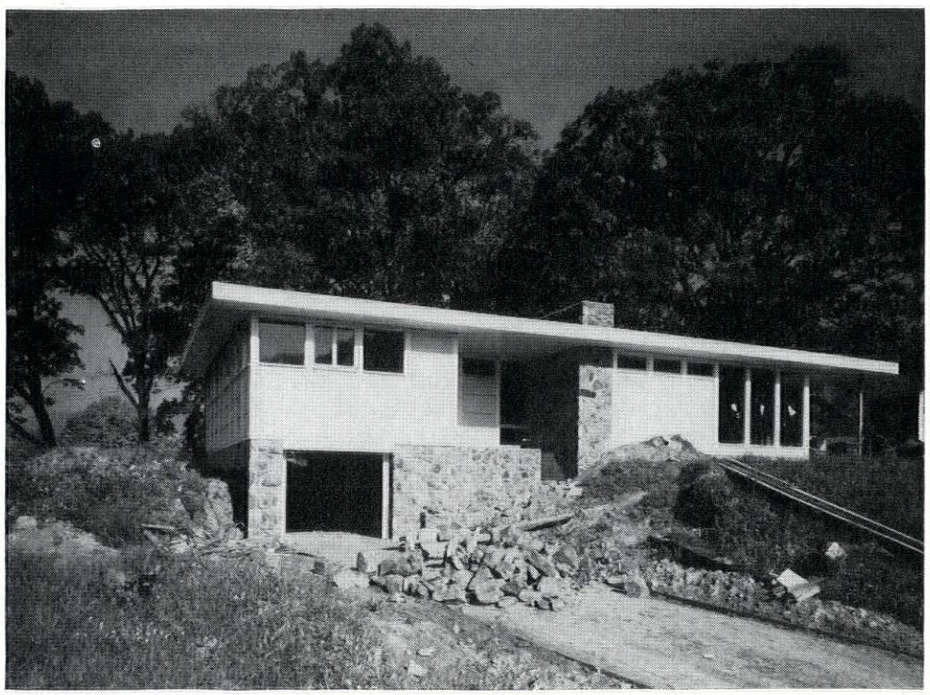
Photos: Ben Schnall



WILLIAM LESCAZE, Architect

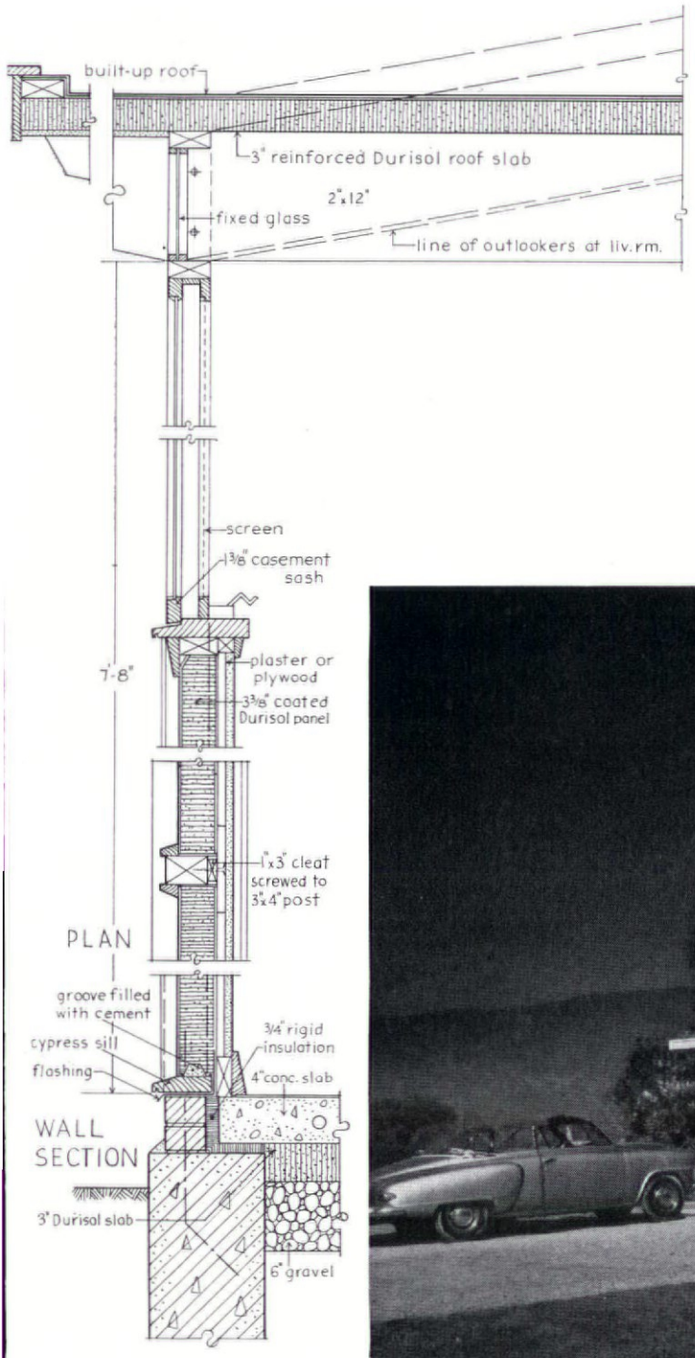
This house is perhaps the best example of how the new material will fare with more orthodox forms of design. The problem of adjusting curtain wall slabs to stock window sizes is seen in the picture above; panels had to be cut to fill the wall area beneath each window. A powdered form of the same material is used as insulation under the floor slab and above the acoustical tile in the ceiling. Note simple exterior batten detail (left). Cost: $10 per sq. ft.

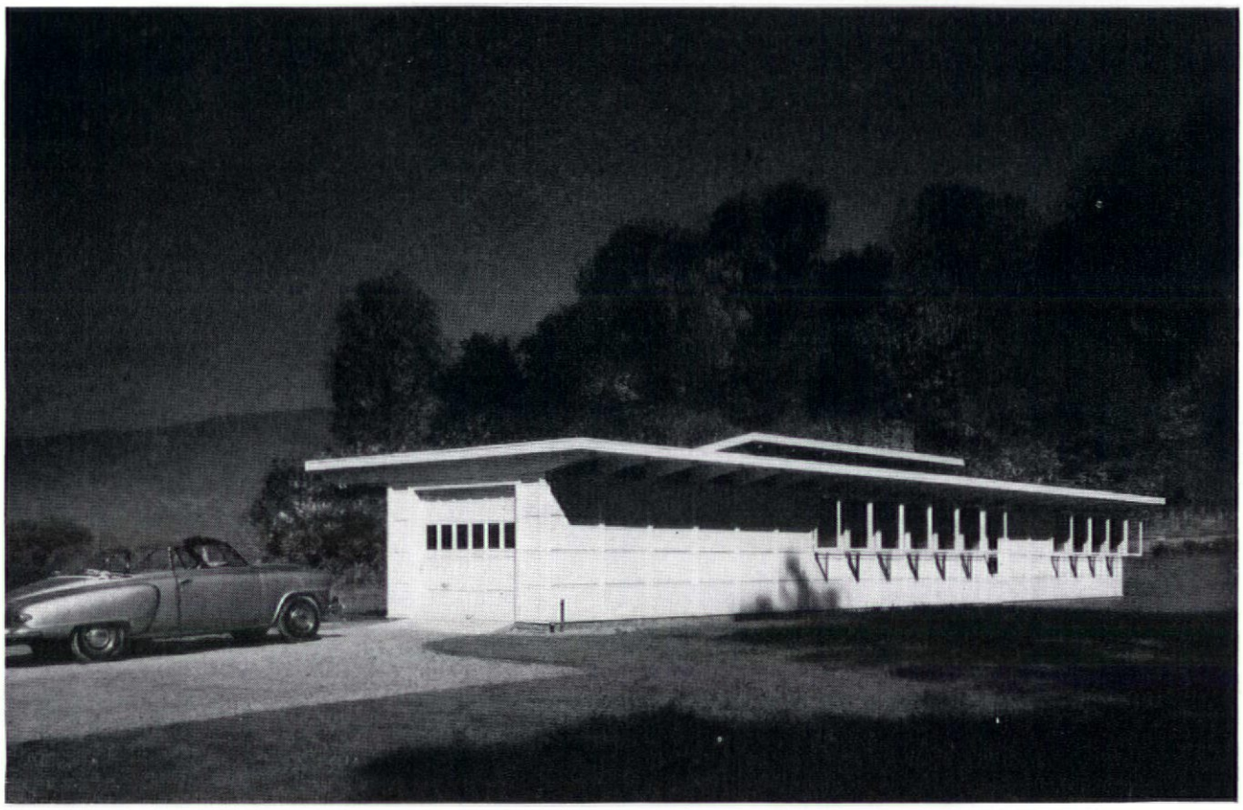




ARMAND BARTOS, Architect

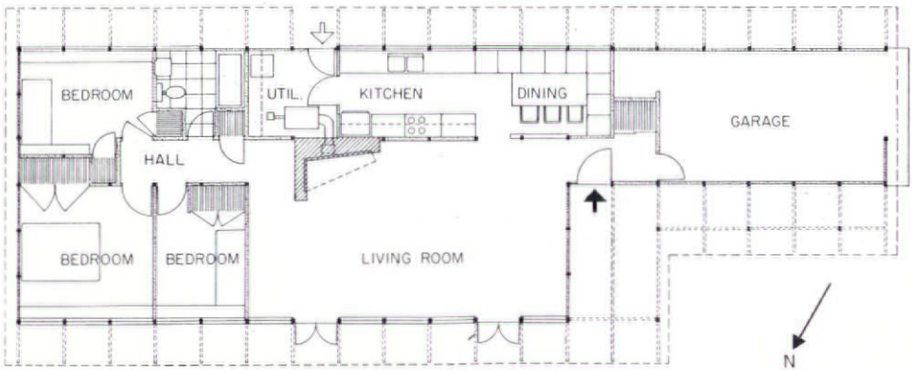
The walls of this house are broken up effectively by a deep doorway, a stone chimney and large floor-to-ceiling windows. The only different application of the new material is in the roof, where a light 2 in. plank is used instead of the usual 3 in. type. Use of this relatively thin material required that the spacing of ceiling beams be reduced from 4 ft. to 1 ft. Architects Bartos' floor plan features a dividing corridor between living and sleeping areas which also provides a convenient place of entry from garage below. Cost: $10 per sq. ft.



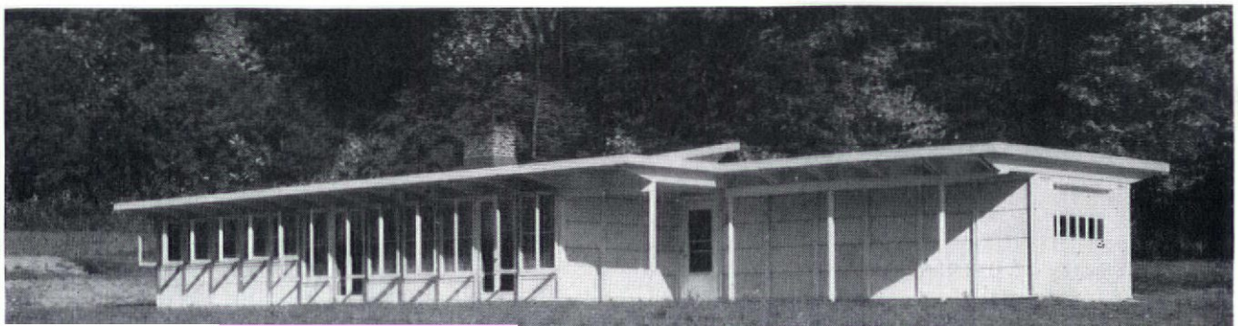


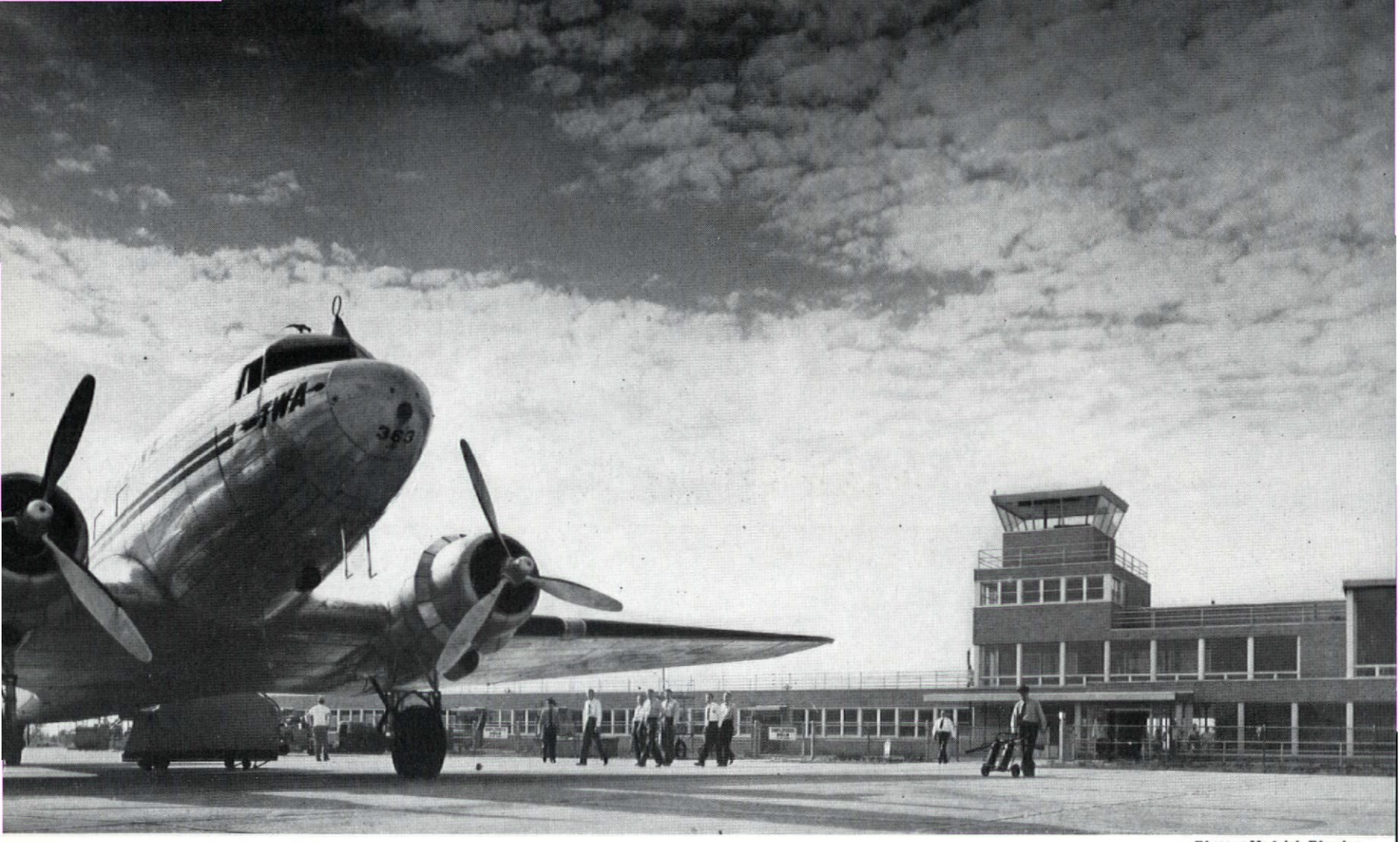
EDWARD D. STONE, Architect
KARL HOLZINGER and ROY JOHNSON, Associates

The horizontal lines of the curtain wall panels in this long (78 ft.) house and its attached garage are emphasized to minimize the criticism that the batten detailing required for such large panels is too "heavy" for small buildings. Long, low lines of house are somewhat relieved by a clerestory projecting above the kitchen. This house, like the other three, is radiant heated. Floor slabs 3 in. thick were placed under the 4 in. concrete slab for insulation. Cost: $10 per sq. ft.



SCALE: 1/16" = 1'-0"

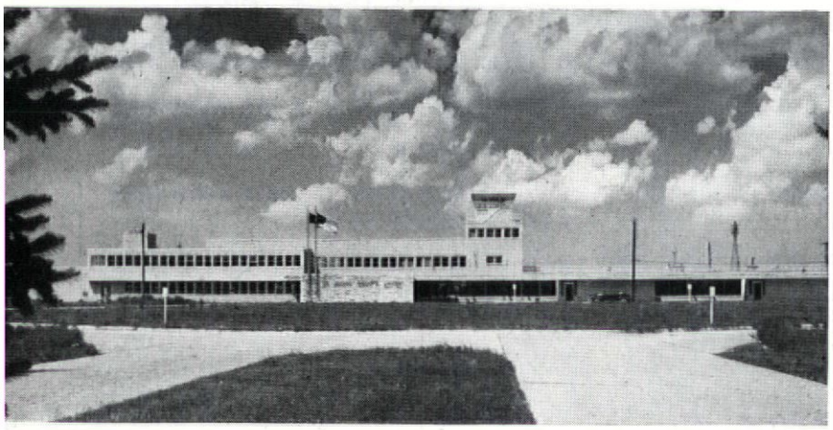




Photos: Hedrich-Blessing

AIRPORT—South Bend's terminal looks good from the air, on the ground, and on the books

ROY A. WORDEN, Architect
CLYDE E. WILLIAMS, Engineer
VINCENT FAGAN, Associate Architect
FRANK MONTANA, Consulting Architect
S-L-A-B CONSTRUCTION CO., INC., General Contractors

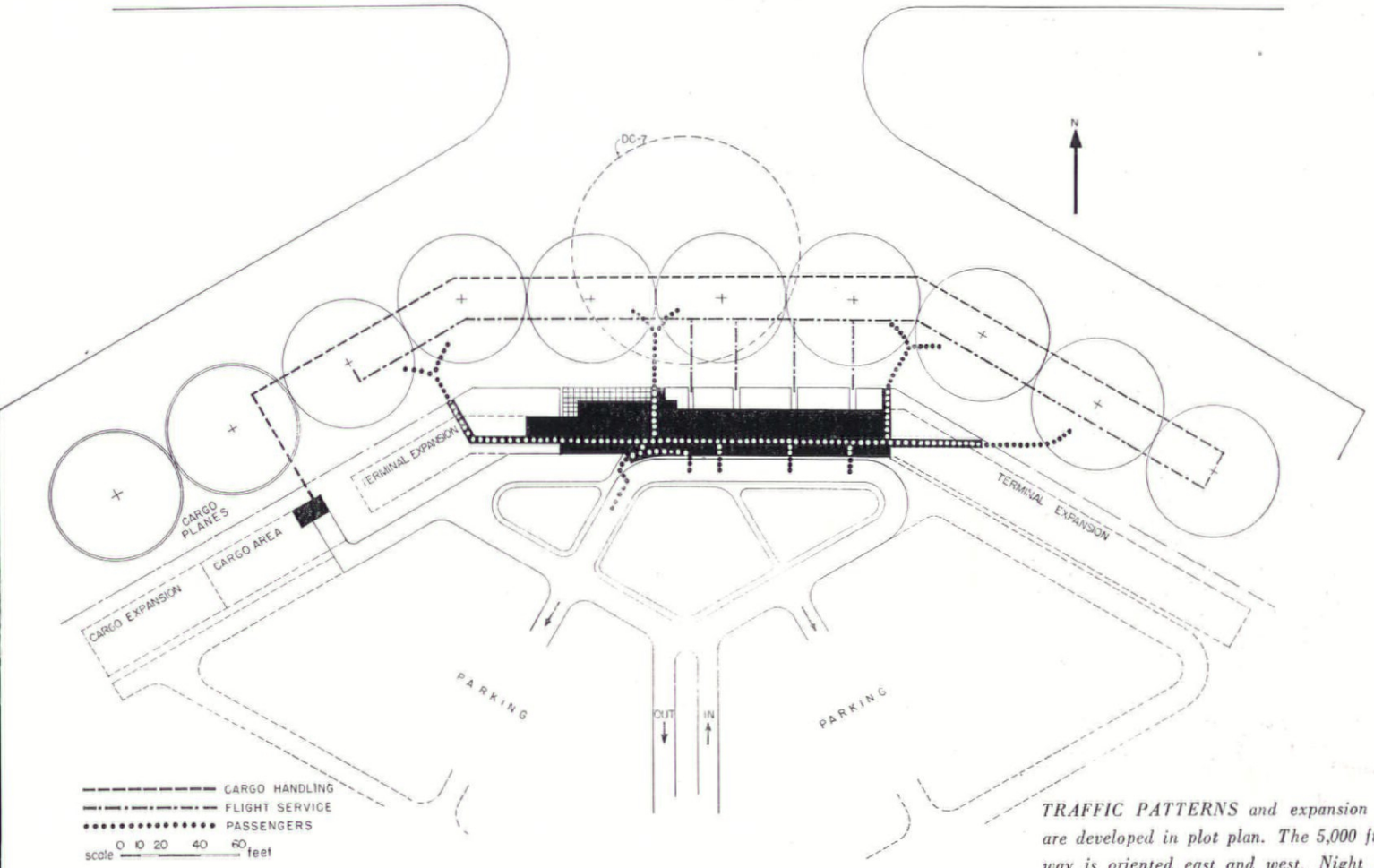


ROAD APPROACH (above) and view from field (top) show clean effect of contemporary design in brick, aluminum, and glass.

The automobile is just as important to airports as the airplane; the spectator is just as important as the traveler; and ground revenue is probably a more important variable than air revenue . . . these financial facts add up to the axiom that an airport's designers must have their feet squarely in the dirt.

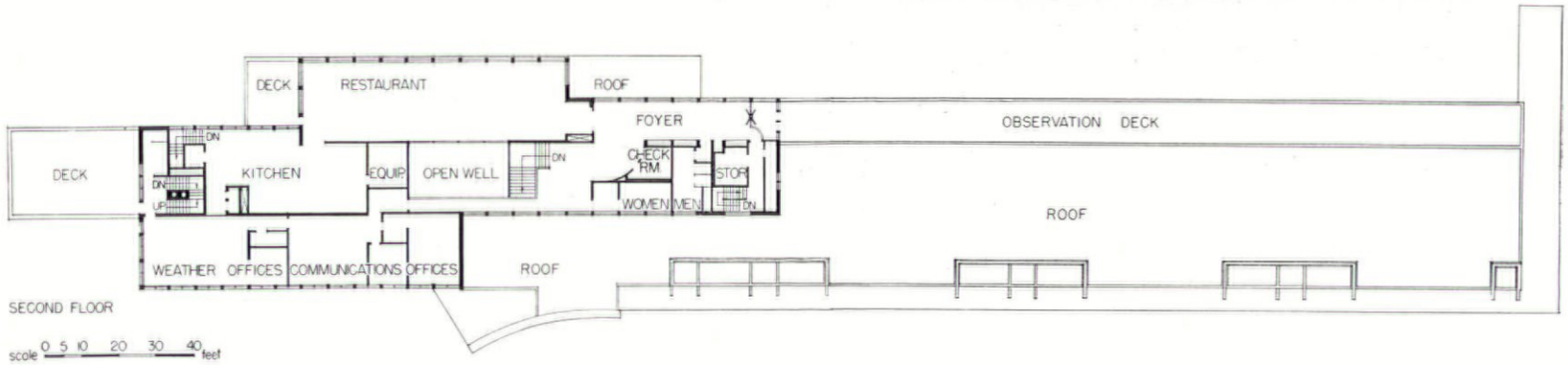
The St. Joseph County Airport, 2.7 miles from South Bend, Ind., is not only an example of advanced architectural design (although it surely is almost alone in its excellence in a nation of inadequate small airports). It is also an unusually good—and in ways, unique—passenger terminal. But, above all, this airport is a demonstration that through good design, communities can have airports which will make enough money on the ground to support the expensive facilities needed to serve air transportation. The Airlines alone cannot afford this support; in many already heavily-taxed areas the community cannot either—so it is up to planners and architects to create ground facilities that will make money from nontravelers.

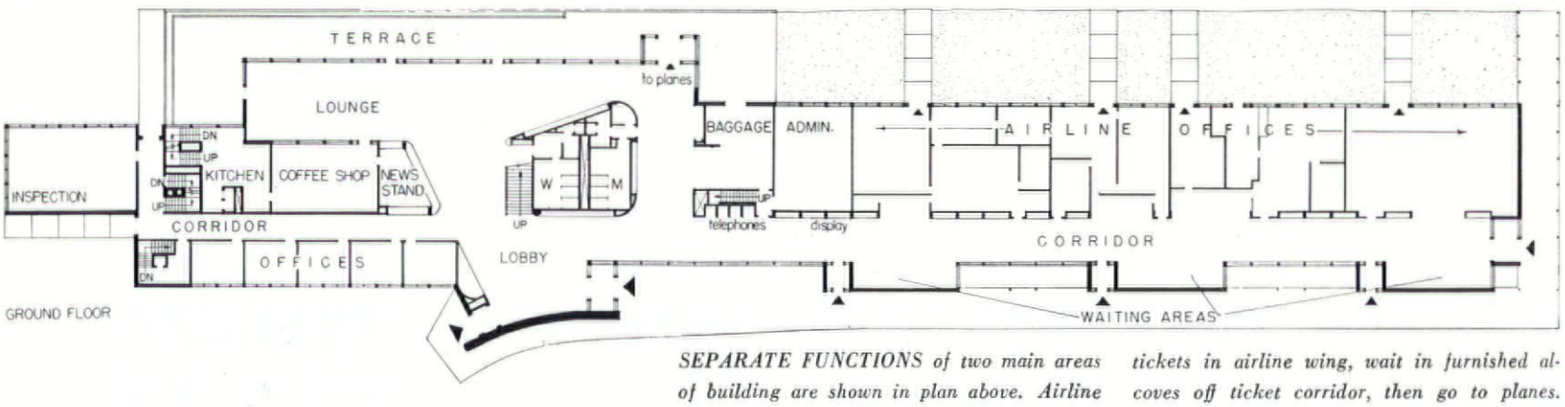
At Bendix Field, the common local name for the new airport, the annual expense of payrolls and maintenance is estimated at $50,000 to $60,000. Estimated income will run between $65,000 and $70,000. There is no bond issue to support because this is the first real terminal built under the recent Federal Airport Act, whereby the federal government matches local money dollar for dollar, after the money has been accumulated by municipalities to build airport facilities. But the revealing index to the new airport's financial health lies in the breakdown of the income. Less than one third of the income, or $20,000, will come from the airlines in landing fees and rentals. The other $45,000 will come from other office rents totaling about $15,600, gas sales income of $96,000, $4,000 from the U. S. for rental space (supplementary to basic area for which the government pays $1 per year), and income of about $5,000



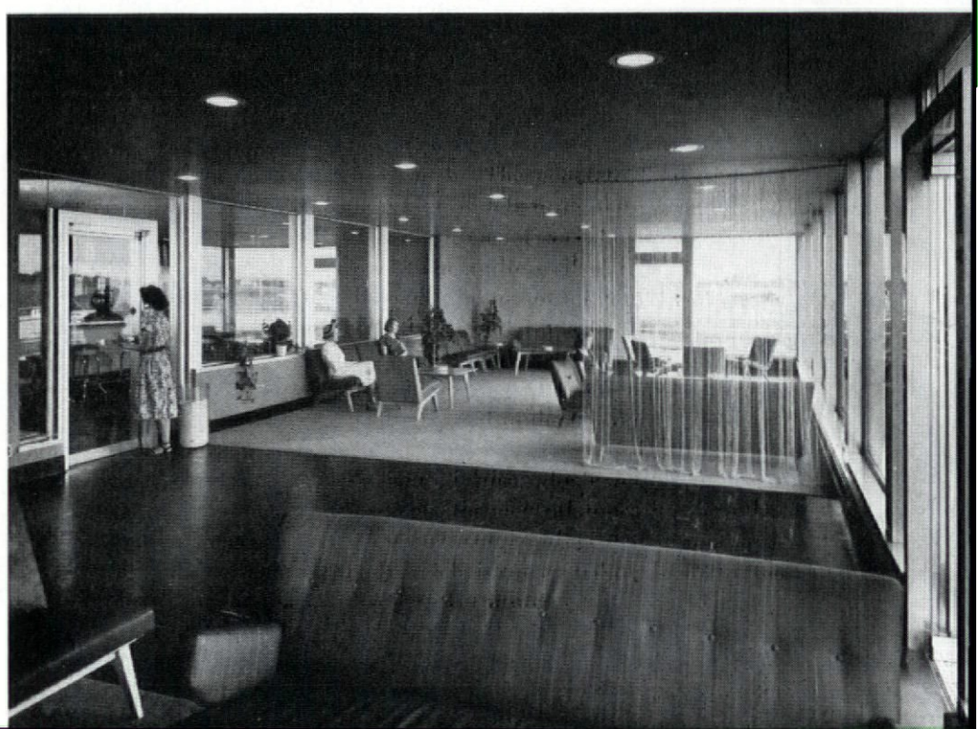
TRAFFIC PATTERNS and expansion plans are developed in plot plan. The 5,000 ft. runway is oriented east and west. Night photograph from field (below) shows dramatically the great amount of space provided primarily for nonflyers. High-ceilinged second floor area is restaurant, with observation deck beyond. Only the wing to the left is designed for airlines and their passengers.

RESTAURANT, viewed from entrance on second floor, looks out over landing field through insulating double glass. Below are two views of the ground floor observation lounge, one taken (left) from the plane entrance, the other a close-up.





SEPARATE FUNCTIONS of two main areas of building are shown in plan above. Airline passengers need not use public area to left at all, but can enter through special doors, buy tickets in airline wing, wait in furnished alcoves off ticket corridor, then go to planes. Thus wing to left above is not occupied with business of passenger handling.



from private flying operators. The total from these will probably run between $50,000 and $55,000. Adding $7,200 from the concessionaire who runs the restaurant and $8,000 for rental of advertising boxes in the building produces the crucial difference between success and struggle.

But these last figures in themselves do not prove the point. Airport officials say positively that 90 to 95 per cent of the meals sold at the airport are for nonpassengers, and these same people form the bulk of the audience for the advertising displays. That is why this shrewdly thought-out airport, whose present traffic in airline passengers runs to a total of about 1,200 a month, has parking space for 650 cars. A constant high attendance of nonflyers is what makes this airport a successful operation.

About 10,000 nonflyers visit this field every week—ranging from classes of school children to contemporaries of the Wright Brothers. Why do they come?

The first part of that answer is a description of the airport by one of its architects as a "wharfside of aviation." "An airport connected with South Bend, Ind., in the middle decades of the 20th century is historically comparable to the Mississippi and Ohio River levees of an earlier American era. People drive with their children, at evening and on Sundays, to the airport. The people of this county in the 1940's patronize the airport habitually, even though they do not often fly. They like to see the ships come in and depart just as much as the folks of Nantucket loved the activity of the whalers of Moby Dick vintage. . . . This is an honest American instinct."

COST BREAKDOWN

General Construction:

Excavation	$27,621
Concrete work	25,998
Reinforcing steel	4,335
Structural steel	57,410
Masonry	31,804
Carpentry & mill	16,594
Aluminum windows	25,781
Aluminum trim	83,777
Sheet metal work	5,493
Roofing & insulation	13,525
Asphalt deck tile	3,709
Lath & plastering	33,535
Tile & terrazzo	6,820
Glass & glazing	29,459
Miscellaneous iron work	7,112
Toilet partitions	1,841
Metal doors	779
Asphalt tile floor	9,445
Acoustic ceiling	443
Hardware	5,327
Painting	8,345
Flag poles & letters	2,122
General conditions	18,590
Total	$419,865

Plumbing, heating & air-conditioning

Sewer tile	$1,610
Excavating	1,900
Soil pipe	6,186
Water pipe, valves, etc.	3,670
Plumbing fixtures	3,290
Roof, floor drains	937
Water softener	1,010
Water heater	265
Pipe insulation	886
Plumbing labor	10,449
Convectors, etc.	8,519
Boilers (2)	8,470
Oil tanks	1,730
Pipe and valves	3,763
Baseboard radiation	1,665
Sheet metal work	11,475
Refrigeration	602
Heating insulation	2,552
Heating control	3,615
Steam fitting	7,830
General conditions	1,766
Total	$82,190

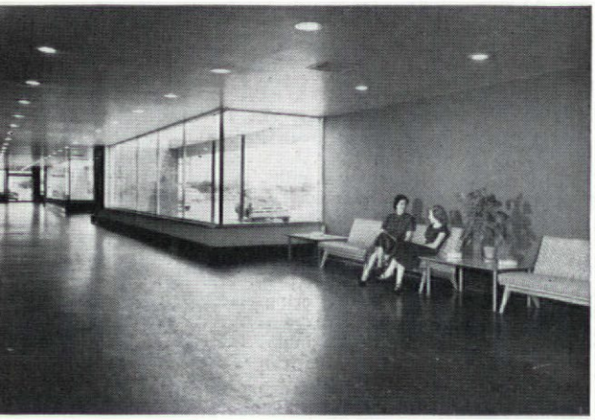
Electrical Installation:

Underground duct	$4,790
Distribution equipment	7,896
Branch circuit wiring	17,475
Boxes, switches, etc.	3,260
Raceways for communications	4,486
Fixtures and lamps	12,573
General conditions	1,253
Total	$51,733
Total cost of building	553,788

This instinct was well implemented in the new airport, but not without complaints during the planning stage from the airlines, whose ticket counters are not the focus of this building as they are in most airports. The airlines have their own wing here (see plan), and passengers have their own special entrance off to one side. This is designed to avoid confusion in handling baggage and traffic, to permit easy direct expansion (see p. 91) and to get airline business out of the way of the view. Although the airlines complained when they saw the sketch plans, and even threatened to pull out of the enterprise, they are now well satisfied with the plan's efficiency. Their South Bend traffic increased 25 per cent in the first month of the building's operation, and is still rising.

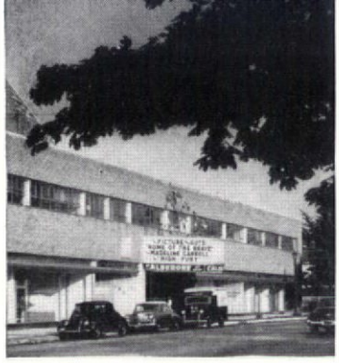
The view is paramount from the time one enters the building's concourse. Comfortable indoor lounges on both floors look out on the airplanes, and the visitor doesn't miss anything from the handsome restaurant either. The architects were fortunate in being able to orient the big windows overlooking the field north, where sunlight would give them little trouble. In good weather a long deck is open for outdoor observation.

All this public area is spacious and not busy with official circulation. It is designed, finished, and furnished with warm simplicity, as is the entire structure. From the leanly detailed control tower down, South Bend has one of the best airports in the country.



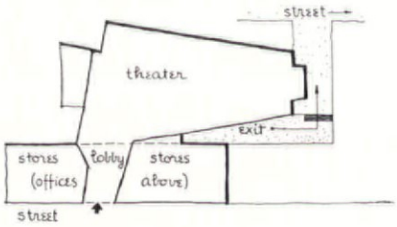
AIRLINES WING has through baggage traffic from separate entrances on road (below) to field. Passengers buy tickets at counters on this hall, and may wait in alcoves facing counters (left). Blank wall is used for local advertising display (above), rental of which is an important source of revenue for the airport.

CONSTRUCTION OUTLINE: Exterior walls—4 in. matte-faced brick, Conco Building Products, back-up tile, National Fireproofing Co. and plaster. Structural steel—Mississippi Valley Structural Steel Co. Floors—concrete slab and Ceco Steel Products Co. steel deck. ROOFING—20 yr. tar and gravel, Ruberoid Co. INSULATION—Armstrong Cork Co. WINDOWS: Sash—aluminum double hung, Adams-Westlake. Glass—Pittsburgh Plate Glass Co. FLOOR COVERINGS—asphalt tile, Thomas Moulding Floor Mfg. Co. FURNISHINGS (public area)—Knoll Associates. DOORS—aluminlited aluminum, Kawneer Co.; flush panel—Harris Bros.; Herculite—Pittsburgh Plate Glass Co. HARDWARE—Sargent & Co., Bakewell Products, Stanley Works and Pittsburgh Plate Glass Co. PAINTS—O'Brien Corp. ELECTRICAL INSTALLATION: Wiring—General Electric Co. Switches—Frank Adams Electric Co. and Square D Co. Fixtures—Curtis & Kent, Pass & Seymour, Edwin F. Guth Co. and Sylvania Products Co. Clocks, etc.—Edwards & Co. PLUMBING FIXTURES—Eljer Co. HEATING AND AIR CONDITIONING: Circulating hot water system with complete cooling, humidifying and reheating conditioning system for restaurant and control tower, Trane Co. Boilers—Cleaver Brooks Co. Thermostats, etc.—Barber-Colman Co.



COLORFUL MOVIE THEATER

greets the patrons with a visual impact to be remembered



LOCATION: Hempstead, L. I.
WILLIAM LESCAZE, Architect
FRED N. SEVERUD, Structural Engineer
GARY PICCIONE, Consulting Engineer
WOHLPART & HART, Mechanical Engineers
CLARENCE R. JACOBS, Accoustical Consultant
MAX SPIVAK, Muralist
M. SHAPIRO & SON, General Contractors

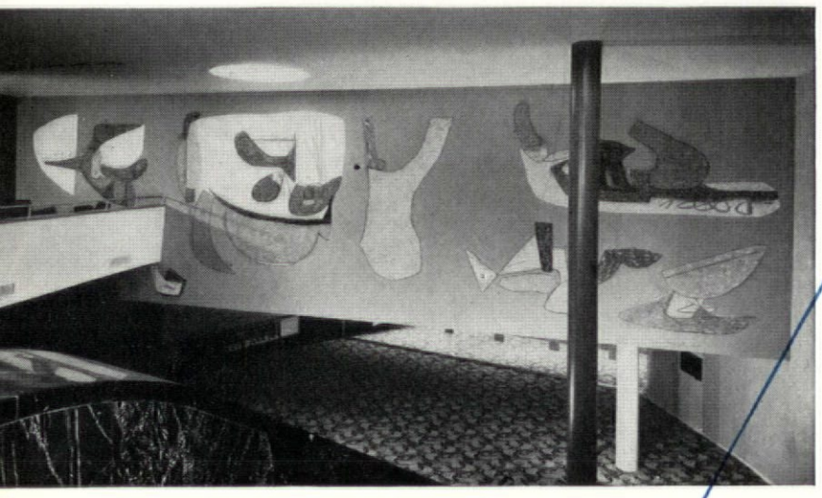
Even though designers have long since junked the plush and pink-bottomed cupids in theater decor, the average movie goer of today still wistfully craves a walloping reaction to his surroundings. Recognizing this nostalgic hangover from the Midas-touch heyday of Paramount and Roxy, Architect Lescaze happily obliges by endowing the Calderone theater with a vibrant, festive interior scheme. His technique is a simple one: strong clear colors used over large areas. Not to be minimized, however, is the importance and fine integration of Max Spivak's 60 ft., mosaic lobby mural in the general design.

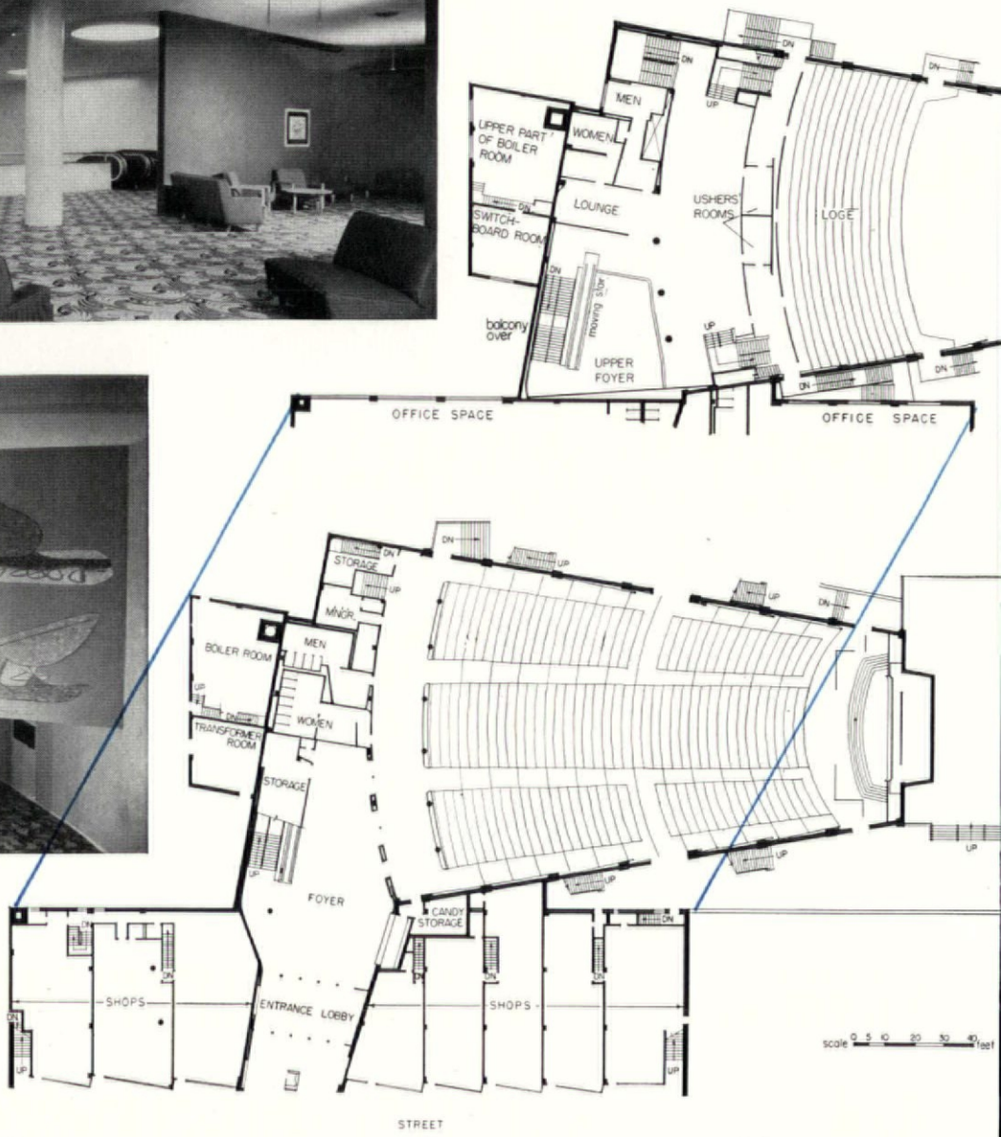
The initial impression on entering is one of spaciousness and visual stimulation achieved partially through the two-story height of the lobby, partially through the use of tall mirrors opposite the entrance which reflect the mural from several vantage points.

This theater, the largest built in metropolitan New York since the war, has a seating capacity of 2,500. Its entrance and adjoining shops occupy the street frontage of a large lot flanking an important suburban thoroughfare. The owners' original idea was to develop the lot as a community center complete with wading pool, restaurant and professional building. Costs, however, dictated a compromise.

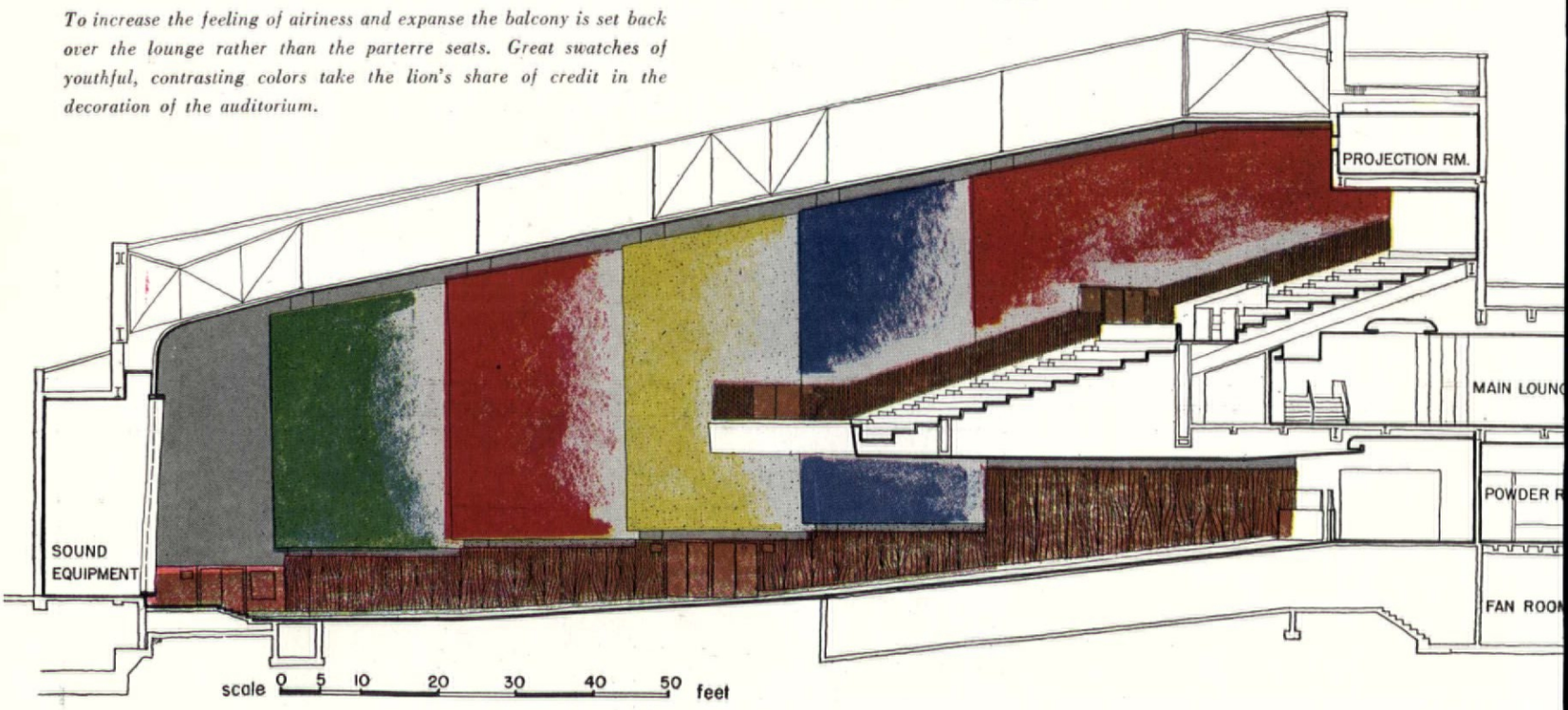
Construction-wise, the Calderone theater is definitely in the luxury class. At current rates, local theater cost runs from $350 to $550 per seat; the Calderone falls in the upper reaches of this range. Value of land is $350,000; the cost of the theater and shopping center, $1,900,000. A 20-year mortgage for $900,000 covering theater and stores is held by the Equitable Life Assurance Society of the U. S. The building loan was advanced by Marine Midland Trust Co.

Splayed walls and sloping ceiling





To increase the feeling of airiness and expanse the balcony is set back over the lounge rather than the parterre seats. Great swatches of youthful, contrasting colors take the lion's share of credit in the decoration of the auditorium.



place emphasis on the screen. Flat colors on jumbo wall panels provide sole diversion for the eye

To the movie theater's proscenium arch, as obsolete as a corset cover, the architect gave not a thought. Therefore, the exterior form of the theater closely follows that of the audiorium and lounge.

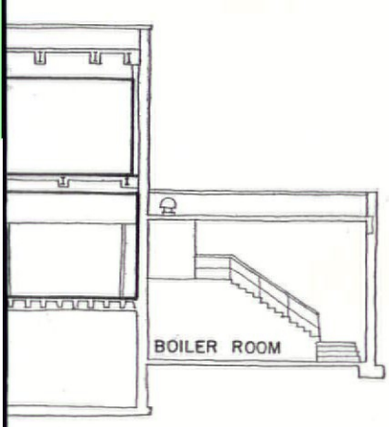
A successful feature of the interior treatment is concealment of the structural columns along the side walls of the auditorium by means of surface panels running from the inside of one column to the outside of the next. Aside from their value as logical color spots, the arrangement of the panels allows for good side lighting. Walls are finished in plaster on metal lath. Acoustical plaster was used on alternate panels. The door high wainscoting of Hawaiian koa wood offers a rich decorative note, a minimum maintenance problem and, acoustically speaking, good resonance.

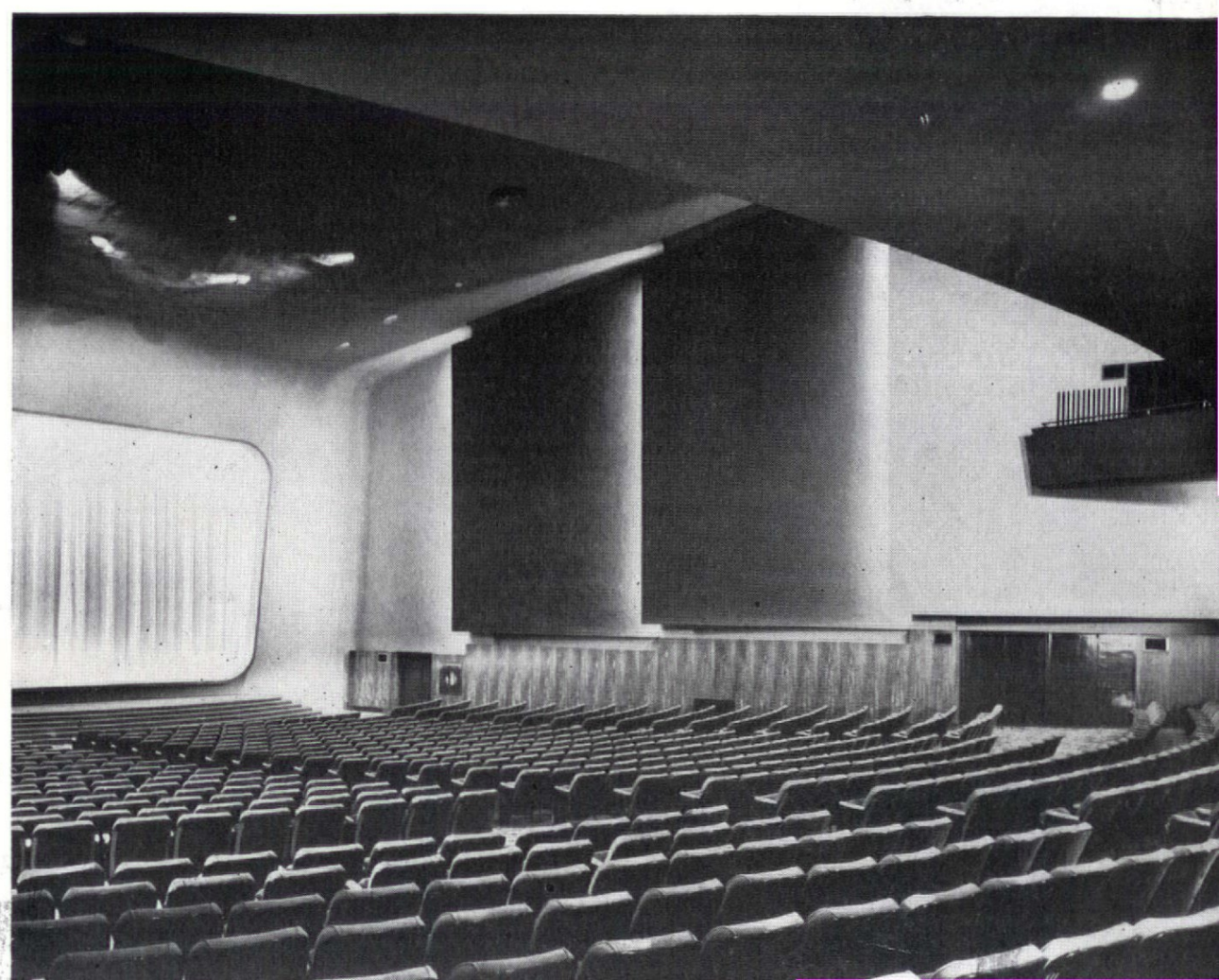
In too many theaters heavy, heavy hangs the balcony over the heads of the parterre audience. To relieve this threat, Lescaze raised the balcony, and since one thing leads to another, introduced more than the usual number of steps leading up to it. The inevitable, if novel, solution was the provision of a moving stair. Aside from the obvious comfort and convenience, it made economic sense in this case since, proportionately, the Calderone has a greater percentage of loges (almost 1/5) than the average theater and—the easier the access, the easier the sale. However, benefits of raising the balcony were realized at the cost of high volume and an extra long throw.

In defense of the architect (seconded by the owners) it is only fair to mention that he had no hand in the selection of the carpet (which he terms "tragic"), his own design (in two-tone gray) having been outruled by the tenants. The Calderone theater is leased by Metropolitan Playhouses, who in turn sublease to the Skouras chain as operators. The terms of the lease are for 21 years.

CONSTRUCTION OUTLINE: Exterior walls—4 in. brick, 8 in. cinder block. Dampproofing—Minwax Co. Structural steel—Harris Structural Steel Co. Floors—reinforced concrete slabs metal pan system. Bar joists—Macomber, Inc. ROOFING: Sheetrock and Pyrofill—U. S. Gypsum Co. Built-up—Koppers Co. INSULATION—George R. Hall & Sons, Cicopee Mfg. Co., National Gypsum Co. and U. S. Gypsum Co. WINDOWS: Sash—steel, Hope's Windows, Inc. Glass—Abbott Glass Co. Store fronts—Kawneer Co. ESCALATOR—Otis Elevator Co. FINISH FLOORING—Alexander Smith & Sons, David E. Kennedy, Inc., Perfo Mat Co. WALL COVERINGS—Pantasote Co., Charles M. Gray and David Kramer. FURNISHINGS AND FABRICS—Herman Miller Furniture Co., J. H. Thorp, Marie Nichols and America Seating Co. Mural—Max Spivak. DOORS (Herculite)—Pittsburgh Plate Glass Co. HARDWARE—Schlage Lock Co., Norton Door Closer Co., Stanley Works, Oscar C. Rixson Co., Henry Weis Mfg. Co. PAINTS—O'Brien Corp. Decorative painting—Gregory Germanoff. ELECTRICAL FIXTURES—Hall Lighting Fixture Co., Inc., Century Lighting Co., Inc., Major Equipment Co., Inc. PROJECTION ROOM EUIPMENT—National Theater Supply Co. PLUMBING FIXTURES—American Radiator-Standard Sanitary Corp. Water coolers—The Halsey W. Taylor Co. HEATING AND AIR-CONDITIONING—2-pipe steam system, air-conditioning in lobby and auditorium. Boilers—Pacific, U. S. Radiator Corp. Oil burners—York-Shipley Corp. Convectors—American Radiator Co. Vacuum cleaning system—Spencer Turbine Co. Receptacles, etc.—General Electric Co., National Electric Products Co., Ward Leonard Electric Co. and Bryant Electric Co. Aisle and step lights—Kliegl Bros. Intercommunicating system—Edwards & Co.

Movie screen is treated as an integral part of the front wall. Its bright red frame tends to centralize attention. Instead of the conventional stage a 9 ft. platform with wall-to-wall steps has been substituted.





ARCHED MOVIE THEATER of laminated wood construction effects a

LOCATION: Los Angeles, Cal.
BALDWIN & BALDWIN, Owner
LEWIS E. WILSON, Architect
MERRILL W. WINANS, Landscape Architect
FRANK ROPP, Structural Engineer
BARUUCH CONSTRUCTION CO., Contractor

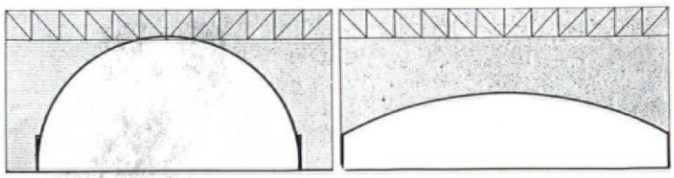
Photos: Vic Stein

The chief distinction of this theater, known to some as the "poor man's Radio City," is that it did not make poor men of the owners. True, their budget was limited, but thanks to laminated wood construction—almost never used in this type of commercial building—they got a lot of theater for their $290,000. Its cost is roughly $100,000 less than that of a conventionally built theater of the same capacity and breaks down to the amazing low figure of $160 per seat for 1,800 seats.

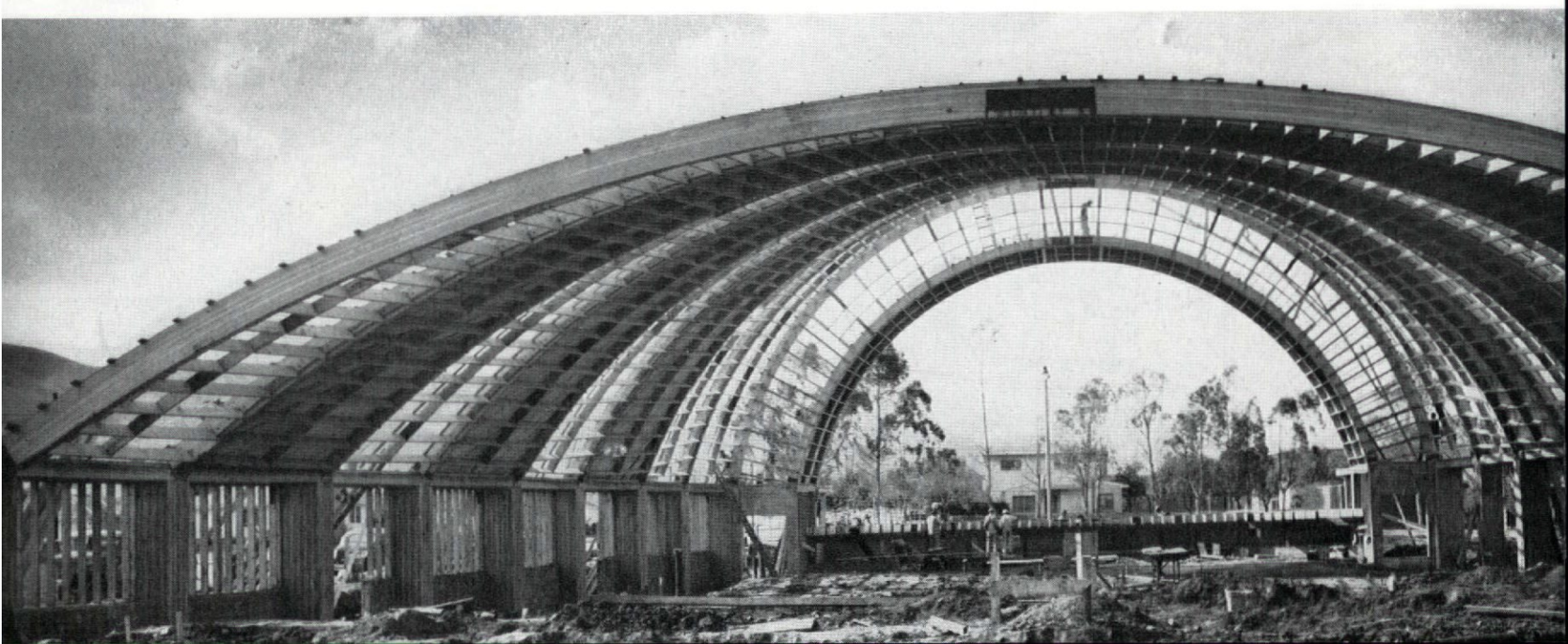
Architect Wilson first experimented with this type of overhead when he was building an auditorium for the Navy during the war. He developed this cheap, strong member by assembling a number of blocks of wood in the shape of an arch and joining them with phenolic resin glue which penetrates the cells and becomes one with the wood rather than acting as an ordinary adhesive. The architect is currently using the same design in other theaters being constructed entirely of metal.

The saving in cubage of the arched form over the rectangular is illustrated in the sketches below. Volume is cost in both construction and theater operation, but this building also boasts other money-saving devices. Since city ordinances for wall construction are extremely rigid as compared with requirements for roofs, the huge arched roof span, requiring a mere 10 ft. reinforced concrete wall, realizes an important economy.

The theater is 23 ft. high at the entrance and 55 ft. high at the stage end. The splay of the walls, however, is only 55 ft., and the impression inside the auditorium is that of being in a glamorized tunnel. But audience reaction seems to be favorable toward the absence of small lights and distracting interior de-



Cross sections at screen end (left) and projection end (right) demonstrate the economy of the arched design compared with the conventional rectangular theater.



30 per cent saving in cubage and cost

tails. Aside from the interior paint job, which cost only $4,000, the gold curtain, and an abundance of tropical vegetation in the lobby and patio, nothing was spent on decorating.

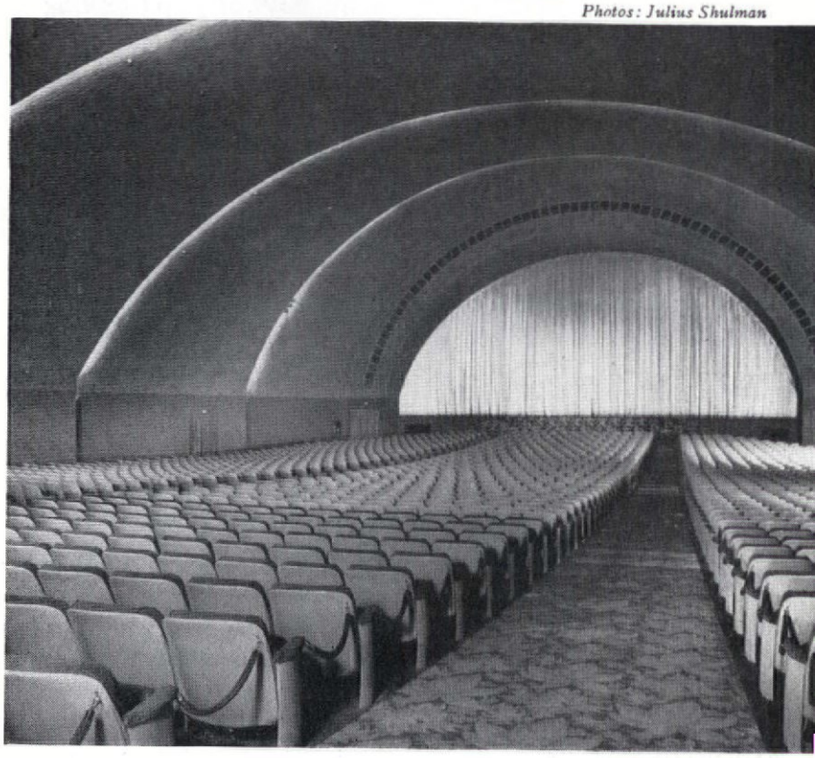
A light, fire-resistant acoustical material sprayed directly on metal lath doubles for plaster as the interior finish. This is tinted a blue-green which, under fluorescent lighting, seems silvery. It is shaded from light to darker tones at the high end of the house to make the ceiling appear more level.

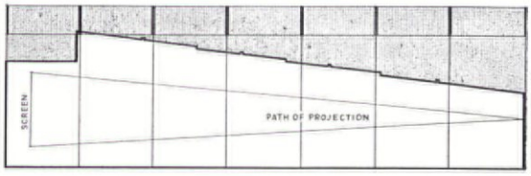
Since it has been established that a vaulted ceiling is the worst possible form of overhead treatment from the standpoint of good hearing (FORUM, Nov., '48), it is not surprising that the Baldwin Hills theater has been severely criticized for its unsatisfactory acoustical performance. Experts, inevitably the first to challenge, point to the weakness of having to cushion all interior surfaces for echo. In view of the money and labor saving aspects of this particular theater, however, it is difficult to justify their contention that proper acoustical conditions for amplified sound should be a structural element of the building.

Wood sheathing topped by a white granule impregnated composition is used as the exterior finish. The arches, appearing as a series of concentric rings from the outside, are painted in graded colors, again darkening toward the higher end.

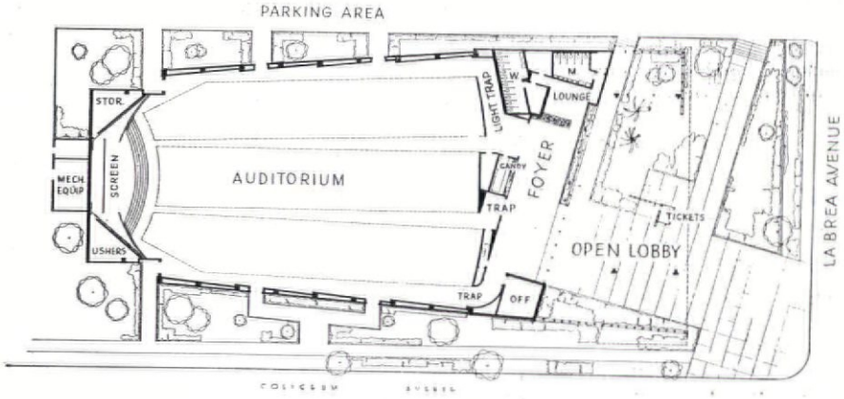
The structural arches of the auditorium are twice repeated on the street side (this time free standing) as supports for the marquee, a design device which, unfortunately, does not measure up to the high standard set by the interior. This, however, detracts in no way from its merit as a new cost saving receipt in the architectural kitchen.

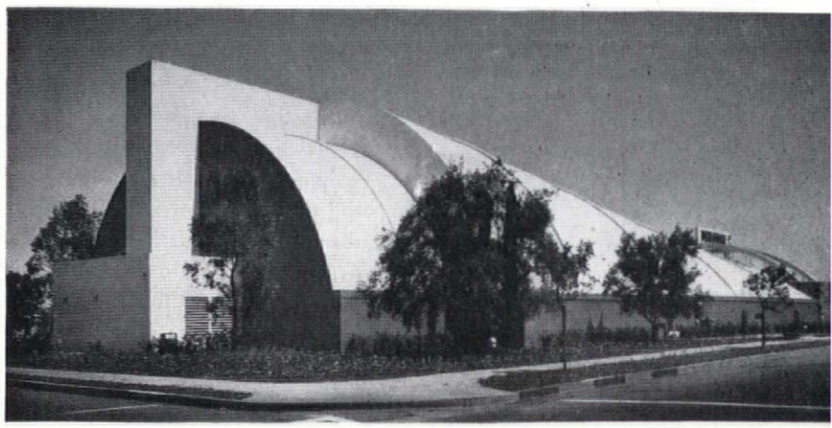
Photos: Julius Shulman





Longitudinal section shows how height of auditorium increases toward screen in keeping with the increasing size of the projection beam.





Air-conditioning is handled by a series of grills surrounding the proscenium. Exterior duct and air cleansing plant at rear of theater are clearly visible above.

PANEL HEATING SURVEY points to increasing use, decreasing costs.

Fourteen years ago, when FORUM *wrote its first article on panel heating, there were about a half dozen installations in this country. Today the number is close to 100,000. Clearly, the pioneering days of panel heating are over. The time for stock taking has arrived. To get an idea of of where panel heating stands today,* FORUM *surveyed, over a period of a year, 104 architects whose experience covered 12,713 installations. Also surveyed were 50 large builders, 22 of whom had completed 13,200 installations and 650 persons who own panel heated buildings. Detailed in the following columns, the most important findings of the survey not only add concrete evidence to most of the individual claims made for panel heating but also bring some new trends into the open:*

- *Owners of panel-heated buildings are pleased with their installations—nine out of ten will specify it when and if they build again.*
- *The initial installation of panel heating costs about 25 per cent more than conventional types, but the differential is narrowing.*
- *Architects prefer ceiling installations except for slab-on-ground construction.*
- *Hot water is the most popular heating medium, but electricity registers a surprising second.*
- *Merchant house builders who use panel heating are enthusiastic about it, despite its higher cost.*
- *Architects predict an accelerated acceptance of radiant heating within the next few years.*

Where are the panel heating panels in your building located? (Owners.)

Floors—66%
Ceilings—30%
Walls—4%

Did your panel heating system respond with satisfactory speed to rapid changes in temperature last winter? (Owners.)

Yes—87%
No—13%

If you were going to buy or build a similar building again, would you prefer panel heating? (Owners.)

Yes—93%
No—7%

Which of the advantages of panel heating do you rate most important? (Architects.)

Provides better comfort—41%
Better distribution of heat—20%
Adaptability to slab-on-ground construction—19%
Lower operating cost—10%
Lower installation cost—2%
Miscellaneous reasons—8%

Do you experience serious difficulty finding contractors who can properly install panel heating? (Architects.)

Yes—24%
No—76%

Although it still plays a relatively minor role in the total heating field, panel heating has registered tremendous gains—especially since the end of World War II. It is now to be found in all kinds of buildings from small houses, where the majority of installations appear, to great factories. In the cross-section covered by the FORUM's survey, 79 per cent of the installations are in houses. Of these, 64 per cent have no basements and, it may be assumed, are mostly small developers' houses. Next in popularity, as far as panel installations are concerned, are offices (7 per cent), then garages (6 per cent) and churches (4 per cent). Trailing behind are hospitals, stores, garages, and factories.

Except for a handful of buildings—like Frank Lloyd Wright's epochal Johnson Wax factory in Racine—most of these are postwar installations. Only 20 per cent of the architects who participated in the survey had done any prewar installations. And those who had worked with panel heating before the war started from theoretical scratch when they did a panel job. From both a heating and construction viewpoint, these prewar installations were crude. Since that time however, an impressive body of knowledge has been built up.

Backing up this theoretical knowledge, has been the practical knowledge gained in installations and the design research and product development of heating manufacturers. Ten years ago wrought iron pipe dominated the field almost exclusively. Now, in addition to wrought iron, panel heating convectors of copper, steel, hollow tile, glass and electrical conductors of all sorts are available.

LOCATION OF PANELS

Perhaps the most important result of the new information and materials at the architect's disposal has been a reconsideration of the best location of panel units. Ten years ago, almost all installations were placed in the floor. Any attempt by the architect to vary his design from a few rigid types was considered foolhardy. Now, however, improved technical knowledge and new materials have opened new avenues.

FORUM's survey shows that the majority of architects prefer ceiling installations for buildings of other than slab-on-ground construction. Thus, while only 8 per cent favored ceiling installations for basementless buildings, in one-story buildings *with* basements and in two-story buildings, 58 per cent of them preferred ceiling installations.

What are the reasons for this new importance of ceiling installations? One is the appearance of new and lighter materials which make ceiling installations easier to install. Chief among these is copper tubing which was preferred over all others by most of the architects queried. Another material which is more adaptable to ceiling use is electric cable or prefabricated electrical panels which were preferred by 12 per cent of the architects. Electricity rated second only to hot water by architects as the best overall heating medium for panel installations.

However, there are other technical reasons for the switch to ceiling panels, due largely to the fact that there is more know-how about panel placement. In general, it has been found, that a properly installed ceiling installation provides a more efficient radiating surface. The reason for this is clear: a warm ceiling is more of a radiator (in the true technical sense of the word) than a convector. It supplies only about 30 per cent of its heat by warming the air and 70 per cent by direct radiation. The figures are just reversed in a floor installation. Since panel heating, from the standpoint of efficiency and thermal comfort, aims to keep warmed air at a minimum, the architects are correct in stressing ceiling

installations, although their reasons for doing so may not be based on these technical grounds.

Over and above this, however, there is another practical consideration which favors the ceiling installation: it is more easily controlled than a floor installation. Ceiling pipes or ducts heat a smaller mass—usually ¾ in. of plaster—than the typical 4 in. concrete slab (plus floor material) in which the average floor piping is embedded. It follows that a small mass can be heated and cooled more quickly.

Despite the apparent preference of architects for ceiling installations, it should be noted that floor installations are not being abandoned by them, especially in slab-on-ground construction where it is usually the easiest and the most economical form of construction. It is interesting to note that 85 per cent of the builders who have used radiant heating in their development preferred floor installations in slabs. Their experience follows the general belief of heating engineers that in a small basementless structure, floor panels can be more economically installed and are probably just as effective, from the standpoint of thermal comfort, as a ceiling installation.

WITCHES TALES

Like all new things, radiant heating has been the victim of a lot of mis-information. The most naive variety is that people who have it don't like it. Perhaps the best proof against this is found in the FORUM's building-owners survey. In answer to the question, would they specify panel heating if they were going to build again, they answered yes with a resounding 93 per cent. The reasons for their confidence in panel heating are several. Most important, said 89 per cent of the respondents, is its provision of more comfortable heat than conventional systems. Fifty-seven per cent also listed "less dust" as a panel heating virtue, while 40 per cent felt that it was cheaper to operate than other systems. Other reasons were varied: the children could play on the warm floor without catching cold; it was easier to arrange furniture without radiators or grilles. One Ohio housewife gave panel heating an endorsement that has probably never occurred to a heating expert. Said she: "My kids like to 'hang' their wet clothes on the floor so that they dry overnight."

The prime advantage of panel heating, according to 58 per cent of the architects, was that it provided better comfort conditions. Second was that it provided a better distribution of heat (20 per cent), and third was its adaptability to slab-on-ground construction, (16 per cent).

The survey also investigated the technical complaints which have been listed as panel heating problems. Typical of these is the charge that it is dangerous to embed pipes in concrete or plaster because if they break, it is difficult to get at them. This, on the face of it, is true. The more important question is: Do panel heating pipes break once they are installed? Architects did not report that this has been a problem in any one of their 12,000 installations. (Five of them said that they thought it might be, however.) This response confirms a British study of the hazards of pipe leaks made some years ago. Out of 7½ million feet of embedded piping included in the study, not one pipe had broken over a period of many years.

Another charge against radiant heating is that a heating system which does not rely on the movement of air within a room will result in stagnation of odors. The architects were asked about this. Two per cent said it was a problem, the rest said it wasn't. The verdict of the majority rested largely on the fact that only under the most rigorous laboratory conditions could a room be radiant panel heated without creating some sort of movement of air through secondary convection, caused by a normal panel system after it has warmed a room.

Another charge is that radiant heating does not work well in rooms with large glass areas. The obvious answer to this is that, no matter what type of heating system is used, any room with large glass areas presents problems. Architects who had designed panel systems for such rooms (65 per cent of those reporting) pointed out that the problem could be solved by the old design trick of providing higher temperatures adjacent to severe exposures such as big windows. They recommended supplementary convectors and larger panel areas. Fifteen per cent confidently stated that no such steps were necessary in a panel system.

There are some complaints about panel heating installations which are justified. Of the two major ones cited by architects as the main drawbacks to efficient panel heating, the first is technical—heat lag—and the second is economic—high cost of installation.

HEAT LAG

The heat lag problem is simple to explain, difficult to solve. The explanation is that since a whole floor or ceiling must be warmed before it operates effectively, more time is required for the warming-up process than in the case of, say, a small cast-iron radiator. Conversely, cooling a large panel also takes more time. When temperature changes are relatively small, the problem is negligible since the panel surface is not called upon to make any swift changes. But when there is a sudden change in temperature, either up or down, the heat-lag problem is more acute. Two-thirds of the questioned architects reported that under these conditions, heat lag was a definite problem. How did this affect the occupants of radiant heated houses? When asked, only 13 per cent of the laymen responded that they were adversely affected by this heat lag during sudden

(Continued on page 118)

What is your single most serious objection to panel heating? (Architects.)

Slow response—33%
Have no objections—19%
High costs—18%
Hazard of leaks—7%
Static condition of air—7%
Can't get good contractors—7%
Other objections—9%

What do you think are the prospects of panel heating in your area during the next few years? (Architects.)

Accelerated acceptance—52%
Gradual acceptance—40%
Slow acceptance—6%
Decline in use—2%

If you have used panel heating, do you find it more expensive, cheaper or about the same price as a conventional installation? (House builders.)

More expensive—60%
About the same—25%
Cheaper—15%

What type of installations are you making? (House builders.)

Floor—74%
Ceiling—25%
Wall—1%

If you have not used panel heating, what is your reason? (House builders.)

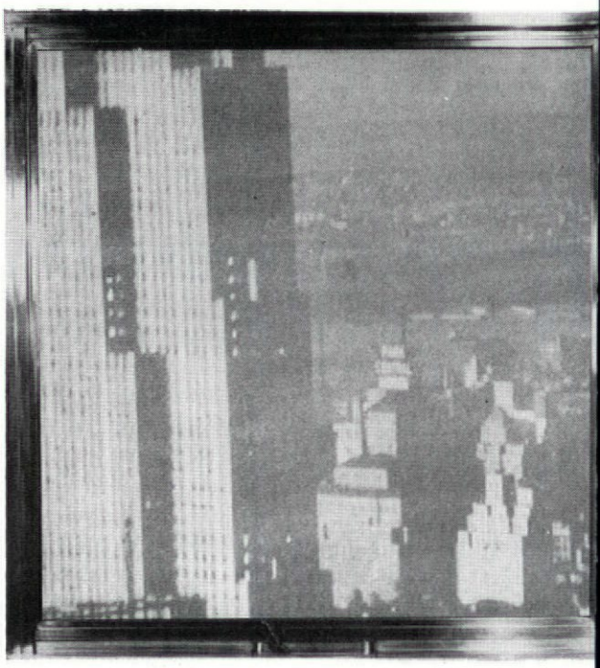
Too expensive—45%
Not popular with housebuyers—20%
Too complicated to install—15%
Not adaptable to building—15%
Other reasons—5%

WINDOWS for visibility, but not ventilation—the problem of the air-conditioned

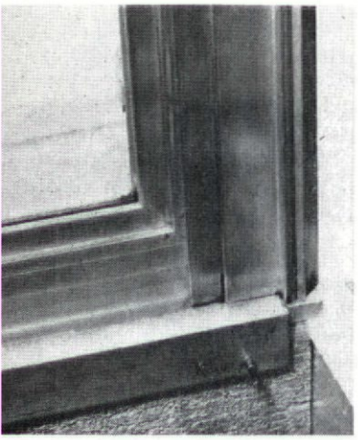
The contemporary air-conditioned office building has outgrown the conventional window. Double-hung metal sash are archaic in the modern office.

What is needed today is a window for looking-through, but not for opening, because opening a window in one of today's office buildings does nothing but throw the air-conditioning system into confusion. It must be a double-glazed window which will never be opened more than a few seconds, and then only for washing. And *both surfaces* must be washable from the *inside*—eliminating today's clumsy, expensive window climbing procedure.

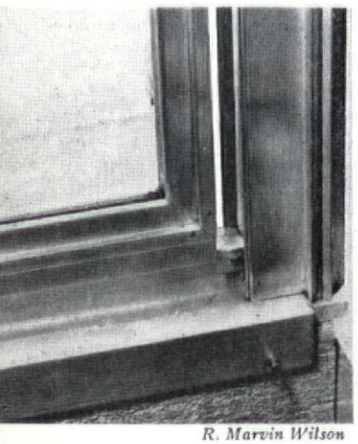
This window is almost with us. Prodded by men who know the kind of office buildings they want, window designers are building new and better models to accomplish these ends. Here are four windows designed for the air-conditioned office building.



1. REVERSIBLE WINDOW PIVOTED VERTICALLY



Weatherseal above is in closed position. Below it has been retracted into the jamb to free the sash for turning.



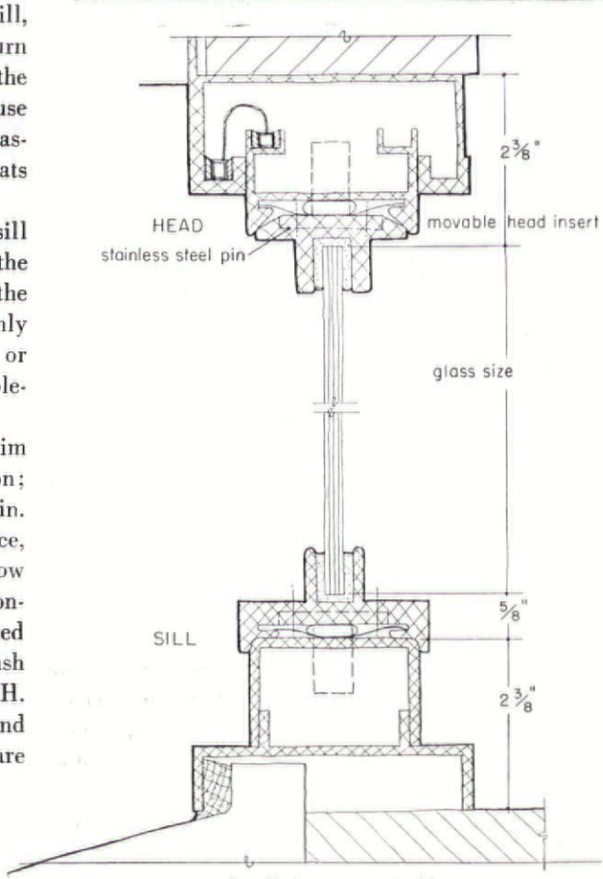
R. Marvin Wilson

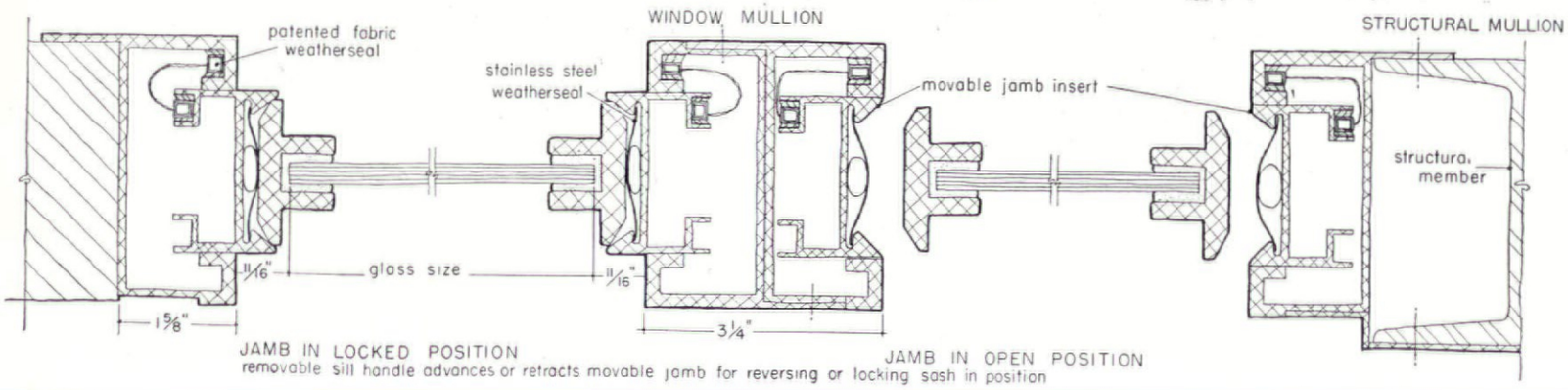
One of the basic ways to meet the modern window program is to hang the window on two pins so it can be spun quickly in place. But until recently the problem of the necessarily movable weather seal has been too difficult.

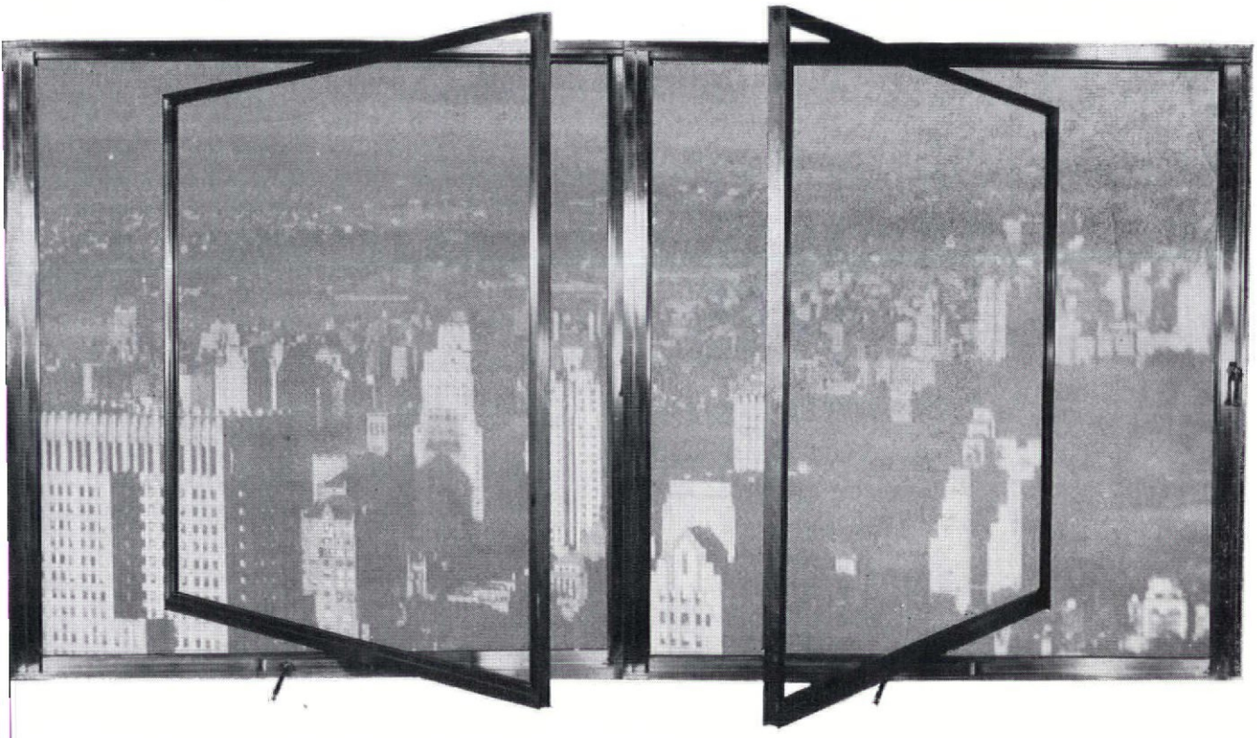
Here, in the first of the windows, the Gall Reversible Window by the Gall Reversible Window Co., Bedford, Ohio, the problem is met through use of a movable insert in the jamb. When a small handle is turned in the sill, the inserts retract into the jambs, allowing the sash to turn freely. The sash is held securely by the steel pins in the head and sill. It can operate free of head and sill because it is lifted a fraction of an inch from the sill in the releasing operation, and the head section (see drawings) floats up with it.

After the sash is completely reversed, the single sill handle advances the jamb inserts against the sash, the head section is forced down, and the sash settles on the sill, locking securely. Reversing the window takes only five seconds. The window can be made in aluminum or stainless steel, and glazed in polished plate, double-strength grade A, or double insulating glass.

One of the best design features of George Gall's trim window in its latest development is the narrow mullion; used in strip windows, the mullion width is only 3¼ in. The handle which opens the window may be left in place, or may be kept in custody of the janitor or window washer, thus eliminating any threat to the air-conditioning system. Air infiltration tests on this window resulted in minute leakage, only. 704 CFM per ft. of overall sash perimeter for an equivalent wind velocity of 50 MPH. Testing and development work has been completed, and this window is about to go into production. Patents are pending.







Action of pivot window is indicated in photographs. Window is washed on inside and then reversed so that other surface can also be washed from inside. These photographs are not of most recent model of this window (see drawings) which is much more sparely detailed, in smaller metal sections. This most recent model will cut down even more on dimensions of mullions, and is operated with a single crank in the sill.

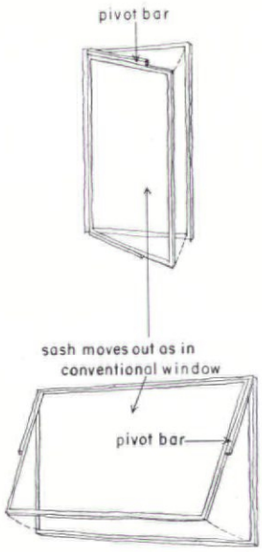
2. REVERSIBLE WINDOW PIVOTED ON HINGED ARMS

The pivot pins of this reversible window are not in the frame, but are instead in a pair of strong arms which hinge out from the face of the building before the sash is reversed. All action thus takes place outside the walls of the room. The glass is washed on the inside, jacked out with a hand crank in the frame, reversed, closed and washed again in swift successive actions. The designers of this window, the Hartman Reversible Window Co., Trenton, N. J., preferred to concentrate their moving parts in supporting arms, rather than build a movable weather seal around the perimeter of the sash.

The window is designed for glazing with any common type and thickness of plate, sheet, or double-pane insulating glass. It will be manufactured in bronze, steel and aluminum. All glass is installed from inside the building with bolts, eliminating the use of glazing putty and similar materials. A rubber weather seal with a life expectancy of 20 years is used, and there is no metal in the sash or frame which carries through from outside to inside to transfer heat.

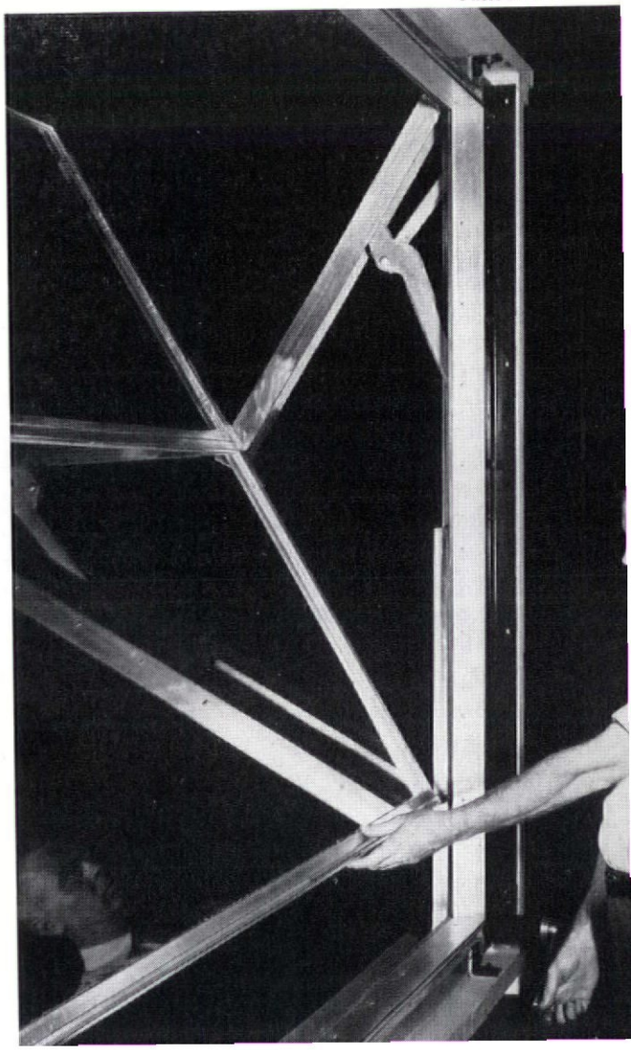
When the window closes, the hinged supports draw the glass toward the frame, and it is designed to shift slightly on its pivots until it seats itself correctly around the entire edge of the frame. The weather seal allows a perfect contact under slight pressure, and the greater the outside wind pressure the tighter the seal.

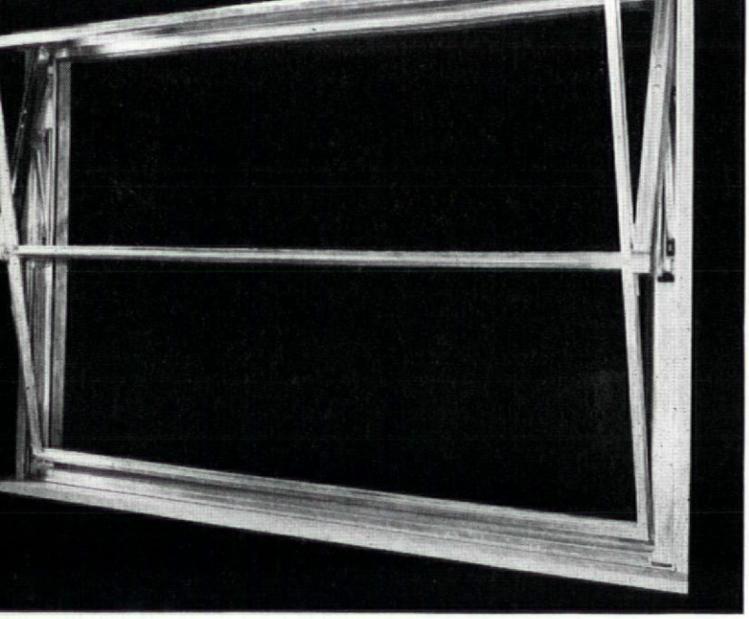
One of the immediately notable features of this Hartman Window is its size, in double glazed sash. A double glazed window in stock size can be as big as 10 ft. 7 in.



Arms can be set in head and sill or in mullions of window, so pivot can be either vertical or horizontal.

Photo Art Co.





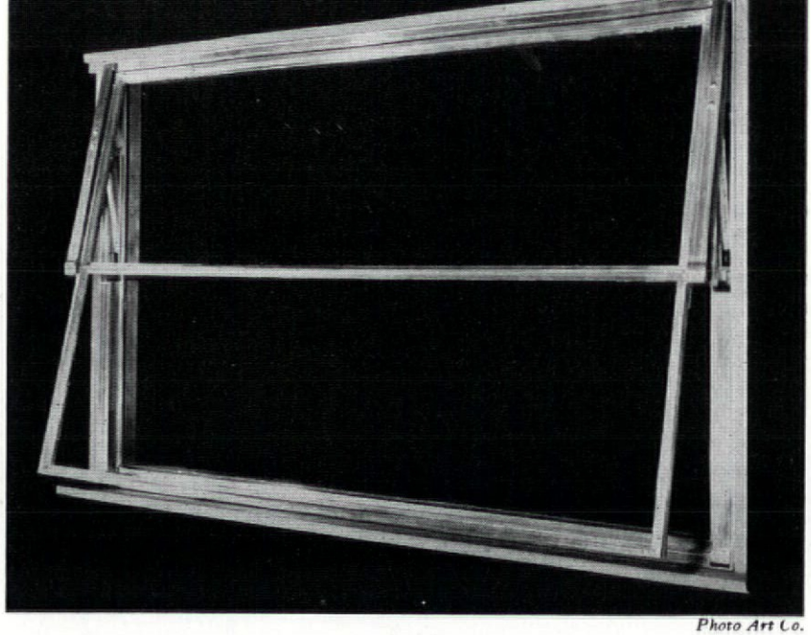
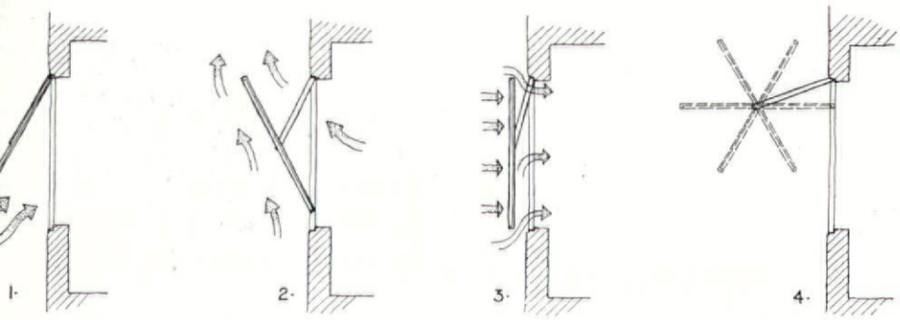
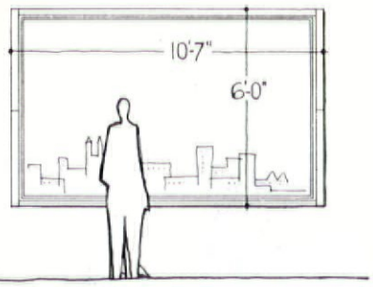


Photo Art Co.

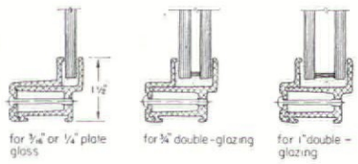


Action of arms and pivots are shown in photographs above. Diagrams to left indicate uses for Hartman Window other than in air conditioned buildings. Glass can be set at positions 1, 2 and 3 to encourage and control ventilation, or in 4, set to provide shade, with a screen clipped over glass. Friction stops hold sash and arms in various positions.



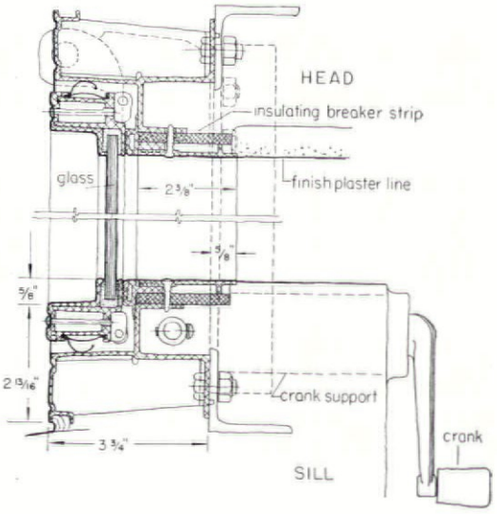
long by 6 ft. high, without muntins. Main limitation on size is that of the exterior office wall, not weight of glass; the arms will support a ton each. A specially developed friction stop at the pivots keeps the frame from spinning in the freakish winds which must be anticipated in skyscraper design. One of these windows was installed experimentally on a high floor of one of the buildings in Rockefeller Center for satisfactory testing in high winds.

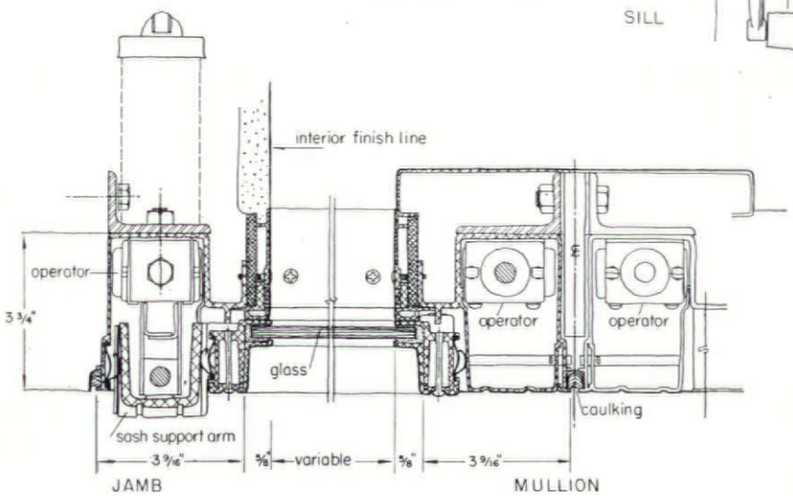
The Hartman Co. has models which pivot vertically, as well as the horizontally pivoting large office windows shown in the photographs. These vertical pivots are designed primarily for homes, but may be used also in offices where the unit of the strip window must be smaller than the long horizontally pivoting sash. Patents are pending on the principle and specific operation, covering all important features, of various models of the Hartman window.



SASH DETAILS

All types of glass can be used in this window and set easily with screw-held section, which simplifies glazing operation. Sketch to left shows how big window can be.

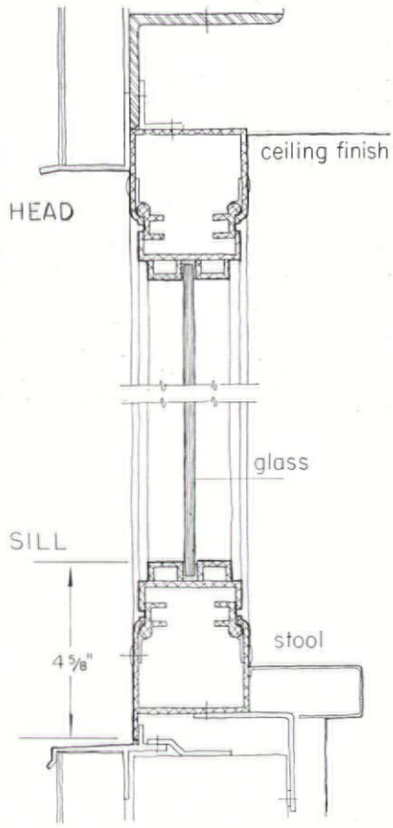


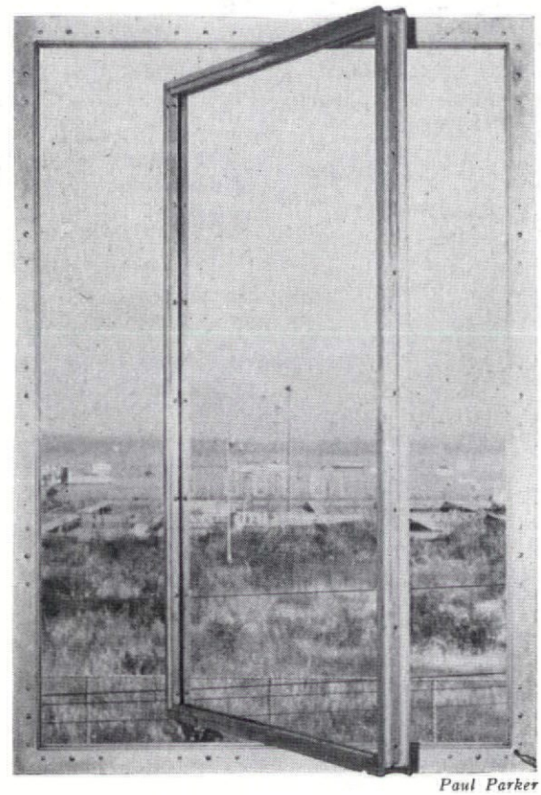


3. REVERSIBLE WINDOW PIVOTED VERTICALLY

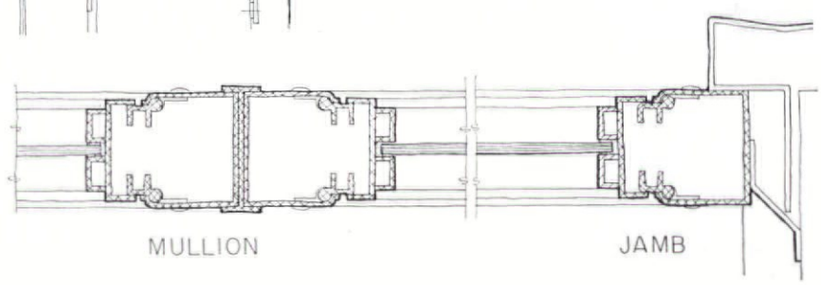
This reversible pivot window, manufactured by Ware Laboratories Inc., Miami, Fla., has a double positive seal around the entire perimeter of the window, retractable for opening.

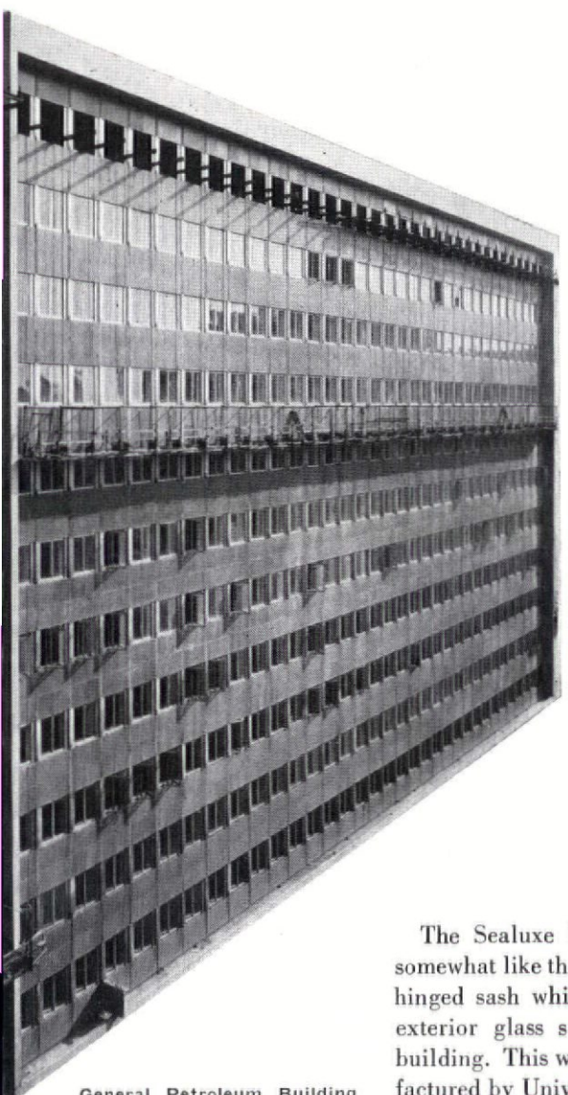
The insertion of a single key-type operator handle, requiring only a 90° turn, unlocks the sealing machanism, which is completely concealed in the frame. The sash is pivoted 180° and the entire perimeter is sealed at the head, jamb, and sill by reversing the 90° turn required to unlock the unit. The 3 in. deep frame supports a sash 2⅝ in. deep which is capable of receiving glass thickness from ¼ in. plate to 1 in. double glass. Air infiltration is nil, as is wind scream or other noise even when the window is used in tall buildings.





Paul Parker



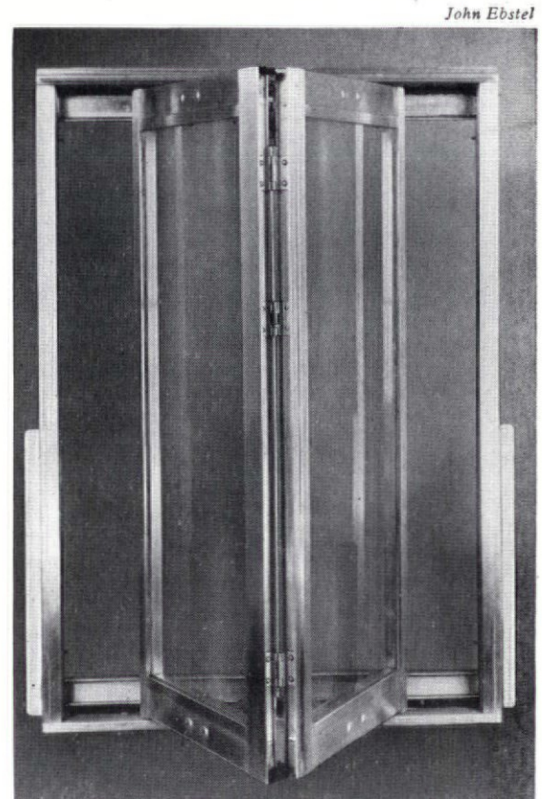


General Petroleum Building by Architects Wurdeman & Becket (FORUM, May, 1949) uses Browne windows. Facade is shown under construction.

Photo above: "Dick" Whittington

4. FOLDING WINDOW WITH TWO LIGHTS

John Ebstel

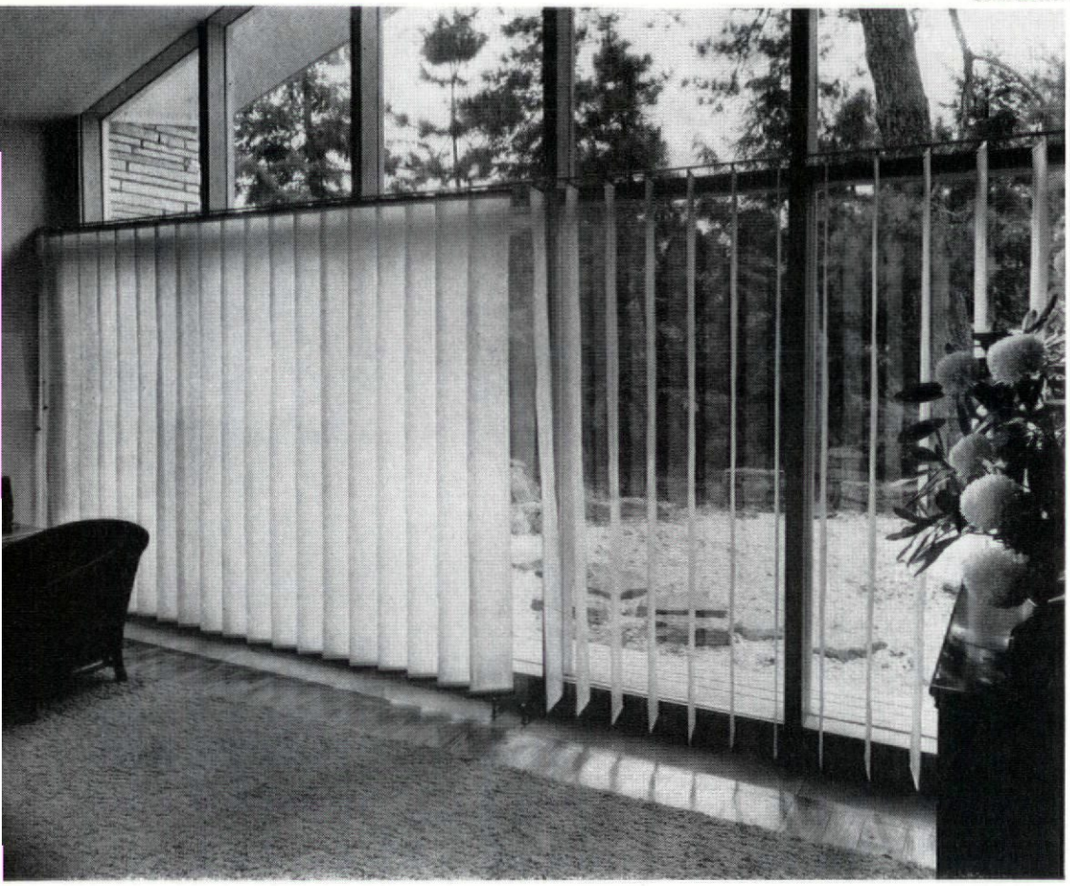


The Sealuxe Browne Folding Type window operates somewhat like the door of a telephone booth, with a center hinged sash which bows open several inches so that the exterior glass surface can be cleaned from inside the building. This window, in various models, has been manufactured by Universal Corp. Dallas, for several years, and is installed in quantity in a number of outstanding recent office buildings. It is a tight window, with direct metal-to-felt contact between sash and frame members when closed. It is made in aluminum, bronze or steel.

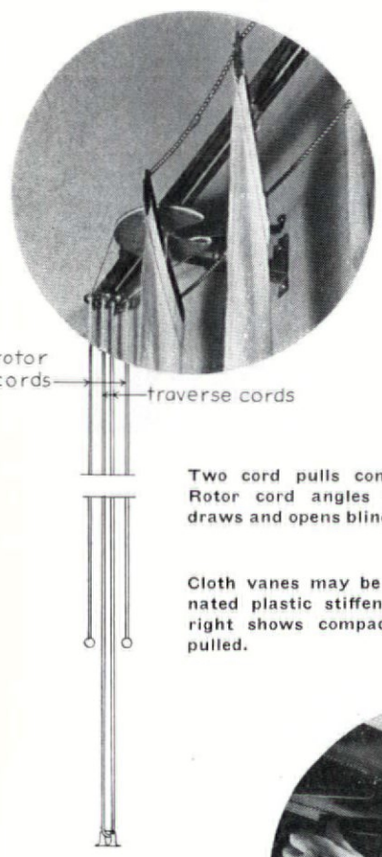
Browne Folding Type Windows can be single or double glazed, and can be operated by concealed mechanical operators, locked open or closed, or operated by remote control.

A HANDSOME NEW VERTICAL BLIND

John Ebstel

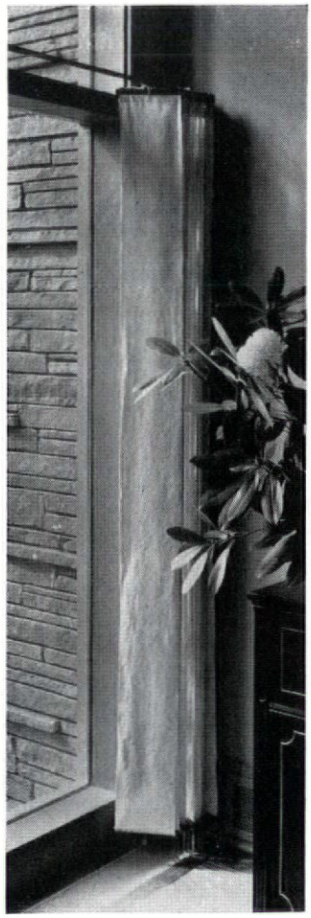


Blind is in two sections, above, for long glass surface. Adjustment of two halves above is different to show how light can be deflected without being barred from room. Blind is particularly effective on east and west exposures.



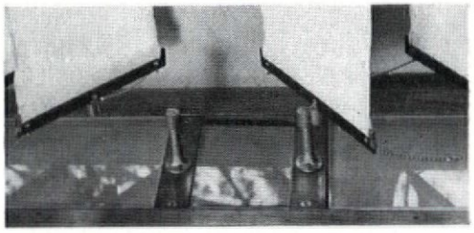
Two cord pulls control each bank of blinds. Rotor cord angles vanes, and traverse cord draws and opens blinds.

Cloth vanes may be removed easily from laminated plastic stiffeners for washing. Photo to right shows compact stacking of blind when pulled.



The Thru-Vu Vertical Blind is a handsome development in sunshielding designed to facilitate and complement contemporary designers' extensive use of large glass areas.

As such it is a long due alternative for Venetian blinds. Designed by Henry Wright, it consists of vertical cloth vanes which rotate in both directions and may be drawn back to one or both sides of the opening. Vanes are 7 in. wide strips of corded acetate faille, available in ten attractive colors, and hang approximately 6 in. on centers, lapping about an inch when closed. Actual spacing is varied slightly to fit evenly the size of the opening, and several stock spacings permit numerous variations. A frame is not necessary for the blind; laminated plastic headings for vanes hang from standard drapery track which may be fastened to ceiling or window head or bracketed from the wall. Similar laminated strips terminate the vanes at the bottom, where they are held in alignment by light brass chain, and kept taut at the end with a magnet (photo below). There are two controls, one to draw the blind free of the window, the other to rotate the vanes. Both are light cord which pull vertically, and



may be located at opposite sides of the opening or together at one side.

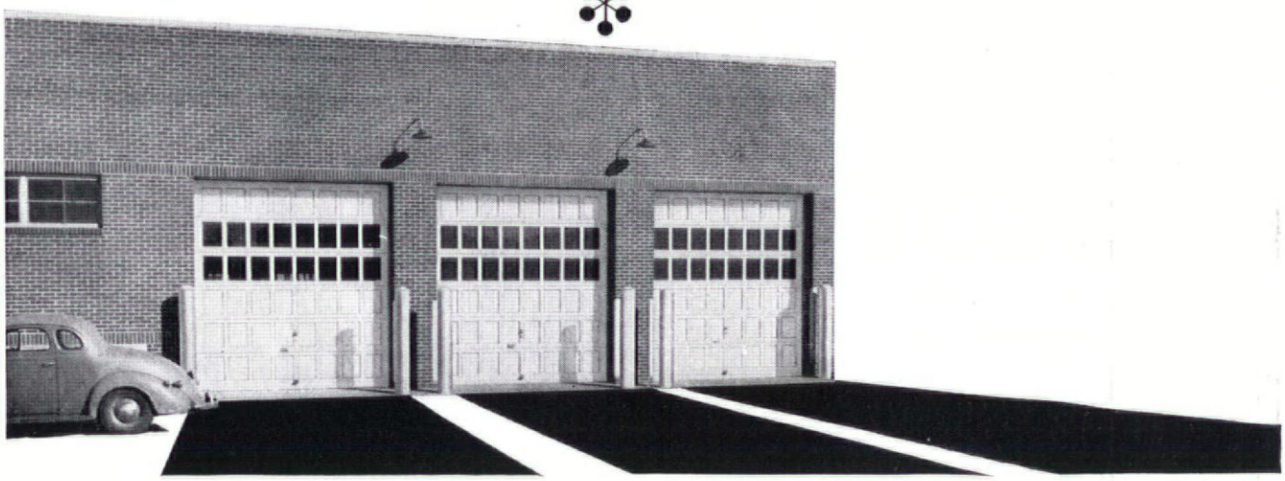
The vertical vanes collect little dust, but they may be easily removed and laundered. They take the place of both drapes and Venetian blinds, with certain practical advantages over both as a contemporary solution to a contemporary problem, long glass exposures. Although 12 ft. 3 in.—24 vanes —is the maximum width of one unit, the units may be repeated and matched endlessly with no visual break. When drawn to one end they stack very compactly, compressing to ½ in. per foot of coverage, 2¼ in. base stacking dimension. Light and sunshine control is excellent.

The net price to architects and decorators of a blind for a 3½ x 6 ft. window is $37. The price per ft. drops sharply as the size goes up. A 7 x 10 ft. window wall may be covered for $96. The maximum width blind (12 ft. 3 in.) costs $131.33 for an opening 10 ft. high, or slightly over $1 per sq. ft. Installations on a building wide basis are competitive with Venetian blinds.

Price lists, sample cloth and detailed installation data may be obtained from the Thru-Vu Vertical Blind Co., 160 Harrison Ave., Harrison, N. Y.

the extra care is always there

. . . at 12 important points in the manufacturing of RO-WAY overhead type doors



1. Ro-Way quality lumber is personally selected by Rowe's own expert buyers at West Coast Lumber Mills (no job lots here).
2. Only fine quality three-ply Douglas Fir Plywood used for Ro-Way panels. Notice that for this plywood "exterior grade" glue is used . . . the kind that is highly resistant to moisture.
3. Multiple Mortisers are used to assure greater uniformity and accuracy in the construction of the wood sections.
4. Ro-Way uses double-end tenoners for efficient construction.
5. Muntins, Rails and Stiles in each wood section are carefully squared up.
6. Ro-Way Drum Sanders give the wood of Ro-Way Doors that silky, lustre finish.
7. Ro-Way workmen put on the finishing touches by sanding all joints and surface by hand.
8. All Sections are carefully rabbeted to provide weather-tight ship-lap joints.
9. Notice how mortise and tenon joints are securely glued—then steel doweled.
10. Ro-Way Springs are made in our own plant, and power-metered to the weight of each door.
11. Special machines produce Ro-Way Track Rollers with that "double-thick tread".
12. After all Ro-Way hardware has been fabricated, it is Parkerized and painted for extra protection against rust and rusty streaks that spoil the looks of a door.

Then Ro-Way Doors are erected with equal care by Ro-Way's National Network of selected Distributors. You can depend on that sort of factory-distributor teamwork to protect your reputation and give lasting satisfaction to your customers.

ROWE MANUFACTURING COMPANY
957 HOLTON STREET, GALESBURG, ILLINOIS, U. S. A.

Standard sizes available for prompt delivery.
Good delivery on special sizes for commercial and industrial use.

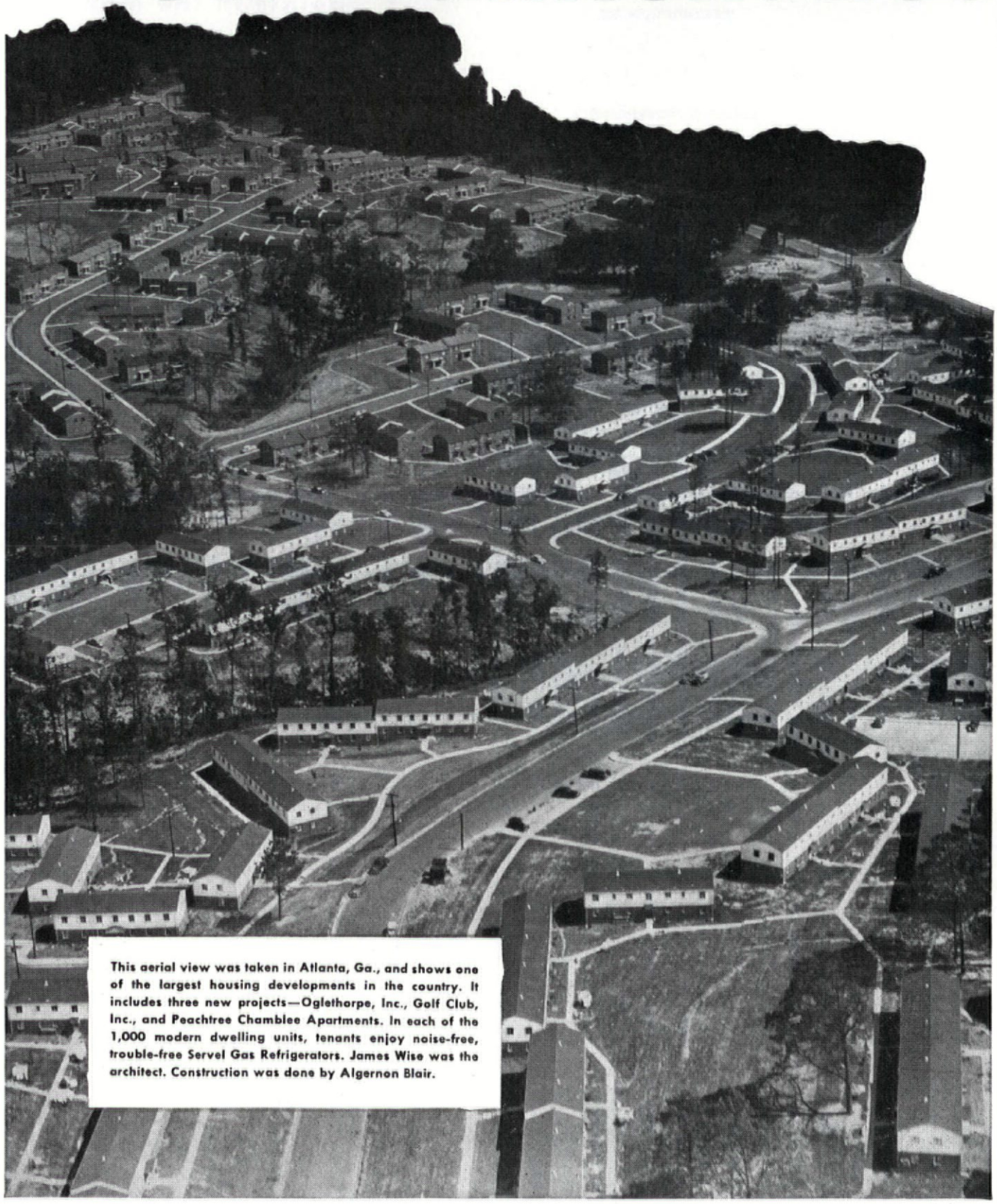
There's a RoWay for every Doorway!

Rō-Way
OVERHEAD TYPE DOORS

SEE OUR CATALOG IN SWEET'S

See your classified telephone directory for names and addresses of Ro-Way Distributors.

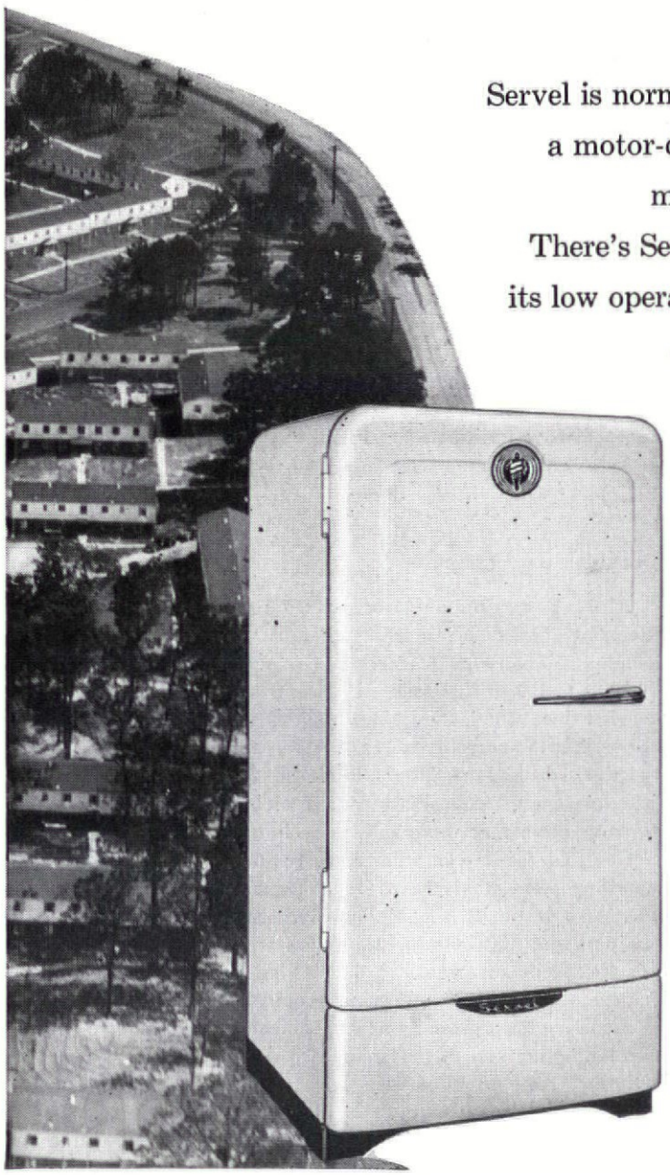
Low Maintenance



This aerial view was taken in Atlanta, Ga., and shows one of the largest housing developments in the country. It includes three new projects—Oglethorpe, Inc., Golf Club, Inc., and Peachtree Chamblee Apartments. In each of the 1,000 modern dwelling units, tenants enjoy noise-free, trouble-free Servel Gas Refrigerators. James Wise was the architect. Construction was done by Algernon Blair.

Cost —one of the big reasons three multiple-housing projects in Atlanta installed 1,000 Servels

Operators decide on the "no moving parts" refrigerator because of its low upkeep, long life, silence, and low operating cost



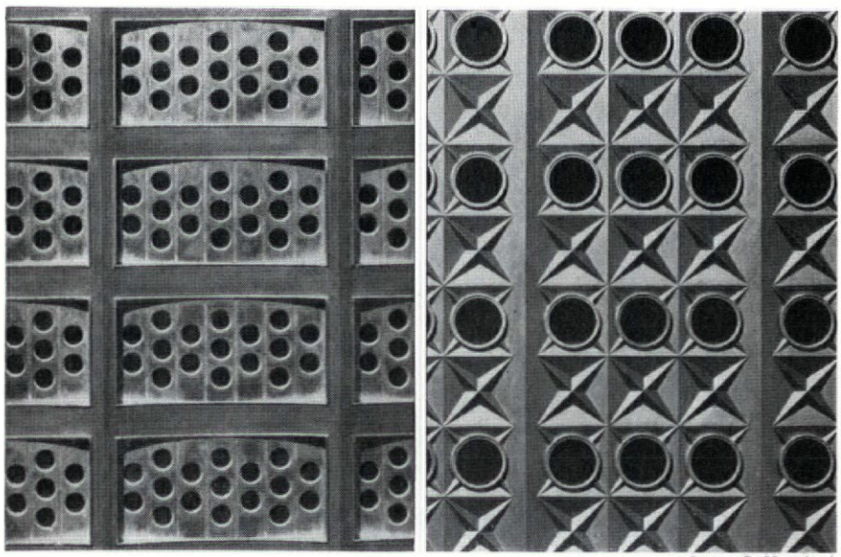
Year in, year out—the upkeep cost of a Servel is normally only a fraction of the cost to maintain a motor-driven refrigerator. And Servel offers plenty more besides rock-bottom maintenance costs. There's Servel's longer life—its undisturbing silence—its low operating cost. And these are all *unique* features . . . *exclusive* with Servel. Exclusive because *only* Servel has a freezing system with no moving parts. There's no motor or machinery to wear and grow noisy. Instead, a tiny gas flame does all the work. And this assures *silent* refrigeration . . . dependable, worry-free refrigeration with *uniform* efficiency year after year . . . and for *more* years, too.

STAYS SILENT . . . LASTS LONGER

Servel

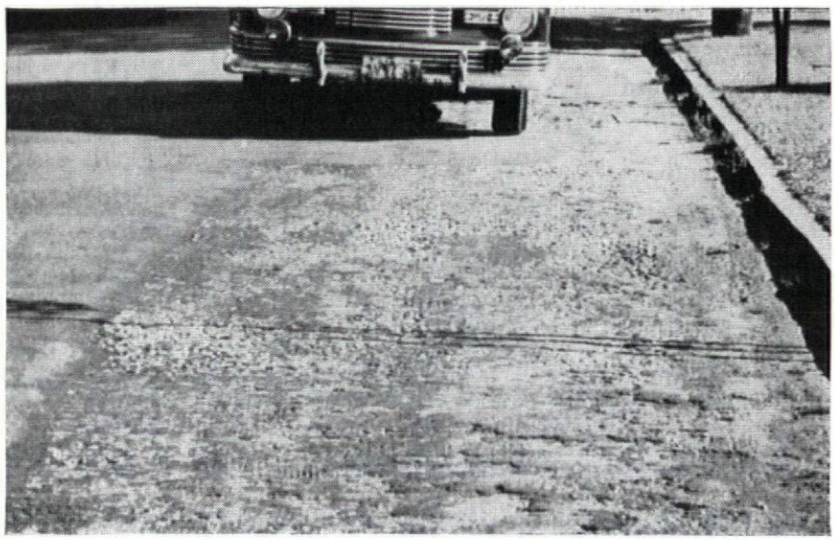
The GAS Refrigerator

EVANSVILLE 20, INDIANA



James S. Hornbeck

These skin treatment patterns with porthole-like windows indicate that the architects began their studies with no preconceived ideas about the appearance of the building.



Now... Prevent SPALLED CONCRETE at next-to-no-cost!

HOW AND WHERE AEROCRETE IS USED

Aerocrete is simply poured into the gauging water, about 1 ounce per bag of cement. It should be used wherever concrete will be exposed to freezing temperatures, salt action, or weathering:

PAVEMENTS—roads, sidewalks, platforms

WALLS—flood, retaining, warehouse, building

FOUNDATIONS—especially the footings

BUILDING UNITS—cinder and concrete blocks of all types

Meets specifications of U.S. Bureau of Standards and various State Highway Commissions.

Concrete resists cracking for more than 200 cycles of wetting, freezing and thawing when it contains Sonneborn's new air-entraining agent, AEROCRETE!* Without AEROCRETE, identical concrete mixes disintegrate after as few as 30 cycles! Concrete becomes more durable *and more workable!* Yet AEROCRETE is so inexpensive that it is now practical to protect ALL weather-exposed concrete against cracking and spalling caused by freezing and salt!

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

For full information, call in your Sonneborn Man
OR WRITE

L. SONNEBORN SONS, INC.
BUILDING PRODUCTS DIVISION
80 Eighth Avenue, New York 11, N. Y.

ALCOA BUILDING

(Continued from page 69)

the aluminum background; partly because tests for the U. N. Secretariat have shown that it makes an appreciable difference in the cooling problem; partly because the great reduction in glare makes for more pleasant offices.

The aluminum of the window frames will be kept polished bright, but it is expected that over the years all the other exposed aluminum on the exterior will turn black.

Aluminum ceiling

The air-conditioning system for the building will almost certainly include an adaptation by Engineers Jaros, Baum & Bolles of the new type of radiant cooling system developed by Engineer Charles S. Leopold for the TIME & LIFE Building, for which Harrison & Abramovitz were also the architects (FORUM, Nov. '48). Its basic premise is that most air-conditioning systems circulate about 2½ times as much air for cooling purposes as would be necessary or even desirable for good ventilation alone. Consequently, Leopold proposed to distribute only that amount of air which was desirable for ventilation and to pick up the rest of the heat load by radiant cooling—by circulating water just above the dew point on the back of aluminum panels in the ceiling.

As modified for Alcoa, this system would result in a hung ceiling made up of aluminum sheets ⅛ in. thick and 4 x 8 ft. in area—perforated like an acoustical pan so that mineral wool could be laid above it to absorb noise. The cold water pipes would be brazed to the back of these sheets, and if aluminum is used for the pipes it is believed that the sheets would be stiff enough to need support only at the edges. Experiments by Alcoa have indicated that the pipes could be spaced as much as 18 in. apart.

One proposal for lighting the building is to run troffers between the aluminum panels. Alcoa still hopes that some new lighting system can be worked out which would take advantage of the high reflectivity of aluminum to achieve indirect lighting from fixtures hidden in the walls. This would eliminate the great disadvantage of troffer lighting, the sharp contrast between the lighted fixture and the unlighted ceiling, at the same time that it appeased the average architect's aversion to pendant fixtures.

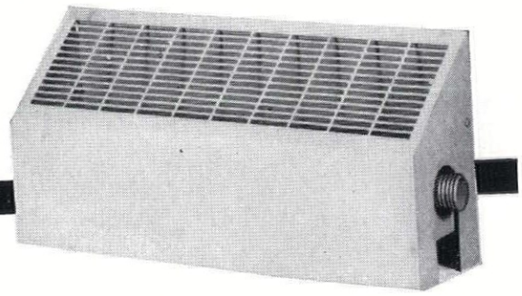
Aluminum wiring

Alcoa is making a major bid to replace copper as an electrical conductor, arguing that it takes one-third less pounds of aluminum to carry the same current. So far, its bid has met with little success except on long distance high tension lines where the lighter weight of the wire has made it possible to space the towers further apart.

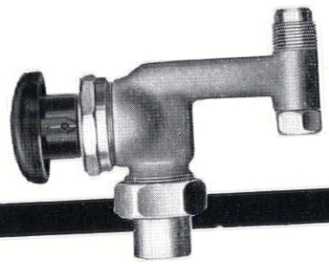
Principal reasons why aluminum has made so little progress against copper are that it requires more insulation to cover the bigger wires and, more importantly, that it cannot be soldered and in other ways requires slightly different handling from what the average electrician is accustomed to. As a result, in the Mellon-U. S. Steel Building across the park the first bids for aluminum wiring as an alternate for the feeders came in $20,000 higher instead of showing the savings Alcoa believes it should have offered.

Alcoa hopes to prove by new specifications and bids on the Steel Building, and is determined to demonstrate in its own building, that aluminum can be economically installed for bus bars, feeders, and even local distribution systems. To this end it has developed a prefabricated bus bar with a maximum amount of surface.

From **FIN-VECTOR RADIATION**



To **REGULATING FITTINGS**



DUNHAM HEATING PRODUCTS

prove their worth on every job!

Increase operating efficiency . . . cut operating costs

Dunham Fin-Vector Radiation is a case in point. These long, narrow, finned pipe heating elements are ideal for many installations where standard radiators are not suitable. They are light in weight but of unusual strength and heating capacity and are available with attractive covers.

Unique Dunham design enables the fins to be interlocked when pressed on to the pipe. This tight mechanical joint provides a permanent and greater contact area between fins and pipe . . . eliminates use of solder bond without sacrifice of heat transfer. Single pipe feature permits high, safe working pressures . . . absorption of sudden shock without injury.

Products Like These Help Dunham Vari-Vac* Heating Cut Fuel Costs Up to 40%

It's quality products like these that enable Dunham Vari-Vac Differential Heating to effect sensational fuel savings in Spokane's Davenport Hotel, the Rochester General Hospital and other well-known buildings all over the country.

So, whether you're specifying a simple regulating fitting, finned pipe radiation . . . or a complete heating system . . . it will pay you to investigate the broad line of Dunham Heating Products.

SEND FOR THIS CONDENSED CATALOG

Write today for your free copy of Bulletin 634-B, containing complete information on all Dunham Heating Specialties, Unit Heaters, Pumps, Cabinet and Baseboard Radiation.

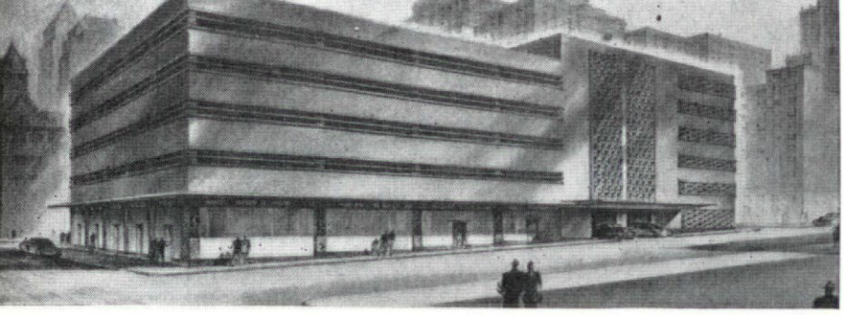
C. A. Dunham Co., 400 W. Madison St.
Chicago 6, Ill.

In Canada: C. A. Dunham Co. Ltd., Toronto.
In England: C. A. Dunham Co. Ltd., London.

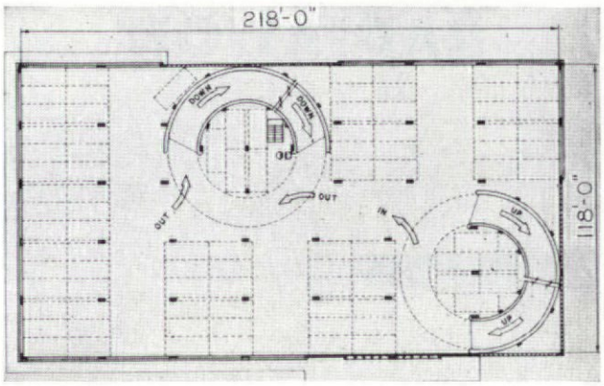
**Variable vacuum*

SALES ENGINEERS **DUNHAM** **AND JOBBERS IN ALL PRINCIPAL CITIES**

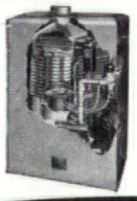
HEATING MEANS BETTER HEATING



OPEN-DECK garages were recommended by Parsons, Brinckerhoff, Hogan and MacDonald and a rate kick-up after three hours to keep space available to shoppers.



NEW!



A complete Package Boiler for small homes. Only 2 ft. x 1½ ft. and 3 ft. high! Available for all types of gas . . . for all types of hot water heating systems.

A.O.Smith

FORCED-CIRCULATION, GAS-FIRED

Hot Water Boiler

WITH THE REVOLUTIONARY MAGIC-HEET CONTROL

HEAT IN SECONDS—Silently speeds hot water to all points, even in ranch-type homes.

RUST-FREE DESIGN—water touches nothing but copper, brass, and bronze, for lifetime protection.

MAGIC-HEET CONTROL, working with the patented Modulator Burner, controls the gas flame, delivers *really even* heat without hot flashes or cold spells. No other boiler has it! Can be applied to any type of control system.

LIGHTWEIGHT—no cast-iron sections. All-copper construction with finned heat exchanger, plus many other new features, makes the A. O. Smith Boiler much lighter in weight yet actually *stronger.* Each unit carefully tested at 200 psi pressure.

SMITHWAY-BURKAY GAS CONVERSION BURNER

Compact 63-lb. package, with patented Modulator Burner. Now available with the sensational new Magic-Heet Control. Send coupon for details.

FOR LARGER HOMES, and commercial installations, A. O. Smith Boilers up to 12 rooms' capacity.

SEND THE COUPON FOR COMPLETE SPECIFICATIONS TODAY

A. O. Smith Corporation
New York 17 • Atlanta 3
Chicago 4
Houston 2 • Seattle 1
Los Angeles 14
International Division:
Milwaukee 1

A. O. Smith Corp., Dept. AF-1149, Toledo 7, Ohio
Send us complete specifications on
☐ A. O. Smith Boilers
☐ SMITHway-Burkay Gas Conversion Burners
Name_____
Firm_____
Street_____
City_____ State_____

OFF-STREET PARKING

(Continued from page 71)

be built at about one-half the cost of closed garages like that now under construction in New York City) and figured that the six garages could be built at a cost per car space ranging from $1,567 to $4,426 (with land). The most expensive was to be located on a central square block facing the Hotel William Penn on one side, the Mellon Bank building on another and within a block of Kaufman's and Gimbel's department stores (both are planning expansions). This was the highest-priced site selected by the Parsons researchers and one requiring extensive demolition of retail stores and other property, but the parking need in this neighborhood was so acute that the expenditure was deemed justified.

Just before Parsons completed their survey, the U. S. Steel-Mellon and Alcoa buildings, both to front on this square, were announced, and Pittsburghers began to talk about how pleasant it would be to make a park "breathing space" of the square earmarked for a parking garage. Parsons restudied the 839-car garage they had proposed for this space and figured that it could be built underground, like San Francisco's famed Union Square garage—if somebody wanted to make a gift of about $3½ million to make up the difference between cost and earning probabilities.* Richard Mellon promptly offered the city $4 million to buy this $3½ million block and develop it as park space. Pittsburgh architects Mitchell & Ritchey went to work on studies to show how a six-floor, split-level underground garage could be built to park 1,090 cars. Some 300 of these spaces would be contracted for by the Steel-Mellon building as all-day parking space for their executives; the rest would pay for themselves as short-term parking.

Deferring a start on the underground garage until tenants in a large building on the site can be relocated, the Parking Authority decided to make an immediate start on four other garages recommended by the Parsons study (the sixth, proposed for a site that will be part of the Equitable office building development, has also been deferred).

In mid-October the Parking Authority tapped Pittsburgh architects Hoffman & Crumpton and the Ramps Building Corp., a New York consulting firm which collaborated on the Rockefeller Center garages and many another big garage throughout the U. S., for the planning job. The Authority expects construction to be underway within three months—and this $4½ million job is only a start on a building program, which may eventually amount to 20 garages.

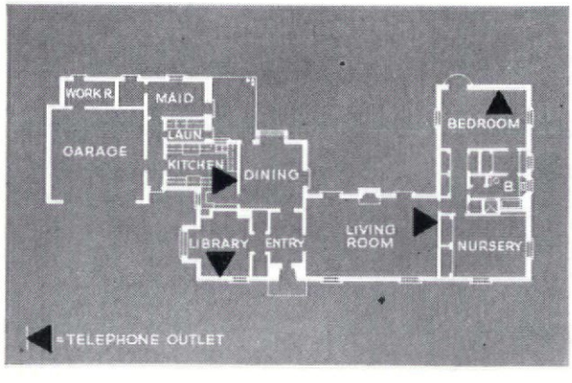
* The expense of this kind of construction has so far deferred plans for an underground garage-and-park in Los Angeles and a garage underneath a main traffic thoroughfare in Detroit. But San Francisco's Union Square garage built by a group of investors in 1941 at a cost of $1½ million has made a big profit every year of operation. In this case, sand subsoil with no water for 80 ft. made the 48 ft. excavation less expensive than it would be in many cities.

FINANCIAL SCHEDULE estimated for 490-car garage (scheme above)

Turnover: 6 a. m. to 6 p. m.	2.4
24 hours	2.8
Construction and site cost	$1,202,720
Parking receipts—Day short-time	$120,750
Evening	17,800
Overnight	12,000
Sunday and holiday	13,400
Store rentals	19,470
Total revenue	$183,420
Annual operating cost	$65,700
Net annual balance for debt service	$117,720

Jerome G. Armstrong, Architect

TELEPHONE RACEWAYS ARE A PART OF ITS BEAUTY



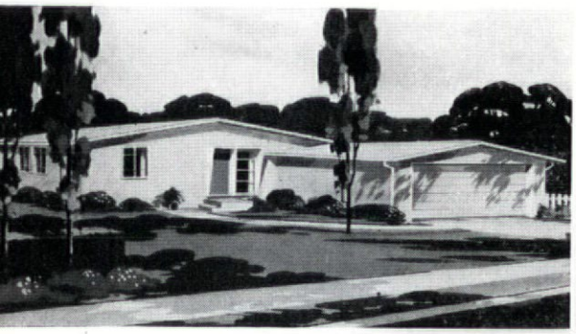
Telephone raceways are a sign of a better built home.

The beauty of the home you build can also be enhanced by things that *don't* show. For, when you conceal telephone wires you run no risk of detracting from the attractiveness of walls and woodwork.

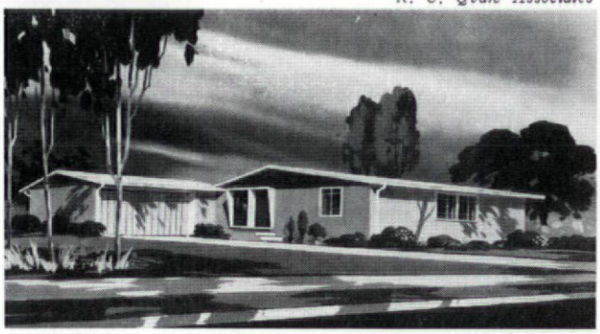
It's easy to hide telephone wires if you plan ahead. First, select the proper locations for telephone outlets. Then, while construction is under way, a few lengths of pipe or tubing can be placed inside the walls. This will later carry the telephone wires to each outlet chosen.

Your Bell Telephone Company will be glad to help you plan modern, built-in telephone facilities for any home you build. Just call your telephone business office and ask for Architects and Builders Service.

BELL TELEPHONE SYSTEM



R. C. Qvale Associates



for HIGH quality LOW cost floors—

Years of research by Uvalde Rock Asphalt Company lie behind this beautiful, durable, high-quality tile. The result is a resilient tile that is *very* resistant to denting and marring . . a wide range of *fine colors* that won't fade or wear . . a flooring that is *highly resistant* to grease, alkali, alcohol and mild acid solutions. Azphlex is *ideal* for use over concrete slab as well as wood sub-floors.

Architect's rendering above shows the type of floor for which the new Azphlex Asphalt Tile is so well suited. Its high quality and superiority have been proved in many similar installations.

See our catalog in Sweet's Architectural for complete information, colors, and specifications . . . ask your Azphlex-Azrock dealer to show you samples.

AZROCK ASPHALT TILE
AZPHLEX ASPHALT TILE

UVALDE ROCK ASPHALT CO.

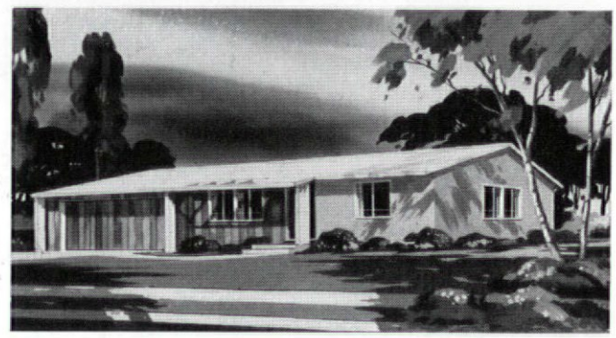
Makers of AZROCK and AZPHLEX Asphalt Tile

FROST BANK BLDG. **SAN ANTONIO, TEXAS**

Fritz Burn's 500 new houses

(Continued from page 85)

In addition to the design shown on pages 84 and 85, Fritz Burns offers the three basic variations presented on this page. Eight seemingly different houses spring from a single basic floor plan by the simple means of shifting the garage location, relocating the front door, reversing the entire floor plan, and occasionally substituting wood for the usual stucco exterior finish.



Below is the basic floor plan and two stages of its expansion. Burns estimates that labor and materials for expansion No. 1 would cost $940, that the next step would cost $750 for the remodeling and $610 for the new two-car garage and driveway. The first expansion could accommodate a young child, an in-law, a guest or a library; the second could provide an extra bedroom with adjoining nursery, or an "apartment" for a young married couple.

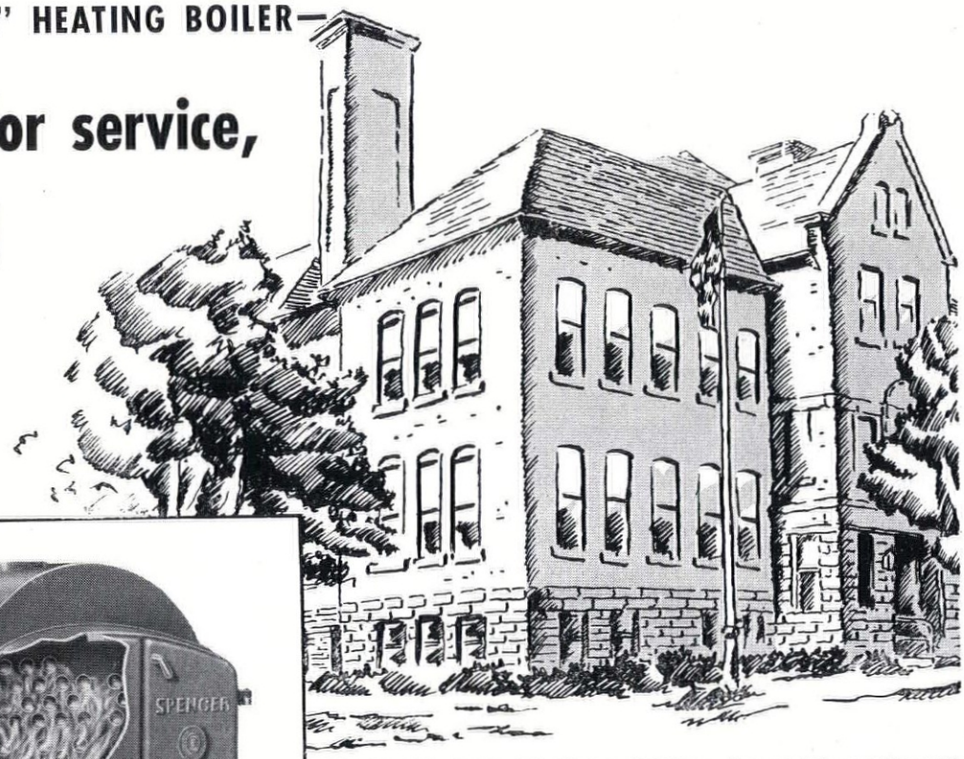
BASIC PLAN

EXPANSION NO. 1

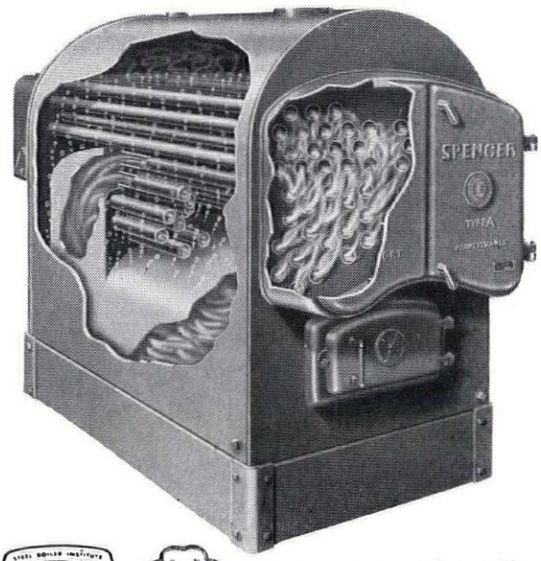
EXPANSION NO. 2

THE SPENCER "A" HEATING BOILER—

Designed for service, engineered in steel



The First Ward School Building in Lehighton, Pennsylvania, requires stout-hearted heating to meet its needs. That's why an efficient Spencer "A" Steel Heating Boiler was selected for the job. *Designers:* H. F. Everett and Associates, Allentown, Pa. *Heating Contractor:* John K. Smith, Lehighton, Pa.



SBI

Constructed in accordance with ASME requirements. Fully approved by Steel Boiler Institute.

You plan with confidence when you plan on equipping your buildings with Spencer "A" Steel Heating Boilers. They're designed to meet the most rigorous requirements, to fill a wide range of heating needs quietly, effortlessly, and economically. To help you get better acquainted, here are just a *few* of the many fine features of the Spencer "A" Steel Heating Boiler—

- **Available in a complete range of capacities (from 1800 to 42,500 square feet, steam)**
- **Easily adaptable for all types of fuel and all methods of firing**
- **Boiler tubes readily accessible for easy cleaning**
- **Specially designed combustion chamber affords complete combustion of gases before entering tube area**
- **Combination screw and plug outlet flush with boiler for reducing headroom**
- **Precision-ground fire and flue doors and frames**

THERE IS A SPENCER for every building . . . for every fuel

COMMERCIAL SERIES:
"A", "M" (steel) — for industry, schools, apartments
"L-2," "L-3" (cast iron, magazine feed) — for large homes, churches, apartments

RESIDENTIAL SERIES:
"R" & "C" (steel) and "21" (all purpose, cast iron) — for homes and small buildings
"F" (cast iron, magazine feed) — for small homes

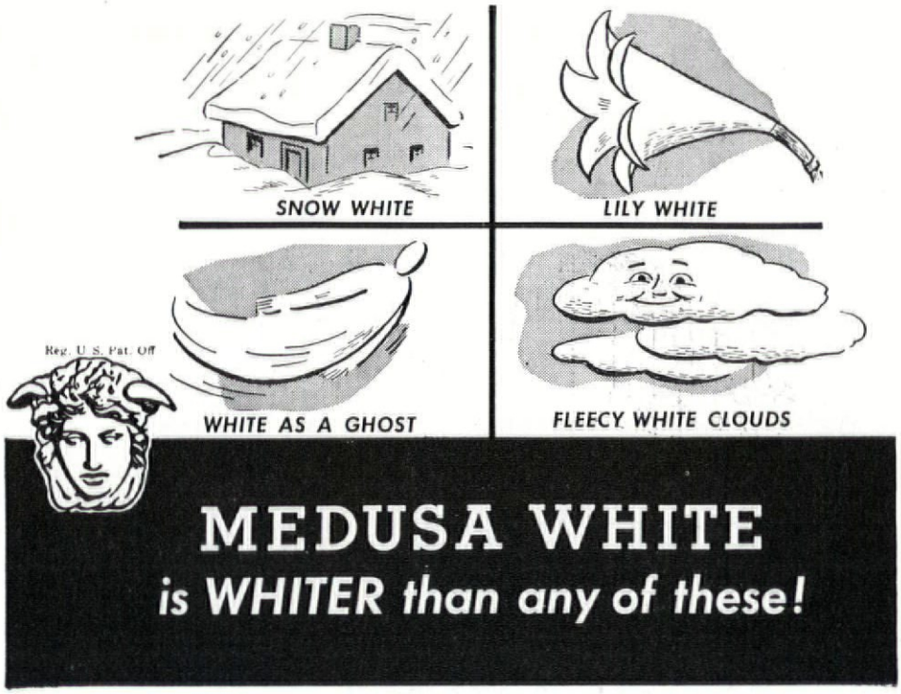
THE SPENCER MARK OF ENGINEERING SKILL

All Spencer Heaters are High Standard Avco Products—

- Backed by over fifty years of heating experience
- Manufactured under ASME and SBI codes
- Precision Engineered—to meet rated specifications
- Individually tested and inspected
- Installed only by the heating trade
- Clean—Quiet—Economical—Effortless—Safe

SPENCER HEATER
LYCOMING-SPENCER DIVISION
WILLIAMSPORT AVCO PENNSYLVANIA

(Continued from page 86)



WHITE CEMENTS are often described as lily-white, whiter than snow, or white as a fleecy-white cloud. Medusa White, the original White Portland Cement in service for 42 years, is WHITER THAN ANY OF THESE. No one has ever been able to make a whiter white. Whether you specify Medusa White for concrete, cast stone, building trim, sculpture work, stucco, or Terrazzo floors (white or tinted), you can be sure of getting maximum color results in your work.

And you'll get the same beautiful white or colors through the use of Medusa *Waterproofed* White Portland Cement. This is regular Medusa White with waterproofing material mixed in at the mill. Waterproofed all the way through, it repels all water. Send coupon below for free booklets.

57 YEARS OF CONCRETE PROGRESS

NO FINER WHITE
NO WHITER WHITE
THAN MEDUSA WHITE

MEDUSA PORTLAND CEMENT CO.
1013-5 MIDLAND BUILDING • CLEVELAND 15, OHIO

Gentlemen: Please send me a copy of the free booklets, "Medusa White Portland Cement" and "A Guide to Finer Stucco."

Name _____

Address _____

City _____ *State* _____

up as brickwork). This, in itself, makes the houses important, regardless of their design virtues and faults. It brings closer the day when housebuilders realize that house framing and enclosing need not be limited by tradition.

An indication of what an industrialized product can mean to housebuilding in terms of simplicity and economy is the fact that each demonstration house has about 6,000 individual pieces to be assembled, while an ordinary house of similar size would average about 30,000 pieces. The wide-open frame, with studs 48 in. instead of 16 in. o.c. is a particularly striking feature of this framing economy. Aside from esthetics, such simplicity will have a marked effect on labor costs. Typical is the installation of exterior curtain wall panels. Set between two studs, 48 in. o.c., five panels produce an 8 ft. high wall section. After stud framing is in place, a mechanic and a helper can install one section—32 sq. ft. of wall—in 40 minutes. Thus an 8 x 48 ft. wall can be installed in a day. (Cost per sq. ft. of this wall, compared with more conventional construction, is given below.)

It should be noted, however, that the four houses presented here are not economy houses. They are individually-styled, demonstration houses whose prices, ranging from $22,000 to $30,000, reflect the cost of trial and error experimentation and the unfamiliarity of labor with the new material.

The Difficulties. Like all new building products, this one has its difficulties. Several of these are temporary. With only one plant in Beacon, N. Y. at present, its economic use is limited, because of freight rates, to the eastern U. S. John D. Dale, president of the company, hopes to correct this by sublicensing production throughout the U. S. and Canada. A more technical limitation, which can also be corrected, is the present module of the new wall panel. The 48 in. horizontal module is readily adaptable to house construction but the architects who designed the four demonstration houses report that the 21 in. vertical measurement did not jibe with usual windowsill location. The result was that either specially milled window frames had to be used or else the panel had to be sawed to size. Either way, the labor saving virtue of the material was somewhat compromised.

A more stickling question is that of the material's acceptance for small house construction. This, of course, has not been a factor in the score of schools, factories and commercial buildings where the material has been used during the past year. But the American house buyer, with some justification, has other standards besides utility and economy. The material is not compatible with the clapboard-cute or flagstone-fancy notions of many house buyers. The problem, however, is neither new nor hopeless. The increasing acceptance by house buyers of modern designs and materials that would have been drummed out of town (via the building-code route) ten years ago is a good sign. Another is the insulation and cost advantage enjoyed by the new material.

INSULATION AND COST COMPARISON

Type	Overall thickness	U-factor	Cost in place per sq. ft.
Wood shaving slab with ¼ in. cement factory coating each side	3⅝ in.	.20	$ .70
Solid brick with furred metal lath and plaster	13 in.	.25	$2.35
Concrete block furred with insulating board, lath and plaster and stucco	10 in.	.22	$ .90
Wood frame with clapboard, sheathing, insulation, lath and plaster	7 in.	.30	$1.25

complete problem and answer for builders —automatically printed on the tape!

One quick glance at the printed tape . . . that's all you need to check accuracy on the Remington Rand automatic Printing Calculator.

For estimating materials, figuring payrolls, computing insurance data or any other problem, the tape proves you're right—right away. There's no rerunning . . . no squinting at dials . . . no copying answers. And you have a permanent record for reference at any time.

What's more, you get your answers in a jiffy. The Printing Calculator speeds through your multiplication and division—your adding-listing and subtracting—in one continuous, time-saving operation. And the finger-fitted, 10-key touch control keyboard is so easy to learn, so wonderfully fast to use.

See how automatic printed proof will increase figuring efficiency in *your* office. Call your Remington Rand representative now, or write to Dept. AF-11, 315 Fourth Avenue, New York 10, N. Y.

COLOR ENGINEERED:

The new satin-smooth, two-tone gray finish reduces eyestrain, induces greater operator work-output, perks up the appearance of your entire office. See it today!

Remington Rand Inc.

the Remington Rand automatic Printing Calculator

(Continued from page 101)

Don't Worry... It's STAINPROOF VARLAR

Amazing New-Type Wall Covering

NOW—"REDECORATE" YEAR AFTER YEAR WITH PLAIN SOAP AND WATER!

Economical Varlar, the amazing new *stainproof* wall covering, actually WASHES LIKE TILE! Yet, it's as beautiful as the most beautiful wallpaper, and just as easy and inexpensive to hang!

Truly, there's nothing in the world to equal Varlar. Not even hot grease, lipstick, India ink or shoe polish will stain it! Even mercurochrome and other "indelible" stains whisk right off! What's more, Varlar resists fire, steam, bacteria and vermin, too.

Only amazing Varlar brings you *all* of the best features of *all* other wall coverings.

120 Exciting Styles!

Varlar is beautiful beyond compare—offering you 120 exquisite styles to flatter rooms of all kinds, all sizes . . . colorful florals, plaids, geometrics, pictorials, stripes, tiles, two-tone tints and solid pastels—all priced to save you money!

Varlar is all we say it is and *more!* Send coupon for free sample and prove it to yourself.

**Rugged laboratory "torture tests" show that Varlar STILL looks "brand new" after 25,000 washings!*

VARLAR, INC.

Division of UNITED WALLPAPER INC. Chicago

OVER 100 BEAUTIFUL VARLAR STYLES TO CHOOSE FROM

VARLAR FREE SAMPLE COUPON

Varlar, Inc., Dept. AF-11
Merchandise Mart, Chicago 54

Send me my free sample of Varlar. Bet *I* can stain it!

Name.....

Address.....

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

changes of temperature last winter. But, although 87 per cent report it wasn't a problem, the percentage of complaints is high enough to make heat-lag a technical factor to be considered more carefully in future radiant heating installations. One solution is the development of a more discriminating system of controls which would better anticipate outside changes of temperature so that the panel system could be set into operation sooner to cope with the change.

HIGH COSTS

The high cost of installing a panel heating installation rated second only to heat lag in the architect's response to the question: What are the main deficiencies of radiant heating? Almost two-thirds of the architects reported that panel heating cost an average of 25 per cent more than conventional systems in their area. Another 25 per cent reported that it was about the same and the rest said that panel heating was actually cheaper. Merchant builder's experience was the same. Two-thirds reported that panel heating cost more by an average of 25 per cent. A minority of 15 per cent said it cost less.

Architects were also asked whether panel heating costs were coming down compared with other systems. Here the answer was clear: Yes said 66 per cent. Only 5 per cent predicted an increase in costs. The rest forsaw no change. Of those who predicted a drop in price, 23 per cent reported that it was a large drop, 77 per cent saw it was a small drop.

Biggest reason for the higher cost of panel heating, the architects reported, was the inexperience of contractors in dealing with it. Said one Chicago architect who apparently had more than his share of contractors' trouble: "They are the reactionaries to progress." However, it is a problem that will eventually be licked as more installations are made. Three-fourths of the architects reported that they were having less trouble now getting contractors who could do a good panel heating job than in the past. There is, moreover, considerable evidence to show that a panel heating installation need not be more expensive than a conventional one. This is indicated by the fact that over a third of the architects reporting on costs said that, in their experience it was not higher. What is needed, it would seem, is a more realistic measure for comparison between panel, convection and forced air costs before a final judgment can be made. Such a measure would necessarily include in convection and forced-air costs such "hidden costs" as the cutting, patching or furring for pipes and ducts—all of which are minimized in a radiant heating system.

Another important factor in comparing costs is the long-run question of whether it is cheaper to operate a radiant heat system. This point, long claimed by proponents of panel heating, is indicated—but not proved—by the fact that 40 per cent of the building owners mentioned economy of operation as one of panel heating's important virtues.

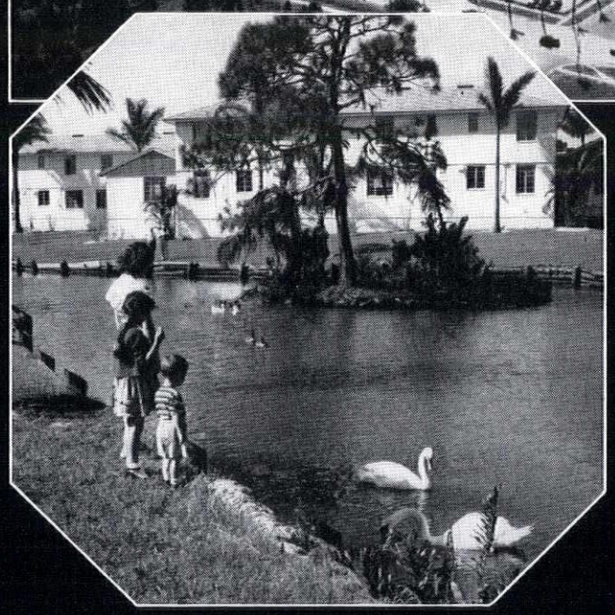
BUILDERS AND PANEL HEATING

Ten years ago the average builder would sooner have specified a Franklin stove for his houses than panel heating. He regarded panel heating as complicated, expensive and untrustworthy. To a certain extent, he was right. Rapid advances in panel heating since then, however, have largely changed this situation. Since the end of the war, panel heating has played a minor but active part in speculative house building. Although no more than 4 per cent of the houses built since the end of the war have been panel heated, enough pro-

(Continued on page 120)

The Name **HOPE'S** *Guarantees*

1818 WINDOWS 1949



Florasota Gardens, Sarasota, Florida
A. Lloyd Goode, Charlotte, N. C., Builder.

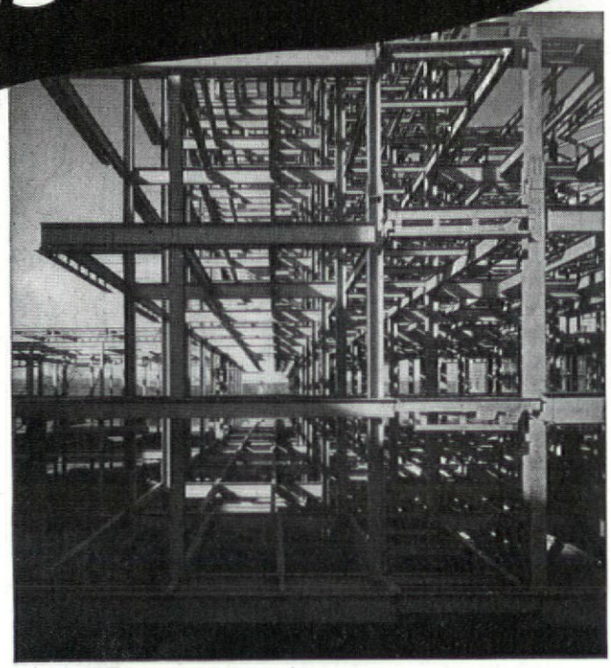
This magnificent resort development consists of 25 buildings, comprising 189 apartments, 11 hotel rooms and a shopping center. The windows are Hope's standard steel frames and casements. Write for Hope's "Holford" catalog for complete description.

The owner writes: "We operate a number of apartments in the Southeast, and our principal reason for preferring metal windows is for reason of maintenance. We have found that they require fewer repairs and replacements, and the saving created by using metal windows is considerable, over the lifetime of a project the size of Florasota Gardens." *Send for Catalog 102.*

HOPE'S WINDOWS, INC., ***Jamestown, N. Y.***

THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS

Stop Hidden RUST with RUST-OLEUM



Tough, elastic, enduring—Rust-Oleum defies rust-producing conditions years longer—protects the structural strength of steel.

Industry-proved Coating Rustproofs Metal Against Moisture Damage in Sealed Spaces

For structural protection, specify the use of Rust-Oleum on all iron and steel — particularly in inaccessible areas where condensation causes rust. Rust-Oleum positively stops rust and adds years of life to structural members, pipes, sheet metal, etc. which are difficult or impossible to reach in normal maintenance.

Indoors or out — Rust-Oleum seals metal with a tough, pliable, destruction-proof coating. Originally developed to resist the highly corrosive effects of salt water and salt air, under tough sea-faring conditions, Rust-Oleum gives lasting protection where ordinary materials fail. It's *your* best answer to all rust problems.

We will gladly offer specific recommendations on Rust-Oleum application and uses, if you will give us full information as to technical requirements. See the complete Rust-Oleum catalog in Sweet's, or write for a copy.

PERSONAL—Do you have a rust problem? We'll be glad to send a free sample for a test application on your car or at home. Be sure to state color preference.

RUST-OLEUM CORPORATION

2409 Oakton Street **Evanston, Illinois**

gressive builders are using it to competitive advantage to make the rest sit up and take notice. Outstanding among panel heating users has been Long Island's Levitt & Sons who have installed it in over 10,000 of their Levittown houses during the past two and a half years. (For a description of the Levitt's panel heating operation, see page 122).

In surveying merchant builders on panel heating, FORUM queried both builders who had used it and those who hadn't. With only one exception, all those who had used it were continuing to stick by it. Their big reason: although it was more expensive, customer satisfaction was high. Typical is the comment from Builder Benton Lefton of Cleveland who has built 400 panel-heated houses: "Although the cost of installation is about 25 per cent more at the inception . . . we have minimized our heating complaints 100 per cent from actual purchasers." Most merchant builders favored floor-slab installations as being cheaper and less complicated than others.

Builders who have not used panel heating were asked: Why not? Almost all of them reported that they had investigated the possibilities of panel heating but had rejected it on two counts: 1) it was too complicated and 2) it was too expensive. On the face of it, both reasons are valid. Panel heating can be both more complicated and more expensive than more conventional heating methods. However, the merchant builder is probably in a better position than all other potential users of panel heating to overcome these difficulties. A panel system for a small standard house, if carefully designed, has none of the intricacies that must often be taken into account in a larger installation. Radiant heating does require more careful engineering than other systems but once the pattern is set it can be installed quickly and easily.

PANEL HEATING'S FUTURE

Of the architects queried, 52 per cent felt that panel heating would be accepted on an accelerated scale in their area within the next few years; 40 per cent thought that its reception would be gradual, while 6 per cent saw it as "slow." Only 2 per cent felt that there would be a decline in the use of panel heating. Thus, it is apparent that panel heating is going to be an increasingly important factor on the U. S. heating scene.

One condition of this progress, however, is that some of the technical errors now charged to panel heating be ironed out. Up until now, architects and builders have designed and installed panel heating under the handicap of incomplete information about its maximum effectiveness. Although this empirical approach has produced acceptable results, there is now a sufficient fund of knowledge to eliminate much of the guesswork and accidental results. One thing that FORUM's survey indicates is that most radiant heating troubles arise not from the system itself but from its relationship (or to be more exact, its lack of relationship) with the overall design of the building. More than any other heating system, radiant heating must be integrated with the design of a building.

In addition to these purely technical problems, designers and builders will have to work together to lower panel-heating installation costs—a problem that loomed large in FORUM's survey. It is anachronistic that this most advanced system of heating has to be individually—and expensively—tailored for each individual installation. (Noteworthy exceptions are the prefab panels using electricity which have been put on the market since the end of the war.) Research into the standardization and prefabrication of panel units has already indicated that radiant heating can compete cost-wise with conventional installations.

(Continued on page 122)

in case of a HOSPITAL FIRE?

In case of fire, his chances might not be too good in many hospitals today.

Each day there are *three* fires of record in hospitals and institutions, and in those where fatalities occur an average of *five* lives are lost per fire! Isn't this proof positive that many trusted precautions are not adequate protection at all?

Unfortunately, too many people responsible for protection rely completely upon the elimination of ordinary fire hazards, important as this is. All too many more depend upon "fireproof" construction. Two facts show this to be false confidence: "Carelessness with matches and in smoking" continues to be the greatest cause of fires . . . and so-called "fireproof" buildings continue to become furnaces for flammable contents.

What most people ignore is that, regardless of the cause of fire, regardless of the building construction, it is the *proper control of fire from the first spark that constitutes full and adequate protection against fire.*

Needless loss of life and property can be prevented by checking fire at its source, whenever and wherever it starts, night or day, automatically, with a Grinnell Automatic Sprinkler System. Seventy years experience shows that practically 100% of fires starting in buildings protected by Grinnell Automatic Sprinkler Systems are extinguished before doing material damage. Fire experts will tell you that your best protection against fire in any building is automatic sprinklers.

SEE THAT GRINNELL SPRINKLER HEADS ARE ON GUARD

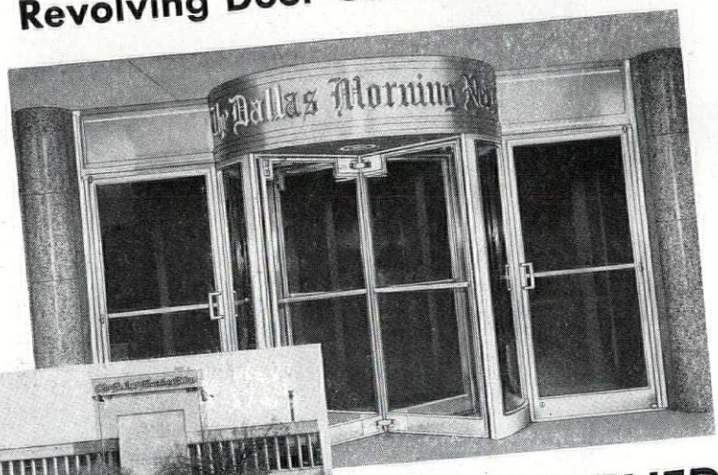
In hospitals, as well as in schools, hotels, theaters and factories, there is a moral obligation upon management for the utmost in protection of life and property. For your own sake be sure the hospitals, the hotels, the plants, and the schools for which you are responsible are protected with the famous Grinnell Automatic Sprinkler heads—your assurance of positive, automatic protection against fire. Grinnell Company, Inc., Providence, Rhode Island.

GRINNELL

FIRE PROTECTION SYSTEMS

COMBINATION OFFICE BUILDINGS AND PLANTS

Revolving Door Case File #199



IT HAPPENED IN DALLAS!

Here's a new landmark in Dallas that is a fine combination of beauty and utility. Architects George Dahl and Associates knew that these same qualities must be present in the entrance, so they specified a revolving door. Like other big newspaper buildings, the Dallas Morning News plant has heavy traffic almost twenty-four hours a day. International-Van Kannel was called upon to take good care of this, while maintaining the modern architectural theme.

The result is shown above. The complete entrance — revolving door and auxiliary swing doors — was supplied by International. The crystal model revolving door was used, with stainless steel metal work. Experience has shown that this entrance will serve the Dallas Morning News faithfully for many years.

The revolving door itself will see that the lobby is kept free of drafts, dirt, dust and noise from outside. It will maintain a smooth, safe, efficient traffic flow both in and out. It has solved at the start a complex entrance problem and contributed its part to the beauty of the building.

With their service and beauty, International-Van Kannel revolving doors are definite aids in cutting building expenses. Their elimination of outside dust and dirt cuts down cleaning and decorating costs and they save up to 25% on heating and cooling charges. Write today for details.

REVOLVING DOORS
INTERNATIONAL-VAN KANNEL
1709 EDGAR STREET EVANSVILLE 7, IND.

Lessons from Levitt's 10,000 installations

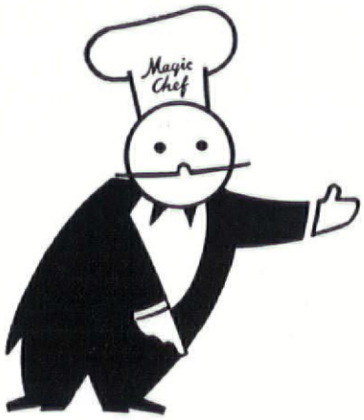
The best example in the U. S. of how a builder can use panel heating to his—and his customer's—advantage is found at Levittown, Long Island. Here, Levitt & Sons have successfully installed over 10,000 installations since 1946.

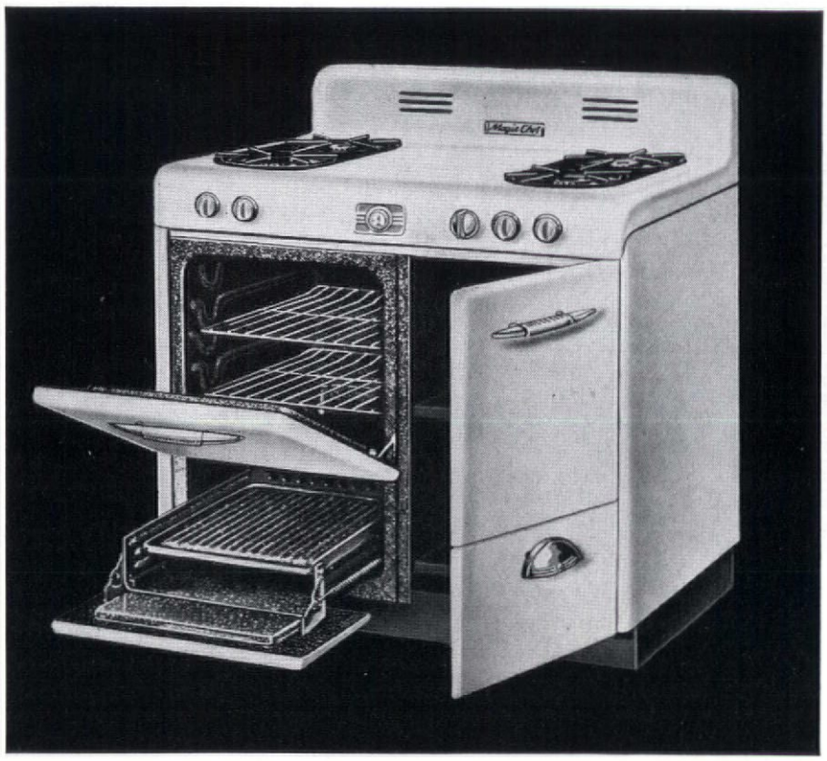
In their operation, the Levitts have shown how, contrary to most builders' beliefs, panel heating can 1) provide more comfortable heat, 2) be built cheaper than conventional installations, and 3) streamline a building operation. Like most things Levitts do, these achievements were not accidental. Each was given painstaking attention back in 1946 when the Levitts asked their heating engineer, Irwin Jalonack, to investigate the use of panel heating for small houses. Says Jalonack, an old Levitt hand: "We couldn't afford to make a mistake. We had to be sure that the installations we were going to make during the spring and summer of 1947 would be O. K. during the following winter when they received their first real test. A design blunder could have cost a lot of money." Careful attention to detail in the drawing-board stage paid off handsomely, however. Levittown's heating complaints have been virtually nil. In the FORUM survey of owners of panel-heated buildings, a sampling of Levittown residents confirmed this.)

Construction-wise, the panel operation is a further extension of the Levitt philosophy that site-assembly of predimensioned materials is the most efficient way to build houses. Slab-on-ground construction, another Levitt tenet, is readily adaptable to embedded floor coils. A repetitive labor operation was guaranteed by making the coil pattern in each slab the same no matter how the house was sited.

The 3/8 in. copper coils, one for each of the five downstairs rooms, are formed at the Levitt warehouse in Roslyn, five miles from Levittown. They are trucked to the site, where a complete set is dropped off at each plot. The bed for the floor slab consists of bank run, 8 in. deep, dug from the cistern well in front of each house. There is no insulation under the slab although composition sheathing, which serves also as a footing form, checks heat loss around the slab edges. A pattern of 1 x 2 in. wooden strips is laid out on the bank run, and the coils are stapled to these 12 ft. on center. Coil-laying time: 20 minutes. It is a slam-bang operation with none of the precious care usually associated with the installation of radiant coils. The pipes are then tested, and the slab is poured. Only 16 men in the shop and on the site finish 32 coil jobs a day—at a labor cost of less than $10 a house. The Levitts get their 600 ft. of tubing per house for about $45. The $55 total is, to use one of Bill Levitt's favorite words, "peanuts."

On costs, the Levitts say, for the record, that their panel heating operation runs "slightly less" than a conventional installation. This is probably an understatement, coming as it does from an organization which has never been known to spend a building dollar where 90 cents could do the job just as well. Key to Levitt's panel-heating success is the great care taken to *engineer* an accurate system which could be reproduced many times under relatively stable conditions, without expensive changes. "Once this is done," Engineer Jalonack points out, "panel heating is neither tricky nor complex. The warning is only for those who attempt to design a system for themselves or partially copy one without a clear understanding of what makes it function."





HERE'S A NEW, LOW-PRICED

Magic Chef

GAS RANGE with the

DIVIDED-TOP DESIGN THAT WOMEN PREFER!

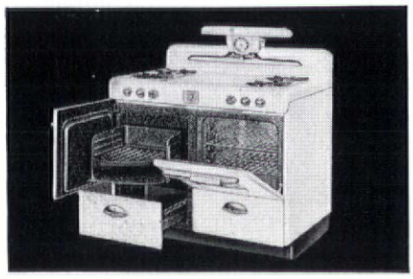
The convenient working space arrangement of the new Series 1500 Magic Chef is just one of the features that is making it a popular range.

Although it is low-priced, the Series 1500 has many famous Magic Chef features, including the famous Red Wheel oven heat regulator, lifetime-guaranteed burners, full-size oven completely insulated with Fiberglas, and an easy-to-use smokeless broiler. This attractive range is just 36 inches wide and yet it will easily meet all cooking requirements of the average-size family.

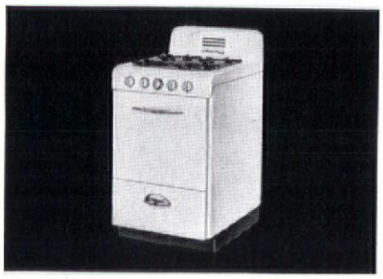
FOR FINE HOMES—the Magic Chef 1000 Series. 62-inches wide, 6 top burners, two large ovens, high-level broiler and a 23″ x 24″ griddle.

THERE'S A MAGIC CHEF TO FIT EVERY BUDGET, EVERY KITCHEN PLAN!

You'll find the right range for your plans—from apartment to fine home—among the complete Magic Chef line. More women cook on Magic Chef than on any other range. Magic Chef, the most popular range in America, will help you "sell" your kitchens.



THE MOST-WANTED gas range is the Magic Chef 1300 Series. 39 inches wide, divided top design, famous Magic Chef Swing Out Broiler.



FOR SMALL APARTMENTS—The Magic Chef 500 Series. Just 20 inches wide, but complete! Full size oven, broiler, lifetime-guaranteed burners.

IN THE FINEST HOTELS AND RESTAURANTS in America, kitchens are equipped with Magic Chef heavy duty gas cooking equipment. Write for specifications.

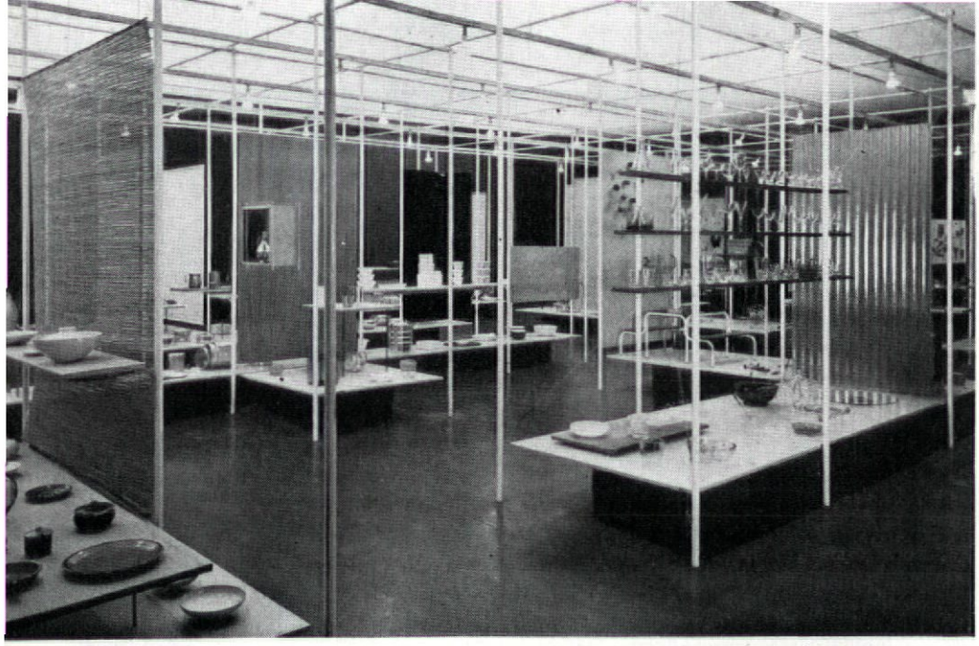
★

OTHER PRODUCTS

Combination, oil and wood ranges, oil stoves and heaters, oil furnaces.

FOR COMPLETE DETAILS SEND FOR OUR ARCHITECTS AND BUILDERS FILE

AMERICAN STOVE COMPANY • ST. LOUIS



"Hall of Objects" is best part of show with tasteful arrangements of useful handmade and machine-made products

Steinberg murals parody the rococo horrors of "modernistic" design and some of its antediluvian antecedents

REVIEWS

"FOR MODERN LIVING"

In the nineteenth century, buildings had Queen Anne fronts and Mary Anne behinds—to quote Mark Twain—and the same look applied to the gadgets that filled these buildings. But now that we have reached the middle of the twentieth century, buildings and gadgets are sometimes as simple as they can be made. Maybe because the process of living was less complex in the nineteenth century, people surrounded themselves with complications in their homes. Today they seem to want their surroundings made easy.

Some of the best and simplest examples of mid-twentieth century design can now be seen (until November 20th) in "An Exhibition for Modern Living" at the Detroit Institute of Arts. A Detroit department store, J. L. Hudson Co., undertook to make this the first major show of its kind since Macy's 1928 New York show; and Director Alexander Girard spent a year on it. In the first section—historical—one finds interesting hints of some of the origins and collateral tracings of American furniture design. Another section of the tremendous exhibit is devoted to blow-ups of Saul Steinberg's modern room whimsies, illustrating the type of decor that has been carefully and tastefully avoided elsewhere in the show. The section called a "Hall of Objects" is filled with chaste-looking gadgets from plastic bowls to electric sewing machines, with excellent documentation of good design in glassware, kitchen equipment, and such.

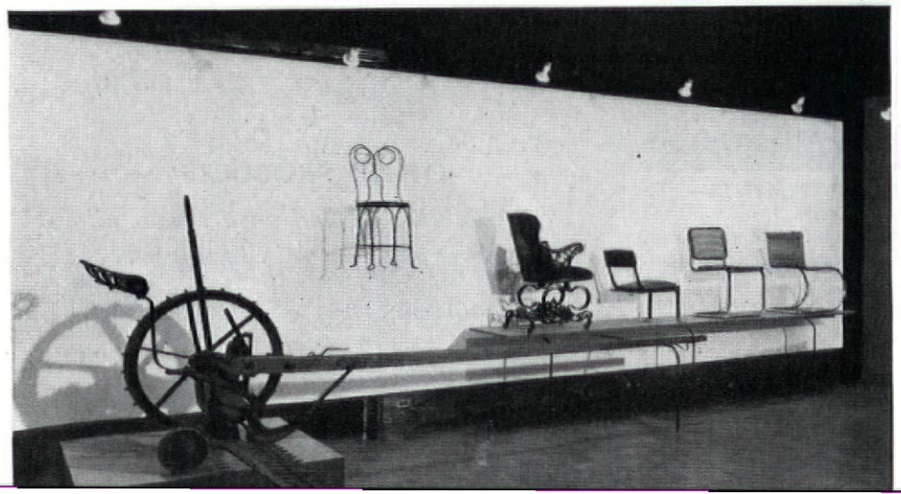
And, finally, there is a group of elegantly simple rooms designed by Florence Knoll (1), Jens Risom (2), George Nelson (3), Alvar Aalto (4), and Charles Eames (5), (see strip below). However, some of these are not so much livable rooms as they are exhibit vehicles. (For instance, one wonders about over-simplification in Eames' latest *tour de force:* a bathtub-cum-toilet seat dream that will at least be a conversation piece.)

1 2 3 4 5

If, as Art Institute Director Edgar Richardson says in the introduction to the handsome catalogue, the American sense of design disappeared around 1850, it has now found itself again, as this exhibit (located, appropriately enough, in the heart of the U. S. industrial center) would indicate. Good design, like good architecture provides for good living. We have been so busy doing and building in this country, that we have not had much time to think about the good life. But now we can take time to look within, at the design of our rooms and the things in them. To quote from Thoreau (by way of John A. Kouwenhoven's excellent article in the catalogue), "What of architectural beauty I now see, I know has gradually grown from within outward, out of the necessities and character of the in-dweller, who is the only builder—out of some unconscious truthfulness, and nobleness, without ever a thought for the appearance; and whatever additional beauty of this kind is destined to be produced will be preceded by a like unconscious beauty of life."—E.B.

An early jump seat from a 1917 Owen Magnetic touring car is predecessor to the modern cantilevered chair, and a reaper seat follows the same design

Photos: Elmer L. Astleford



See how this

New Frigidaire Electric Range

sets the style for modern kitchens!

THERE'S no other electric range today that combines beauty with functional design as does the all-new Frigidaire. You can see at a glance how its smooth, unbroken, modern lines, its sparkling chrome trim, make it a keynote for any modern kitchen. That's the Raymond Loewy touch!

But notice, too, that this new Frigidaire Electric Range fits right into modern kitchen cabinetwork—flush in front and on top. And see how Frigidaire's Lifetime Porcelain finish matches the baked-on white of modern steel cabinets.

Homemakers will be delighted—not only with the beauty of this new range but with its many brand-new time-and-work-saving features. And property owners will be glad to know that under its new beauty there's the same rugged, sturdy construction that's made Frigidaire appliances famous for dependable service.

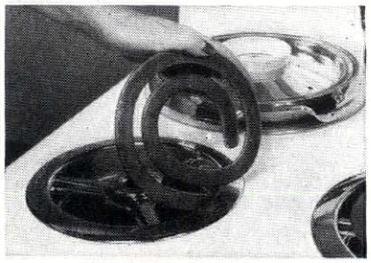
In Frigidaire's complete line of electric ranges, you'll find the right range for every need—from big, deluxe models to compact apartment ranges. For full information, call your dependable Frigidaire Dealer today. Find his name in the Classified Phone Directory. Or write Frigidaire Division of General Motors, Dayton 1, Ohio. (In Canada, Leaside 12, Ontario.)

Visit the Frigidaire Exhibit, National Association of Housing Officials Meeting, Boston—November 13-16.

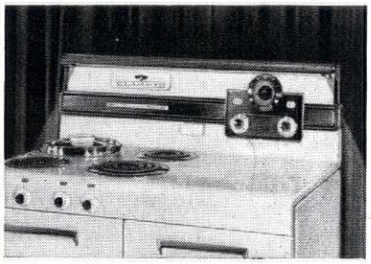
FRIGIDAIRE *makes a good building better*

Refrigerators • Electric Ranges • Electric Water Heaters • Automatic Washer • Electric Ironer
Automatic Electric Dryer • Home Freezers • Kitchen Cabinets
Cabinet Sinks • Electric Dehumidifier • Air Conditioners • Water Coolers • Commercial Refrigeration

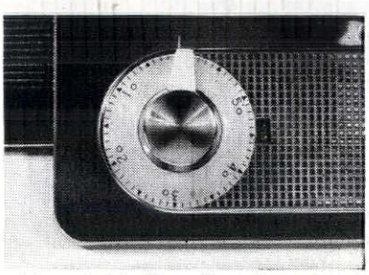
There's extra appeal for homemakers in these Frigidaire features



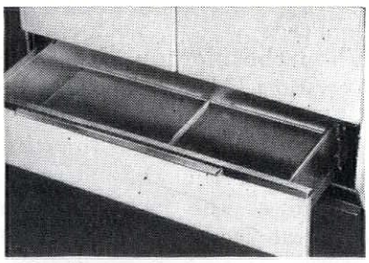
New Radiantube Cooking Units cook faster than ever—yet use less current! They tip up for easier cleaning.



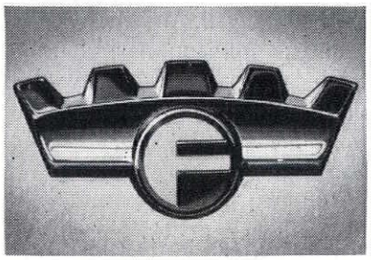
New 36-Inch Fluorescent Lamp built into Frigidaire's new higher back-panel lights the entire cooking top.



New 6-60 Time-Signal has two speeds—one for measuring up to 6 minutes, another for up to 60 minutes.



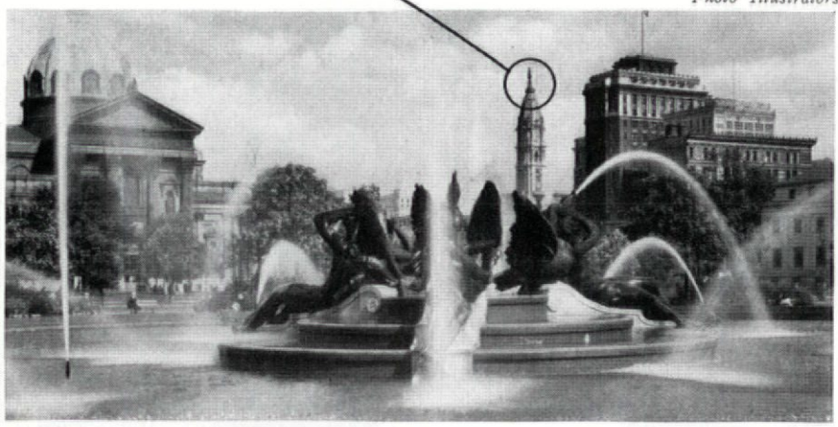
New Storage Drawers move smoothly and quietly on triple Nylon rollers.



The Frigidaire Emblem is a mark of highest quality. Millions of buyers look for it on appliances they choose.

William Penn by Grandfather Alexander Milne Calder (above and left) looks down on . . . .

Photo Illustrators



. . . fountain by Father A. Sterling Calder (left and above). Below, Alexander hangs up one of his own.

THE CALDERS CARRY ON IN PHILADELPHIA

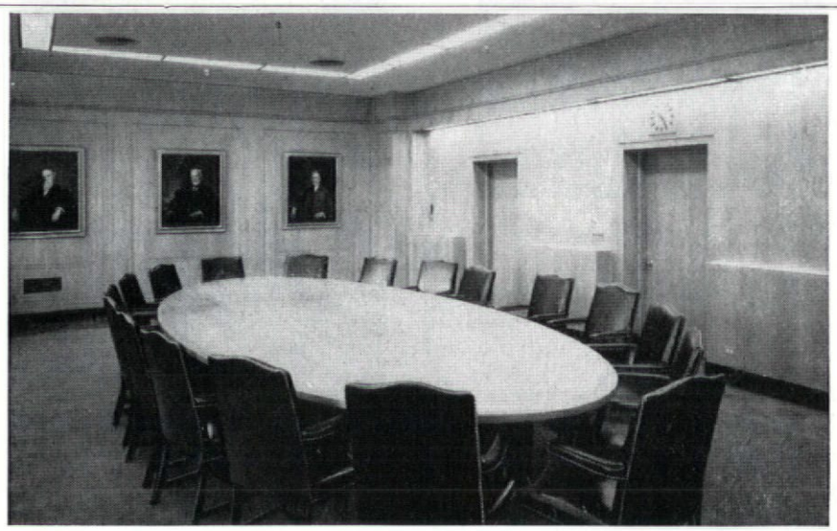
As Alexander Calder hauled his "International Mobile" into place a few months ago at Philadelphia's Museum of Art, that historic city saw the continuation of a unique artistic tradition. This was the third generation of Calders to ornament its public places with sculpture.

The well-known statue of William Penn that looks down from City Hall is the work of grandfather Alexander Milne Calder who came from Scotland to Philadelphia in 1860. Within sight of this figure is a romantic fountain group of bronze mermaids designed by A. Sterling Calder.

The work of 'Sandy' Calder, one of the most vivid and original sculptors in the U. S. today, expresses the spirit of his time as closely as did that of his forebears. It is significant that his youthful desire was to be, not an artist, but an engineer. He studied for four years at Stevens Institute and worked for several engineering offices. Even when Calder III did turn to sculpture, his basic interest remained in using the tools, materials and methods of construction. The "mobiles," most distinctive among all his work, give pleasure as much by their marvelous precision and balance as by their graceful shapes and bright color arrangements.

People watching the movement of these compositions, usually sense their appeal without being able to analyze it. James Johnson Sweeney has called it "the esthetic of the unfinished, of suspense and surprise"—phrases that seem to apply also to the sculptural saga of the Calders!—S.K.

Life: H. Gehr



In this Conference Room Everybody agrees on one thing . . .

Durable Flexwood Walls Add Beauty and Dignity

When the Norton Company, Worcester, Mass., commissioned G. Adolph Johnson, he specified Rift Oak Flexwood for their conference room. E. J. Cross & Co., made the installation . . . and you see the finished room above.

Notice how well Flexwood works into the traditional paneling on the end wall. And then see how architect Johnson has blended a modern lighting trough with the sleek beauty of sheer hung Flexwood . . . right in the same room.

There's *another* Flexwood virtue . . . versatility.

This modern decorative material is composed of thin veneers of *real* wood, permanently bonded to flexible fabric backing. You can use it over any firm, smooth surface . . . curved or flat. And it fits any interior motif . . . traditional or modern.

Get full details on this versatile, durable decorative material . . . and use it to add beauty and dignity to the interiors *you* design. We'll be glad to send literature and samples immediately.

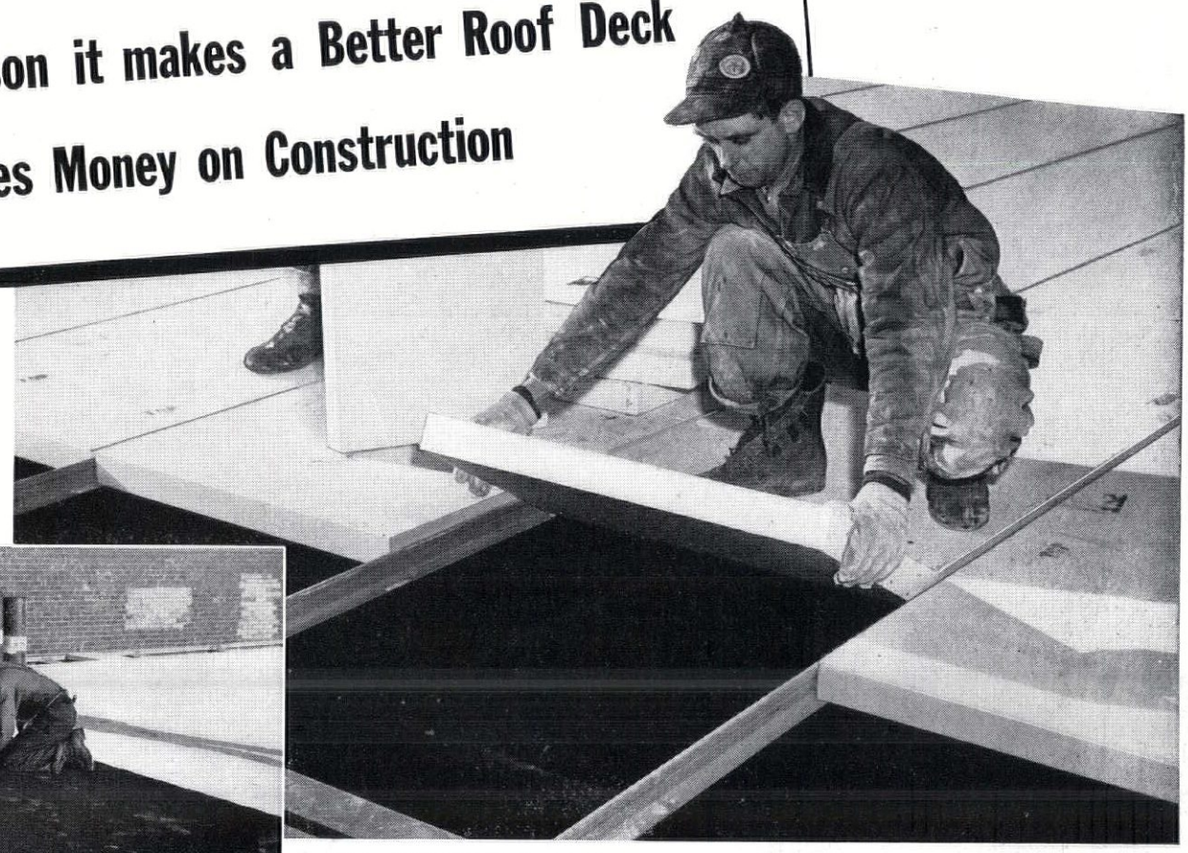
UNITED STATES PLYWOOD CORPORATION

Dept. F, 55 West 44th Street, New York 18, N. Y.

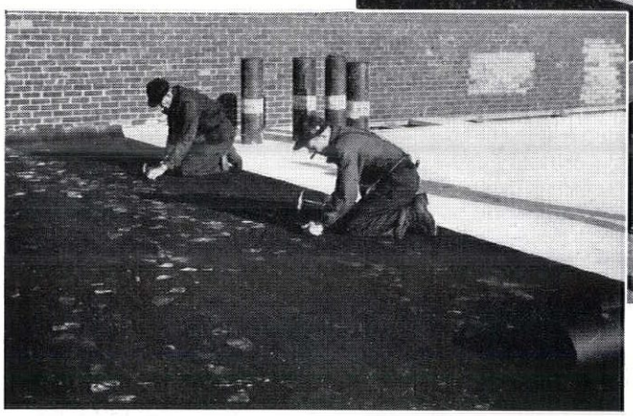
Flexwood is manufactured and marketed jointly by United States Plywood Corporation and The Mengel Company.

KAYLO ROOF TILE IS 80% AIR

... One reason it makes a Better Roof Deck and Saves Money on Construction



LIGHT WEIGHT, EASY TO LAY—Kaylo Roof Tile are laid on rail-type sub-purlins or standard structural members. The 23-lb. tile are easy for one man to carry and install at money-saving speed.



SIMPLE CONSTRUCTION—Kaylo Roof Tile are laid on sub-purlins, joints grouted and roofing material is applied. No special skills or tools are required.

THE composition of Kaylo Roof Tile—20% noncombustible minerals, reinforced with welded wire-mesh, and 80% sub-microscopic air cells—provides advantages unmatched by any other roof-deck material.

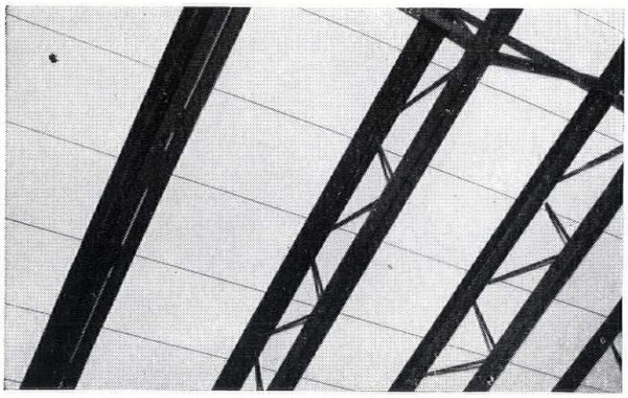
IT IS LIGHTWEIGHT — 5 lbs. per sq. ft.—permitting saving through lighter supporting structure and faster laying.

IT INSULATES — no other insulating material is needed. Heating and air-conditioning costs are less.

IT IS STRONG — designed for total load of 50 lbs. per sq. ft., with adequate safety factor.

IT IS FIREPROOF — withstands building fire temperatures for one hour (A.S.T.M. standards).

See Sweet's File—or write us for complete information on Kaylo Insulating Roof Tile.



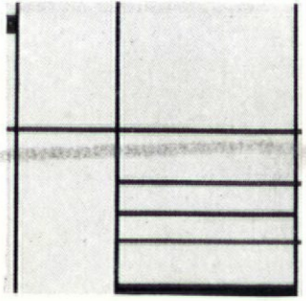
REFLECTS LIGHT—The smooth, white surface of Kaylo Roof Tile forms a ceiling that reflects about 80 percent of available light, saving cost of painting on many jobs. It can, however, be painted with one prime and one finish coat of standard oil paint.

KAYLO®

INSULATING ROOF TILE

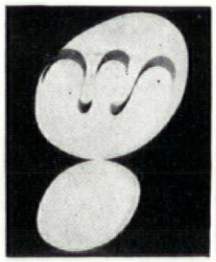
Kaylo Division • OWENS-ILLINOIS GLASS COMPANY • Toledo, Ohio

SALES OFFICES: Atlanta • Boston • Buffalo • Chicago • Cincinnati • Dallas • Minneapolis • New York • Philadelphia • St. Louis • Toledo • Washington.



REVIEWS

MODERN ART MEETS THE MAN IN THE STREET



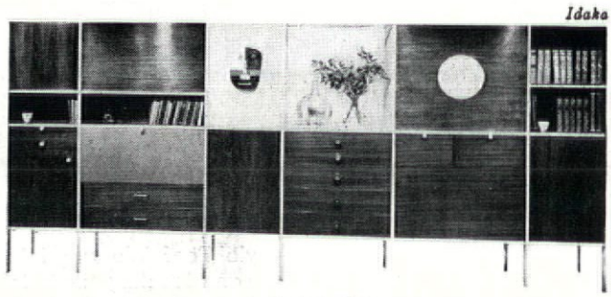
Mondrian, Arp and Klee (top, left, right) reappear below—transformed for everyday use.

"We assume a natural relation between the Greek vase and the Greek temple . . . We admire the unity in the architecture, pewter ware and portraits of a New England house," the catalogue of *Modern Art in Your Life* points out (exhibit on view through December 4th at the Museum of Modern Art, New York City). Rene d'Harnoncourt, Director of the Museum's Collections and Robert Goldwater, editor of *Magazine of Art*, here provide striking proof that a basic kinship between art and more common-place design still continues today.

Works of men who represent trends in modern art—Mondrian, Arp, Miro, Klee, Dali among others—are assembled in a central gallery opening into five adjacent rooms. Each of these contains a variety of everyday objects whose design has been consciously or subconsciously affected by works of art in the central hall. The influence of cubist painters on modern architecture has long been evident. Recent furniture designs also show a clear knowledge of the patterns and organization of modern painting (viz. Arp and the Hardoy chair, Mondrian and the George Nelson storage group).

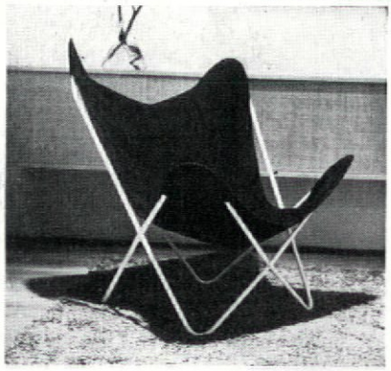
The exhibit includes material from allied fields of advertising, magazine and book design which have not only absorbed the meticulous simplicity of Mondrian and Arp but the drama—and melodrama—of surrealism. After seeing the parallels in this exciting show one is left with the hope that one world may not be such a far dream after all.—S.K.

Idaho

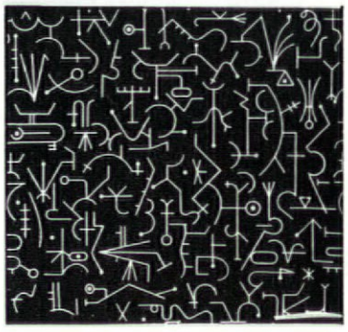


Storage case by Nelson

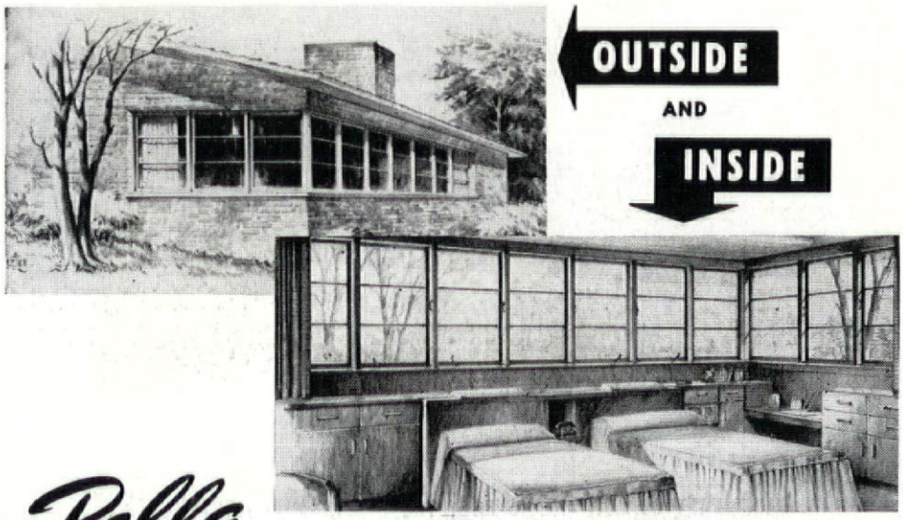
Herbert Matter



Chair by Bonet, Kurchan & Hardoy



Textile by Alvin Lustig



Pella CASEMENT WINDOWS

PROVIDE CUSTOM WINDOW EFFECTS from STOCK SIZE UNITS

Pella Casement Units can be combined into more than 300 different sizes of varying width and height. Installation cost is cut to a minimum because all Pella Casement Windows are completely assembled and pre-fitted at the factory. Pella Casements, in modular dimensions, fit right into specified rough openings.

CHECK THESE CONVENIENT, LOW-COST Pella FEATURES

ROLSCREENS—Pella Casements are equipped with inconspicuous, convenient Rolscreens that roll up and down like window shades. Rolscreens eliminate putting up, taking down, painting, repairing and save valuable storage space.

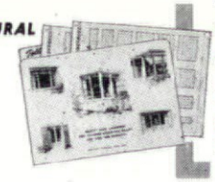
EASY TO OPERATE — Pella's patented hinge design and construction assure easy operation.

FITS ALL TYPES ARCHITECTURE — Pella Casements fit snugly into wood, frame, brick, brick veneer, stone, etc. They convey dignity and stateliness to Colonial architecture . . . enhance Cape Cod "coziness" . . . lend breadth to Modern or Spanish styles and sturdiness to half-timbered English.

DUAL GLAZING AND WEATHERSTRIPPING All Pella Casements are dual glazed to insulate against winter cold and summer heat . . weather-stripped to eliminate drafts.

3-LIGHT WIDE UNIT — Only Pella can build these wide casement units, made possible because of Pella's patented hinge design, superior sash construction and steel inner frame.

For Further Information, see our catalog in SWEET'S ARCHITECTURAL AND BUILDING FILES



ROLSCREEN COMPANY, Dept. A-23, Pella, Iowa

Without obligation, send me PELLA CASEMENT DETAIL file . . . a complete set of drawings showing sizes, applications and various combinations of Pella Casement units.

Name _____

Firm _____

Address _____

City _____ State _____

PELLA CASEMENTS • ROLSCREENS • VENETIAN BLINDS

Kencork's practical luxury actually costs less!

No other floor is so practical... Yes, Kencork actually saves your clients money because these beautiful mellow-tone cork tiles need no expensive floor coverings... their beauty alone is enough! And years of use won't dim their loveliness. Kencork Floors in use 30 years and more still refuse to show signs of wear! Practical Kencork is easier to care for, too... requires only occasional waxings.

No other floor is so luxurious... Wonderful to walk upon, the quiet luxury of Kencork lends distinctive elegance to every room. The rich tones blend harmoniously with fabrics of every type... compliment the beauty of every color scheme. It's hard to believe that Kencork's wealth of luxury costs so little! You'll find it pays to specify Kencork.

David E. Kennedy, Inc., 58 2nd Ave., Brooklyn 15, N. Y. . . . RESILIENT TILE FLOORING FOR FIFTY YEARS
Originators of beautiful Cork Tile Flooring — Also Makers of famous Guaranteed Kentile Flooring

KENCORK®
FLOORS
WALLS

DAVID E. KENNEDY, INC., 58 Second Ave., Brooklyn 15, N. Y. 1211 NBC Bldg., Cleveland 14, Ohio • 225 Moore St. S. E., Atlanta 2, Ga. • 452 Statler Bldg., Boston 16, Mass. • 17th and Sansom St., Philadelphia, Pa. • 4532 So. Kolin Ave., Chicago 32, Ill. • 350 Fifth Ave., New York 1, N. Y. • 1440 11th St., Denver 4, Colo. • 2205 Grand Ave., Kansas City 8, Mo. • 4501 Santa Fe Ave., Los Angeles 11, Calif.

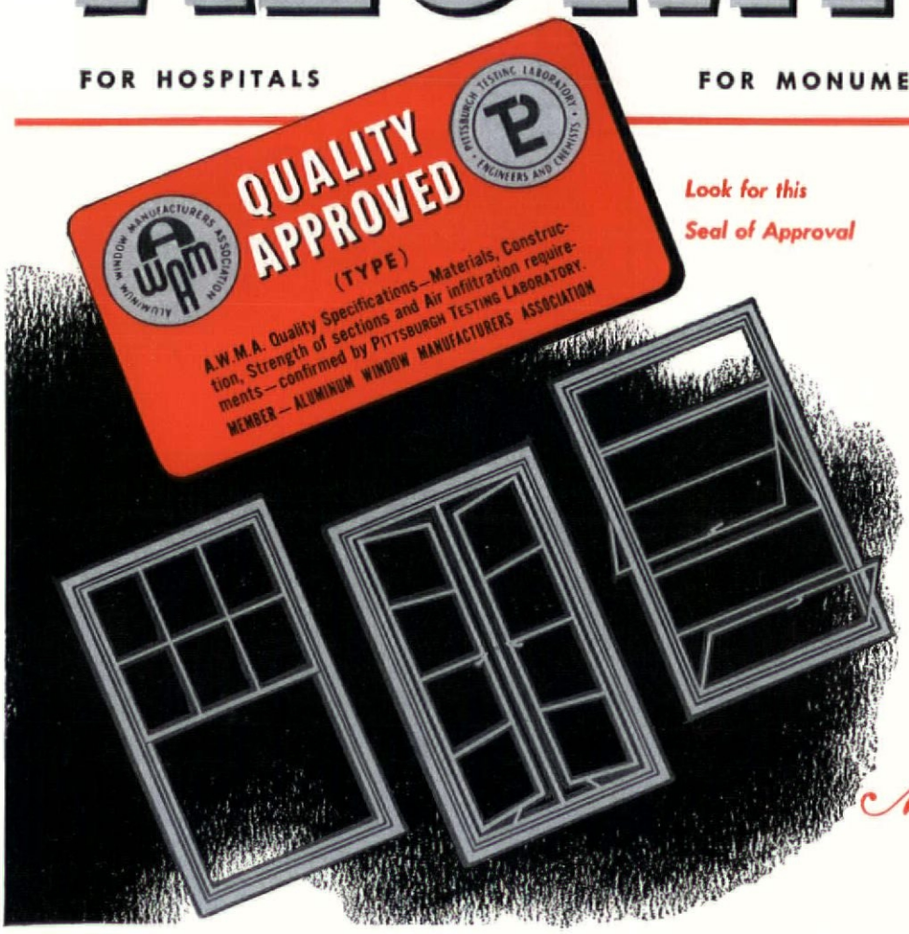
GOOD LOOKS
EASE OF OPERATION
NEVER ANY PAINTING
LOW MAINTENANCE
YEARS OF TROUBLE-FREE SERVICE

These are the reasons for the

ALUMINUM

FOR HOSPITALS

FOR MONUMENTAL AND COMMERCIAL BUILDINGS



Look for this Seal of Approval

Read those five reasons over again!

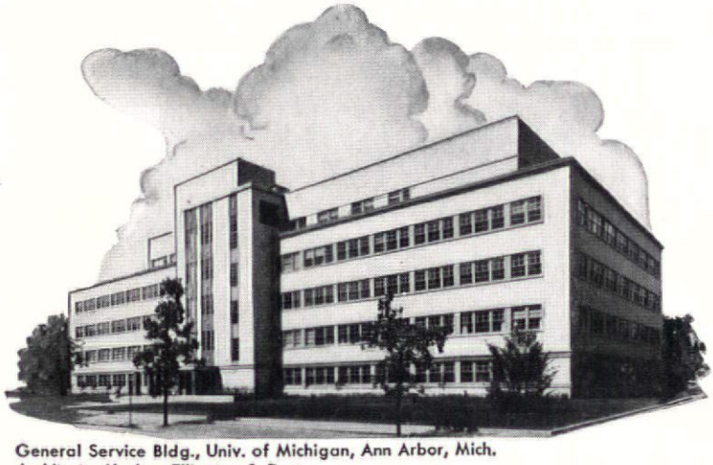
They are the reasons the demand for "Quality-Approved" aluminum windows continues to grow—for all types of buildings.

They are the reasons you continue to get client satisfaction from all who already have these windows.

They are the features your clients get every time you specify "Quality-Approved" aluminum windows.

Not *all* aluminum windows are "Quality-Approved." It is important to *know* which are. Only those aluminum windows which have been tested by the independent

Aluminum Window Manufacturers Association



General Service Bldg., Univ. of Michigan, Ann Arbor, Mich.
Architects: Harley, Ellington & Day

Rotogravure Bldg., Philadelphia Inquirer, Philadelphia, Pa.
Architects: Albert Kahn Associates

Mercy Hospital, Springfield, Ohio
Architects: Maguolo & Quick

ever-growing demand for "Quality-Approved"

WINDOWS!

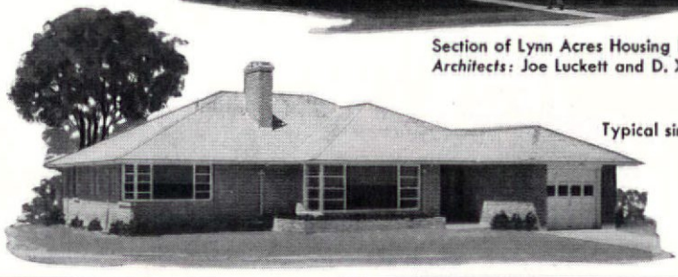
FOR SCHOOLS **FOR RESIDENCES, LARGE AND SMALL**

Pittsburgh Testing Laboratories—and conform to rigid specifications—can bear the Seal of Approval.

This seal assures you of aluminum windows—double-hung, casement or projected—that meet the highest standards for quality materials, strength of sections, soundness of construction, and minimum air infiltration.

Make sure of *all* five features. Specify only aluminum windows bearing the "Quality-Approved" seal. For information and names of manufacturers whose windows qualify for the seal, consult Sweet's (Section 16a/3) or write to Dept. AF-11.

Section of Lynn Acres Housing Project, Louisville, Ky.
Architects: Joe Luckett and D. X. Murphy



Typical single family residence.

209 CEDAR AVENUE
TAKOMA PARK
WASHINGTON 12, D.C.

members: A.B.C. Steel Equipment Co., Inc., Tampa, Florida ★ The Adams & Westlake Company, Elkhart, Ind. ★ The William Bayley Company, Springfield, Ohio ★ Cupples Products Corporation, St. Louis, Missouri ★ General Bronze Corporation *(and its subsidiary The Aluminum Window Corporation)*, Garden City, New York ★ Sterling Windows, Inc., New York City, N. Y. ★ Windalume Corporation, West New York, New Jersey

Micarta tops 'em All !

NEWER COLORS

Only Micarta has the 9 new Decorator Colors selected by a national jury of leading architects — the smart off-shades preferred today.

BETTER FINISHES

Only Micarta offers *both* satin and glossy in a true finish . . . the satin is built-in, not just a glossy finish rubbed down.

THE "BEAUTYMASK"

Only Micarta is covered by a strong manila sheet protecting the surface while work is done —until ready for use.

PANELS ON WATERPROOF PLYWOOD

Only Micarta's 7/8" and 1¼" panels offer the plastic laminate bonded with *waterproof* resorcinol glue on *waterproof* Weldwood plywood.

BETTER SIZES

Micarta offers sizes up to 48" x 96" — thus often providing greater economy and covering larger areas with fewer seams.

Micarta equals or exceeds the standards of National Electrical Manufacturers' Association.

MORE COLORS

Micarta is offered in 40 colors and patterns, including solid colors, decorator effects, patterns and Truwoods.

MORE STAIN RESISTANT

Micarta can't be stained or discolored by boiling water, milk, grease, food products, fruit juices, household cleansers, detergents, barber and beauty shop materials, even nail polish and nail polish remover.

MORE "ABUSABLE"

Micarta dares you to chip, dent or scratch it. Test it with heavy glasses, cups, silverware, kitchen utensils, and even pots and pans.

CIGARETTE PROOF

Standard Micarta is remarkably resistant to cigarette burns; the cigarette-proof grade is guaranteed against cigarette damage.

Check MICARTA YOURSELF SEND FOR FREE SAMPLE

UNITED STATES PLYWOOD CORPORATION
55 West 44th Street, New York 18, N.Y. A. F. 11

I want to check Micarta myself. Without any obligation, please send me a FREE sample.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

MICARTA is manufactured by WESTINGHOUSE and sold, for decorative purposes only, by UNITED STATES PLYWOOD CORPORATION.

IT'S YOUR BEST BUY
for Christmas

Let's face it—

Your wife would much prefer mink.

And your secretary would respond more warmly to a bottle of Chanel #5.

But from you *as a building professional* to your friends and clients *in the building industry*

—what could be more appropriate than the gift of *priceless ideas* which will stimulate their business during the year to come?

Obviously, that prescription calls for Architectural FORUM

—to be taken twelve times yearly, as a reminder of your Christmas Wishes.

Economical, too—

Your first subscription $5.50

Each additional subscription (ordered at the same time) only $4.50

No matter when it expires, if you renew your own subscription now, count that as your *first* subscription!

Thus, your gifts cost you only $4.50 each.

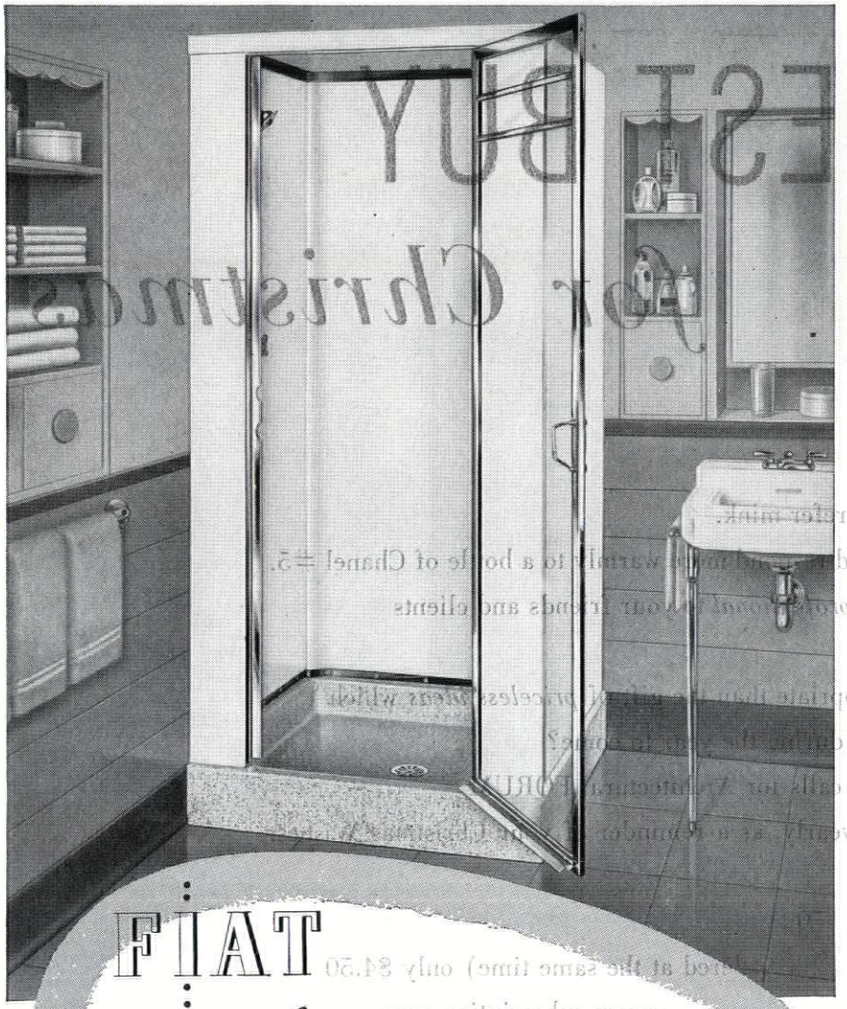
These prices cover one year, domestic subscriptions to building professionals.

Non-professional, domestic rate—$11.

Pay in January if you wish. But fill in and mail the convenient, postpaid order form bound in this issue—*today*.

ARCHITECTURAL **forum** MAGAZINE OF BUILDING

540 North Michigan Avenue, Chicago 11, Illinois



FIAT

Admiral . . . THE ONLY SHOWER CABINET WITH A VITREOUS PORCELAIN ENAMEL INTERIOR

The smooth, glass hard, vitreous porcelain interior surfaces of the Admiral Shower provide the ultimate in cleanliness and sanitation, they remain white and impervious to wear for a lifetime. Exterior of side and back panels are regularly finished with vitreous porcelain enamel ground coat, but can be furnished to match interior at small extra cost. Front stiles and head rail, bonderized, galvanized steel finished in white synthetic baked-on enamel. Receptor, deep type terrazzo made of black and white marble chips and white cement. Sizes 36" x 36" x 80" and 40" x 40" x 80". Illustration shows this shower equipped with a Fiat Dolphin heavily chromium plated glass door. The Admiral shower is suitable for high grade residential and institution installations.

Complete specifications in Sweets' Architectural Catalog File, or write any of the three Fiat plants for catalog.

FIAT

FIAT METAL MANUFACTURING CO.

Three complete plants

Chicago 13, Ill. Long Island City 1, N. Y. Los Angeles 33, Calif.

In Canada—Fiat showers are made by Porcelain and Metal Products, Ltd. Orillia, Ontario

ARCHITECTURE AND THE SPIRIT OF MAN by Joseph Hudnut. Harvard University Press, Cambridge, Mass. 301 pp. 5½ x 8½. $4.50.

Joseph Hudnut, as Dean of Harvard University's Architectural School, has been instrumental in bringing modern architecture (and Walter Gropius) to the halls of that tradition-hallowed institution; and this fact alone commands a respectfull hearing for his book *Architecture and the Spirit of Man.* One suspects, however, that a 'respectful' audience would be a very dull one indeed for Mr. Hudnut. He much prefers to amuse and stimulate and, if possible, to dazzle his readers.

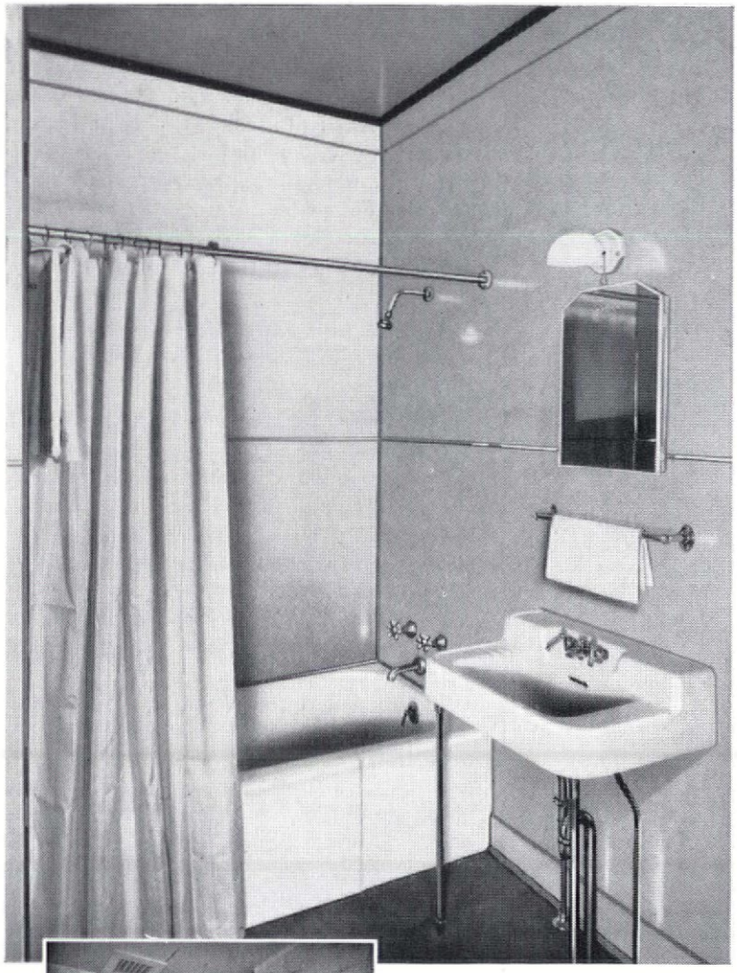
Let it be said at the outset, this book is not for the logical-minded (as the jacket blurb hints delicately by saying it is "no book for the pedant"). Universities, hospitals, cathedrals, houses, gardens, cities and monuments bob up into view and sink down again, only to reappear a few casual pages later. If an errant printer had omitted or reversed the titles of the two sections—*On Traditional and Modern Architecture* and *On the Architecture of Cities*—it is doubtful whether any reader would have noticed the difference. In the same way the title of the book itself could just as aptly be slid around from its present order to read—"Man and the Spirit of Architecture." Almost any chapter and any paragraph could be switched without greatly lessening its effect.

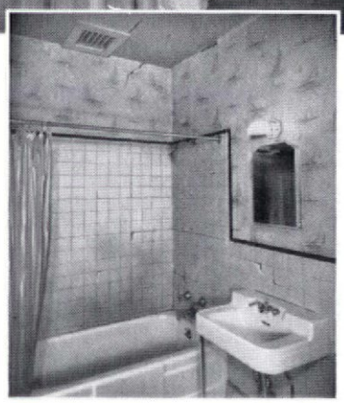
Although Mr. Hudnut's tome sadly lacks a unified structure, it does offer valuable scattered insights. How many heated arguments evaporate in the light of the observation—"Our learning is only dangerous when we mistake it for a process of design." He points out the absurdities of neoclassic architecture with a finesse only possible to one who has experienced its charms. "I shall always refuse to believe in the worth of a Raphael," he remarks, "unless I must climb at least 40 marble steps to reach it." There is validity, too, in his warning about imitative style in houses—"These commutations of architecture are the pale but necessary substitutes for an experience of architecture in which emotional values are fused into technological values. Until we achieve that fusion Cape Cod cottages will take command."

But Mr. Hudnut's lack of structure has an even subtler effect than that of destroying a sense of continuity. It makes him very liable to self-contradiction. His conclusions often seem more the outgrowth of mood than of logic. We find him acclaiming the tense spirit of modern buildings on page 42—"Those buildings which capture us today have in them an element of expectancy. They exist not in space merely, but in time. They are going somewhere." By page 115 this attitude has changed to a rather disgruntled impatience—"The mighty cantilever which projects my house over a kitchen yard or a waterfall, that flexible wall and stressed skin; these fanaticisms of glass brick; these strange hoverings of my house over the firm earth—these strike my eyes but not my heart." (For worse, as well as better, Mr. Hudnut's eyes and heart are very much in evidence through the whole book).

Even more capricious is his change from an early understanding that buildings must take their character from "their specific techniques and multitudinous problems," to a later repudiation: "A 'fearless' affirmation of the functions of nutrition, dormation, education, procreation and garbage disposal is quite as false a premise for design as a clutter of rambling roofs, huge chimneys, quaint dormers . . . Nor have I a firmer faith in the quaint language and high intentions of sociologists . . . I am even less persuaded by biologists . . . My requirements are somewhat more subtle than those of a

(Continued on page 136)





AFTER—The same area smartly modernized with versatile Marlite. Note that ceiling, too, features beautiful Plain-Color Deluxe Marlite panels. Now dirt, stains and moisture are permanently **sealed out.** The room is easy to clean and to **keep** clean—mighty important to budget-wise hotel operators.

BEFORE—In the Reeves Hotel, New Philadelphia, O., the wall covering in this tub area was peeling away from the walls of this outmoded room, before remodeling.

Here's how *Easy* it is to modernize bathrooms with Marlite!

HOW MARLITE IS APPLIED—Old walls or new are easily modernized with Marlite. Walls should be reasonably clean, dry and smooth. The applicator establishes plumb and level lines, measures for the panels and mouldings, works with ordinary carpenters' tools. Mouldings are cut, trimmed and fitted. Waterproof caulking is applied to moulding channels and fixture openings. Waterproof Marsh adhesive is applied, and panels are pressed firmly into position.

MARSH MATCHING MOULDINGS COMPLETE THE JOB—The complete line of Marsh Mouldings (Aluminum Alloy, Colored Presdwood and Plastic) is especially designed for Marlite installations, with wide flanges for easy nailing and adequate room in the channels for expansion. Faces of various shapes are matched to make perfect joints easy.

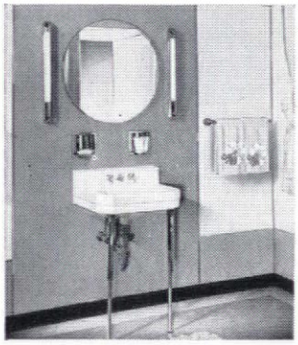
WIDE RANGE OF PATTERNS, COLORS, SIZES—Marlite comes in large, wall-size panels, 4′ wide, 5/32″ thick, and in 5, 6, 8 and 12′ lengths. There are gay, colorful, decorator colors in tile-pattern, horizontaline and plain-color patterns (as well as in new Wood and Marble patterns). Marlite never needs painting or redecorating, withstands the abuse of daily public usage, remains sparkling clean with only an occasional wiping with a damp cloth.

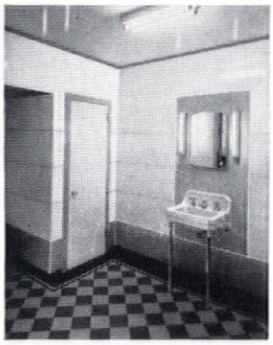
CATALOG FOR ARCHITECTS—Send for your free copy of fully illustrated catalog showing complete installation details, typical Marlite installations in all kinds of interiors, and information on the complete line. Address Dept. **1101,** Marsh Wall Products, Inc., Subsidiary of Masonite Corporation, Dover, Ohio.

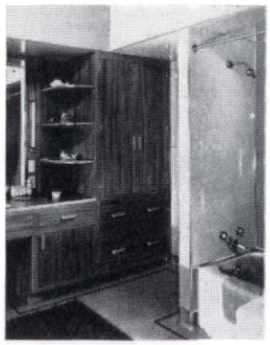
Marlite
PLASTIC-FINISHED
WALL PANELS

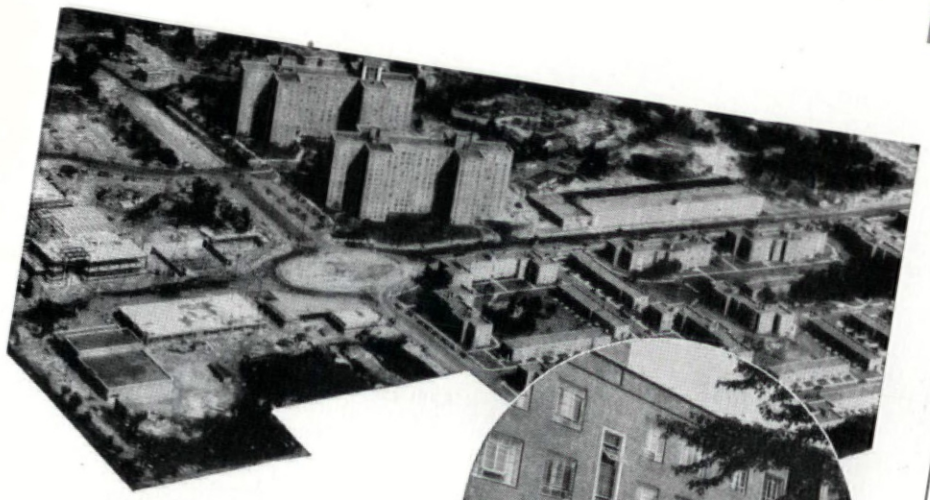
Marlite
good for home modernization, too

See our catalog in Sweet's Architectural File



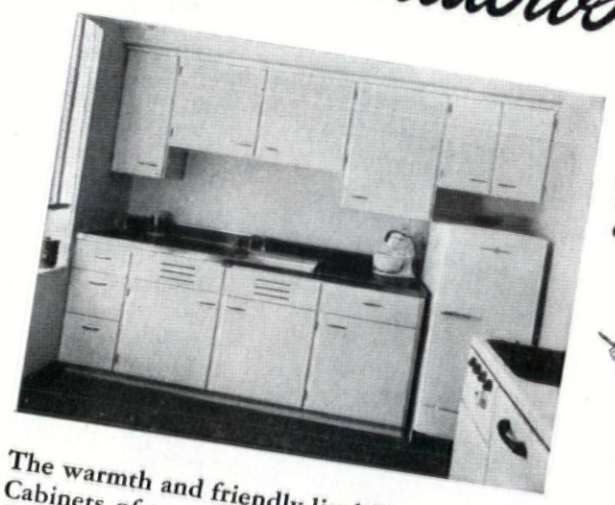






KITCHEN MAID
CABINETS OF WOOD
SELECTED FOR NEW YORK LIFE INSURANCE COMPANY'S
Fresh Meadows

2400 Kitchen Maid Kitchens were required for Fresh Meadows, New York Life Insurance Company's residential development in Queens, Long Island. Here is a self-contained community for 10,000 people. Architects: Voorhees, Walker, Foley and Smith. Builder: George A. Fuller Company.



The warmth and friendly livability of factory-finished Kitchen Maid Cabinets of wood were important considerations in their selection for Fresh Meadows. The modern beauty of Flo-Line styling, another unique Kitchen Maid feature, also contributed to their choice. Aluminum drawers that slide quietly and easily, resinite doors that operate freely on cushioned roller catches, a porcelain-like finish of lasting beauty, permanent shelves . . . these are additional features that you and your clients will appreciate. Plan now to use Kitchen Maid Cabinets in your next kitchen.

Look for this seal in your dealer's window. It signifies his skill as a member of the nation's oldest kitchen planning organization.

KITCHEN MAID KITCHENS PLANNING CENTER

KITCHEN MAID
FIRST AND BEST IN KITCHENS

THE KITCHEN MAID CORPORATION
491 Snowden St., Andrews, Indiana
Please send new booklet containing 10 practical kitchens with floor plans and details. I am an ☐ Architect, ☐ Builder, ☐ Dealer.
Name_____
Street_____
City_____ State_____

ripe tomato or a caged hippopotamus, whatever may be the opinion of the Pierce Foundation."

In such a distortion of the functional view (when did the Pierce Foundation try to expunge Mr. Hudnut's subtleties?) he reveals his real grounds against the modern spirit. It is apt to put a crimp in most people's 'style'—and style is a luxury for which he betrays overwhelming nostalgia. This blueprint for architecture ignores an old lesson learned by the Spirit of Man—"You can't carry water on both shoulders"; "You can't eat your cake and have it too."—S.K.

AIRPORTS AND AIR TRAFFIC by Walter Wood. Coward-McCann Inc., 2 W. 45th St., New York, N. Y. 159 pp. 5½ x 8. $3.75.

John W. Wood, who in 1940 wrote *Airports: Some Elements of Design and Future Development* outlines here the practical consequences of U. S. growth in air traffic during the eight years since that time. Civil air traffic alone has jumped from 18,000 craft (which overcrowded the then available 2,200 ports) to 100,000 craft endangering today's 6,000 ports. The enormity of the task awaiting airport planners is seen from the estimated total of "reasonably complete" service for commercial and private planes—more than 20,000 additional fields.

The problem, moreover, is as complex as it is large, for airplanes have grown in size and diversity as well as in numbers. How much and in what ways they have grown are vital statistics for any planner, since the size of the field is determined not only by the volume of craft to be served but by wing and power loading, which sets the length of runways. Wood makes an apt comparison with sea craft: "As landing places for boats vary widely to answer the needs of the sailboat, freighter and transatlantic liner, so the landing area and operational requirements of airports must be entirely different for the two-place sports plane, the 15 to 25-passenger feeder airplane, the slow 20-ton-cargo plane, and the 80-ton-airliner carrying 100 passengers at 400 miles per hour."

The necessity of country-wide planning for a problem so enormous and far-reaching is ably if laconically stated—"Far sighted regional airport planning is worth many times its cost." The example of LaGuardia Airport which within eight years required double its $40 million cost for patch work speaks for itself. One dangerous tendency noted by Wood is that of placing airfields too close together—some only a mile apart. His suggested minimum radius leaving enough access space is seven miles. A nautical comparison again emphasizes precautions necessary for safe air travel—"Merely to visualize what would happen if the ship, tog, ferry and barge traffic of New York Harbor suddenly began to move at 150 miles per hour illustrates the fundamental differences between surface and air traffic."—S.K.

BAUEN MIT GLAS by Otto Volckers. Julius Hoffman, Stuttgart, Germany. (Available in the U. S. at the Architectural Book Publishing Co., Inc., 112 W. 46th St., New York 19, N. Y.) Illus. 184 pp. 9 x 11. $8. ($9.75 in cloth binding).

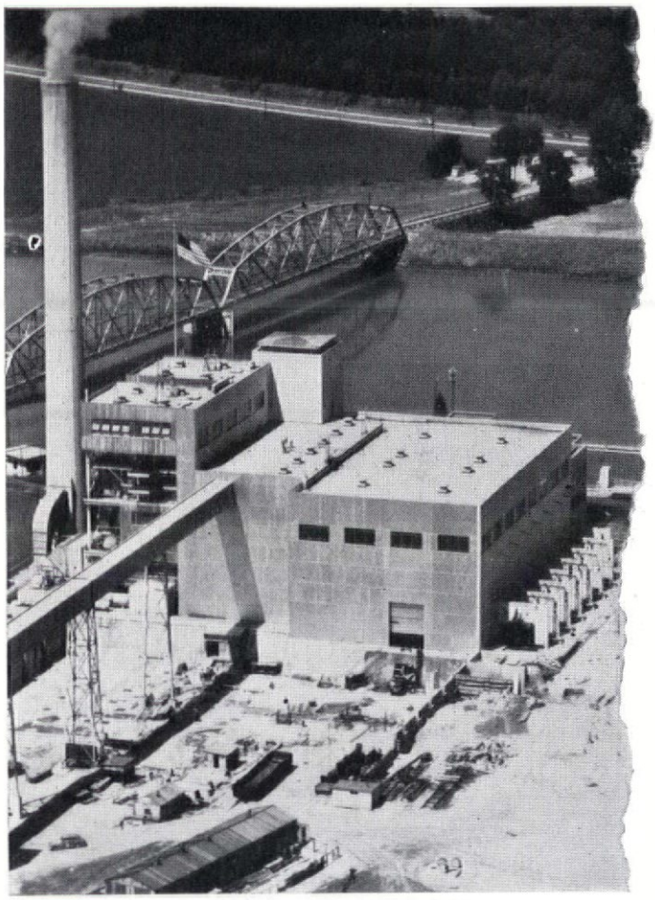
BUILDING FOR DAYLIGHT by Richard Sheppard and Hilton Wright. Introduction by John Gloag. MacMillan Co., 60 Fifth Avenue, New York, N. Y. 91 pp. 8¾ x 11. $5.50.

Two recent books from Europe show the increasingly important role of glass in the design of modern buildings. *Bauen Mit Glas*, the first important architectural book to come from

(Continued on page 138)

How to Make Power Plants

S-t-r-e-t-c-h-a-b-l-e



Courtesy of The Dayton Power and Light Company, Dayton, Ohio. This structure includes 139 squares of steel Fenestra Type C Panels and 142 squares of aluminum "C" Panels.
Engineers: Ebasco Services, New York City. *Contractor:* Owner.

Power plants must be *expandable.* So—if the future demands it—walls can stretch out to hold added equipment. That's one of the reasons so many modern stations have walls of Fenestra* Type C Building Panels.

Are you designing buildings where the easy dismantling of these good-looking panels would be an important factor in the future moving of the buildings or in rearrangement of curtain walls?

Where the installation speed of Fenestra Panels can help get equipment under cover quickly... economically...

Where noncombustible walls are needed—lightweight walls of great strength that lessen the requirement for structural steel . . .

Where, instead of a 12″ brick wall, you could have "C" Panels with their 3″ layer of enclosed Fiberglas insulation . . . and save money . . .

Where walls should be so smooth that dirt and grease can't get a grip?

What Fenestra Insulated "C" Panels Are

"C" Wall Panels are standardized in 3″ depth and 16″ width, in 18 gage painted steel or 16 B&S gage aluminum. Steel panels vary from 6′ to 14′ in length, weigh only 6.50 lbs. per sq. ft. Aluminum only 3 lbs. Made from two formed members, joined to form a structural unit. Asphaltic impregnated felt is inserted inside the full length to prevent metal-to-metal contact. Double tongue and groove joints make a wall of "C" Panels an integral load-bearing unit. There are 3 positive bearing surfaces per panel. This eases erection, vertical or horizontal. Each panel is vapor sealed, with felt stripping between the formed sides and end closures. Smooth surface permits easy flashing details. Note: In the illustration, the left edge is the outside.

See Sweet's Architectural File—Section 3c/3, mail the coupon, or have one of our engineering representatives call. Also ask about "D" Panels for floors and ceilings, and Holorib Roof Deck.

"USE OUR 25 YEARS' EXPERIENCE IN METAL PANEL ENGINEERING."

*Trademark

Fenestra

METAL BUILDING PANELS

ROOFS · WALLS · FLOORS

DETROIT STEEL PRODUCTS COMPANY
Building Panels Division
Dept. AF-11, 2251 E. Grand Boulevard
Detroit 11, Michigan

☐ Please have an engineering representative call.

☐ Please send me, without obligation, information on Fenestra Building Panels.

Name_____

Company_____

Address_____

AT 75 . . . A MOST EFFECTIVE BEAUTY TREATMENT!

new beauty • added sales with architectural porcelain enamel by

seaporcel*

In the heart of Rochester, N.Y., stands the 75-year-old Three Sisters Building. Look at it *before.* Look at it *today,* with its handsome new facade of SEAPORCEL* Porcelain Enamel.

Covered entirely with SEAPORCEL, in a harmonious blend of colors, the building looks good . . . inviting to *shop in!* Fluted area, both elevations, is in buff semi-matte finish. Flat panels between windows are light green. Protruding fin and sign background are white, with letters in burgundy semi-matte finish.

WRITE TODAY for detailed information on applications, current jobs, and a free sample of a "shaped" part in rich terra cotta finish

Architects:
S. E. CHAMBERS, Syracuse
I. M. COHEN, Chicago

28-24 BORDEN AVENUE,
LONG ISLAND CITY 1, N.Y.
Complete A. F. of L. Metal Fabricating & Enameling Shop
Also manufactured on the West Coast
SEAPORCEL CORPORATION OF CALIFORNIA
Represented by McFarland Co.,
1206 West 7th St., Long Beach 3, Calif.

SEE OUR CATALOG IN SWEET'S

*Reg. U.S. Pat. Off.

postwar Germany, is a painstaking, thorough study. Every phase of the subject is presented—a brief history of characteristic window use in countries all over the world, the chemical and manufacturing processes of glass, construction details, and outstanding examples of a very wide variety of uses. The well chosen photographs and drawings (200 photos and 74 diagrams) give this work an international value which transcends the limits of its German text.

Building for Daylighting, an English volume, is slighter in aim and method. Except for a few pages on the techniques of "daylighting," the book seems more a primer for interested laymen than a full-fledged professional guide. Illustration is limited to sketches (very attractive ones) and no actual installations are described or analyzed—leaving the subject in a very theoretic light indeed. U. S. lighting experts, more pragmatic than their English counterparts, are apt to be a little impatient with "daylighting" estimates which omit from computation such essential factors as sunlight and reflected light. The final section of isometrics of typical building types seems to get away from the basic topic "building for daylighting" by giving as much emphasis to such items as "glass finger plates for doors" and "polished plate glass shelves for the refrigerator."

CONTEMPORARY DANISH ARCHITECTURE by Esbjørn Hiort. Gjellerups, Copenhagen, Denmark (Available in the U. S. at the Scandinavian Book Service, P. O. 99, Audubon Station, New York 32, N. Y.). Text in Danish and English. Illus. 108 pp. 6⅞ x 8. $2.95.

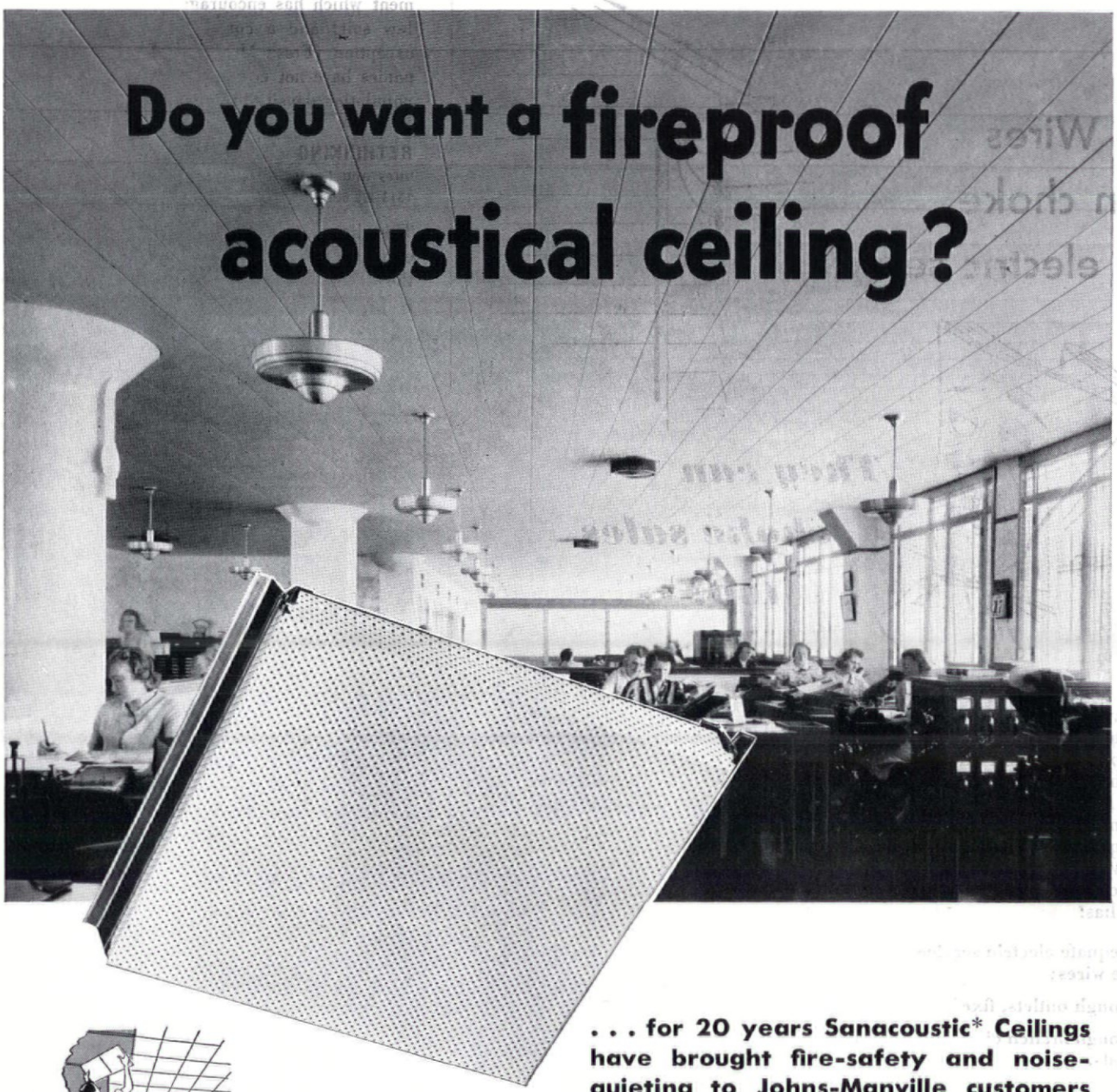
Danish accomplishments in modern architecture appear more and more impressive as each new account is published. Following the all-over survey by the *Architectural Review* (FORUM, Reviews, July, 1949) this small book sets its sights more precisely. The author explains—"I have chosen to describe a number of individual buildings, each of which according to my judgment represents something typical or of special merit in modern Danish architecture." Each building chosen emphasizes both the sureness of the author's judgment and the Danish mastery of two building materials—brick and reinforced concrete. From the well-known University at Aarhus and the Copenhagen Broadcasting house to such admirable smaller buildings as the Nyborg Library and the house by Frits Schlegel—the sure sense of texture and form is a delight to behold. The excellence of the photographs makes one sorry that their reproduction isn't better.

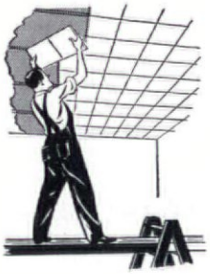
THE SIGNIFICANCE OF THE WORK OF THE NEW YORK CITY HOUSING AUTHORITY by the Committee on Housing, New York Chapter of the American Institute of Architects, 115 E. 40th St., New York 16, N. Y. 129 pp. 8½ x 11. $2.50.

"How well is public housing satisfying the physical needs of family life? How well does large scale housing satisfy the needs of community living?" A group of impartial critics presents answers by analyzing the achievements of the New York Housing Authority. Its standards were based on: 1) rooms: size, exposure, arrangement, circulation and furnishability; 2) means of access: halls, stairs, elevators; 3) population density and 4) community facilities. Conclusions are important to all in the housing field. On the debit side are insufficient community facilities and incorporation with the city plan as a whole. On the credit are: 48,000 housing units actually in use, 28,000 more on the boards (the largest system in the world); a record of experiment and accomplish-

(Continued on page 140)

Do you want a fireproof acoustical ceiling?





Sanacoustic Units may be applied to new or existing ceilings. The method of installation assures perfect alignment, allows easy removal without damage.

An exclusive J-M patented construction system permits interchangeability of flush-type fluorescent lighting and acoustical ceiling units.

The attractive appearance of Sanacoustic blends with any interior. All-metal-and-mineral construction assures fire-safety.

. . . for 20 years Sanacoustic* Ceilings have brought fire-safety and noise-quieting to Johns-Manville customers

● Millions of square feet of J-M Sanacoustic Ceilings are serving in institutions, offices, and places of public assembly because they combine fire-safety with extremely high sound-absorption qualities.

Consisting of perforated *metal panels* backed up with a fireproof sound-absorbing element, Sanacoustic Ceilings will not burn, rot, or disintegrate. They combine the advantages of good appearance, removability, high light-reflection, and ease of maintenance.

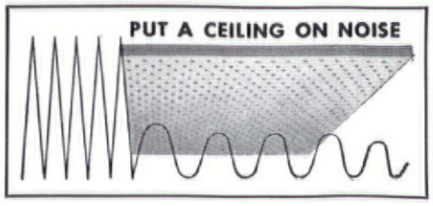
Write for our new 16-page brochure, "Sound Control." Johns-Manville, Box 290, New York 16, N. Y.

*Reg. U. S. Pat. Off.

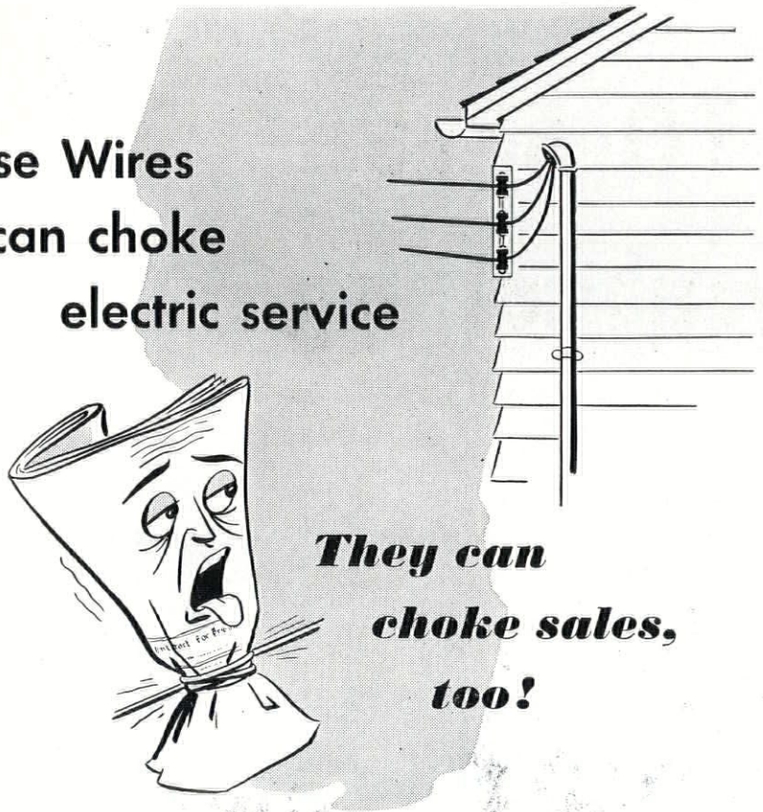
JOHNS-MANVILLE JM PRODUCTS

Johns-Manville

SANACOUSTIC CEILINGS



These Wires can choke electric service



They can choke sales, too!

When service entrance conductors are too few or too small they choke off what customers want—the necessary electric supply for modern living. They're apt to choke off sales, too!

In the houses you design or build, provide an adequate Electric Service Entrance, having three wires, *large enough* to bring in as much electricity as the home may need, now or in the future.

An adequately wired home sells readily at a good price, because home buyers nowadays have learned to look for Adequate Wiring.

An Adequate Wiring Certificate is your proof that each house you design and build has:

- **Adequate electric service entrance equipment, fed by three ample size wires;**
- **Enough outlets, fixed lights and switches;**
- **Enough branch circuits and spares for present and future electrical needs.**

The Sign of the Times

Use the services of the local Adequate Wiring Bureau in preparing a complete Adequate Wiring layout and specification, *before* you put the electrical job out for bids. Get the wiring into the plans for better appraisal—a better loan!

If there is no Adequate Wiring Bureau in your community, write us or your local electric utility for information on how to take advantage of Adequate Wiring in the homes you build.

USE THIS COUPON *if there is no Adequate Wiring Bureau in your area*

NATIONAL ADEQUATE WIRING BUREAU, Dept. AF-11
155 E. 44th Street, New York 17, N. Y.

Please send me, without charge, information on how to take advantage of Adequate Wiring as a sales feature.

NAME.....

TITLE.....

STREET ADDRESS.....

CITY..... STATE.....

ment which has encouraged large private companies to follow suit; and a competence so great that with a single exception (Fresh Meadows in Queens) "the insurance companies have not equaled the standards of site planning and population density attained by the work of the Authority."

RETHINKING URBAN REDEVELOPMENT by Coleman Woodbury and Frederick A. Gutheim. Public Administration Service, 1313 E. 60th St., Chicago 37, Ill. 26 pp. 7¾ x 10½. $1.

This discussion by a round-table of experts concentrates on eliminating the monkey wrenches which continually disgear the formation and working of city plans. Urban development is stressed as a "continuous process of attacking the problem of blight . . . not simply a device for making possible one or two or a handful of scattered projects." A bibliography of recent helpful publications is included.

LOW COST HOUSING IN LATIN AMERICA by Francis Violich. Pan American Union, Washington, D. C. 93 pp. 10½ x 7¾. Illus. $1.

A step towards hemispheric understanding is a step towards world understanding—and this study of housing standards in the 20 Latin American republics is headed in the right direction. Based on published reports and original research, it provides grounds for better knowledge of a problem intimately bound up with other vital ones—health, education, standard of living and purchasing power.

COMMUNITY CENTRES by the Planning Research Centre, University of Manitoba. University of Manitoba Press, Winnipeg, Canada. 120 pp. Illus. 11 x 8. $1.

This pamphlet is a model accomplishment of its kind—handsome, clear, common-sense. It traces the development of a community center from discussion stage through choice of a site, designing, combination with other types of public buildings, down to careful construction details and measurements for all types of game courts. Such a book is bound to be helpful to all the factors concerned in developing communities.

HOW TO LIVE WITH YOUR ARCHITECT by Victor Gruen. Store Modernization Institute, 40 E. 49th St., New York, N. Y. 5¼ x 8¼. 32 pp. Illus. $1.50.

A perfect primer for the expectant client. Architect Victor Gruen describes in cartoons and captions the life cycle of an architect, clearing up such delicate mysteries as how fees are figured and what is included under items like percentage or cost plus.

INDUSTRIAL ARTS OF AMERICA. Introduction by Shinju Koiki. Director of the central Bureau for Foreign Cultures, Japan. Illus. 7½ x 9¼. 122 pp.

Recent U. S. home appliances are hereby introduced to the Far East. This book proves that the products of Charles Eames, Russel Wright (et al) look just as handsome when surrounded with Japanese script.

BUILDING CONSTRUCTION COST DATA, 1949. Robert Snow Means. P. W. Box 62. Duxbury, Mass. 90 pp. 7 x 10½. $2.50.

This latest (7th) edition helps in cost-checking, gives spot prices on over 1,400 items. There are 108 complete breakdowns based on 1948-49 labor estimates and company product prices.

America's "Look-Ahead Builders" Point the Way...

HOW TO SELL WHAT YOU BUILD

Add Comfort, Appeal, Value to Your Projects. Make Bendix Equipment Part of Your Blueprint

The days when home-buyers gritted their teeth and took anything that would keep the rain off are gone!

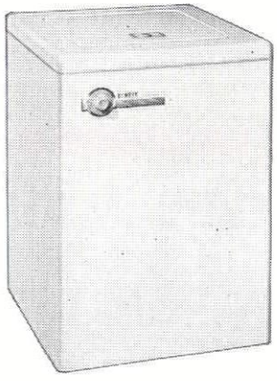
Today, they're looking for *extra* value. Extra comfort. Extra convenience.

That's why some of America's biggest builders provide for a Bendix installation right in the blueprint stage. It's an inexpensive "extra" that sells your units fast—and first!

To get first-hand information on how little a Bendix installation costs, and how much it does for you sales-wise—see your Bendix distributor.

The Bendix De Luxe—For permanent installation in laundry or utility room.

Known to more women, wanted by more women than any other washer in its price class! Washes, rinses three times, damp-drys. Unquestionably the washer you should choose for permanent installation. Particularly if your plans leave room for a matching Bendix automatic Dryer.



The Great Bendix "Economat"—Ideal for small homes, duplex projects or rental units.

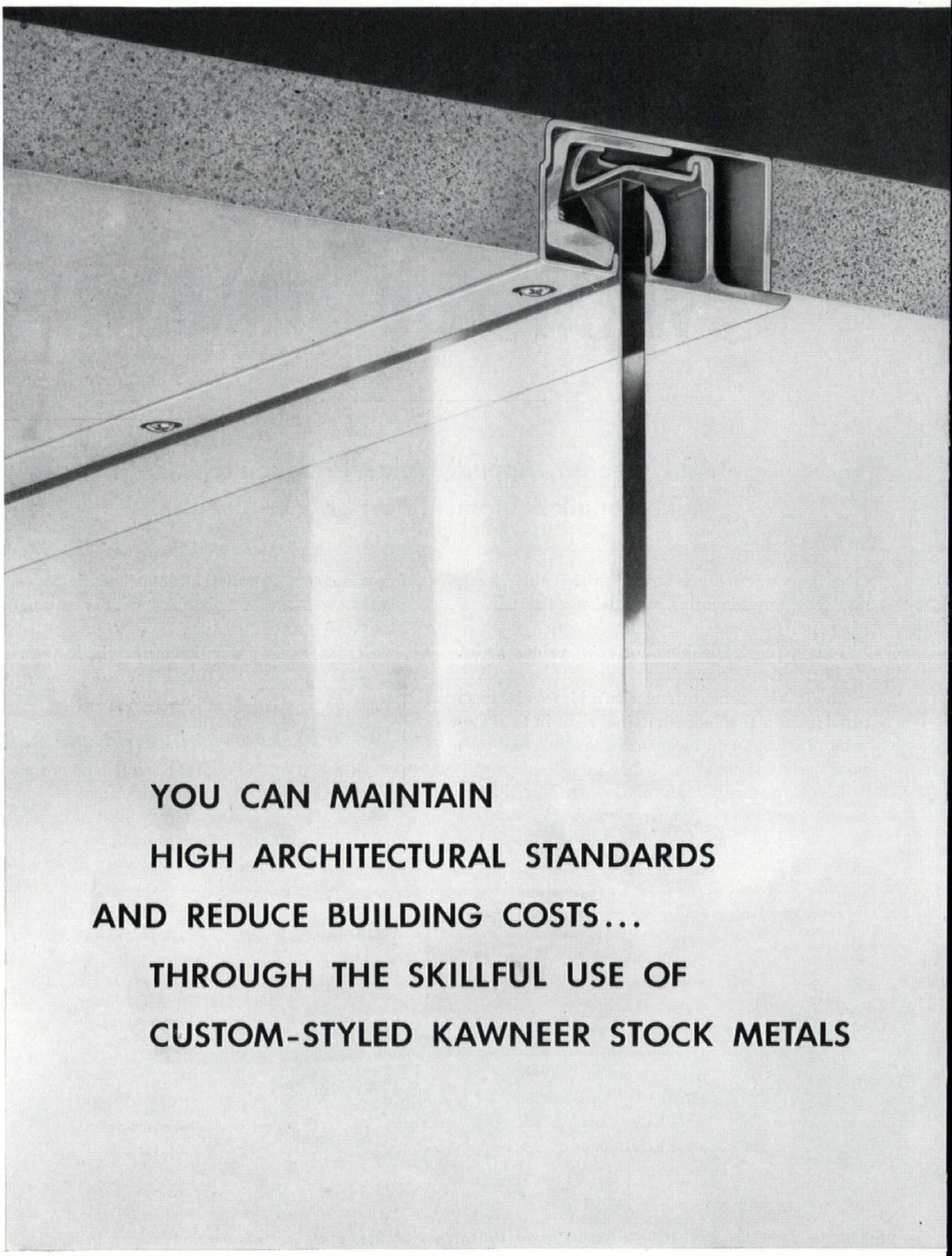
Here's the amazing new low-price Bendix automatic that America's gone crazy about. Fits anywhere in house or apartment. Never needs bolting down. Widely advertised—nationally known. Worth twice its price to you if you're building small or rental units!

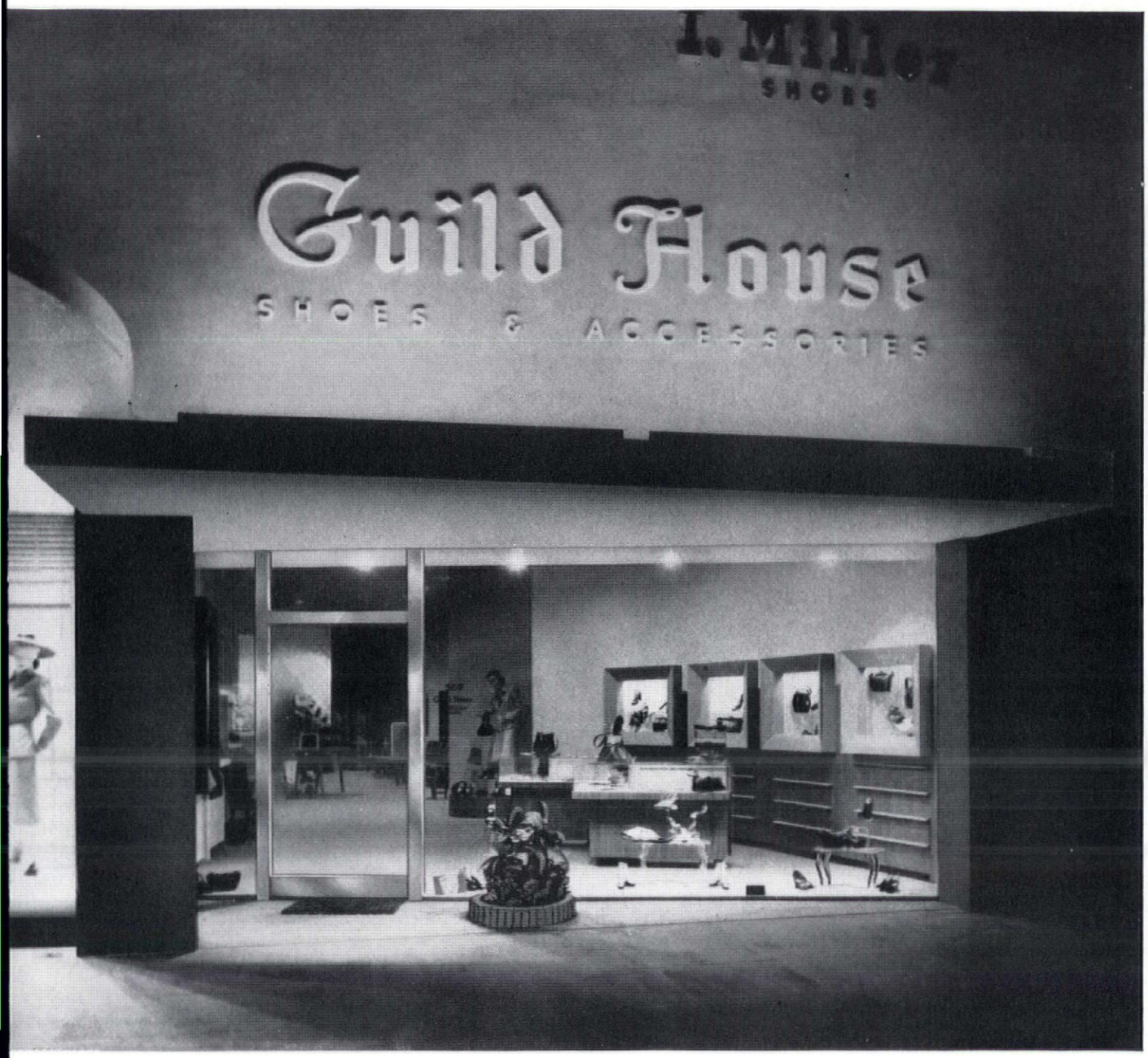
BENDIX automatic Home Laundry

Look over this list of blue-chip builders—all Bendix boosters!

Levitt & Sons, Manhasset, N.Y. • Gross Homes, Clayton, Mo. • Taylor Development Co., Richmond, Va. • Place & Co., South Bend, Ind. • Tauxemont, Alexandria, Va. • Byrne Organization, Baltimore, Md. • Merrick-Kleist Homes, Cleveland, Ohio. • Ridge Crest Project, Seattle, Wash. • Burns Realty Co., Denver, Colorado.

BENDIX HOME APPLIANCES, INC., SOUTH BEND 24, INDIANA • ***Makers of Bendix automatic Washers, Dryers, and Ironers***


YOU CAN MAINTAIN
HIGH ARCHITECTURAL STANDARDS
AND REDUCE BUILDING COSTS...
THROUGH THE SKILLFUL USE OF
CUSTOM-STYLED KAWNEER STOCK METALS



You can achieve all the unique distinction of custom-styling — all the clean-lined simplicity of modern design — by creatively adapting Kawneer Stock Metals to your individual style.

A perfect example is this outstanding women's shop in Long Beach, California.

To increase customer traffic, Kenneth S. Wing, A.I.A., decided to create an inviting open-air atmosphere which would eliminate the usual building line barrier and put the attractive interior on display.

To achieve this effect Mr. Wing specified Kawneer Patented Flush Glazing Sash, one of the many modern Kawneer Stock Metals.

The face of this sash is flush with surrounding wall and ceiling surfaces, because all projecting members are eliminated. To the eye, the surfaces on both sides of the glass appear to be a single smooth plane, continuous and uninterrupted by glazing sash.

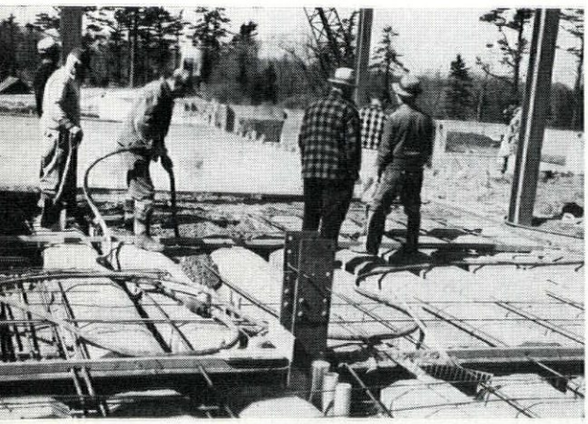
By using such Kawneer Stock Metals you can meet your clients' demands for lower building costs — and you can reduce your own operating costs. Kawneer Stock Metals are far less costly than special, made-to-order assemblies — and they eliminate time-consuming drafting and detailing in your own office.

For information, consult your Portfolio of Kawneer Details or write 289 N. Front St., Niles, Mich.; or 2589 8th St., Berkeley, Cal.

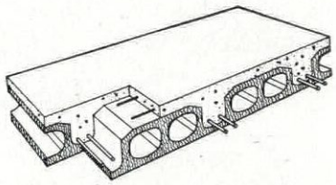
THE
Kawneer
COMPANY

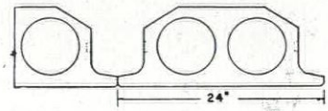
ARCHITECTURAL METAL PRODUCTS

Store Front Metals • Modern Entrances
Facing Materials • Aluminum Louvered Ceilings
Aluminum Roll-Type Awnings



PRODUCT NEWS





LIGHTWEIGHT SOFFIT BLOCKS afford savings in construction time and materials.

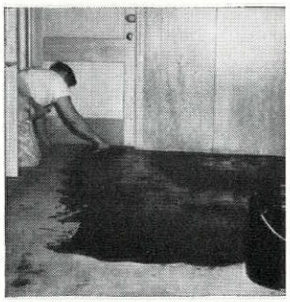
Made of Durisol, a lightweight aggregate of chemically mineralized wood shavings and Portland cement, these new soffit blocks are multipurpose building units. As forms for poured-in-place reinforced concrete joist and slab construction, the blocks become an integral part of the floor or ceiling. Not only do they provide thermal and sound insulation but in many cases eliminate the need for a hung ceiling. Merely by leaving the exposed surface untouched, an acoustical ceiling is obtained at no additional cost. If a plastered ceiling is desired, the Durisol serves as an excellent base—faster and easier plastering is said to be possible since less pressure has to be exerted on the trowel. The soffit blocks thus combine in one installation and material forms for poured concrete, a finished acoustical ceiling or good base for plastering, and insulation.

Measuring 24 x 48 in. these incombustible blocks are available in depths of 7½, 9½ and 11½ in. at respective costs of 70, 80, and 90 cents per sq. ft. Weight ranges from only 12 lbs. per sq. ft. for the thinnest block to 16½ lbs. for the thickest unit. Two men can lay more than 240 sq. ft. of the blocks in an hour. Because of their large size, manipulatable weight and design, the blocks require less shoring and concrete to attain strength comparable to ordinary poured concrete. They have gone through a long period of testing in Europe and several installations already have been made in the U. S. For schools and public building construction where low cost and soundproofing are both important considerations, Durisol Soffit Blocks are especially useful.

Manufacturer: Durisol Inc., 420 Lexington Ave., New York, N. Y.

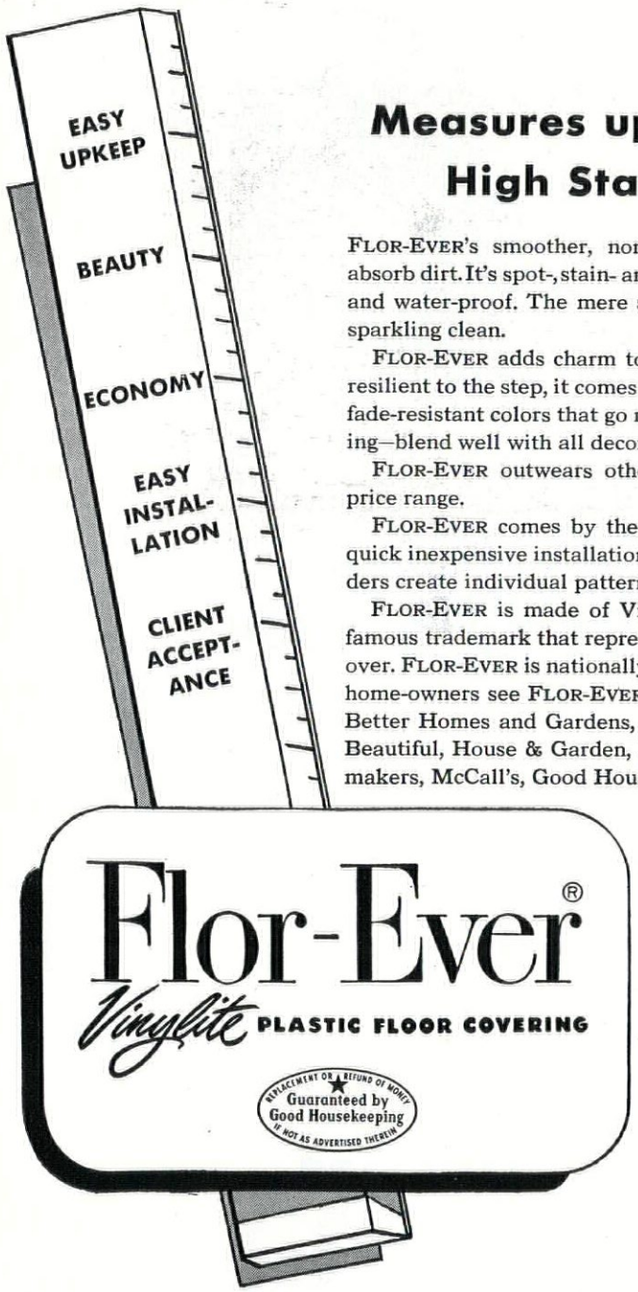
COATING FOR CONCRETE SLAB locks surface against condensation and alkali.

The moisture problem often incurred in concrete flooring in contact with the ground is the objective of Stafco On-Grade Sealer. Two coats of this material applied directly to the slab makes possible laying of linoleum, vinyl, rubber tile, wood parquetry or carpet without the danger of damage from condensation. A notched trowel is used to spread the first coat on the cleaned damp surface. One to four hours later, depending on drying conditions, a second coat is applied with a smooth trowel. Coverage for a double coat is from 50 to 75 sq. ft. per gal. Although not a substitute for underlaying or adhesive, it is claimed that all such materials will adhere to the sealer. According to the manufacturer, the emulsion will not soften or be affected by temperatures up to 180° and is, therefore, recommended for use on radiant heated slabs. No cure-all for concrete slab construction, the product cannot be expected to level a rough slab nor to seal off hydrostatic pressure. It is sold in 5 gal. drums at prices ranging from $1.95 to $2.25 per gal., depending on quantities purchased.



Manufacturer: Standard Floor Co., 141 Gulf Bldg., Pittsburgh, Pa.

(Continued on page 146)



Measures up to YOUR High Standards

FLOR-EVER's 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 to every home. Quiet and resilient to the step, it comes in a wide range of bright, fade-resistant colors that go right through to the backing—blend well with all decors.

FLOR-EVER outwears other floor coverings in its price range.

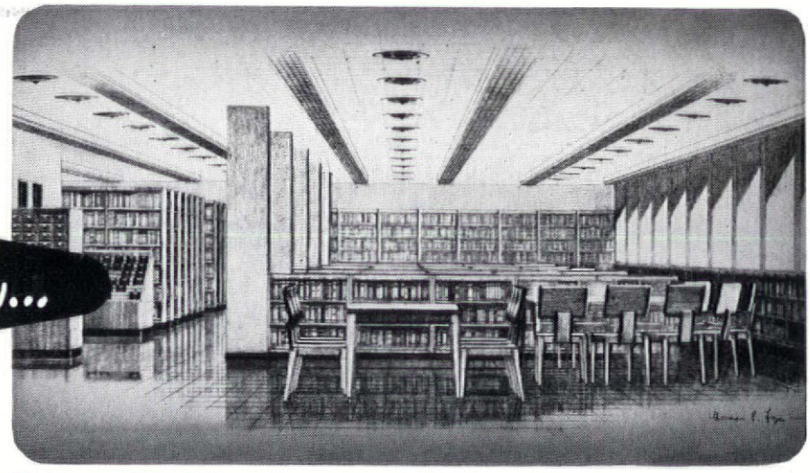
FLOR-EVER comes by the yard or in tile form for quick inexpensive installation. Feature strips and borders create individual patterns.

FLOR-EVER is made of Vinylite Brand Plastics—a famous trademark that represents quality the country over. FLOR-EVER is nationally advertised. Prospective home-owners see FLOR-EVER's full color campaign in Better Homes and Gardens, American Home, House Beautiful, House & Garden, Living for Young Homemakers, McCall's, Good Housekeeping and the Saturday Evening Post. It bears the Good Housekeeping Guarantee Seal.

DELAWARE FLOOR PRODUCTS, INC., Wilmington 99, Delaware

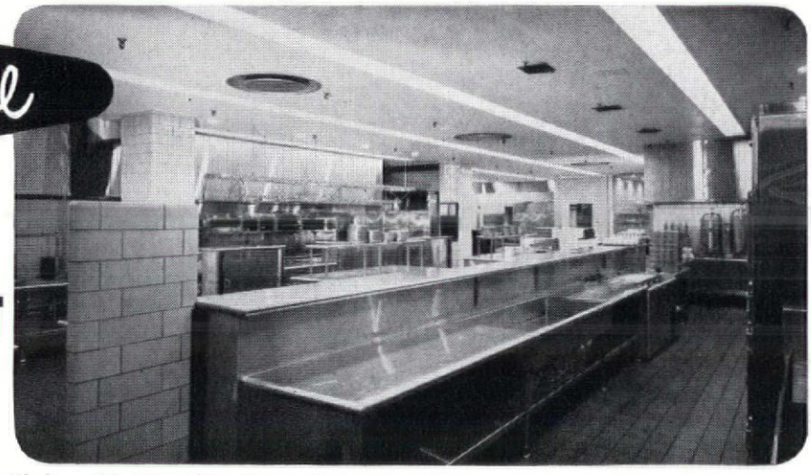
Also manufacturers of Del-Ware Kolorflor (plastic surfaced) and "Duralin" Enamel Floor Covering

for Appearance...



Washington State College Library; John W. Maloney, Architect

for Performance



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

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

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.

W. B. CONNOR ENGINEERING CORP.

Air Diffusion • Air Purification • Air Recovery

112 East 32nd Street WB CONNOR **New York 16, N. Y.**

IN CANADA: Douglas Engineering Co., Ltd., 190 Murray Street, Montreal 3, P. Q.

W. B. CONNOR ENGINEERING CORP.

Dept. T-40, 112 East 32nd Street, New York 16, New York

Please send my FREE copy of the new Kno-Draft Handbook on Adjustable Diffusers.

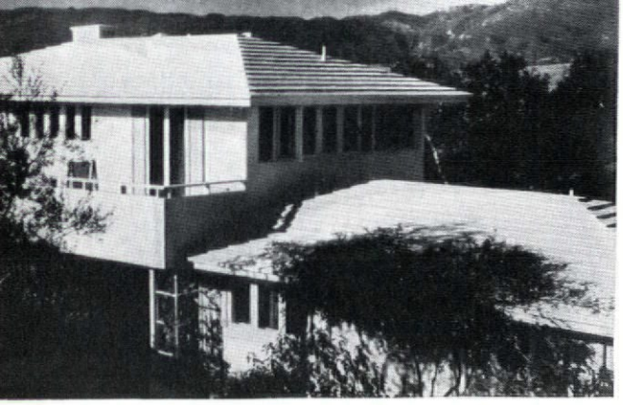
Name.....

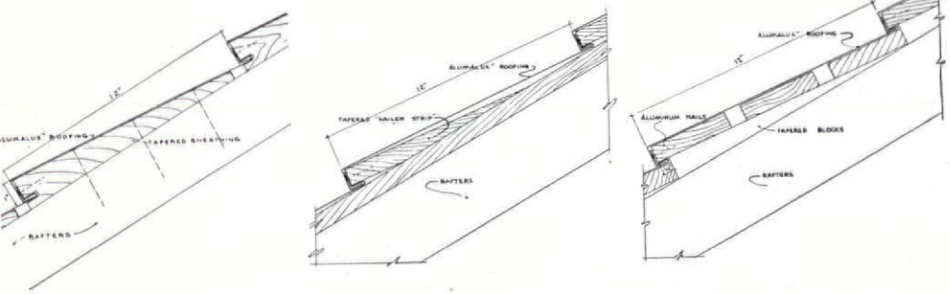
Position.....

Company.....

Street.....

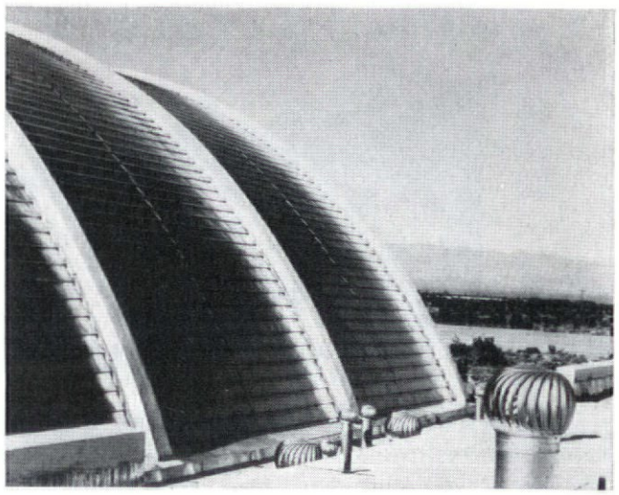
City..... Zone..... State.....





ALUMINUM ROOFING is suitable for home and industrial applications.

Alumalux Bermuda-style roofing, named for its deep wide horizontal shadow lines fashioned after the Bermuda coral roofs, is now available for nation-wide distribution. Designed to appeal to the market in appearance as well as for the lightweight, heat reflective, fire retardant and noncorrosive qualities of aluminum, this material is applied over wood sheathing. Roofing contractors with sheet metal forming equipment can easily apply the aluminum sections on a new structure or recover a worn shingle or composition roof. In the latter case, tapered sheathing or nailer strip is applied directly over the shingle. Field sheets and essential accessories such as hips, valleys, gable end rake strips are all



factory fabricated. Sheets are 10 ft. long with 12 in. to the weather. They are joined in a waterproof joiner strip which eliminates overlaps. Hips and valleys are also joined to the sheets with the joiner strip. Recommended pitches are from 4 on 12 in. to 6 on 12, but roofing may be pitched as low as 3 on 12. Applied cost compares with heavy shakes and rigid asbestos shingles and is less than most clay shingle tile. Current installations in Los Angeles are running from $32 to $40 per square, depending upon the complexity of the roof design. This Alumalux product also may be used as a sidewall material.

Manufacturer: Alumalux Co., Inc., 517 W. Garfield Ave., Glendale 4, Calif.

ROOF SURFACING MATERIAL contains suspended aluminum flakes and asbestos fibers.

Described by its manufacturer as "the metal roof that spreads on," Abesto Fiberated Lumiclad is a thick creamy liquid of aluminum flakes bound to fine asbestos fibers by a waterproofing base and held in suspension. Silver colored all the way through, Lumiclad provides a reflective insulation on both the top and underside of the coating to keep heat outside in summer and inside during winter. The material will not crack but will expand and contract with the natural "breathing" of the roof. Subjected to severe laboratory tests for heat damage, Lumiclad coated roofing showed no effects while unprotected asphalt melted and burned out in bubbles and smoke. Average coverage is from 100 to 200 sq. ft. per gal., depending upon roughness and porosity of the roof. Cost per 100 sq. ft. to the consumer is from $3 to $5. Lumiclad is put

(Continued on page 148)

DESIGNERS OF THE GENERAL PETROLEUM AND PRUDENTIAL LIFE BUILDINGS DECIDED TO USE

ETCHWOOD PANELLING IN KAISER HOMES PROJECT!

WURDEMAN & BECKET SAY:

"We have made extensive use of Etchwood in these homes because it is a beautiful hard surface plywood offering a great variety in methods of application and treatments in color, and also because Etchwood offers no obstacles in cost. It is both exciting and dramatic."

SOLD NATIONALLY THRU LEADING PLYWOOD WHOLESALERS

For your ETCHWOOD sample and descriptive folder, write to manufacturer, Davidson Plywood and Lumber Co., 3136 E. Washington Boulevard, Los Angeles 23, California

Announcing

Great New Facilities . . . Great New Service . . . Same High Quality Standards in

KNAPP METAL TRIM

Tremendous Plant Expansion plus Vastly-Improved Delivery Schedule

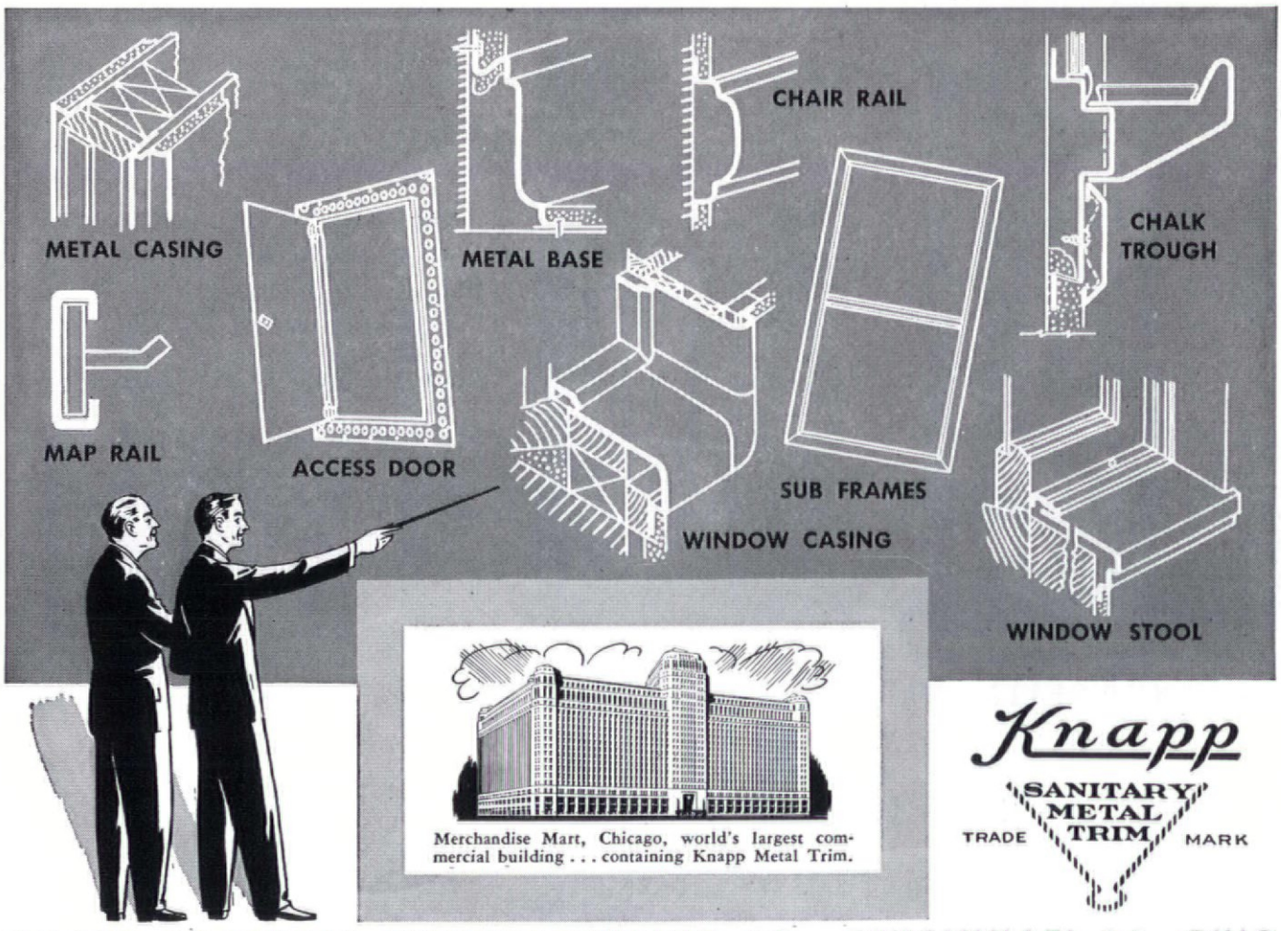
Increased Scope of Service and Quality Products to Architects and Contractors

NOW . . . famous KNAPP, a great name in metal trim, announces the biggest news in its almost half-century history! Long known to architects and contractors, Knapp today provides greater facilities and service than ever before.

Backed by 45 years of outstanding metal trim fabrication, Knapp Bros. Mfg. Co. now offers you almost every conceivable metal trim item necessary to modern building construction. Standard items of guaranteed precision and quality, plus custom-built parts that meet the strictest, most exact architectural specifications.

Expanded manufacturing facilities now provide all required metal trim faster, more accurately, better . . . with prompt delivery assured.

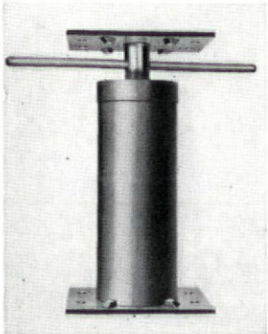
To insure the correct answers to your construction problems, specify KNAPP METAL TRIM in all future building planning. Write today for full details on Knapp Metal Trim and allied products.



Merchandise Mart, Chicago, world's largest commercial building . . . containing Knapp Metal Trim.

Knapp
SANITARY METAL TRIM
TRADE MARK

KNAPP BROTHERS MANUFACTURING CO., CINCINNATI 36, OHIO



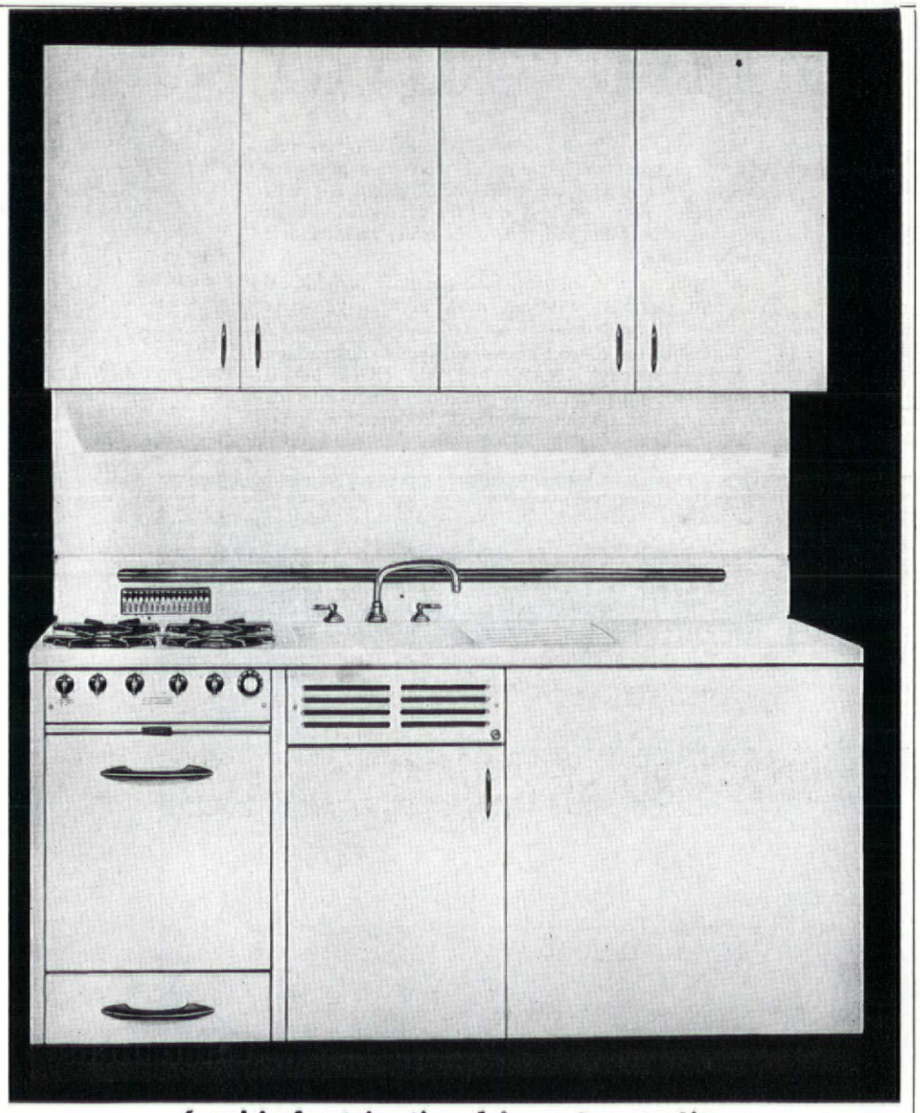
up in 1 gal. cans, 5 gal. pails and 55 gal. drums. It is also said to be an excellent covering for interior and exterior basement masonry.

Manufacturer: Abesto Mfg. Corp., Michigan City, Ind.

ADJUSTABLE HEAVY DUTY BASEMENT POST eliminates shimming and shoring.

A new kind of adjustable steel basement post offers contractors and builders a means of setting heavy duty posts without special cutting and fitting. The post is designed to give the same diameter column for its full height and to allow for an adjustment of 4 in. through a jack-screw assembly. This feature enables the builder to keep each column tight during all phases of construction or, by reversing the adjustment screw to bottom of post at time of installation, to lock it permanently in concrete against tampering or loosening. Corrosion-proofed, the posts are furnished in standard heights of 6 ft. 4 in., 6 ft. 10 in., and 7 ft. 4 in., plus the 4 in. jack adjustment. Top and bottom plates are heavy gauge steel with holding lugs embossed in position. Jack-screw is machined from steel bar stock with V-type thread. Every part is uniformly cut and finished, and tested strength is claimed to exceed 25 tons. Average cost to contractor is about $7.50 per post. Each unit includes heavy turning bar.

Manufacturer: Holm's Mfg. Co., 106 N. Main St., Akron, Ohio.



6 cubic foot (net) refrigerator on the

MURPHY - CABRANETTE KITCHEN - Series 69

Here is a complete family-size kitchen . . . streamlined into compact assembly only 69 inches wide. Modern range (gas or electric) with full-size oven and broiler, a 6 cu. ft. (net) refrigerator with stainless steel frozen food locker, a one-piece sink-and-range top, storage space. Entire front is genuine vitreous porcelain . . . permanent beauty that cleanses with soap and water, retains its gleaming whiteness forever. Minimum maintenance cost is proven in more than 25 years of service in rental properties. Write for complete bulletin.

DWYER PRODUCTS CORPORATION
Dept. F11 — MICHIGAN CITY, INDIANA

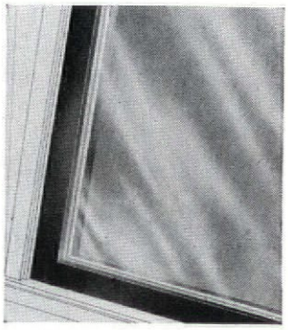
HAND-SPLIT CEDAR SIDING is ruggedly handsome.

Costing little more than ordinary sawn cedar siding, Olympic Hand-split Siding has texture, variations in butt thickness and wide shadow lines to give it a very effective appearance. The cedar is split in thicknesses of 1 to 2 in. in desired widths and then, to make application easier, resawn to achieve a bevled siding with a hand-split face. Butts run from ¾ to 1½ in. in thickness and lengths vary from 6 to 14 in. The siding is prestained at the factory in distinctive tones ranging from *Seafoam Green* and *Chamois* through *California Rustic* and *Russet Brown*. An unusual effect is achieved with Olympic's *Bleachtox* treatment, a weathering agent that changes the color of the wood to a silver gray color, much like driftwood on salt water beaches. Not a pigmented stain, *Bleachtox* contains chemicals that actually weather the wood.

Manufacturer: West Coast Stained Shingle Co., Seattle, Wash.

PRISM SHAPED PLASTIC GLAZING STRIPS may be used on metal or wood sash.

This simple glazing method consists of cutting the E-Z Glaze strips to fit the inner window frame, mitering the ends of the strips with a razor blade, squeezing adhesive compound from a tube onto pane and sash edge and pressing the strips into sealing position for less than a minute. Neither the compound nor the strips are affected by change in temperature or by rough weather. Unlike putty, the materials will not crumble or chip but will remain usable even after the glass is broken. Transparent and colored 24 in. strips are available at 5 cents per ft. (Special lengths may be obtained on request.) Minimum order consists of 1,000 ft. of 24 in. strips and 50 tubes of E-Z Glaze Window Compound at 15 cents a tube. Because of the perfect bond between glass and frame, World-wide especially recommends E-Z Glaze for storm window applications.

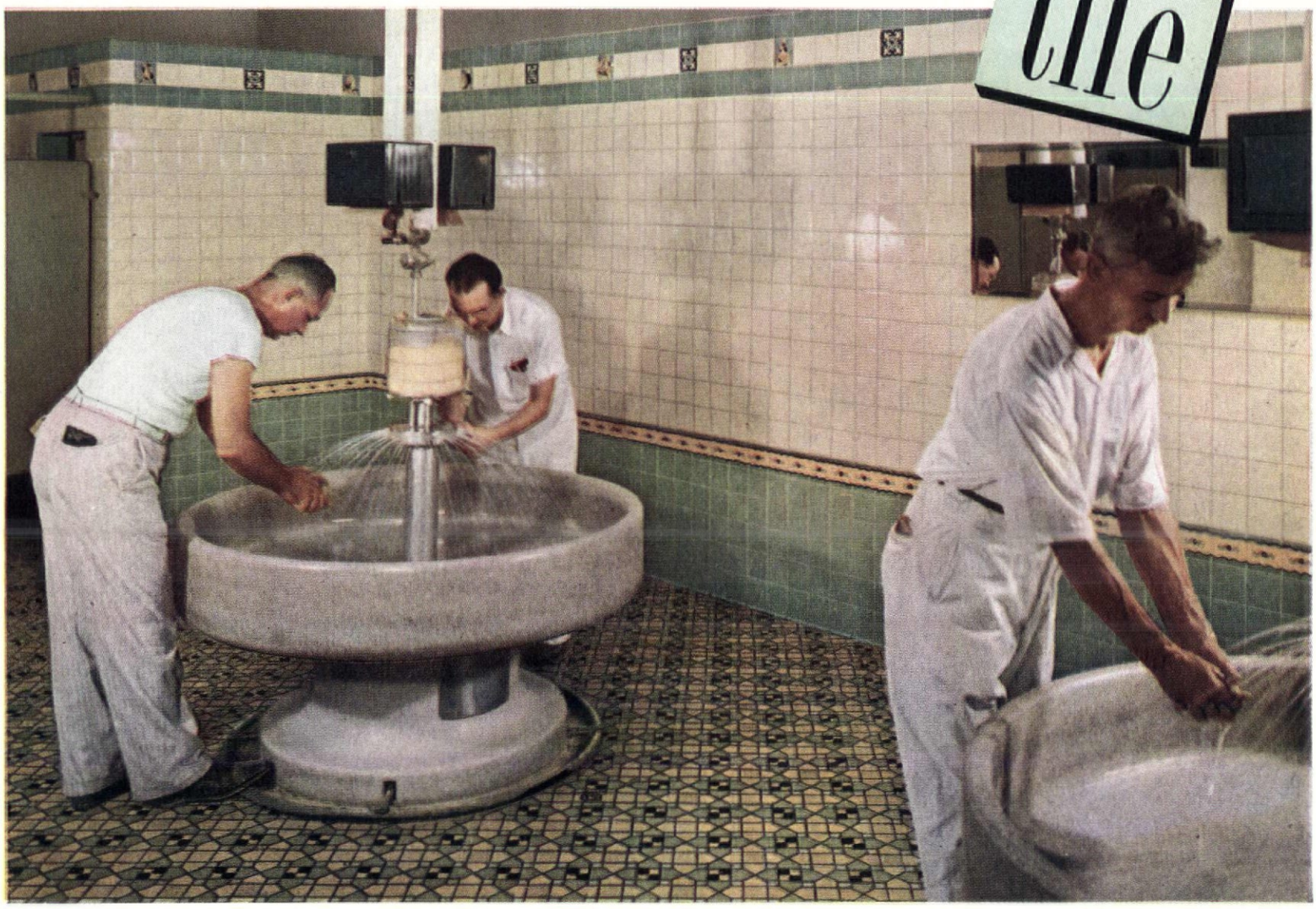


Manufacturer: World-Wide Productions, Walton and S. Franklin St., Syracuse 2, N. Y.

(Continued on page 154)

ALWAYS *Easy to clean...* ALWAYS GOOD LOOKING

BECAUSE WALLS AND FLOORS ARE GENUINE CLAY *tile*



"There's no better surface!" That's what one manufacturer says about the genuine clay tile used on the walls and floors of this carefully planned, modern industrial washroom.

He particularly likes the sharp drop in maintenance cost that always goes hand-in-hand with a clay tile installation. For genuine clay tile shrugs off water, soaps, acids and grease, leaving no fade marks, streaks or scars. Moreover, the handsome colors are good for a lifetime—they're fired-in!

You'll find that clients appreciate specification of genuine clay tile. They know that costly replacement, painting and refinishing are unheard of wherever tile is used. It's in to stay—it stays good-looking!

Today, genuine clay tile is available—there is no need to accept substitutes. For specific information, 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 clay floor and wall tile, and to sponsor research and development projects designed to increase the usefulness of clay tile in all types of private and public building.

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

THE MODERN STYLE IS CLAY TILE

AT JOHN HANCOCK . .

Architects
Cram & Ferguson
Builders
Turner Construction Co.

Over the years there'll be many space changes made in the *new* John Hancock Mutual Life Insurance Co. Building, Boston, Mass. John Hancock will continue to grow and operational methods will change.

But in this beautiful structure, new floor layouts will be made quickly, easily and at lowest possible cost because Hauserman *Movable* Steel Interiors are used throughout 23 floors.

HAUSERMAN MOVABLE STEEL INTERIORS

Assure Low Maintenance Costs

These handsome walls won't chip, crack, warp or scale. They save thousands of dollars by eliminating the need for patching and repainting. Independent laboratory tests prove that Hauserman's baked-on finishes will withstand a washing every day for 1,000 years with commercial cleaning solvents.

HAUSERMAN MOVABLE STEEL INTERIORS *Assure Excellent Sound Control*

These solid, rigid interiors minimize sounds in two ways. Hauserman *Movable* Steel Walls keep out more inter-office noise than tile and plaster construction, yet are only half as thick. And Hauserman Acoustical Steel Pan Ceilings absorb approximately 85% of all the sounds that strike them.

. . . *there'll be some changes made*

HAUSERMAN *MOVABLE* STEEL INTERIORS
Are Quickly and Easily Moved

Whenever new floor layouts will promote operational efficiencies, Hauserman Steel Walls are quickly moved . . . often after working hours. There's no muss or fuss and all units can be completely re-used.

HAUSERMAN *MOVABLE* STEEL INTERIORS *Are Beautiful*

There are many distinctive and authentic wood grain finishes for handsome executive suites. And there are 60 beautiful colors that range from natural hues through the pastels to match any decorating scheme. All of these finishes are baked-on to last a lifetime.

OTHER ADVANTAGES

Earlier Occupancy . . . all units arrive at your building completely finished and ready-to-install; there's no waiting for several coats of plaster and paint to dry. *Incombustible Materials* . . . all Hauserman materials are totally incombustible. *Built-in Electrical Raceways* . . . save on initial wiring costs and permit easy additions of enclosed wires and outlets. *Unit Panel Construction* . . . single units can be quickly removed and replaced for utility inspections and repairs.

THE E. F. HAUSERMAN COMPANY
6717 GRANT AVENUE • CLEVELAND 5, OHIO
Branch Offices in Principal Cities — See Phone Book

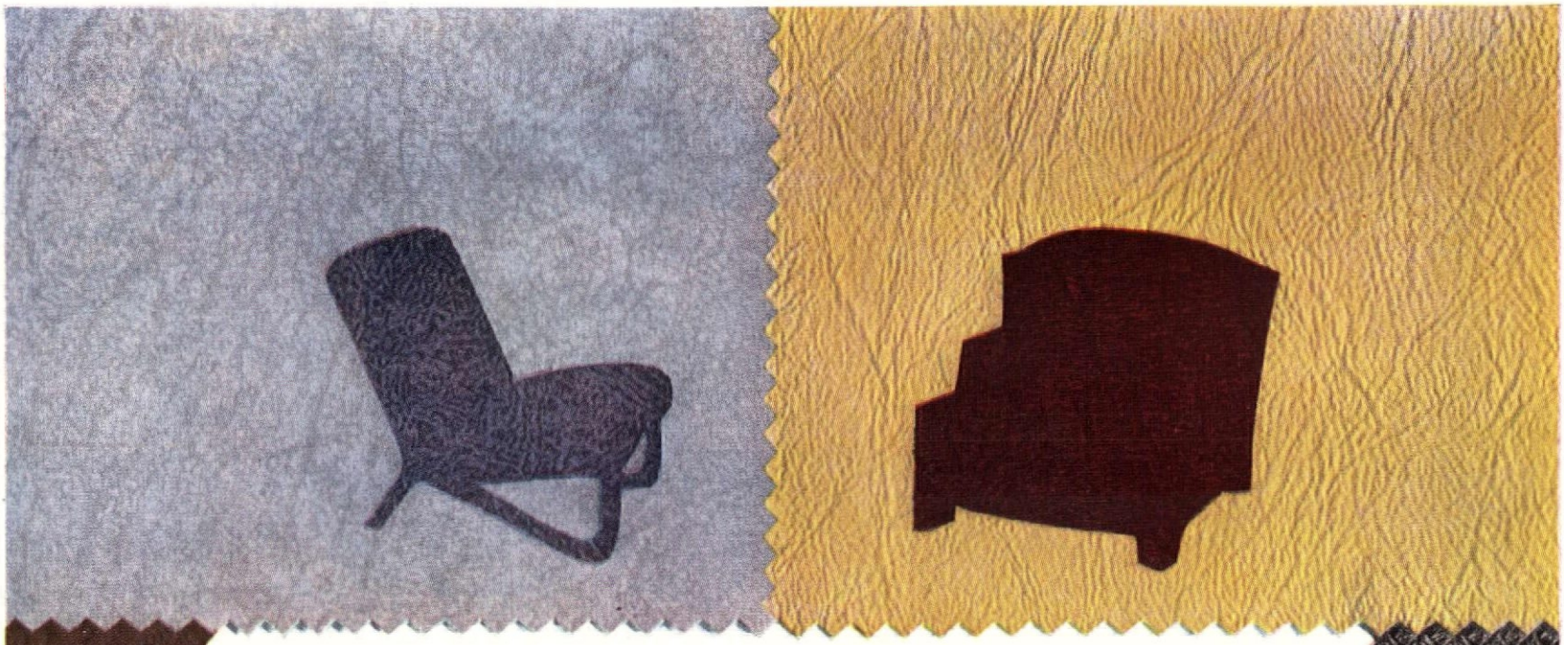
Specialists in Service

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

HAUSERMAN
MOVABLE STEEL INTERIORS
WALLS • WAINSCOT • RAILINGS
ACOUSTICAL CEILINGS • COMPLETE ACCESSORIES
For every commercial, industrial and institutional need

FREE
Catalog to Help You Plan

You'll find *Movable* Steel Interiors to meet your exact requirements in our complete, 68-page Hauserman Catalog 49. Write for your copy today.



Are You "Sitting" On This Idea?

YOU'VE HEARD a lot about economical upholstery materials made of VINYLITE Brand Resins. But do you know *the full story* of their many advantages?

Here's the story outline:

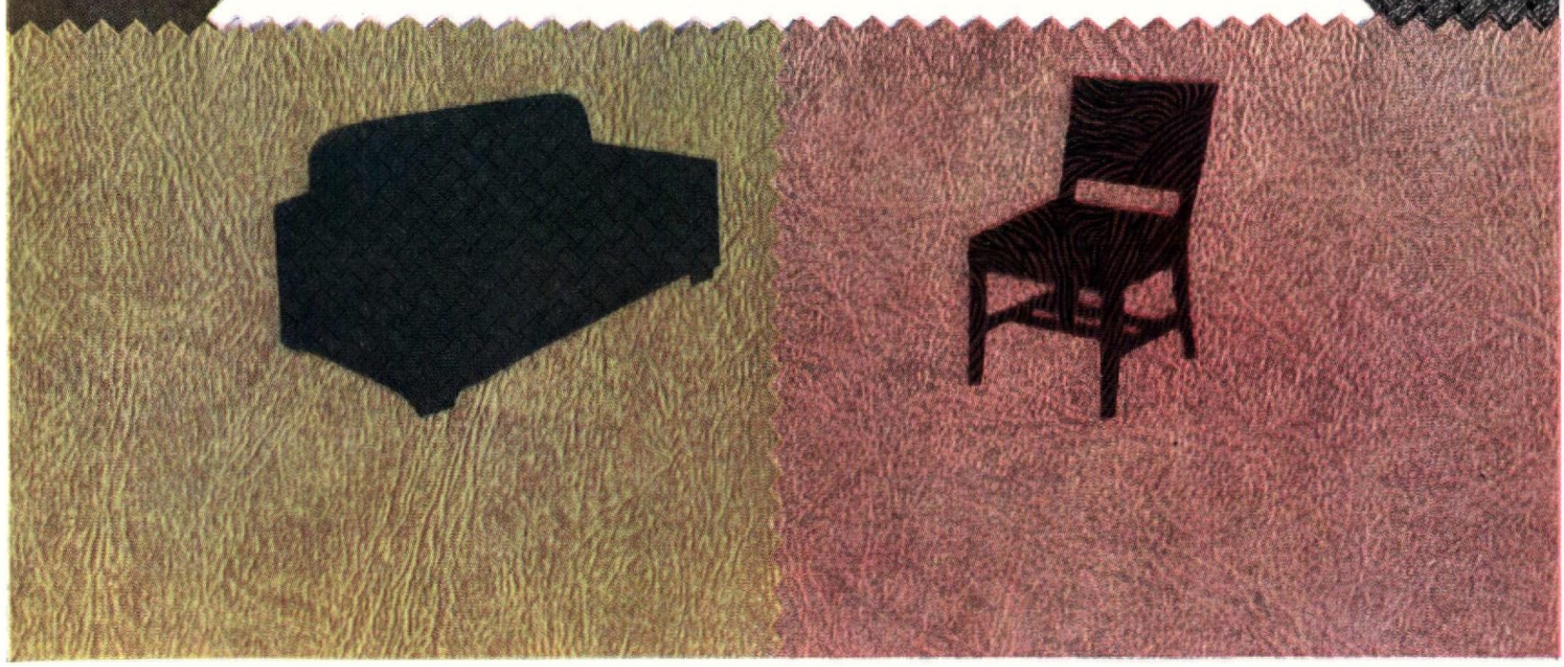
- ★ **Long wear — phenomenal ability to withstand aging without cracking, flaking, or chipping.**
- ★ **Unlimited color range, in brilliant or pastel shades that won't fade or grow dull.**
- ★ **Unlimited range of finishes — patterns for every upholstering need.**
- ★ **Washability, plus resistance to oils, greases, alcohol, alkalies, and most acids.**
- ★ **Flame resistance that can meet municipal requirements.**
- ★ **Easy handling — materials that drape and shape well around corners, curves, edges — fine for tufting and channeling.**

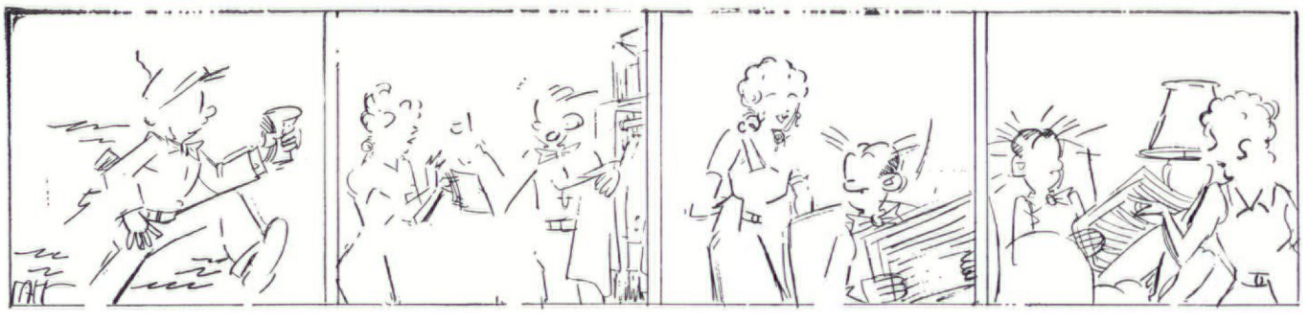
If this "outline" sets you thinking about upholstery materials for hotel, restaurant, cafeteria, home, or any other furniture, remember that the complete story is yours for the asking. We'll be glad to give you all the technical details about supported and unsupported upholstery materials—as well as tile and continuous flooring — made with VINYLITE Brand Resins. Ask for our list of representative suppliers. Write Department GX-14.

Data Courtesy Weymouth Art Leather Co.

Vinylite BRAND **RESINS** — BAKELITE CORPORATION

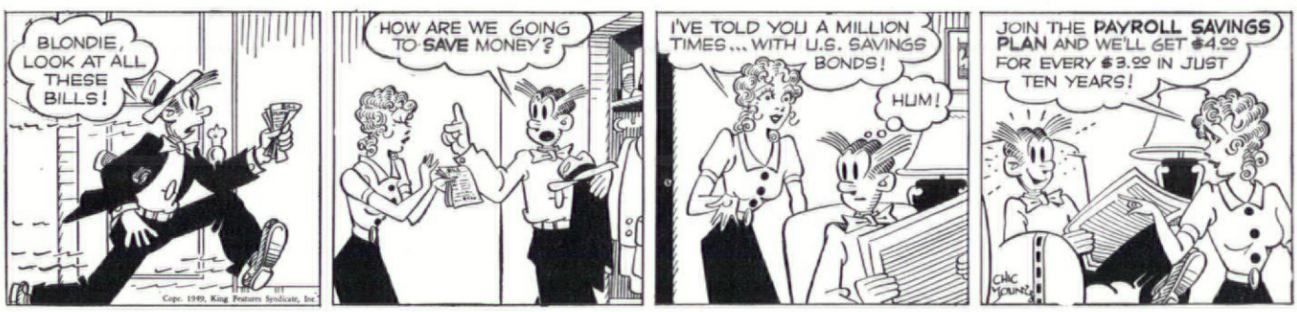
BAKELITE CORPORATION, *Unit of Union Carbide and Carbon Corporation* UCC 30 E. 42nd St., New York 17, N.Y.





This is how Chic Young, the cartoonist, makes a first rough sketch for the famous strip.

Then when each panel in a strip meets his approval, he makes a careful pencil rendering as above.



After this, the pencil rendering is carefully inked in, as you see here.

STEP BY STEP...

that's the way it's done successfully!

As you can see, Chic Young, who draws the popular "Blondie" comic strip, goes through many steps to arrive at a finished cartoon.

And, cartoonist Chic Young, together with millions of other smart Americans, will tell you that the step-by-step method is the easiest, surest way of doing anything worth while.

Particularly, saving money.

One of the easiest and surest ways to set aside any worth while amount of money is to buy United States Savings Bonds the step-by-step method—

So set aside a *regular* amount week after week, month after month, year after year. Then in 10 short years you will have a mighty nice nest egg tucked away for you and your family.

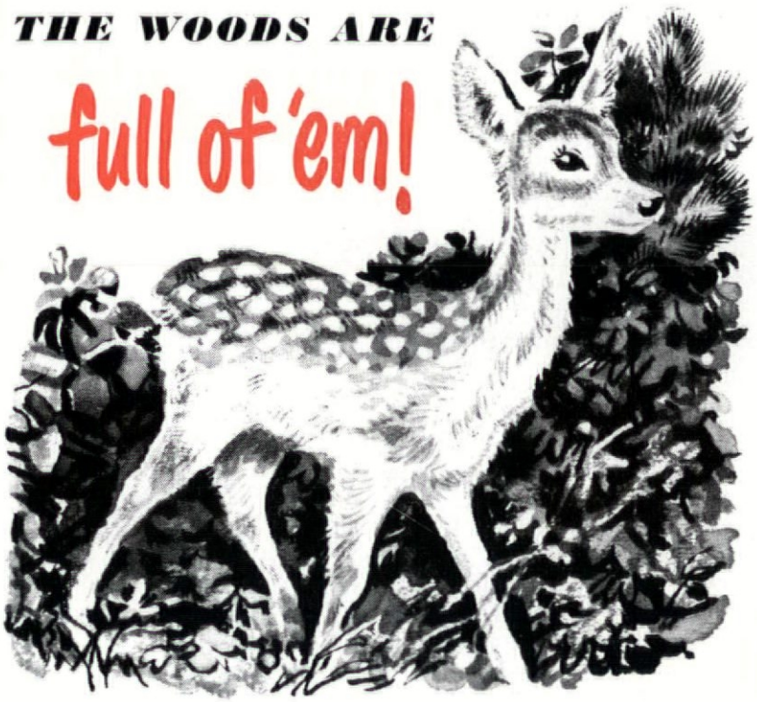
Get started now. Get your Bonds through Payroll Savings or at your bank or post office.

AUTOMATIC SAVING IS SURE SAVING—U. S. SAVINGS BONDS

Contributed by this magazine in co-operation with the Magazine Publishers of America as a public service.

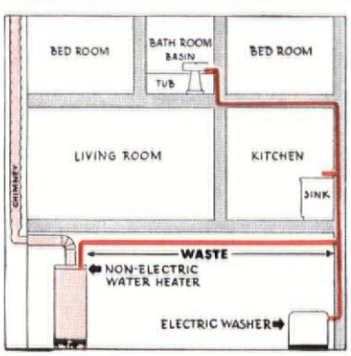
THE WOODS ARE

full of 'em!

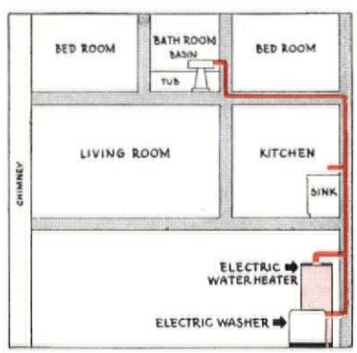


To get customers out of hiding you must give them what they want. Sales and survey figures show that more people want automatic Electric Water Heaters than ever before. The only way to satisfy them is to install in the homes you build the kind of water heater that will satisfy your customers both now and years from now, and—**OF COURSE, IT'S ELECTRIC!**

How to reduce construction costs and add customer features . . .



NON-ELECTRIC INSTALLATION



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 costs.

Customers like Electric Water Heaters because they are: (1) AUTOMATIC (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.

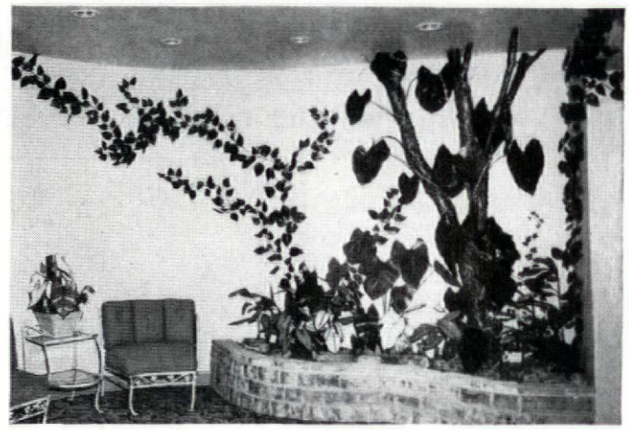
ALLCRAFT • BAUER • BRADFORD • FAIRBANKS-MORSE • FOWLER • FRIGIDAIRE • GENERAL ELECTRIC
HOTPOINT • HOTSTREAM • JOHN WOOD • KELVINATOR • LAWSON • MERTLAND • MONARCH • NORGE
PEMCO • REX • RHEEM • SELECTRIC • SEPCO • SMITHWAY • THERMOGRAY • TOASTMASTER
UNIVERSAL • WESIX • WESTINGHOUSE

It's EASY to INSTALL an electric WATER HEATER!

. . . in a house wired for an Electric Range!

DECORATIVE PLASTIC FOLIAGE imitates exotic plant life in nonperishable material.

Botanically authentic replicas of Split Leaf Philodendron, Tuftroot and Rubber Plants, Rothschild Crotons, Chinese Evergreens, Dracaena Ferns and other flora are now available to interior designers in a pliable semi-transparent material. The Decor Leaves, as they are called, require a minimum of maintenance—an occasional dusting or wiping with a damp cloth. These plastic plants are fireproof, impervious to acids and will withstand temperatures ranging from 30° below zero to 175° F. Manufactured in colors to duplicate the natural foliage, the plants may be obtained in special colors to match submitted samples. Complete information on installation, decorative lighting applications and treatments is available to members of the trade from the company. Prices for the ten basic units range from $1.75 for Congo or Snake plants to $22.50 for larger plants.

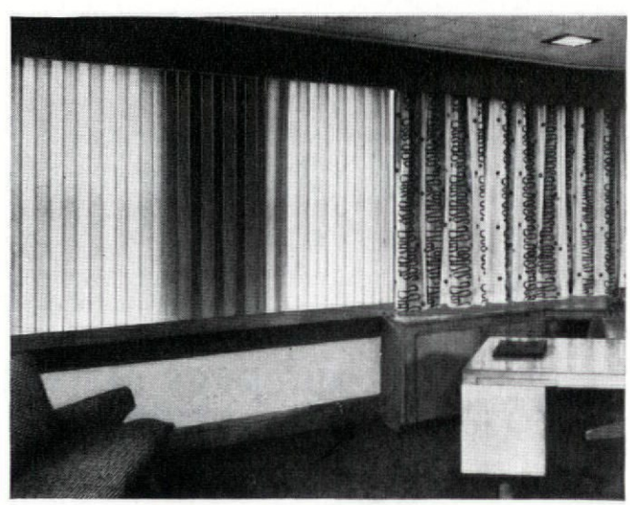


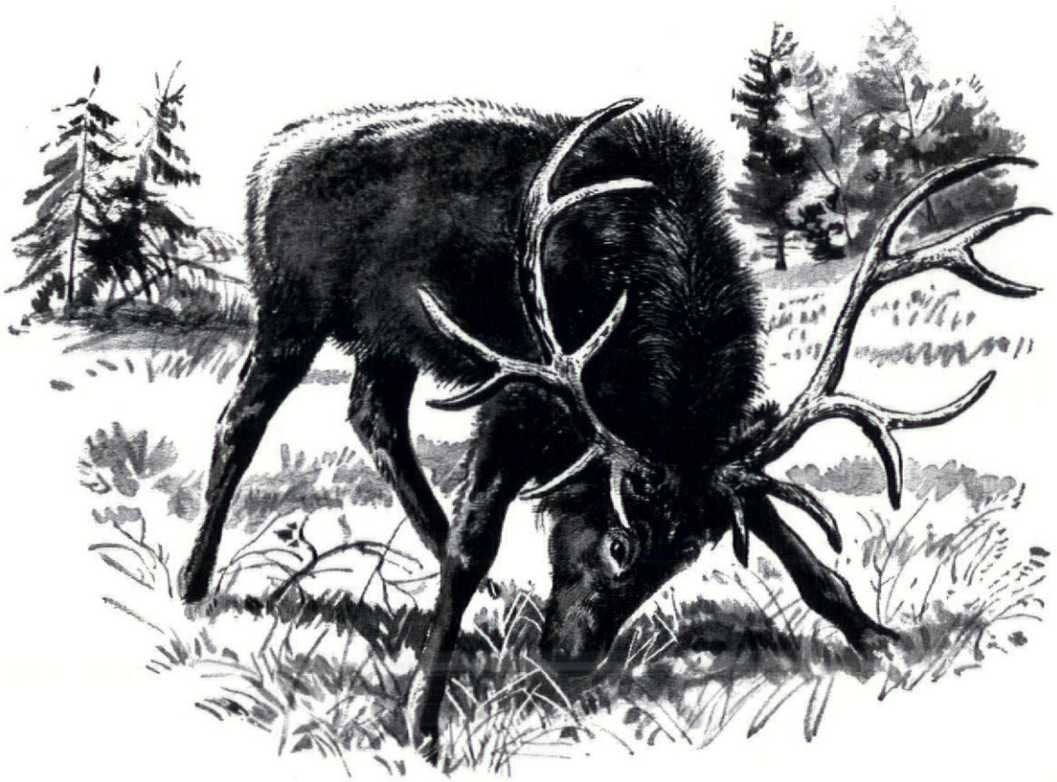
Manufacturer: Decor Leaves, Inc., 3250 Euclid Ave., Cleveland 15, Ohio.

VERTICAL FABRIC BLINDS combine decorative qualities of draperies and curtains.

Sun Vertikal Blinds, featuring panels of Celanese Multicord, may be purchased in 22 different pastel and brilliant colors or any combination of these colors. Although little dust clings to the taut vertical louvers, they may be slipped off the

(Continued on page 156)





YOU CAN'T "buck" THE TREND!

. . . of course, it's Electric!

Today there are certain definite trends in home design and equipment —and it pays to follow those trends. One thing people definitely want is 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 house.

ELECTRIC RANGE SECTION, National Electrical Manufacturers Association, 155 East 44th Street, New York 17, N.Y.

ADMIRAL • COOLERATOR • CROSLEY • FRIGIDAIRE • GENERAL ELECTRIC • GIBSON • HOTPOINT
KELVINATOR • LEDO • MONARCH • NORGE • QUALITY • UNIVERSAL • WESTINGHOUSE

Follow the trend... **wire** YOUR HOUSES FOR ELECTRIC RANGES

Another 1,000,000 American families switched to Electric Cooking last year

NOW

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.

GENERAL CONTROLS

Takes the MANual out of Controls

They're Automatic!

For controlling pressure, temperature, level and flow of all kinds of gases, liquids and air for domestic, commercial and industrial applications.

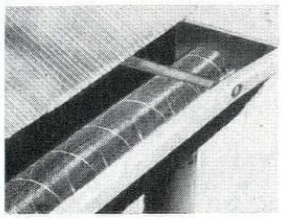
- "ALL-GAS" CONTROL SYSTEMS
- AIRCRAFT CONTROLS, ELECTRIC
- AUTOMATIC SAFETY SHUT-OFF VALVES
- MOTOR OPERATED VALVES
- MAGNETIC GAS VALVES
- SOLENOID VALVES
- THERMOSTATIC CONTROLS AND CONTROL SYSTEMS
- GOVERNOR-TYPE VALVES
- HI-LOW-OFF VALVES
- DIAPHRAGM VALVES
- LIMIT CONTROLS
- REFRIGERATION VALVES
- GAS REGULATORS
- LOW WATER CONTROLS
- STRAINERS, RELAYS
- PORTABLE EQUIPMENT CONTROLS
- MACHINE TOOL CONTROLS

GENERAL CONTROLS
Manufacturers of Automatic Pressure, Temperature, Level & Flow Controls
FACTORY BRANCHES AND DISTRIBUTORS IN PRINCIPAL CITIES

metal hooks at top and bottom of the frame, washed in lukewarm water and slipped back on the frame to dry. No ironing is necessary. A sturdy control rod adjusts the blinds at finger touch to direct light to any portion of the room. Even when blinds are closed for privacy they transmit a soft diffused light. For an interesting drape effect the panels may be drawn to each side halfway to the top. Limitless residential and commercial adaptations are possible with these versatile fabric blinds, custom made to fit any window. Cost of a blind for a residential 3 x 5 ft. window would be about $19. For a picture window measuring 60 in. high x 66 in. wide the price would be approximately $35. Minimum charge is $12.50. Sun Vertikal blinds may also be purchased with plastic panels for use in bathrooms and kitchens.

Manufacturer: Sun Vertikal Blind of Detroit, 10104 W. McNichols Rd., Detroit 21, Mich.

GUTTER SCREENS eliminate clogging of eaves troughs, safeguard homes against water damage.



Designed to keep eavestroughs and leaders free from leaves, pine needles and tree seeds, Gutter Screens are flexible bronze mesh tubes which are internally supported by a full length spiral spring. The standard 5 ft. long, 3 in. diameter tubes of screening are simply laid end-to-end in the open gutter with the ends telescoped together. Most leaves then falling on the rounded screen or between the sides of the gutter and the screen remain dry, and consequently blow off. The standard 3 in. diameter tube functions satisfactorily for all gutters up to 6 in. The tubes can be easily bent around corners and cut to any desired length.

Manufacturer: The Gutter Screen Mfg. Co., Box 447, Newark, N. J.

COMPACT ABSORPTION TYPE DEHUMIDIFIER is adaptable for domestic and light commercial use.

Attractively pebble finished in two-tone brown varnish, the Dryomatic Model 20 is effective for areas up to 7,000 cu. ft. Its 1/100 h.p. motor operates a rotor type fan to move 32 cu. ft. of air through the unit per minute in almost silent operation. Standard equipment includes a removable air filter which cleans out impurities before the air is dried. The desiccant bed, where moisture is absorbed, will last indefinitely. Dimensions of the Model 20 are 20 in. high x 13 in. deep x 17 in. wide. The unit weighs 45 lbs. and sells for $149.50. It is socket powered (110 v., a.c.) and completely automatic, featuring full range humidistat control. A one year guarantee covers the model.

Manufacturer: Dryomatic Corp. of America, 1600 Union Ave., Baltimore 11, Md.

(Continued on page 160)

Mueller Climatrol
fuel-thrifty Furnaces

A complete line to add sales appeal and customer satisfaction!

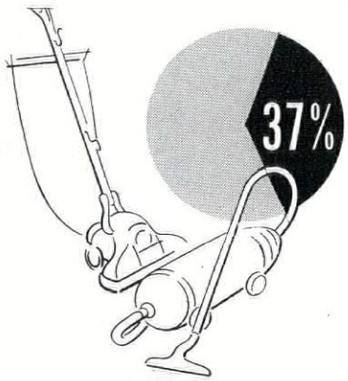
- Gravity Furnaces
- Winter Air-Conditioners
- Year 'Round Air-Conditioners
- Conversion Burners
- Cast-iron Boilers
- Unit Heaters

Write for literature.

L. J. MUELLER FURNACE COMPANY
2017 W. Oklahoma Ave., Milwaukee 15, Wis.
B-48A

MUELLER Climatrol
REG. U.S. PAT. OFF.

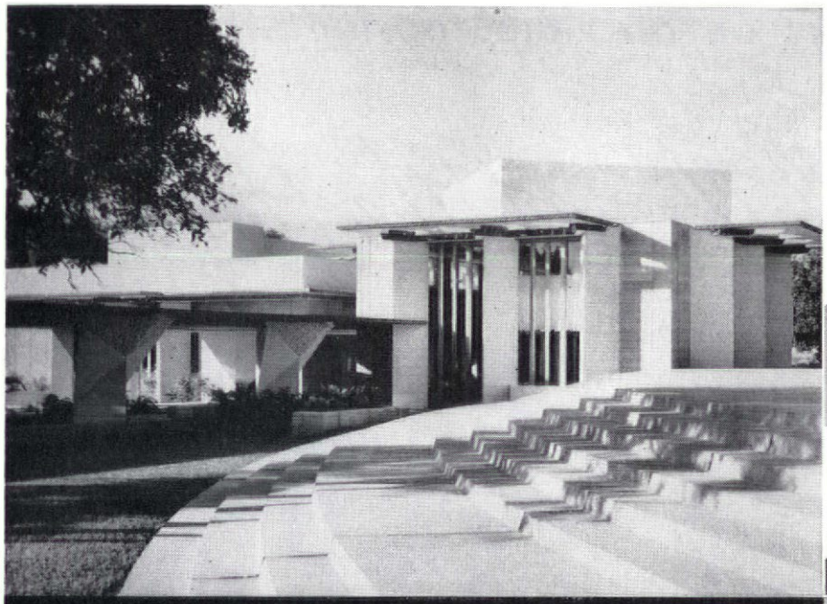
FOR GAS • FOR OIL • FOR COAL



37% of all VACUUM CLEANERS bought in the U.S. in six months were bought by LIFE families

LIFE

(From a study by the Market Research Company of America)



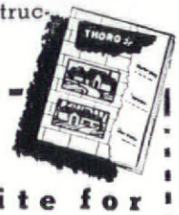
Above Surface

ON THIS BEAUTIFUL BUILDING, WORLD-FAMOUS ARCHITECT FRANK LLOYD WRIGHT HAS DEMONSTRATED WITH NEW DESIGNS WHAT CAN BE DONE WITH THOROSEAL AS A PROTECTIVE COATING FOR STRUCTURAL CONCRETE AND MANUFACTURED BLOCK MASONRY, "ABOVE THE SURFACE."

Below Surface

THE WATERPLUG CREW AT WORK IN ONE OF THE LARGEST TUNNELS, IN NEW YORK CITY. THE WORKMEN WILL SEAL OVER TWO MILES OF TUNNEL, 86 FEET BELOW POOL LEVEL OF THE EAST RIVER, SHOWING "HOW TO DO IT". BELOW THE SURFACE.

Today, the architectural and engineering profession realize the importance of substantial materials to co-ordinate, seal and beautify their general construction plans; THOROSEAL, to fill, seal and beautify any type masonry, above or below the surface; WATERPLUG, to prevent and correct every type of water problem, no matter how great the pressure. The THORO System products give to the architect and engineer, materials of sufficient structural strength with which they can plan with confidence and satisfaction.



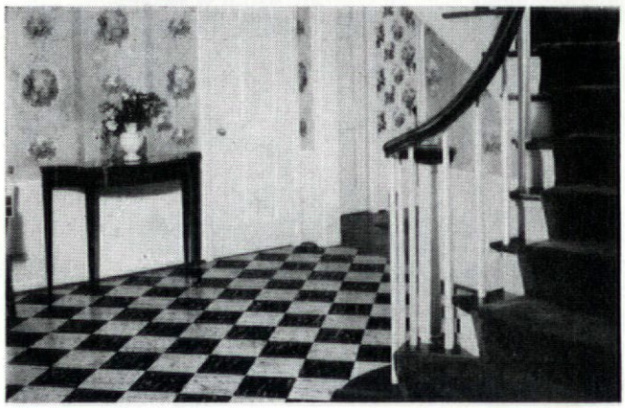
Standard Dry Wall Products

New Eagle, Pennsylvania U.S.A.

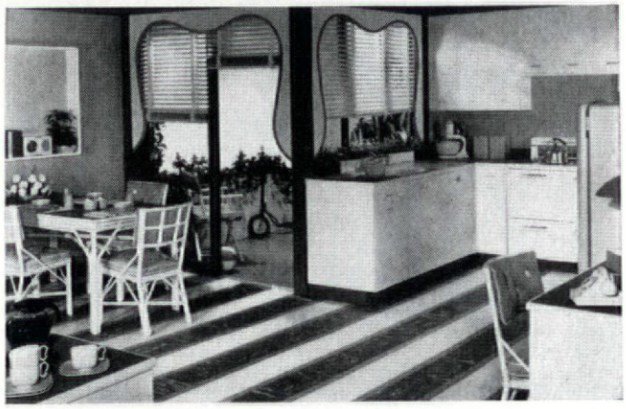
Write for Our No. 17 Brochure with Chart

PUT CLIENTS ON THE RIGHT FOOTING...

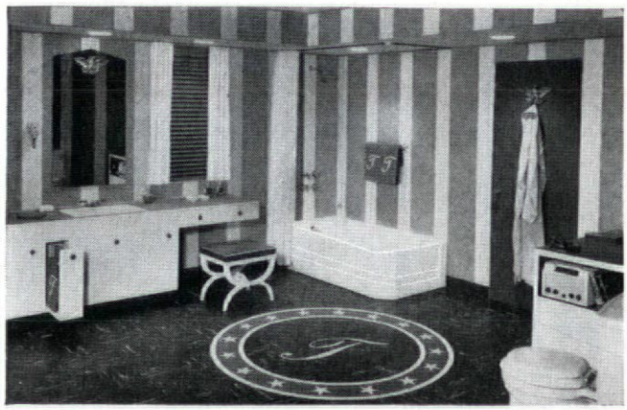
All through the House!



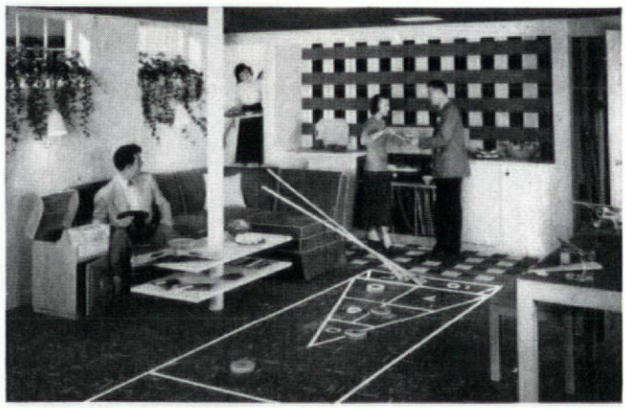
A good first impression is a foregone conclusion when you specify Flexachrome* for the foyer. Big black and white tiles in a sharp, clear checkerboard pattern make a striking entrance, as durable as it is beautiful . . . as easy to clean as it is easy to look at.



Here's a kitchen combination that will put spring in the housewife's step, a song in her heart. Bold stripes of green and white with coral feature strip on the Flexachrome floor. The same coral is picked up in Mura-Tex* companion colors for the walls.



Help your clients start the day right in this All-American bathroom of red, white and blue. Anything from "Singin' in the Bathtub" to "Yankee Doodle Dandy" is right on key here. Custom-cut inserts, as in the floor above add the individuality every home-owner wants.



Put a plaid pattern of Mura-Tex on the wall. Build a shuffleboard into the Flexachrome floor. Make a table from a lolly column. Presto! you've designed a playroom a millionaire would be proud to own . . . and one almost every client can afford.

Just look at the advantages you *build right into* floors and walls . . . when you specify Flexachrome and Mura-Tex.

Color! . . . a whole prism of sharp, clear companion colors, that are scientifically blended so that you can harmonize or contrast Flexachrome and Mura-Tex perfectly. *Design* is almost unlimited, due to tile-at-a-time installation . . . a wide variety of sizes . . . and custom-cut inserts. *Easy, economical maintenance* enables today's "busy" housewives to keep floors and walls at their sparkling best with a minimum of effort. *Durability* . . . everywhere in the house . . . is assured because these plastic-asbestos tiles are truly greaseproof.

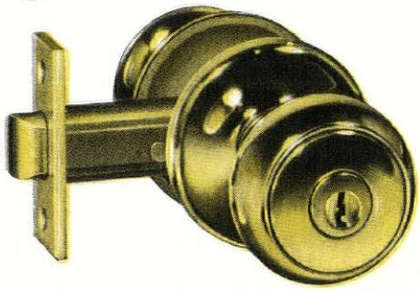
**Registered Trademark, The Flintkote Company*

Tile-Tex
PLASTIC-ASBESTOS
FLOORS AND WALLS

These are only a few of the outstanding qualities of these modern floor and wall materials. They're yours to use . . . right at your pencil's point. See Sweet's for full information, or write us. We'll rush complete data and specifications.

THE TILE-TEX DIVISION, The Flintkote Company, Chicago Heights, Illinois.

4 years ago there were no



Kwikset
LOCKSETS

NOW *there are over 5 million in use*

WHY?

The answer is simple. No product can achieve such phenomenal success unless it fills a genuine need. KWIKSET locksets do. They provide a high quality, low priced lock of clean modern design and handsome finish, simple to install.

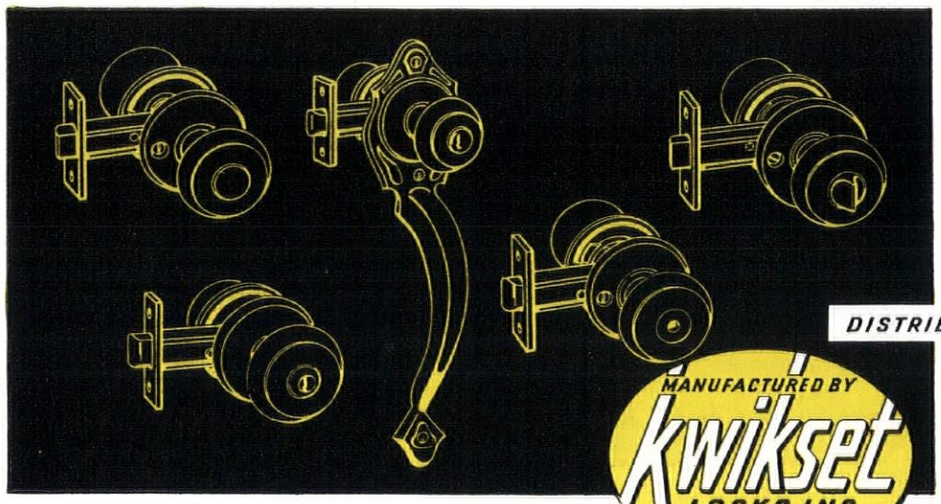
There's a KWIKSET lockset for every door in the house. Each is engineered to do perfectly the job for which it is intended. Each is designed with simple beauty to enhance the appearance of the home. Each is built to stand up under hard usage. And, best of all, KWIKSET locksets are priced to SELL!

Every one of the more than 5 million KWIKSET locksets now in use is its own best testimonial. Their quality, beauty and simple installation has found favor with architects, builders and home owners.

★ *Materials and Workmanship Unconditionally Guaranteed*

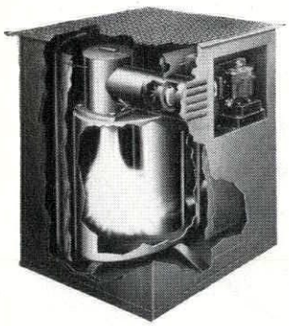
KWIKSET working parts of brass stamping or pressure moulded Zamak No. 5, and trim parts of wrought brass, wrought bronze or Zamak No. 5 are all precision engineered.

Write for file size catalogue.



MANUFACTURED BY
Kwikset
LOCKS INC.
ANAHEIM CALIF.

DISTRIBUTORS
Petko
INDUSTRIES, INC.
1107 East Eighth Street
Los Angeles 21, California



NEW DOMESTIC AIR HEATERS feature down-flame forced draft combustion.

Twinair-Wall, Highboy Downflo and Aeromatic Highboy are three air heater models now being marketed by United Air, Inc. Combining heater bodies engineered for accessibility and low installation cost with Breese-patented forced draft oil burners, the heaters can be installed without expensive excavation or ductwork, yet measure up to high performance standards. Other technical features include: aluminum blades in the blower of the down-flame burner; Dow Corning silicone fluid in the bearings; protection of burner and controls from accidental immersion by seepage or flood waters; controls shielded from heat; and delivery of warm air at the bottom in the Highboy Downflo model, making a combination of radiant and converted heat readily obtainable. Retail prices, f.o.b. Seattle, Washington, are $199.50 for the Downflo floor heater, $229.50 for the Twinair wall model and $329.50 for the Aeromatic Highboy.

Manufacturer: United Air, Inc., Seattle, Wash.

LUDOWICI

ROOFING TILE

The outstanding name in roofing

Economical in price, permanent as brick or stone, Ludowici Tile covers many of the nation's largest public and private housing projects.

Here the architects' specifications and selections of permanent hard burned shale Ludowici Tile, provide hundreds of these functional buildings with roofs of beauty as well as years of service at lowest cost of maintenance.

For housing, whether it be large or small, public or private, institutional, ecclesiastical or educational, Ludowici Roofing Tile offers a wide variety of authentic architectural designs of many textures and colors that faithfully answer the requirements of both the traditional and modern designs.

LUDOWICI-CELADON *Company*

104 So. Michigan Ave., Chicago 3, Ill.

New York 17, N. Y.
565 Fifth Avenue

Cleveland 20, Ohio
13111 Shaker Square

Washington 5, D. C.
740—15th Street, N. W

HOUSING PROJECTS

Greendale Resettlement
Milwaukee, Wisconsin

Altgeld Gardens
Chicago, Illinois

St. James Herman Gardens
Detroit, Michigan

Valley View Project
Cleveland, Ohio

Fairfax Project
Alexandria, Virginia

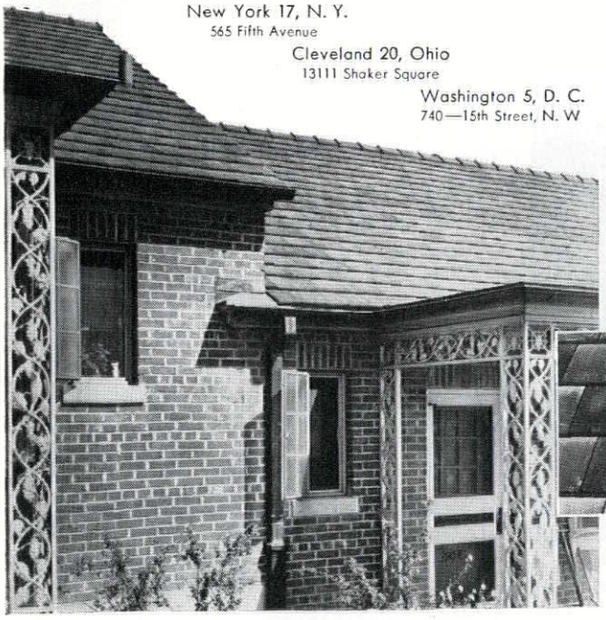
Brentwood Park Project
Jacksonville, Florida

LaFitte Project
New Orleans, Louisiana

Lucas Hunt Village
St. Louis County, Missouri

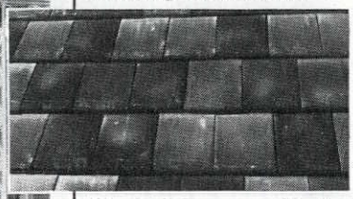
Metropolitan
Life Insurance Co. Housing
San Francisco, California

See our Catalog in Sweet's



Typical Unit U. S. Government Lauderdale Courts Housing Project at Memphis, Tenn.

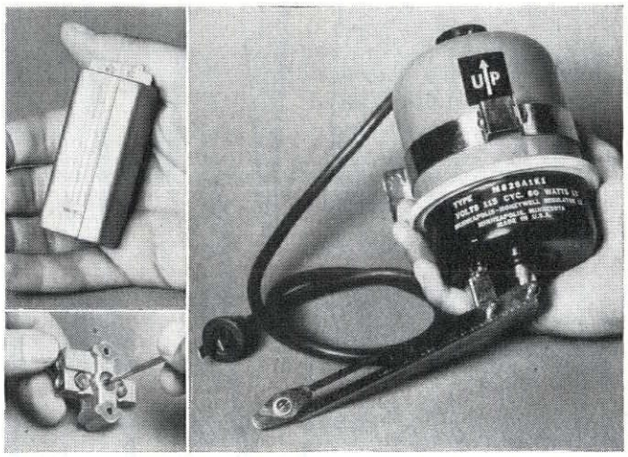
Detail of Ludowici Lightweight Interlocking Weathered Tile.



We also invite your consideration of Ludowici Shale Slabs; a beautiful quarry tile for floor and walls.

ELECTRIC JANITOR for all hand-fired heating plants can be easily installed.

This unique electric hydraulic temperature control for hand-fired house heating plants thermostatically adjusts dampers and checks. Listing at $22.90, the mechanism is completely self contained and may be installed by the homeowner. The compact system utilizes hydraulic power to position the dampers, and a built-in transformer supplies the low voltage required for motor and thermostat from an ordinary electric outlet. The motor assembly is spring loaded so in case of electric power failure the dampers will close automatically to guard against excessive heat. The assembly itself consists of an electric motor which operates a two cylinder hydraulic pump measuring only 2 in. long. This tiny noiseless pump is complete with filters and a check valve. Developed for use in this control system is a new thermostat less than half the conventional size and especially designed for activating short regulated operations to maintain even temperatures. In actual



operation the electric motor starts on a signal from the thermostat and drives the pump to force oil from a reservoir against a diaphragm. The diaphragm in turn moves a crank arm which opens the dampers. When there is no further call for heat the thermostat cuts the power and the spring loaded diaphragm closes by opening the check valve of the pump and forcing oil back into the reservoir. Called the Y219A Electric Janitor Kit, the set includes motor, thermostat, linkage and fittings.

Manufacturer: Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

CEILING VENTILATOR FOR KITCHEN operates quietly at full capacity, does not cause radio or TV interference.

Fully automatic, this new Ilg ventilator is controlled by a standard light switch. A patented spring booster opens the damper freely when the ventilator is started and closes it tightly when the ventilator is turned off. All working parts are readily accessible, and the complete grille and fan assembly is hinged so that it may be detached for cleaning. The discharge outlet is also equipped with a removable guard.

(Continued on page 162)

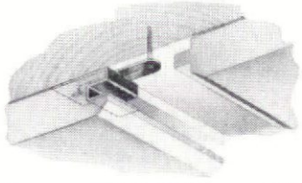
better looking applications ...perfectly aligned tile and plank...with the

Nu-Wood clip system

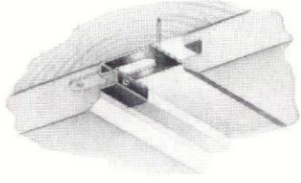
No other insulating interior finish has introduced so many improvements and refinements as Nu-Wood! Fadeproof colors . . . unique textures . . . a "foolproof" tongue and groove joint . . . these are only a few of the features which have made and kept Nu-Wood Kolor-Fast and Sta-Lite Plank and Tile leaders in their field. But there's another *exclusive* feature which assures lastingly true and level wall and ceiling surfaces . . . lastingly tight joints.

Read these advantages and you'll know why Nu-Wood Kolor-Fast and Sta-Lite Plank and Tile—applied by the Clip System—assure satisfied owners who STAY satisfied!

REVERSIBLE CLIP APPLICATION PERMITS CENTER-OF-CEILING STARTING

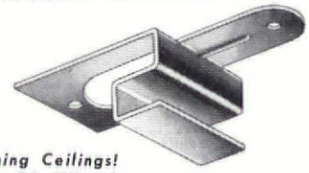


The reversible feature of the Nu-Wood Clip permits fast, correct application of tile from center of ceiling . . . easier applications, less layout time, assuring uniform ceiling border. Illustration shows clip fitted into groove.

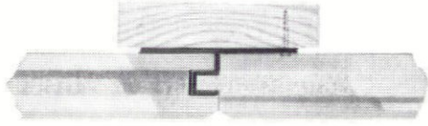


Here is the Nu-Wood Clip fitted over the tongue of Nu-Wood Tile. Note that joint lines can be made perfectly straight because the Nu-Wood Clip permits some adjustment in the position of the tile.

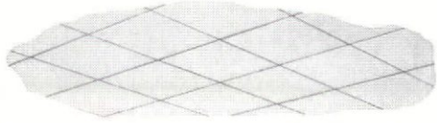
IT TOOK NU-WOOD TO PIONEER THIS HISTORY-MAKING CLIP



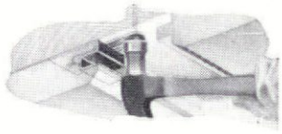
Self-Aligning Ceilings! With the Nu-Wood Clip, irregularities of the nailing base do not affect levelness and appearance of job. The clip provides a "floating" ceiling by permitting normal movement of the tile or base. The tongue and groove joint and the Nu-Wood Clip permit tile to adjust to humidity and temperature, reducing possibility of sagging tile.



Complete "Wrap-around" Support! The Nu-Wood Clip completely "wraps" both the tongue and groove with metal—supporting both edges without penetrating either edge.



Tighter Joints—Surfaces Stay Cleaner! Nu-Wood tongue-and-grooved Plank and Tile, applied by the Clip System, assure *tighter joints.* This reduces air movement through the joint, minimizing collection of surface dirt. Thus, a Nu-Wood interior stays cleaner longer—keeps its fresh brightness. Damaged Tile are easily replaced.



Securely Fastened—Nailed in Place! See how this secure, invisible nailing holds the plank or tile in perfect alignment! The Nu-Wood Clip is sturdily constructed, easy to handle—there are no sharp points or prongs. The clip is rust-proof.

proved ***by Thousands of Applications!*** The Nu-Wood Clip pioneered a new idea in tile and plank application—fast, dependable, sturdy and trouble-free. In thousands of jobs, large and small, Nu-Wood Tile and Plank, applied by the Clip System, have provided proved satisfaction for more than 10 years!

Sta-Lite* Kolor-Fast

High Light Reflection High Sound Absorption

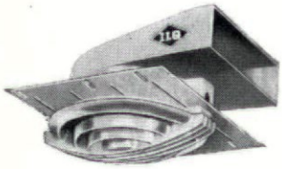
Nu-Wood*

DECORATING
ACOUSTICAL
INSULATING INTERIOR FINISH

*Reg. U.S. Pat. Off.

Wood Conversion Company, Dept. 110-119, First National Bank Bldg., St. Paul 1, Minnesota

Manufacturers of Balsam-Wool* Insulation. Sold by lumber dealers only.

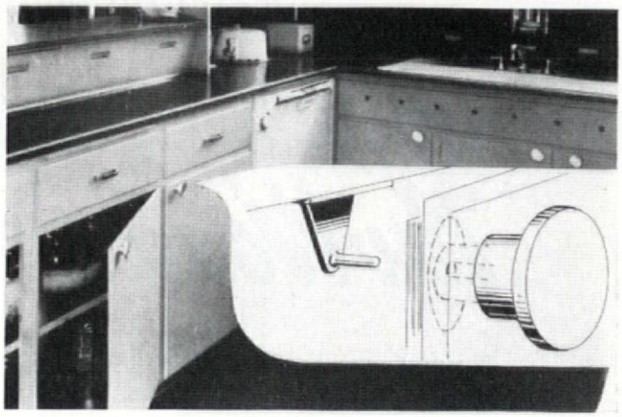


When the grille is opened the circuit is broken. To permit installation flush with plaster or plywood ceilings, the mounting plate is adjustable to thicknesses of ¼ to 1¼ in. All that extends below the ceiling surface is the smooth contoured grille. At the exhaust end of the ductwork is a steel discharge housing for setting into brick, masonry or frame walls. Retail price for the fan unit is $42, f.o.b., Chicago. A supplementary wall unit, required in some cases, sells for $10.

Manufacturer: Ilg Electric Ventilating Co., 2850 N. Crawford Ave., Chicago, Ill.

POSITIVE LOCKING LATCH works on ball-bearing principle.

By adapting a time proven principle to a simple piece of hardware, Grand Rapids has come up with an ingenious new latch. Compact and dependable, the new latch may be set very easily in any door thickness. It has a tenacious grip yet can be instantly and effortlessly released. In fact, the heavier the load, the greater the locking force. Magnitude of load is limited only by the size and strength of materials used. The mechanical principle is quite simple: When engaging the latch, the strike pin is inserted between three ball bearings

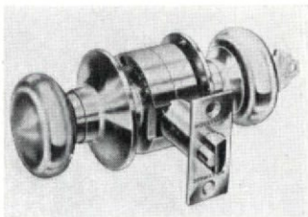


housed in a cone-shaped ball retainer enclosed in a cylinder. The impinging action of the ball bearings against the strike pin and the inner surface of this cylinder locks the latch. The entire locking mechanism floats in the latch housing to compensate for misalignment of latch and strike pin in installation or slight warpage of the door. Although a gentle push shuts the latch, a slammed door will not rebound. Available in a unit design in a variety of sizes of strike plates, faces and housings, the latch is suitable for use wherever a positive holding, quick releasing device is desired—cupboard doors, drawers, showcases, casement windows, air-conditioning equipment, etc. Retail price for the unit is about 95 cents.

Manufacturer: Grand Rapids Hardware Co., Grand Rapids, Mich.

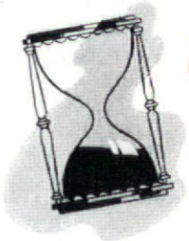
CYLINDRICAL LOCK may be used on right-hand or left-hand doors by reversing latch bolt unit.

Hollymade's No. 700 series comprises 19 different functional cylindrical locks for all general use, including schools, offices, public buildings and residences. The locks are of versatile unit construction which permits them to be used on right-hand or left-hand doors by reversing the latch bolt unit. Their compact design eliminates loosely set knobs and unsightly screws and assures smooth performance. All interior working parts are of steel. Highly polished solid brass or bronze trims are protected by a baked coating, and chrome finishes are triple plated. The series is manufactured in two designs: the Venus, having a smooth knob and rosette, and the Diana, with decorative circular lines in knob and rosette. Both include five pin tumbler cylinder sets and disc lock sets. Pictured is No. 7-80DP for use on classroom, hospital room or rest room doors. This model sells for approximately $10.



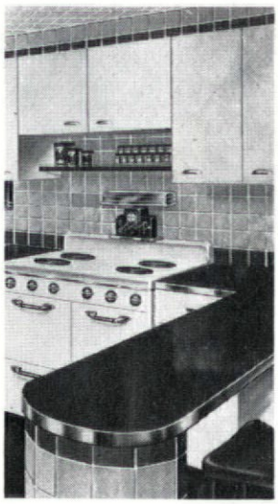
Manufacturer: Hollymade Mfg. Co., 4865 Exposition Blvd., Los Angeles 16, Calif. *(Continued on page 164)*

this time

save  time

specify HASTINGS *alumitile*

. . . AND SAVE TIME, MONEY AND STRUCTURAL WEIGHT



Modern materials and modern engineering make HASTINGS *alumitile* the ideal modern wall tile wherever beauty and distinction of surface finishing are sought.

Fabricated of sturdy aircraft aluminum with exclusive enamel permanently bonded to the metal, HASTINGS *alumitile* is remarkably easy to install, low in price yet high in quality, light in weight yet rugged in service. On any project, large or small, it can save you many man hours of labor, many dollars of material and application costs, many important units of structural weight.

HASTINGS *alumitile* is now available in 15 vital decorator colors for interior use and 7 embossed color finishes for exterior use. It offers unlimited scope for distinctive design in the modern manner and unlimited possibilities for residential and commercial installation.

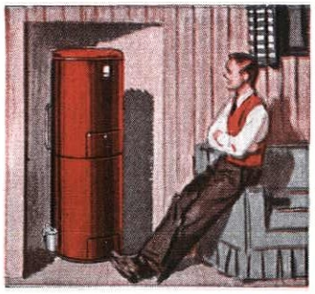
FOR FURTHER DATA SEE SWEET'S FILE OR WRITE DIRECT.

METAL TILE PRODUCTS, inc.
HASTINGS, MICHIGAN

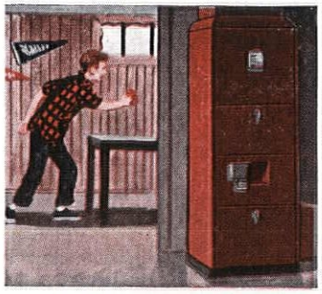
Also manufacturers of HASTINGS Alumi-SHIELD Awnings and Door Hoods. Write for particulars.

Metal Tile Products, Inc.
Hastings, Michigan
I should like to know more about your products.
I am a ☐ Distributor ☐ Dealer
☐ Architect ☐ Building Contractor
Name .....
Address .....
City ..... State .....

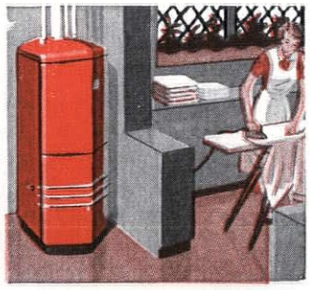
WALL-FLAME OIL BURNERS, ready for immediate installation in existing boilers and furnaces, save up to 25% or more on ordinary fuel oil costs.



"DUTY-DESIGNED" HI-BOILERS are built specifically to give small homes all the benefits of modern oil heat—plus automatic domestic hot water.



SUPER-COMPACT HI-FURNACES —for finest automatic warm air heating—combine Wall-Flame oil burner, blower and air filter in one fully-integrated unit.



OIL BURNING WATER HEATERS, both coil and tank type, are fired by the Wall-Flame Burner —supply oceans of hot water for a few cents a day.

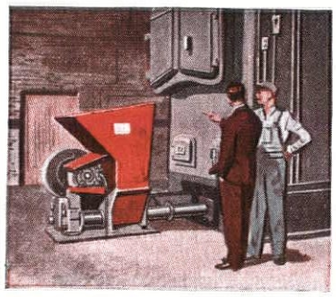
Clients *Expect* More—Get More

when you specify

TIMKEN

Silent Automatic

HOME HEATING EQUIPMENT for OIL, GAS and COAL



POWER-FLEX STOKERS are ruggedly built for heavy-duty dependability—give major savings on steam costs. Capacities up to 15 tons a day.

RESIDENTIAL COAL BURNERS, quality-built by Timken Silent Automatic, offer a wealth of features to give you modern automatic coal heat at its finest.

NEW GAS FURNACES, fired by efficient mono-port burners, are unsurpassed for clean, quiet heat. Timken Silent Automatic gas boilers, too.

ALL-NEW GAS BOILERS, especially designed for small homes, are also recommended for tandem installation in larger houses. Mono-port burner.

Over a period of the last 20 years, prospective builders and purchasers of new homes have learned to expect more from Timken Silent Automatic heating equipment, principally because their friends have gotten more from this efficient and dependable equipment installed in *their* homes. Today, public awareness of the *plus value* offered by Timken Silent Automatic heating equipment is at an all-time high, speeding acceptance of both the heating system and the entire home and adding to the profits enjoyed by architects and builders alike.

Among the several new types of heating equipment recently introduced by Timken Silent Automatic are the new advance-designed Gas Furnaces, equipped with wall-flame type burners and built to last as long as the homes in which they are installed. Complete information will be gladly supplied upon request.

Write today for free literature on Timken Silent Automatic heating equipment for all three fuels—oil, gas and coal.

TIMKEN

Silent Automatic

HEAT

OIL • GAS • COAL

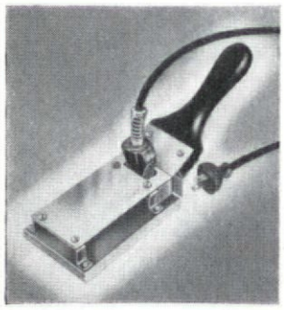
TIMKEN SILENT AUTOMATIC DIVISION

The Timken-Detroit Axle Company • Jackson, Michigan

The Accepted SA Standard

TRADE MARK REGISTERED

PLANTS AT: DETROIT, MICH. • OSHKOSH, WIS. • JACKSON, MICH. • UTICA, N. Y. • ASHTABULA, OHIO • KENTON, OHIO • NEW CASTLE, PA.

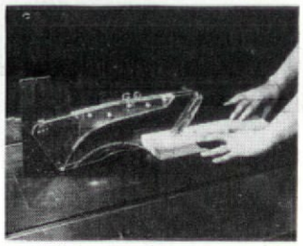


ELECTRIC PAINT REMOVER provides smooth clean surface for new paint without blow torch hazards.

Working like a flatiron, this handy appliance blisters and softens paint on flat, curved or irregular surfaces, thus preparing it for easy removal with a metal scraper or wire brush. Paint may be removed from awkward corners or from a localized spot without affecting the surrounding area. High grade nichrome wire, which makes up the heating element, reaches maximum temperature in two minutes. A heavy gauge steel plate serves as reinforcement and as a guard against accidental contact with the hot metal case below. Completely protected electrical connections prevent shock or short circuit. Including the cord, the unit weighs slightly more than a pound. It will run on regular household current (115 v., a.c.), can be used indoors or outdoors. Priced at $12.95, the remover is guaranteed against defective materials or workmanship.

Manufacturer: B&L Tool & Machine Co., 38 East St., Plainville, Conn.

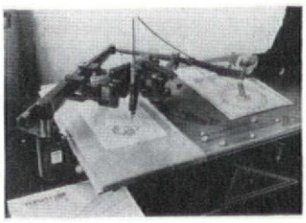
TRANSPARENT SAW GUARD is self-adjusting.



Ideal for home shops as well as industry, this new Plexiglas guard for circular saws keeps the blade covered at all times, yet allows the operator to see both saw and material. It is self-adjusting to materials of any thickness and is furnished in seven sizes for saws 8 to 20 in. in diameter and in two styles: type A for stock not more than 3 in. thick and the double pivoted type B for thicker stock. A pin arrangement permits the guard to be raised in a vertical position for adjustment or changing of blades, then to be relowered immediately. Thus there is no possibility of the guard being removed and not replaced. Prices for the plastic guard range from $20 for 8 in. saws to $40 for 20 in. saws.

Manufacturer: Laminated Sheet Products Corp., 259 A Street, Boston 10, Mass.

ISOMETRIC DRAFTING MACHINE automatically translates orthographic drawings to true isometric projections.



Accurate isometric drawings are achieved in almost half the usual time with the Perspector, a high precision machine made by Isometric Projections, Ltd., England. Working by a simple process of tracing ordinary plan or elevation drawings, a compound pantograph link system enables precise isometric ellipses to be drawn by tracing circles and the sliding arrangement of the drawing board permits rapid transmission of lines foreshortened to proper scale. Guaranteed for a year, the Perspector sells for $1,998, f.o.b., New York City.

Distributor: Omerex Precision Products Corp., 405 Lexington Ave., New York 17, N. Y.

INSULATION is installed 50 to 75 per cent faster with new rapid action staple gun.

The use of a new special automatic staple gun, designed by Bostich, Inc., can cut the cost of installing insulation board planks and tiles by more than half, National Gypsum Co. reports. With the new tool a tile can be applied neatly and securely in the same time it ordinarily takes to drive one nail. With the stapler, one man in a day can do the work formerly done by two men in two days. The rapid action gun is especially suitable for installing Gold Bond insulation board tile and plank with interlocking edges since the edges conceal the staples and eliminate hammer marks and burred sides. The stapler can be either rented or purchased from Gold Bond dealers who also supply the special staples.

Distributor: National Gypsum Co., 325 Delaware Ave., Buffalo, N. Y. *(Technical Literature, page 166)*

Wrigley Building Restaurant, Chicago. Special Elephant Gray Kalistron covers wainscoting of south wall, also inside swinging doors. Special Brick-Red Kalistron covers columns and chairs. Redecoration by Otis Sheppard, Art Director of William Wrigley, Jr. Company.

THIS BEAUTIFUL INSTALLATION ASSURES SAVINGS FOR YEARS!

Yes, Kalistron will save the Wrigley Building Restaurant money for years . . . because it's well-nigh indestructible . . . its glowing beauty lasts on and on. Kalistron's color cannot be marred—because COLOR IS FUSED TO UNDERSIDE OF A CLEAR VINYL SHEET.

Kalistron's three-dimensional beauty is unique . . . whether the material is used on walls, columns, dados, or fine furniture. Kalistron is the winner of the latest Modern Plastics award for Furniture and Interior Decorating Material.

FREE COLOR-SWATCH BOOK—WRITE TODAY!

★ **AMAZING WEAR** . . . can't scuff, crack, peel or chip: cleans easily with a damp cloth.

★ **EASE IN HANDLING** . . . drapes and shapes beautifully around curves, edges, corners . . . is soft and pliable. Can be permanently bonded to walls with special water-soluble adhesive.

★ **WIDE COLOR RANGE** . . . available in a variety of colors, including decorator shades.

Kalistron

COLOR FUSED TO UNDERSIDE

PLASTIC COVERING MATERIAL

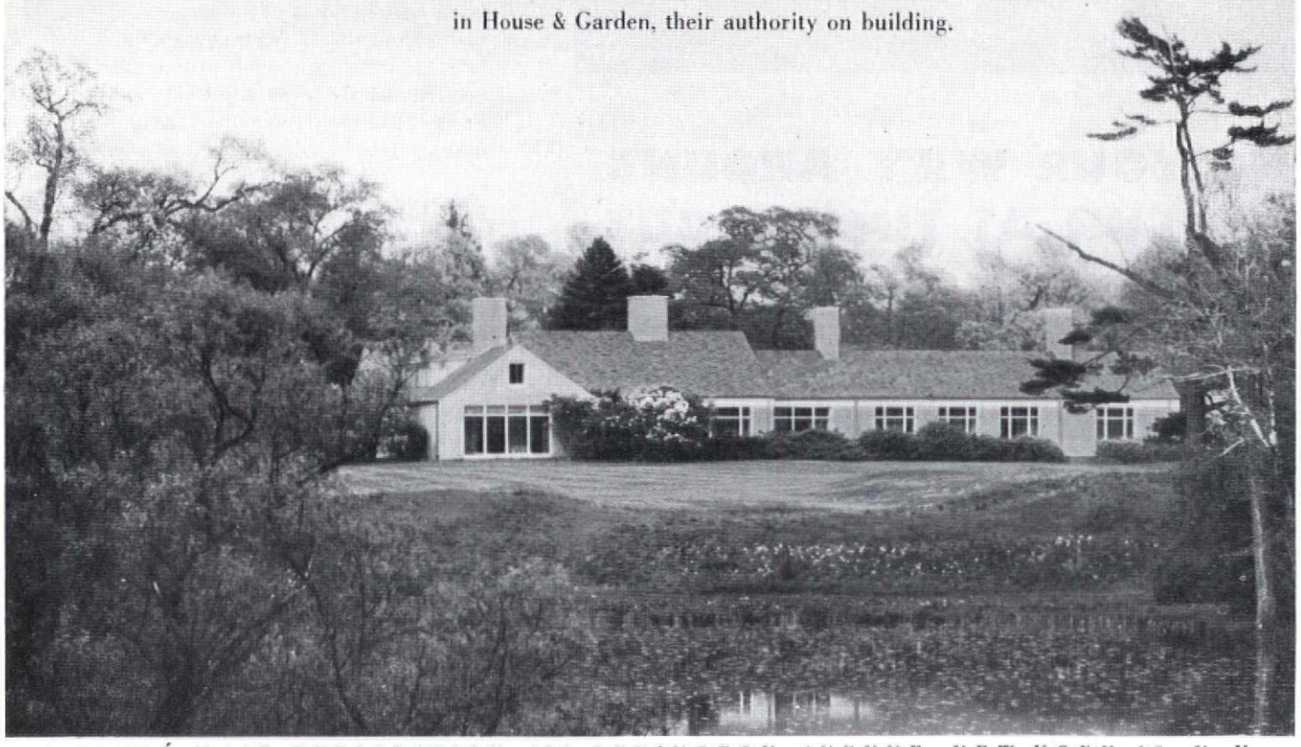
Distributed by: United States Plywood Corp., 55 West 44th St., N. Y. 18 and by: Deco Sales Division, 410 Freylinghuysen Ave., Newark 5, N. J.

House & Garden

...FOR THE OWNER-BUILDER MARKET

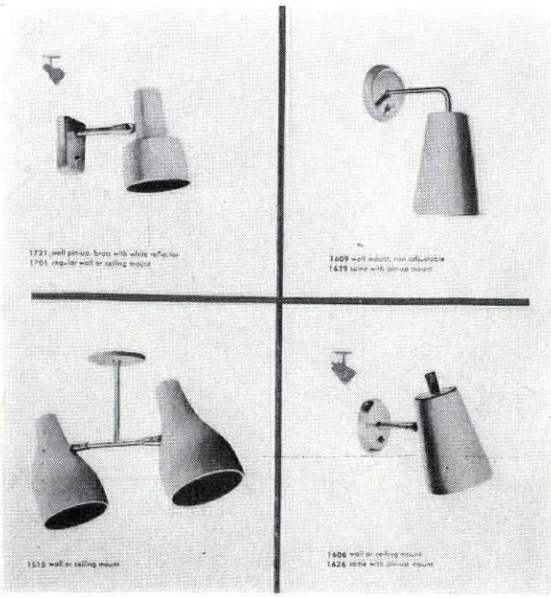
Ideas incorporated

Owner-builder standards, like owner-builder incomes, are high.
That's why no standard plan meets the requirement of an owner-builder.
His ideas may call for a gun-room... a two-car garage... a dozen important "extras" that mean
extra profits for you. That's why it's important to reach the people who
are specifying their own plans... and who have
the power to specify your product. Tell them your story
in House & Garden, their authority on building.

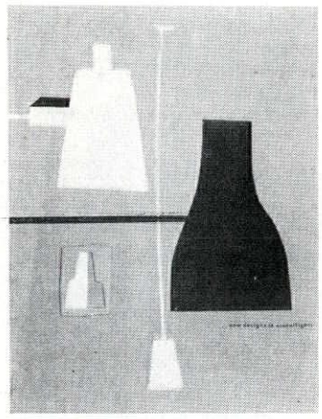


A CONDÉ NAST PUBLICATION, 420 LEXINGTON AVENUE, NEW YORK 17, N. Y.

©1949, THE CONDÉ NAST PUBLICATIONS INC.



TECHNICAL LITERATURE



LIGHTING FIXTURES. New Designs in Accentlights. General Lighting Co., Inc., 1527 Charlotte St., New York 60, N. Y. 7 pp. 8½ x 11 in.

Clean lines characterize the ceiling, wall and floor stand lamps pictured in this four color brochure. Available in brushed aluminum, opaque color finishes or a combination of both, the new units incorporate mechanical improvements such as a spring tension swivel and insulated handle. (Because metal fixtures absorb heat, the booklet explains, the latter was considered preferable to delivering an asbestos mitten with each fixture.) Crisp designs by Carter Winter and George Nelson are included in the group. Another General Lighting publication, Catalogue 649, describes the firm's hi-hats, rotobeams, fresnel lenses, recessed adjustable units, allouver ceilings and fluorescent series. Consultant service on unusual lighting problems is offered by the manufacturer to architects, designers and engineers.

HEATING SYSTEMS. B & G Handbook, Second Edition. Bell & Gossett Co., Morton Grove, Ill. 141 pp. 8½ x 11 in. $4.

In preparing this Handbook, Bell & Gossett obviously wished not only to compile all the practical design and installation data on space and service water heating systems but also to present this material in a readable manner arranged for quick reference. Both aims have been accomplished. Jammed full of pertinent facts based on accepted engineering practices, the book is well planned; its usefulness is not buried under a bushel of technical terminology and illogical placements. It is divided into sections covering various design procedures, with a cross index to make it still easier for the reader to put his finger on any aspect of water heating systems. Section I, *Principles of Indirect Water Heating*, includes discussions of various types of water heaters and diagrams illustrating recommended installation practices. The second section deals with forced hot water heating. The thorough treatment given radiant heating is typical of the handbook. Other sections cover heat loss determination, electrical controls and B & G's hydro flo products. A supplementary chapter contains several tables of information frequently required by the heating engineer but not always easy to locate, such as climatic conditions in this country and Canada, various measurement tables and heat loss factors.

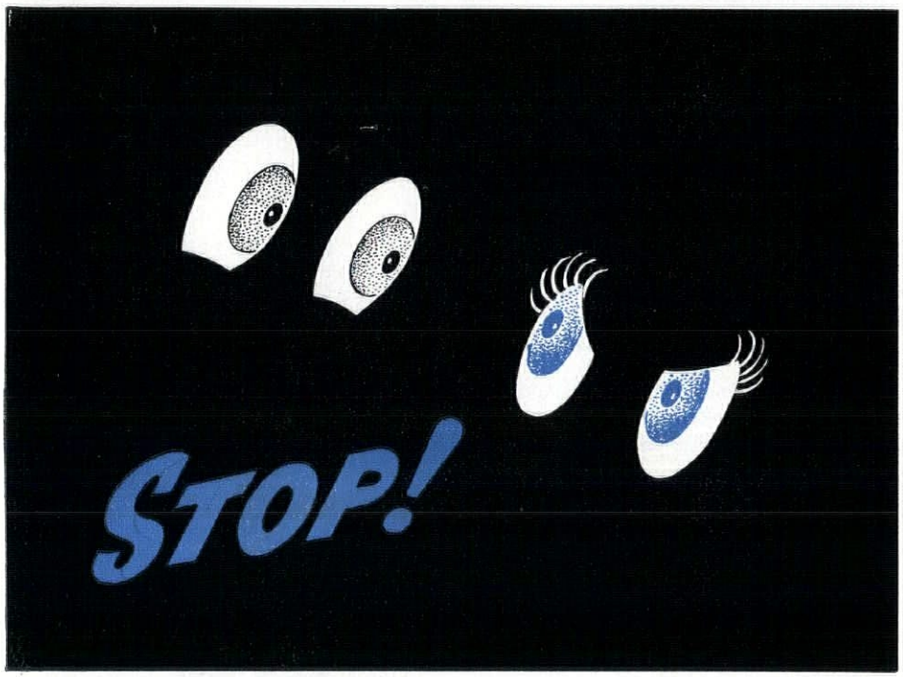
HEATING. Dravo Counterflo Forced Air Space Heaters. Bulletin No. 523. Dravo Corp., Heating Section, Dravo Building, Pittsburgh 22, Pa. 11 pp. 8½ x 11 in.

Emphasizing the Counterflo's "five function versatility"—comfort heating, year round ventilation, process drying, tempering make-up, air and heat curing—this bulletin describes the heater as being economical for heating large structures without ductwork. Suitable also as a central heating plant, the Counterflo requires only electric power line, fuel piping and vent stack for its installation.

INDUSTRIAL HEATING. Heating Liquids. Heating Surfaces. Heating Process Air. Melting Soft Metals. Heating Pipelines. General Electric Co., Schenectady 5, N. Y. 48 pp. 8½ x 11 in.

As their titles indicate, these five booklets deal with each of the major heating applications encountered in manufacturing processes. They present the fundamentals of incorporating electric built-in tubular, strip and cartridge heaters into industrial equipment and machines, and provide detailed

(Continued on page 170)



FEELING YOUR WAY AROUND MAY BE FUN AT TIMES...BUT

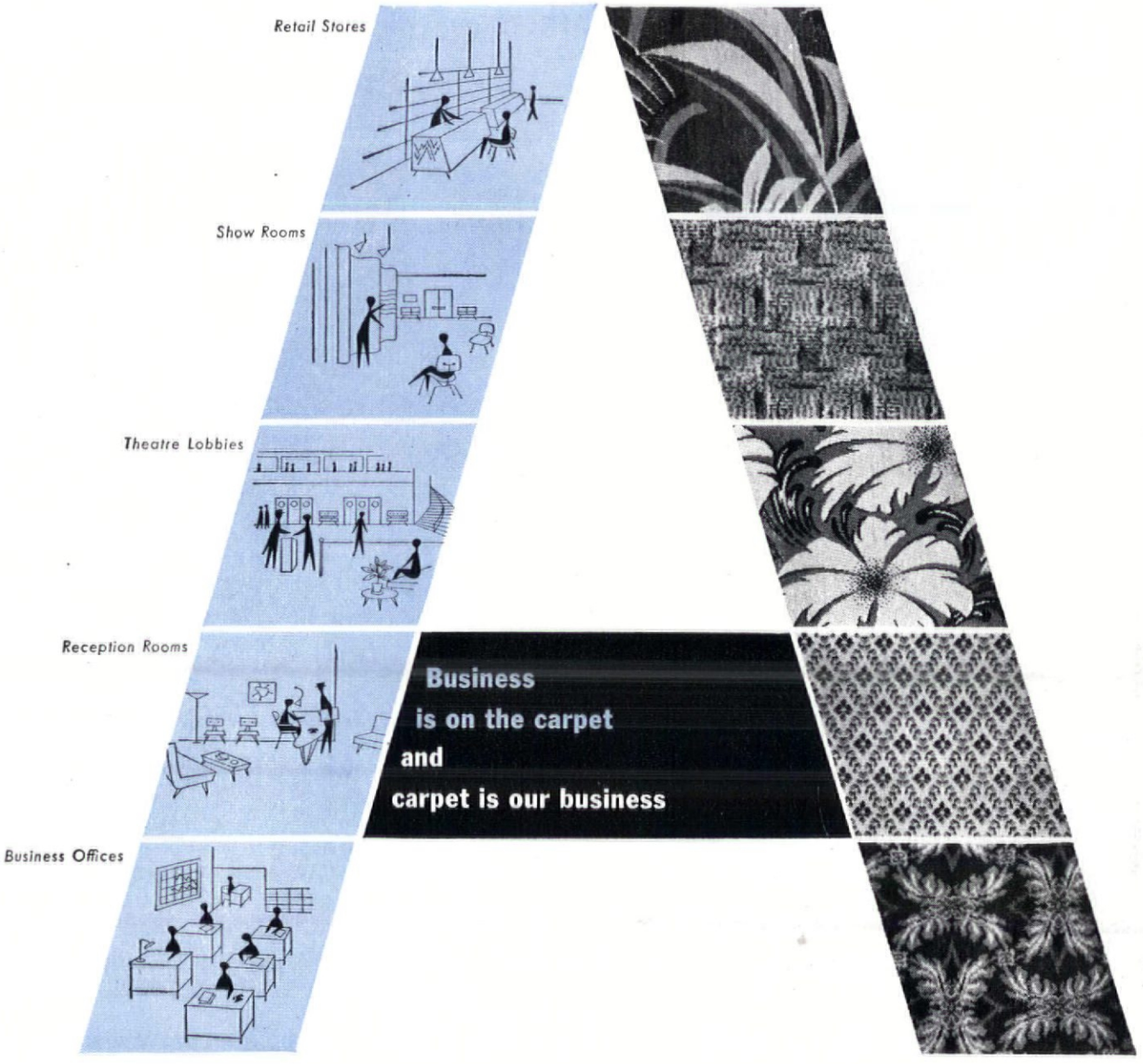
The Amarlite approach gets results quicker in the development of entrances. It's fun to design for special extrusions, but when your ideas can be worked out so closely from the components in our standard parts bin . . . why knock yourself out? And why make the client pay extra?

Drag our catalog out of that lower drawer, ask us to rush one to you, or take a look in Sweets, and you'll come in out of the dark quick. For lo! here are your very ideas, requiring only the assembly of these components with those. Here is precision that saves erection time, money and trouble. Here is delivery out of stock that lets you do NOW what you want to do.

The Amarlite System is a lot better than feeling around in the dark. Honest! Let's get together about it, soon.

AMARLITE

ALUMINUM ENTRANCES
AMERICAN ART METALS COMPANY
Telephone EMerson 5361 Atlanta, Ga.



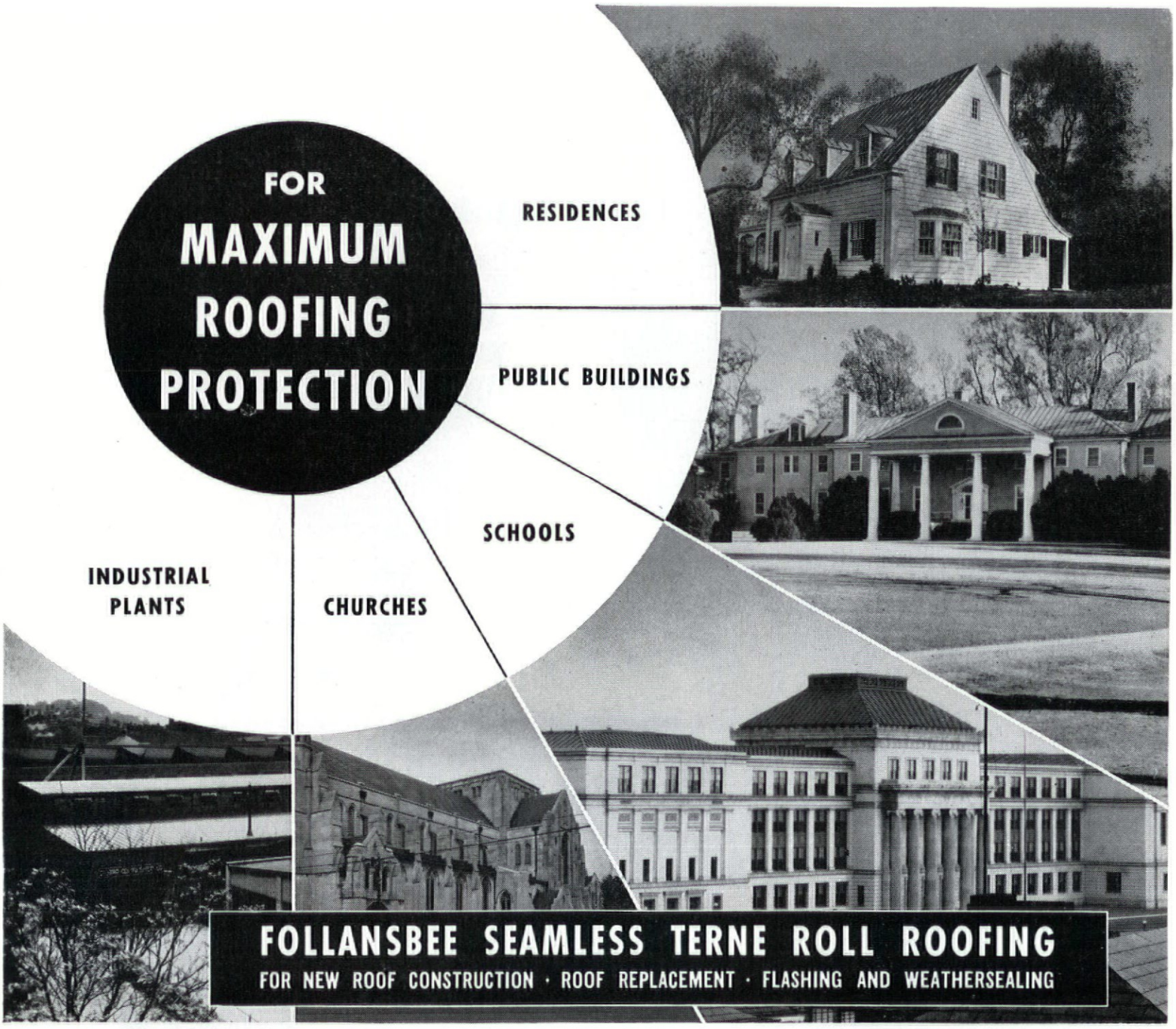
A BETTER "FRONT" will pay off for your client in today's competitive market. To make your remodeling designs more effective, count on carpet — the right carpet.

You can give gloomy rooms sparkle, make small areas seem larger, endow your client's entire establishment with more inviting atmosphere. The many Alexander Smith and C. H. Masland weaves and patterns offer you an amazingly wide choice. See them and learn about the many installation facilities the Smith-Masland contract representative offers. He is equipped to complete your smallest or largest job with economy of time and expense. Call him today. Or write Alexander Smith-Masland Contract Carpet Department, 295 Fifth Avenue, New York City.

Alexander Smith
and
C.H.Masland

CONTRACT CARPETS

295 FIFTH AVENUE, N. Y. 16, N. Y.



AVAILABLE NOW, for the first time in many years, 40-lb. terne-coated* Follansbee Seamless Roll Roofing assures maximum roof protection for all types of structures. Time-proved as a durable roofing material, 40-lb. terne-coated steel* has set many performance records. In fact, 40-lb. terne roofs serving MORE THAN FIFTY TROUBLE-FREE YEARS may be found in many cities.

Furnished in 50-foot continuous rolls without cross-seams, this superior roofing metal can be readily applied regardless of architectural design characteristics. Write today for full information on specification and application details.

*Each 435 sq. ft. of copper-bearing steel base plate is hot-dip coated with 40 lbs. of tin and lead alloy (terne coating).

FOLLANSBEE STEEL CORPORATION

GENERAL OFFICES, PITTSBURGH 30, PA.

COLD ROLLED STRIP · ELECTRICAL SHEETS · POLISHED BLUE SHEETS · SEAMLESS TERNE ROLL ROOFING

Sales Offices—New York, Philadelphia, Rochester, Cleveland, Detroit, Milwaukee. *Sales Agents*—Chicago, Indianapolis, St. Louis, Kansas City, Nashville, Houston, Los Angeles, San Francisco, Seattle; Toronto and Montreal, Canada.

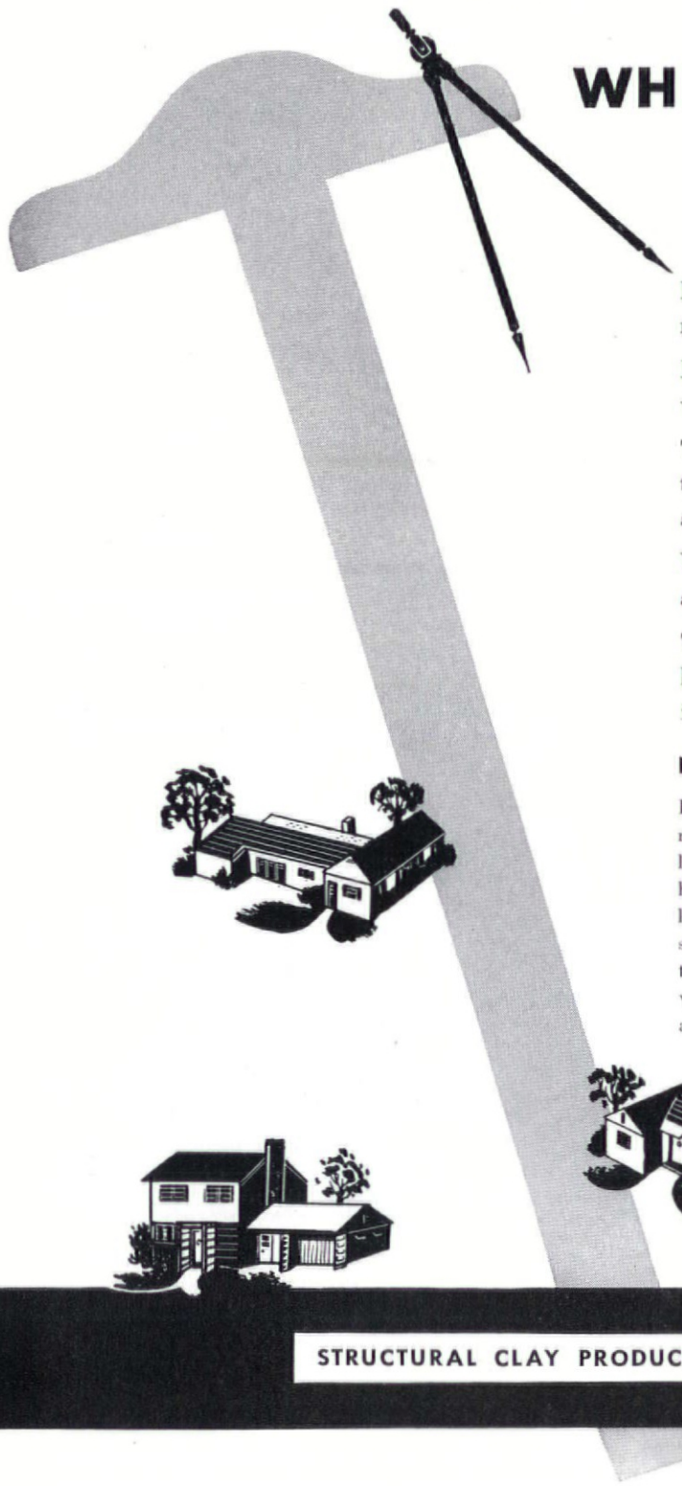
Plants—Follansbee, W. Va., and Toronto, Ohio.

FOLLANSBEE METAL WAREHOUSES—PITTSBURGH, PA., ROCHESTER, N. Y., and FAIRFIELD, CONN.

Engineered housing

BECOMES AN EVEN BETTER IDEA...

WHEN IT'S *Brick!*



Engineered housing spearheads the trend to a future of more efficient, more economical building.

It makes the theory of modular coordination a practical, workable *fact*.

The manufacturers of brick and tile were among the first to recognize this fact and team up with foresighted builders and architects in developing this new, better way to build.

We were in fact *the first* to accept and support this idea on an industry wide basis.

This means that today you can build *brick* engineered housing . . . with all the additional advantages brick offers in beauty, permanence and all-around desirability.

NEW PLANBOOK MAKES ENGINEERED HOUSING A FACT

Here's a new planbook that helps you make engineered housing a reality in brick. We present 20 labor-saving, cost-reducing plans of beautiful brick homes—with discussions on site location, financing, landscaping, decorating and expansion. Each plan shows overall dimensions, floor area and cubic content. Complete blueprints are available. For this valuable planbook send 50 cents with your name and address to Dept. AF-11, address below.

STRUCTURAL CLAY PRODUCTS INSTITUTE • 1520 18th Street, N. W., Washington 6, D. C.

Robertson's
Bermuda TILE
provides
old-fashioned beauty
for the most modern rooms
in the house

Now you can avoid the monotony and "coldness" of dead white and plain color tile—and still enjoy all the advantages obtainable only in all-clay tile.

Bermuda Tile is available in four different colors—gray, tan, peach, and green—and in four different patterns as charming as Early American decorative wallpaper. Thus 16 different and colorful treatments are possible. The colors and designs have been chosen to harmonize not only with one another, but also with nearly any architectural or decorative scheme.

The entire surface of *Bermuda* Tile is one glaze applied in two operations, and resulting in a flat matt finish. The pattern is therefore indestructible. The designs are burned in; they will not wash off or fade; they will remain permanently fresh.

Bermuda Tile is waterproof and fireproof, withstands rapid temperature changes more successfully than other materials, and can be cleaned in a flash with minimum effort. Write today for free samples of the patterns in various colors.

ROBERTSON
MANUFACTURING COMPANY
TILE DIVISION
TRENTON 5, NEW JERSEY

application information, including formulas for calculating heat requirements. Benefits of the built-in heaters, according to General Electric, are reduced operational cost, minimum maintenance expense, efficient operation and improved working conditions.

MODULAR PLANNING. Modular Coordination. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., 20 pp. 8½ x 11 in. 15 cents.

As directed by the Housing Act of 1948, the Housing and Home Finance Agency is promoting the use of modular coordination as a means of reducing housing costs to the consumer. One phase of its propagation of a basic standard measurement unit in housing materials and design is the publication of this booklet. Aimed at the man in the street, it tells in thoughtfully prepared text just what modular coordination is how the four inch unit—or module—was arrived at, and how its application saves time and money for the manufacturer, the contractor, the architect and, consequently, the home purchaser. A designer's creativeness is not inhibited by this principle, the book points out; rather, modular coordination simplifies the details of construction, thereby allowing him freer rein on the visible aspects of his project—be it Cape Cod or contemporary. *(Continued on page 172)*

Our new house is modular

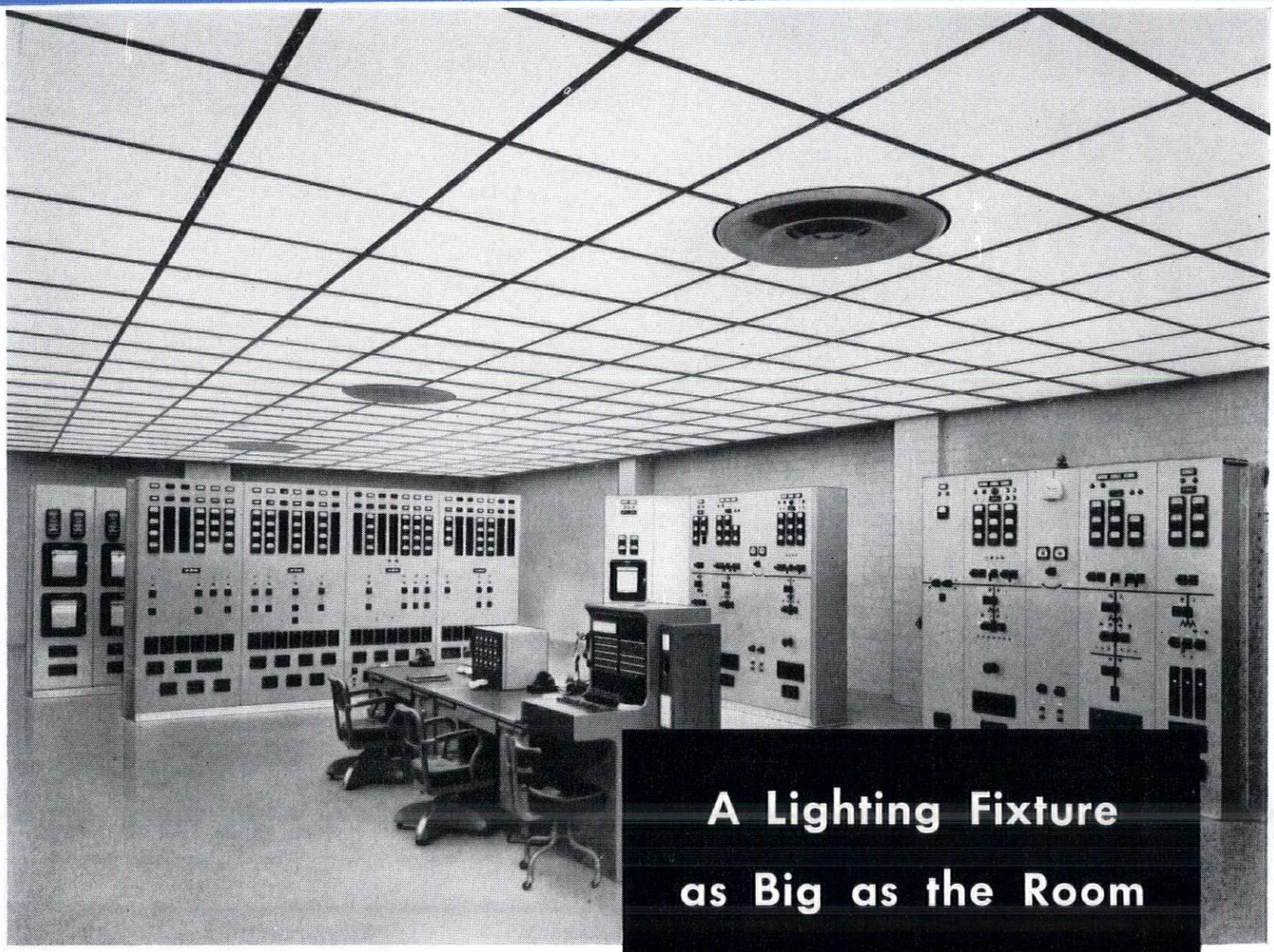
TYPE H MIXER for Concealed Piping. Dial diam. 6". Mixer for exposed piping has 3½" dial.
SAFEST
SHOWER MIXER MADE

ONLY ONE MOVING PART

POWERS
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. 2755 Greenview Avenue, Chicago 14, Illinois.

THE POWERS REGULATOR CO.



A Lighting Fixture as Big as the Room

IT'S PLEXIGLAS

PLEXIGLAS *diffusing panels in control room of Philadelphia Electric Company generating station. Large sections of white translucent* PLEXIGLAS, *installed below cold cathode tubes, give excellent glare-free illumination.*

Here's the newest thing in large-area lighting—*pure illumination without glare or shadows*—diffused by large PLEXIGLAS plastic panels, installed wall-to-wall. And here's safety overhead, because PLEXIGLAS is light, strong, shatter-resistant.

Actually, white translucent PLEXIGLAS diffuses light so completely that shadows and glare simply vanish. Minimum absorption and maximum transmission of light give full, even illumination throughout any room. Brightness ratios are remarkably low.

PLEXIGLAS ¼″ thick has seven times the impact strength of glass—yet weighs less than half as much. Light weight and shatter resistance permit its use in large sections with complete safety and ease, and economy of installation. Maintenance costs are negligible.

You'll find PLEXIGLAS wall-to-wall diffusing panels in banks, drafting rooms, stores, classrooms and control rooms—wherever *undistorted* lighting is desired, and safety with savings is essential. Tell us about *your* lighting problem. We'll be glad to send you full information regarding *modern* lighting with PLEXIGLAS.

PLEXIGLAS *is a trade-mark, Reg. U.S. Pat. Off. and in principal foreign countries.*

Canadian Distributor: Crystal Glass & Plastics, Ltd., 282 St. Helens Avenue, Toronto, Ontario, Canada

CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

WIN $1,500!

Architects! Here's your chance to win one of the cash awards totaling $5,000 — for the most interesting and practical new design for an eight-family garden-type apartment building of wood frame construction.

Open to:

Architects, Designers, Draftsmen and Senior Students. Competition closes January 15, 1950 . . . prizes awarded March 15, 1950.

The Problem:

We believe many existing housing problems can be solved both economically and satisfactorily with a well-integrated combination of (1) the low-cost garden-type of structure with (2) traditionally low-cost wood construction.

This competition is intended to demonstrate how well architectural grace, beauty and originality can be expressed in a multi-family dwelling designed in wood.

The Prizes:

MAJOR AWARDS		STUDENT AWARDS	
First Prize	$1,500	First Prize	$500
Second Prize	$ 750	Second Prize	$250
Third Prize	$ 500	Third Prize	$150
Honorable Mention		Honorable Mention	
10 Awards at $100 each.		7 Awards at $50 each.	

Enter Now!

For entrance application and contest rules, just fill out the coupon below. This competition is approved by the Committee on Competition of the American Institute of Architects.

Contest Secretary
Wood Garden Apartment Design Contest
c/o Timber Engineering Company (Sponsor)
1319 - 18th Street, N. W., Washington 6, D. C.

Please send me entrance application form and contest rules for design of Suburban Apartment.

NAME .....

FIRM (OR SCHOOL) .....

ADDRESS .....

CITY ..... STATE .....

TECHNICAL LITERATURE

HEATING. Convector Radiators by Young. Young Radiator Co., Racine, Wis. 15 pp. 8½ x 11 in.

Roughing-in dimensions, construction details and ratings of all six models in the new Young line of convector radiators, designed for use with hot water or two pipe steam systems, are given in this bulletin. It also contains helpful installation tips and piping diagrams. Features of the units enumerated by the publication are: oversize grille for greater heat delivery; cabinets with removable front panels for easy cleaning; simplified piping; sensitive non-ferrous heating element of tube and fin type; and damper for regulating heat flow to permit individual room temperature control.

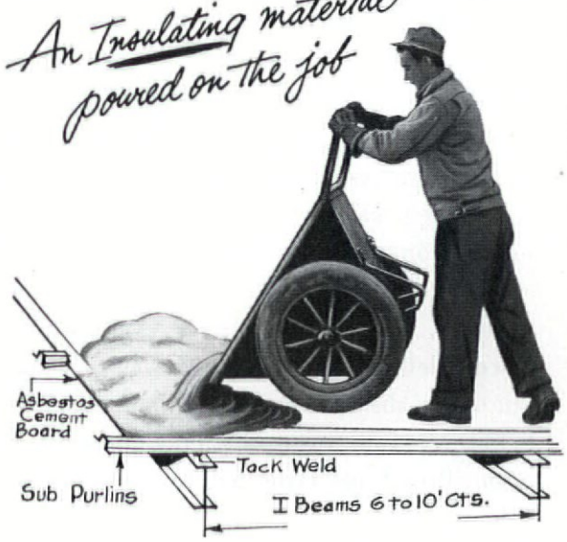
INDUSTRIAL PIPING. Corrosion Service Piping. Bulletin 485. Taylor Forge & Pipe Works, Box 485, Chicago 90, Ill., 32 pp. 8½ x 11 in.

Everything from soup to synthetics flows through piping is the introductory theme of this booklet dealing with the corrosion and contamination problems of the vast conveyor systems in process industries. Anyone concerned with stainless steel or nickel alloy piping applications will find its comprehensive treatment valuable. Bulletin 485 is particularly interesting at this time because the American Standard for Stainless Steel Pipe, ASA B36.19-49, has been adopted recently by the American Standards Association. This publication was prepared with the new standard as its basis. It tells the development story of the I.P.S. system (in which outside diameters of pipes remain constant regardless of inner diameters; thickness of the pipe varies rather than outer surface to facilitate joining) and discusses and explains the economic importance

(Continued on page 174)

PORETHERM

An Insulating material poured on the job



Poretherm, a high-grade, permanent insulating cellular concrete is poured on top of asbestos cement boards, laid on Sub Purlins. This makes a fire-proof roof deck — weight, only 10 lbs. per sq. ft., provides the same heat insulation as 1½ inches of cork, *at lower cost*. Write today for complete information.

PORETE MFG. CO.
N. ARLINGTON, NEW JERSEY

Mesker Steel Windows

MASONIC TEMPLE
POCATELLO, IDAHO

Architects and Engineers:
Paradice & Hunter, Pocatello, Idaho

Contractor:
C. H. Elle, Pocatello, Idaho

Mesker Sales Engineers:
Structural Steel and Forge Co.
Salt Lake City, Utah

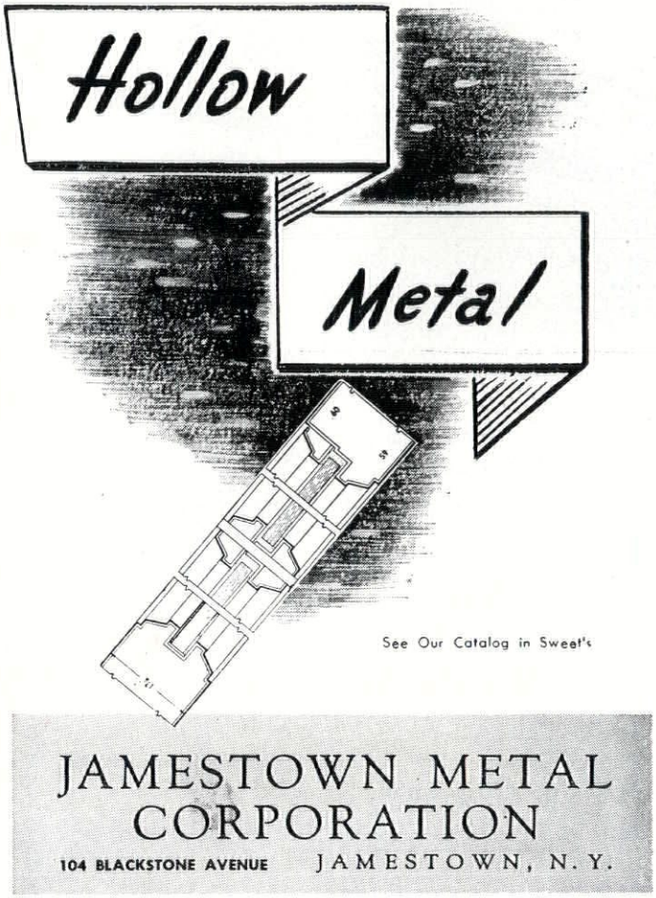
If you want your monumental buildings to symbolize strength and permanence, you'll do well to consider Mesker Steel Windows . . . "*known for their weight*". You will find their 1¾″ deep sections afford greater structural strength . . . that they resist wind pressure and shock when used in large openings. Important, too, you'll find they arrive on the job in better condition and — as a result — are easier to install. Next time compare Mesker with any other window, regardless of cost. We'll rest our case on YOUR judgment!

Window Illustrated:
Mesker No. 414
Intermediate Projected

MESKER INTERMEDIATE PROJECTED WINDOWS

. . . with their awning and hopper ventilators provide abundant fresh air, yet eliminate drafts. Heavy steel members assure permanent weathertightness, easy operation. Thin trim lines follow contemporary architecture and admit maximum daylight. See the new Mesker Catalog in the new Sweets.

MESKER BROTHERS • 4336 GERALDINE AVENUE • SAINT LOUIS 15, MISSOURI



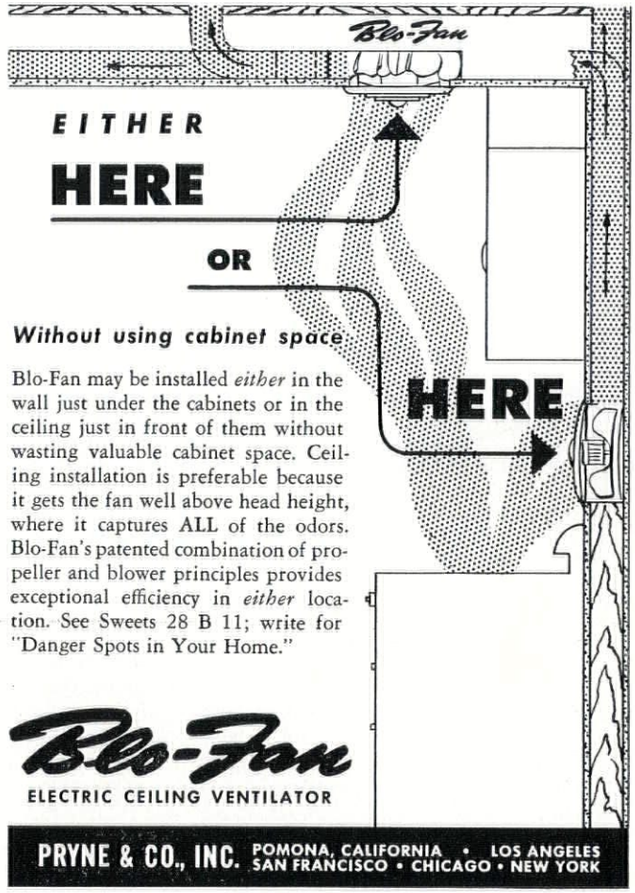
of the new similar standard applied to nickel, Inco nickel alloy, and austenitic stainless steel piping. Advantages of welding, design tips and extensive technical data are accompanied by excellent diagrams and halftones. Three-color tables present complete dimensional information on stainless fittings and flanges. Should the corrosion engineer or interested lay reader have an eye for attractive format he will be delighted by the tasteful handling of the subject.

PLUMBING FIXTURES. How to Handle Enameled Cast Iron Plumbing Fixtures. Enameled Cast Iron Plumbing Fixtures Assn., 1709 M St., N.W., Washington 6, D. C. 6 x 9 in.

Because the glass-like surface of enameled cast iron plumbing fixtures can suffer irreparable damage from improper loading, unloading or installation, this booklet has been prepared for contractors, dealers, handlers and journeymen. It offers helpful handling suggestions and photographs of correct moving and setting methods.

WELDING ACCESSORIES. GE Arc Welding Accessories. GEC 253A General Electric Co., Schenectady 5, N. Y. 20 pp. 8½ x 11 in.

More than 150 arc welding accessory items, designed to meet the requirements of all ordinary welding work as well as many special applications, are listed in the catalogue. Electrode holders, helmets and goggles, tungsten electrodes, all types of protective aids and clothing, cable connectors, ground clamps and cleaning tools are some of the products described. Information on other items, omitted because of their newness or infrequent usage, will be furnished by the manufacturer on request. *(Continued on page 176)*



OUTSTANDING 6 ADVANTAGES OF RAYMOND CONCRETE PILES

Raymond's successful experience for more than a half century has thoroughly proved these six outstanding advantages of Raymond Concrete Piles. These benefits, plus Raymond's expert personnel and specialized equipment, result in sound, dependable substructures that meet every requirement. You are invited to consult our engineers for the facts.

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.

RAYMOND CONCRETE PILE CO.

Branch Offices in Principal Cities of United States and Latin America

140 CEDAR STREET · NEW YORK 6, N. Y.

AROUND THE WORLD · 52 YEARS · FOUNDED 1897 · OF PROGRESS

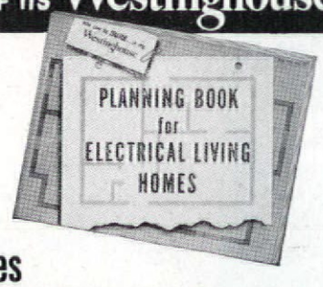
THE SCOPE OF RAYMOND'S ACTIVITIES

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.

YOU CAN BE SURE.. IF IT'S Westinghouse

New Facts

Planning Book on Electrical Living Homes



This new manual contains essential data to help you plan kitchens, laundries, lighting and wiring for most efficiency, economy and client satisfaction.

Clearly outlines the basic principles of the Four Degrees of Electrical Living and how to adapt them to the houses you design.

Features *kitchen standards* with two layouts: An "Economy Kitchen" that is minimum in space and equipment requirements; and an "Ideal Kitchen" that offers an arrangement of equipment, counter and storage space for those who want the best.

Suggest *laundry layouts* developed to take advantage of modern automatic laundry equipment.

Gives *simplified wiring data*, with chart that outlines recommendations on outlet requirements, illustrates how to compute wiring needs and suggests wiring and control center layouts.

Lighting suggestions are illustrated, together with complete case studies.

Design data on electric appliances and equipment is also included. Here is both an idea and reference book that every architect should have.

SEND FOR Free Booklet

Better Homes Bureau
Westinghouse Electric Corporation
P. O. Box 868, Pittsburgh 30, Pa.

Gentlemen: Please send me a copy of your new book, Planning Homes for Electrical Living —B-4326.

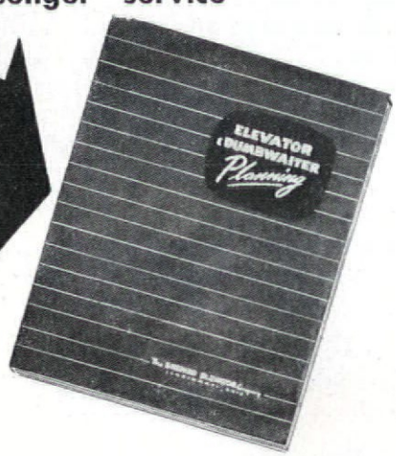
Name.....

Street.....

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

Select *SHEPARD* Elevators
. . . for freight and passenger service

FREE to architects, contractors & engineers



Geared & Gearless Traction Elevators
Hydraulic Elevators & Lifts (2, 3, or 4 floors)
Dumbwaiters

THERE is a Shepard Elevator or Lift for every type of service. Every unit is designed, built and installed by specialists in vertical transportation.

To help you in planning elevator service write today for "ELEVATOR & DUMBWAITER PLANNING." This FREE book provides basic information and plans for elevators, lifts, and dumbwaiters for industrial, commercial, institutional and residential uses.

Representatives in Principal Cities

THE SHEPARD ELEVATOR COMPANY
CINCINNATI 14, OHIO
Builders of Finest Office, Hotel & Hospital Elevators

WOOD. Wood Specimens. The Nema Press Ltd., 33 Tothill St., Westminster, London, S.W.1, England. 206 pp. 9 x 12 in. 2 guineas.

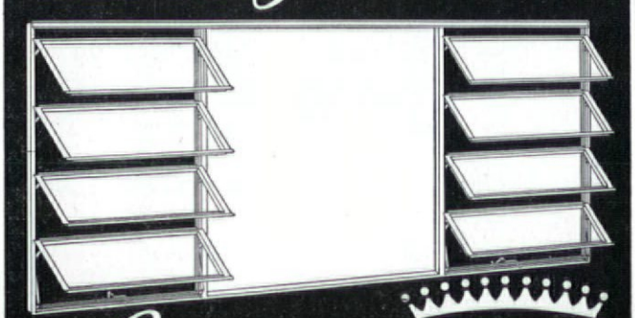
One hundred woods having economic importance are shown in large natural color plates and concise information given concerning their growth, location, properties and uses. Most of the more common species in current use, for decoration or construction, are included, as well as a number of timbers which have been used commercially just recently. For the architect concerned with the color, tactile and working qualities of his materials this book has definite value. Names given to each wood are in accordance with standard names recommended by the British Standards Institution.

LATHING AND PLASTERING. Handbook of Recommended Specifications for Lathing, Furring and Plastering. National Foundation for Lathing and Plastering, Inc., Madison-LaSalle Bldg., 173 W. Madison St., Chicago 2, Ill. 40 pp. 8½ x 11 in.

Following the circulation of the first edition of the Handbook early this year, the National Foundation for Lathing and Plastering received a commendatory response from the building industry—as well as many suggested modifications of practice. Those changes which were found acceptable are contained in this second edition. As in the earlier volume, recommended specifications were compiled by the Foundation with the aid of contractors and journeymen of the lathing and plastering industry and have been limited to those basic for a great variety of uses. The copy includes material on interior lathing, furring and plastering. Sections on stucco, or exterior plastering, are now in preparation.

(Continued on page 178)

LEMCO *Monumental*



Series 62

• AWNING TYPE •
EXTRUDED ALUMINUM WINDOWS

• *Especially designed for use in Schools, Hospitals, Public Buildings and Fine Residences*

HEAVY 2 1/8" SECTIONS

Write today for descriptive literature

CROFT STEEL PRODUCTS, INC.
16 MARKET STREET • JAMESTOWN, N. Y.

Your Home Buyer Pays

Less than $5.00 per Month

For this Complete **HOTPOINT KITCHEN**

For So Little Extra You Offer So Much More!

TODAY the cost of adding Hotpoint all-electric kitchens in new homes is amazingly low in comparison with the impressive increase in value.

For example, a complete Hotpoint kitchen, financed in a "package mortgage," actually adds less than $5 to the monthly payments.

Aggressive home builders everywhere agree that today the kitchen is the measure of value—that prices seem lower when homes are fully equipped with Hotpoint Ranges, Refrigerators, Dishwasher-Sinks and matching Hotpoint metal cabinets. For complete facts, see your Hotpoint distributor or mail the coupon at right.

Hotpoint Inc., *(A General Electric Affiliate)*

Everybody's Pointing To

Hotpoint

Ranges • Refrigerators • Freezers • Water Heaters • Dishwashers
Disposalls® • Clothes Washers • Ironers • Dryers • Cabinets & Sinks

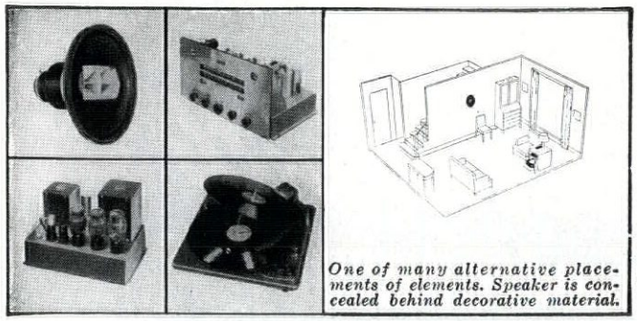
HOW TO SAVE MONEY ON INSTALLATION PROCEDURE

Hotpoint Inc., Apartment House and Builder Div.
5600 West Taylor Street
Chicago 44, Illinois

Gentlemen:
Please tell me—without cost or obligation—how I can obtain information on efficient installation of modern kitchens at minimum cost.

I build _____ houses a year for _____
NUMBER RENT OR SALE

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____



One of many alternative placements of elements. Speaker is concealed behind decorative material.

AN IMPORTANT NEW SERVICE FOR YOUR MUSIC-MINDED CLIENTS

For clients who demand for their homes everything that modern science now contributes to more gracious living, the Altec Lansing home system, comprising AM-FM Radio-Phonograph with or without Television, makes available for the first time supremely high quality sound reproduction which today's commercial radio-phonograph cannot approach. Each unit of professional equipment is custom-installed in the wall, closet, door, book shelves or some other appropriate place designed into the building by the architect. Cumbersome radio cabinets are eliminated. Price is surprisingly moderate, and installation is simplicity itself. Write for illustrated brochure showing how this sound system of tomorrow can be fitted into your architectural plans.

ALTEC
LANSING CORPORATION
CUSTOM-IN-BUILT
HOME MUSIC SYSTEMS

161 Sixth Ave., New York 13, N. Y.
1161 N. Vine St., Hollywood 38, Cal.

It's new!

...just the right height for children

Here, at last, is a drinking water cooler designed with the child in mind. Architects and school building authorities will appreciate its convenience in school cafeterias. The LO-LEVEL comes in various models for cafeteria use and as a combination cooler and fountain for drinking use.

Just the right height for children. Foot-pedal operation makes it easy for child to hold tray and still fill glass with water. Faster serving, less confusion, low-cost operation.

HALSEY TAYLOR
LO-LEVEL
Coolers

Write for full information.

THE HALSEY TAYLOR CO., WARREN, OHIO
Largest Exclusive Manufacturer of Drinking Fountains in the World

5-4

THE LITTLE COOLER FOR LITTLE PEOPLE

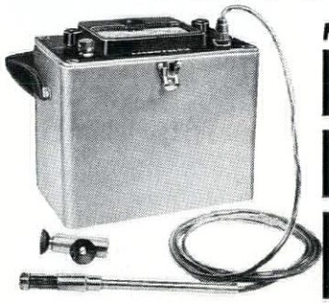
COLOR SYSTEM. Color Harmony Manual, Third Edition. Color Standards Dept., Container Corp. of America, 38 S. Dearborn St., Chicago 3, Ill. 37 charts. Leather binder 16½ x 8 11/16 in. $113.38. Duplicate color chips 25¢ each.

Presenting an enlargement of the Ostwald System, this looseleaf edition contains a new text explaining methods of achieving harmonies, and 943 different color chips instead of 680 as in the previous two editions. The extra colors were selected on the basis of their general industrial usefulness. According to the publishers the new manual has such a number of modifications based on modern technology that it may be described fairly as a new development of the Ostwald system. The chips themselves are made of transparent cellulose acetate so that one side reveals a high gloss surface of the mat pigmented lacquer applied to the other side. Their hexagonal shape makes tonal relationships easier to arrange.

ELEVATORS. Elevator & Dumbwaiter Planning. The Shepard Elevator Co., Cincinnati, Ohio. 58 pp. 8½ x 11 in.

Actively cooperating with the National Elevator Mfg. Industry, Inc., in its promotion of elevator and specification standardization, Shepard has compiled this planning book. Both designers and manufacturers benefit by standardization—layouts and specifications are simpler to work out, filling orders is easier. Realizing this, the company puts these standard specifications at the disposal of architects, engineers and builders. Data covers traction and hydraulic commercial elevators, private residence elevators and dumbwaiters. Specifications presented for commercial elevators and dumbwaiters may be filled by any elevator manufacturer and sufficient leeway is allowed for special construction features.

ANEMOTHERM *AIR METER*



MEASURES

AIR VELOCITY
FROM 10FPM to 6,000FPM

AIR TEMPERATURE
FROM 30F to 155F

STATIC PRESSURE
FROM 0 TO 4 NEG. AND FROM 0 TO 10 POS. IN. WG

This precision instrument gives vital data on the performance and efficiency of heating, ventilating and air conditioning systems. Direct, instantaneous readings.

SEND FOR FREE 4-PAGE FOLDER

Anemostat Corporation of America, Dept. TH-16
10 East 39 Street, New York 16, N. Y.

☐ Please send new 4-page folder on the Anemotherm Air Meter.
☐ I would like to have the Anemotherm demonstrated.

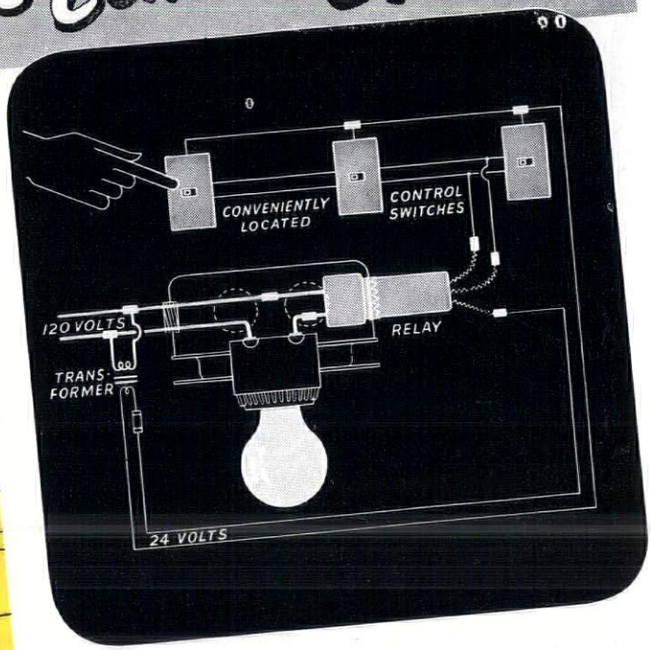
Name .....
Company .....
Address .....

AC 1231

Light the path ahead

WITH SQUARE D's

NEW Low Voltage Control System



use this

Remote Control Relay System

instead of conventional switching

for greater

CONVENIENCE • SAFETY • COMFORT

. . . at very reasonable cost

• The above sketch shows how remote control relays are installed in knockouts of outlet boxes. The relays are controlled from any number of conveniently located switches operating on a 24 volt system. Only the load circuit wiring is at 120 volts.

One relay can be operated by several control switches, or several relays can be operated from one or more locations, using master switches.

Write **for Bulletin No. 1008, which gives details of this simple, low-cost way to adequate switching.**

Square D Company,
6060 Rivard Street, Detroit 11, Michigan

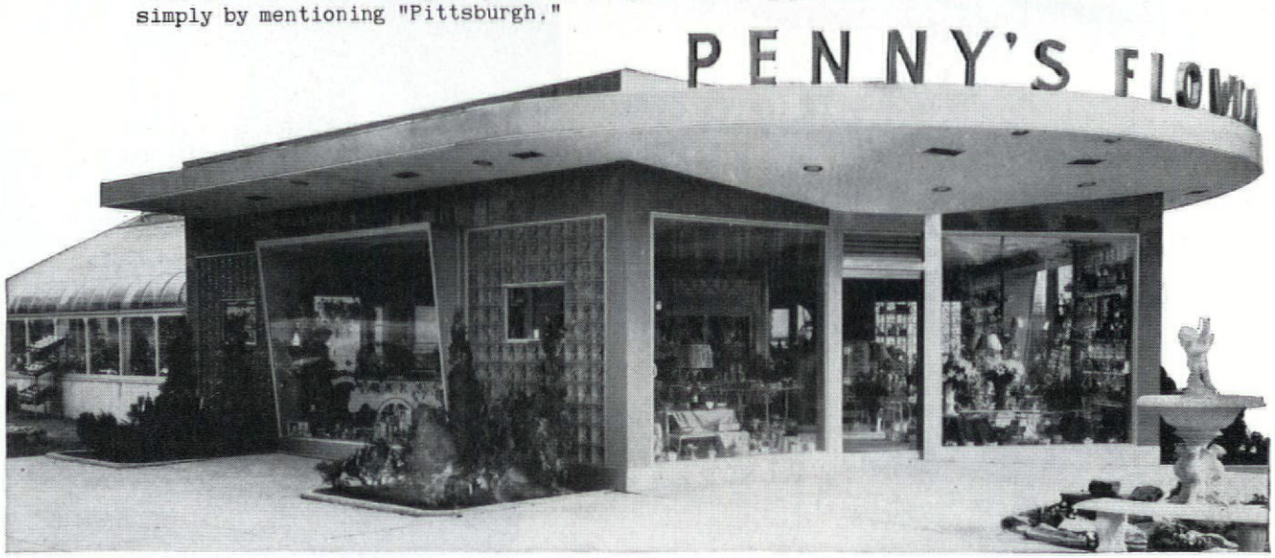
SQUARE D COMPANY

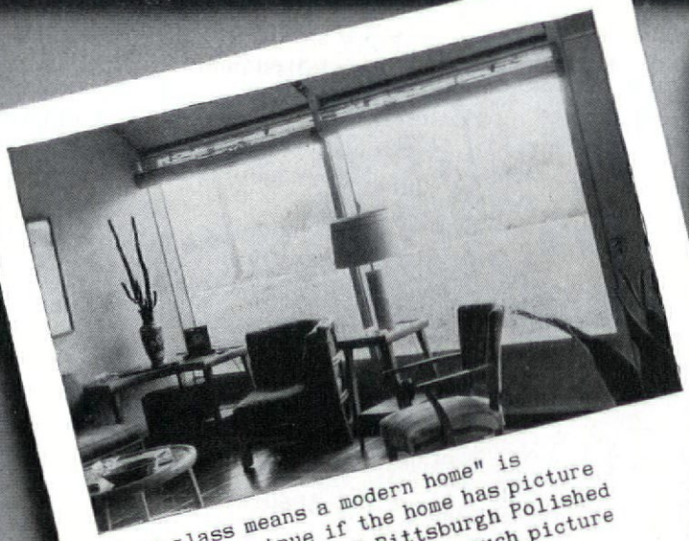
DETROIT • MILWAUKEE • LOS ANGELES

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

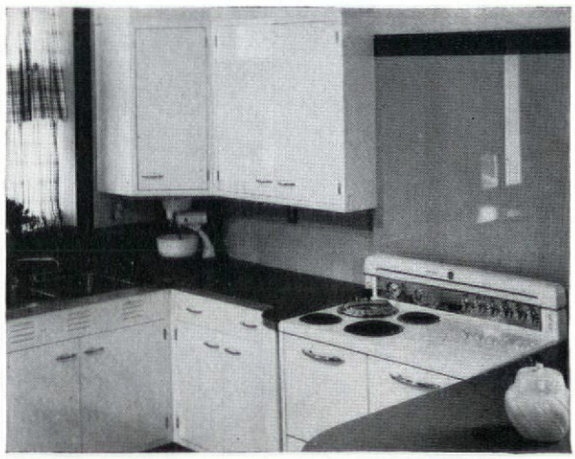
More Glass means

Here's additional proof that when you select from "Pittsburgh's" line of glass products and use "Pittsburgh's" experienced crews of workmen, you'll get a good-looking, practical front. And because today's business-wise merchant is familiar with the name "Pittsburgh," you'll find your selling job is made a lot easier simply by mentioning "Pittsburgh."





"More glass means a modern home" is particularly true if the home has picture windows like these of Pittsburgh Polished Plate Glass. When installing such picture windows, keep in mind that Twindow, "Pittsburgh's" new window has built-in insulation. That's because it's made of 2 or more panes of "Pittsburgh" Glass with permanently sealed air spaces and a protective frame of stainless steel.

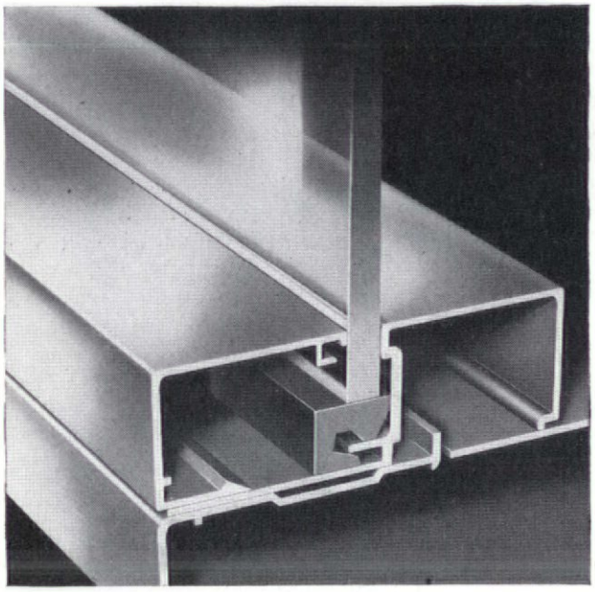


Because it is practical and long-lasting, as well as extremely good looking, Carrara Structural Glass is well-suited for walls and wainscots of kitchens and bathrooms. For splash panels, too...behind stove or lavatory...as a fireplace surround or for corner shelves or window sills—Carrara is certain to please customers. They'll like its pleasing colors (10 to choose from). Its easy cleaning. And the fact that it won't check, craze, fade, or absorb odors.

modern buildings

here's proof from "Pittsburgh"

Pittsburgh Plate Glass Company has developed an instrument which makes it possible to "read" the thickness of a silver film at any point on a mirror. The remarkable instrument thus insures more uniform mirror silvering quality. This development is another practical result of "Pittsburgh's" energetic program to improve the quality and the performance of all "Pittsburgh" products. And it is another reason that you can always recommend "Pittsburgh" products with confidence.



This double-faced rectangular sash (Pittco De Luxe 15C) is for use where store front design calls for a plain surface, rich in tone and gloss. This sash is especially suitable for installations above the first floor level, for the sash can be reversed and necessary replacements can be made easily from inside. It can be used with any Pittco De Luxe moulding. Its strength, and clear, sharp profiles are assured by its extruded method of manufacture.

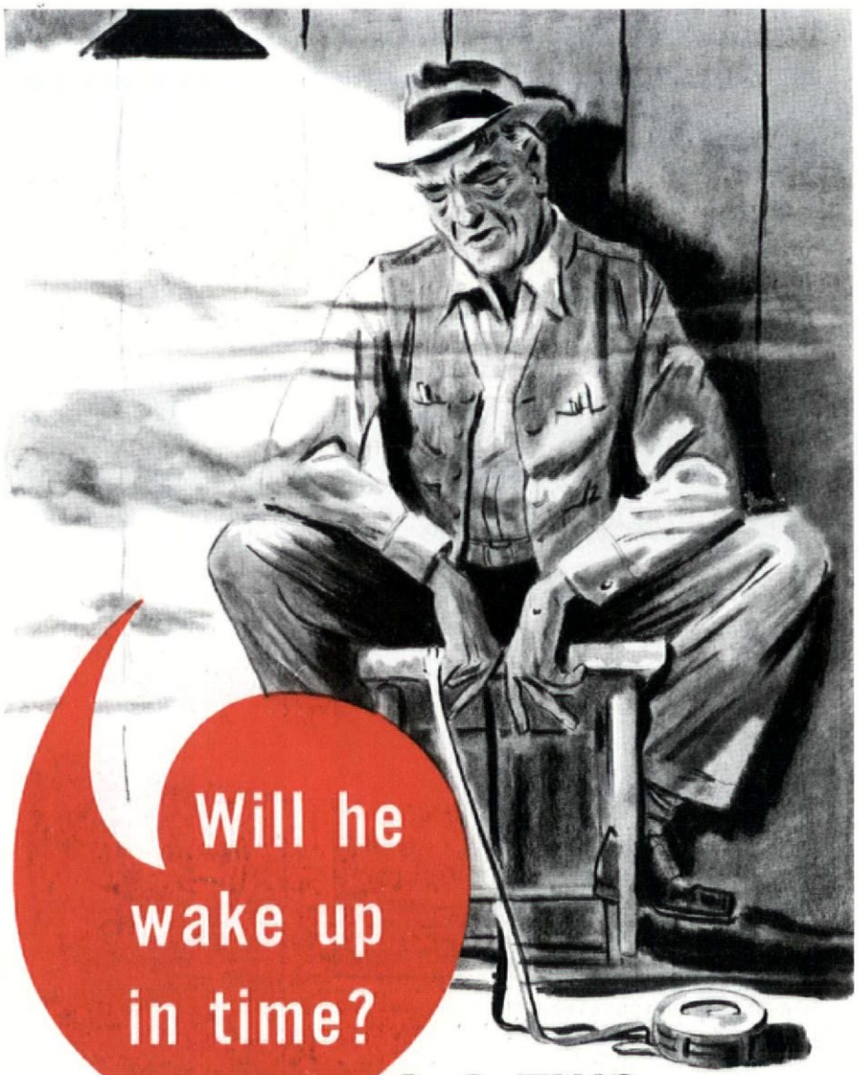
See the complete listing and descriptions of Pittsburgh Plate Glass Company products in Sweet's Catalog Files.

★ **Design it better with**

Pittsburgh Glass

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY



C-O-TWO

is a 24 hour a day automatic fire watchman

We're all human . . . we all slip up now and then. One of these slips can cost you your business . . . especially at night when a little fire could be unnoticed for hours.

Round-the-clock automatic fire protection is the modern way to keep your business firesafe. The C-O-TWO Combination Smoke Detecting and Fire Extinguishing System is wide awake and on the job constantly. The first whiff of smoke in a protected area sounds an alarm. Then fast, clean, non-damaging carbon dioxide blankets the fire, putting it out in seconds, before it spreads and causes extensive damage.

C-O-TWO manufactures and installs fire protection systems for one, two, twenty-four, sixty or any number of enclosed or semi-enclosed spaces. Let an expert C-O-TWO Fire Protection Engineer help you plan modern, dependable, fully approved fire protection for your property now, before fire strikes. Remember . . . tomorrow may be too late. Write us today for complete information.

C-O-TWO

C-O-TWO FIRE EQUIPMENT COMPANY
NEWARK 1 • NEW JERSEY
Sales and Service in the Principal Cities of United States and Canada
AFFILIATED WITH PYRENE MANUFACTURING COMPANY

SPECIFICATION AND

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.*

Adams & Westlake Company, The 44
Altec Lansing Corporation 178
Aluminum Company of America *(Alcoa)* 53
Aluminum Window Manufacturers Association 130, 131
American Art Metals Co. 166
American Brass Company, The 25
American Central Division *(The Aviation Corporation)* 33
American Radiator & Standard Sanitary Corporation 39
American Stove Company 123
American Telephone & Telegraph Company 113
Andersen Corporation 1
Anemostat Corp. of America 178
Anthracite Institute 20
Architectural Forum 133
Aviation Corporation, The *(American Central Division)* 33
Aviation Corporation, The *(Spencer Heater Division, The)* 115

Bakelite Corporation 152
Beautex Plaster Company 22
Bendix Home Appliances, Inc. 141
Bigelow-Sanford Carpet Company, Inc. 24
Bruce, E. L., Co. 2
Bryant Heater Company *(Member, Dresser Industries, Inc.)* 45

Cabot, Samuel, Inc. 22
Cambridge Tile Manufacturing Company, The ..... Cover II
Ceco Steel Products Corporation 43
Celotex Corporation, The 27
Connor, W. B., Engineering Corporation 145
C-O-Two Fire Equipment 182
Crane Co. 41
Cribben & Sexton Co. 34
Croft Steel Products, Inc. 176
Curtis Companies 7

Davidson Plywood & Lumber Co. 146
Deco-Plastics Inc. 164
Delaware Floor Products, Inc. 144
Detroit Lubricator Co. 17
Detroit Steel Products Company 5, 137
Dresser Industries, Inc. *(Bryant Heater Co.)* 45
Dunham, C. A., Company 111
Dwyer Products Corporation 148

Eljer Company ..... Cover III

Facing Tile Institute 18
Fedders-Quigan Corporation 26
Fiat Metal Manufacturing Company 134
Flintkote Co., The 58
Flintkote Co., The *(The Tile-Tex Division)* 158
Follansbee Steel Corp. 168
Fox Bros. Mfg. Co. 37
Frigidaire Division *(General Motors Corporation)* 125

General Controls 156
General Electric Company 50, 51
General Motors Corporation *(Fridgidaire Division)* 125
Grinnell Company, Inc. 121

Hall-Mack Company 48
Hauserman, E. F. Company, The 150, 151
Homasote Company 30
Hope's Windows, Inc. 119
Hotpoint, Inc. 177
House & Garden 165
Hunter Douglas Corporation 34

Independent Lock Company *(Lockwood Hardware Mfg. Co. Division)* ..... Opp. 52
International Steel Company 122

Jamestown Metal Corporation 174
Johns-Manville 139

Kawneer Co., The 142, 143
Kaylo Division *(Owens-Illinois Glass Co.)* 127
Kelvinator Division *(Nash-Kelvinator Corp.)* 8
Kennedy, David E., Inc. 129
Kimberly-Clark Corporation 156
Kitchen Maid Corporation, The 136
Kwikset Locks, Inc. *(Petko Industries, Inc.)* 159

BUYING INDEX

Libbey-Owens-Ford Glass Company 32
Life Magazine 156
Lockwood Hardware Mfg. Co. Division *(Independent Lock Company)* .....opp. 52
Louisville Cement Company, Inc. .....opp. 53
Ludowici-Celadon Company 160

Marsh Wall Products, Inc. 135
Medusa Portland Cement Company 116
Mengel Company, The 4
Mesker Brothers 173
Metal Tile Products Inc. 162
Miller, Herman, Furniture Company 38, 183
Minneapolis-Honeywell Regulator Company 54
Mitchell Manufacturing Company 29
Mueller, L. J., Furnace Company 156

Nash-Kelvinator Corp. *(Kelvinator Division)* 8
National Adequate Wiring Bureau 140
National Electrical Manufacturers Association 154, 155

Otis Elevator Company 28
Overhead Door Corporation .....Cover IV
Owens-Corning Fiberglas Corporation 184
Owens-Illinois Glass Co. *(Kaylo Division)* 127

Paine Lumber Co. 38
Palmer Manufacturing Corporation 174
Petko Industries, Inc. *(Kwikset Locks, Inc.)* 159
Pittsburgh Plate Glass Company 180, 181
Porete Mfg. Co. 172
Powers Regulator Co., The 170
Pratt & Lambert, Inc. 55
Pryne & Company, Inc. 174

Railway Express Agency 42
Raymond Concrete Pile Company 175
Remington Rand 117
Revere Copper and Brass, Inc. 36
Reynolds Metals Company 56
Reznor Manufacturing Co. 30
Robertson Mfg. Co. 170
Roddis Plywood Corp. 35
Rohm & Haas Company 171
Rolscreen Company 128
Rowe Manufacturing Company 107
Rust-Oleum Corporation 120

Seaporcel Porcelain Metals, Inc. 138
Servel, Inc. 108, 109
Sharon Steel Corporation 21
Shepard Elevator Company 176
Sloan Valve Company 57
Smith, Alexander-Masland, C. H. 167
Smith, A. O., Corporation 112
Sonneborn, L., Sons, Inc. 110
Speakman Company 31
Spencer Heater Division, The *(The Aviation Corporation)* .. 115
Square D Company 179
Standard Dry Wall Products Inc. 157
Steelcraft Manufacturing Co., The 147
Structural Clay Products Institute 169

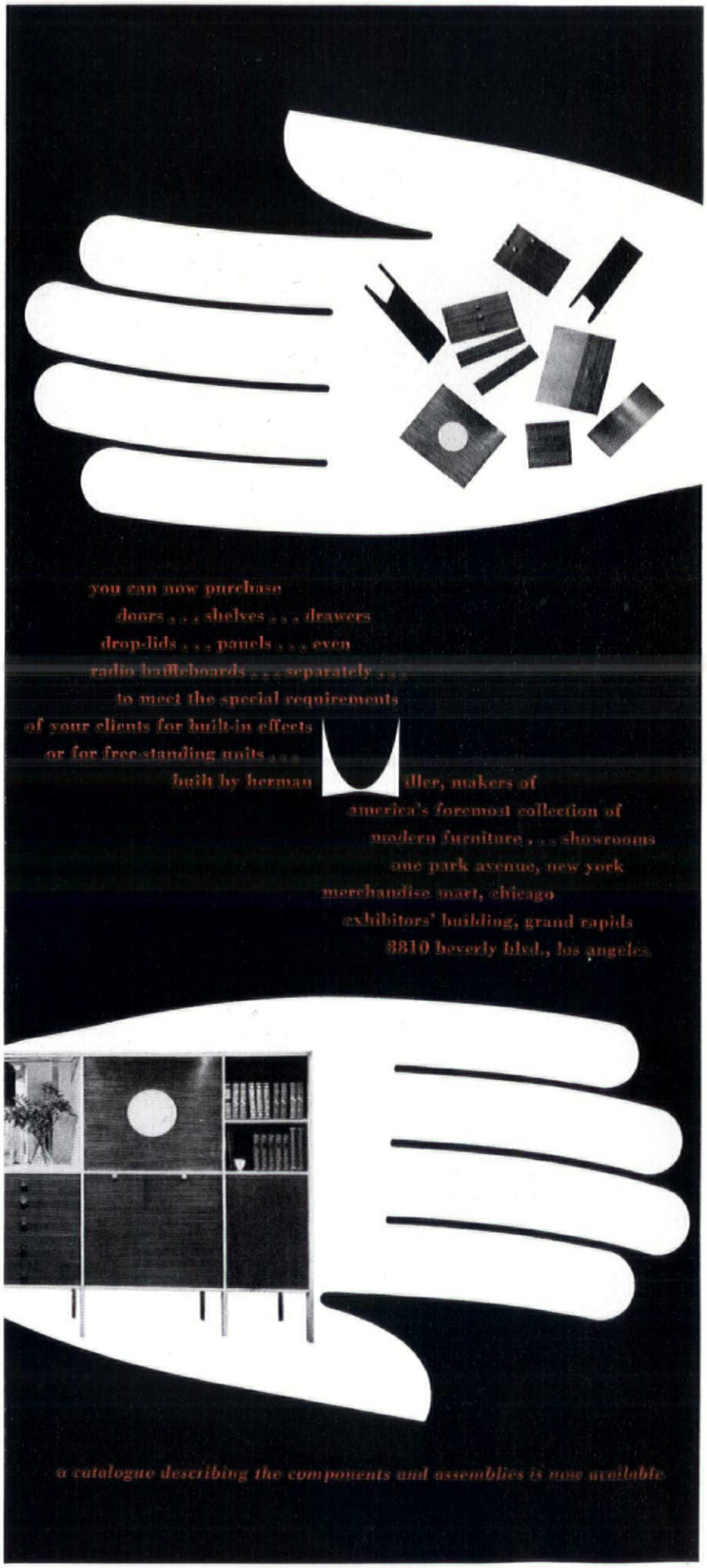
Taylor, Halsey W., Company, The 178
Tile Council of America 149
Tile-Tex Division, The *(The Flintkote Co.)* 158
Timber Engineering Company 172
Timken Silent Automatic Division *(The Timken-Detroit Axle Co.)* 163
Toch Bros., Inc. 52
Trane Company, The 49

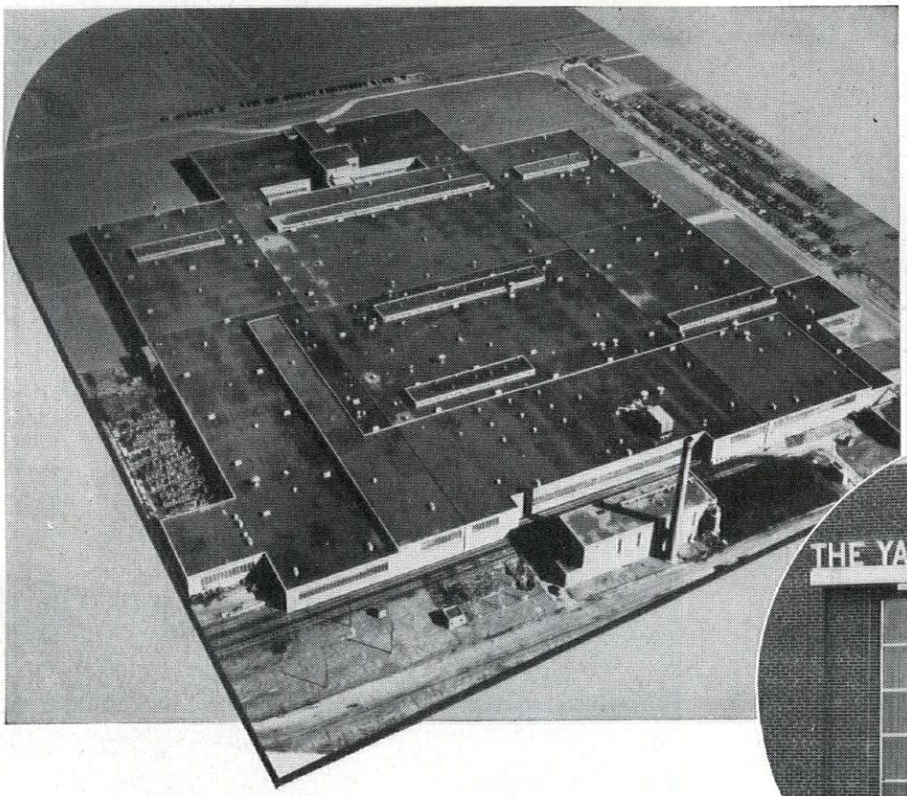
United States Gypsum Co. 46, 47
United States Plywood Corporation 126, 140
U. S. Savings Bonds 153
United Wallpaper, Inc. *(Varlar, Inc. Division)* 118
Uvalde Rock Asphalt Company 114

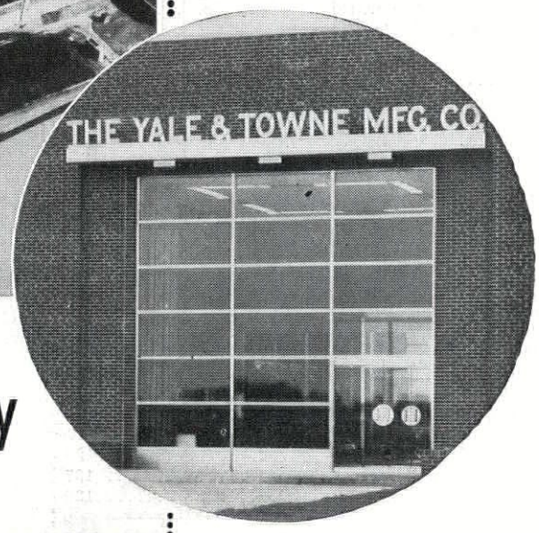
Valley Metal Products Co. 19
Varlar, Inc. *(Division of United Wallpaper, Inc.)* 118

Walworth Company 23
Western Pine Association 42
Westinghouse Electric Corporation 176
Wheeling Corrugating Company 40
Wood Conversion Company 161
Wurdack Chemical Co. 26

York Corporation 6







JOB DATA

Architect: The Ballinger Co.

General Contractor: Turner Construction Co.

Roofing Contractor: Warren-Ehret Co.

Roof Deck: Truscon Steel

Roof Insulation: Fiberglas Roof Insulation, 1" thick, 750,000 square feet on factory and office building

Roofing: 20 years Bonded Slag Roof

Insulated for 3-way economy with

FIBERGLAS* ROOF INSULATION

Yale & Towne Mfg. Co. specified Fiberglas Roof Insulation for its new plant in order to get 3-way economy —of installation, of performance, of maintenance.

You can specify Fiberglas Roof Insulation with confidence for these same reasons.

- Competitively priced with ordinary organic materials, the installed cost of Fiberglas Roof Insulation is easy on the owner's budget.
- Because of its superior insulating efficiency, Fiberglas Insulation provides increased savings in heating and air-conditioning costs.
- Roof maintenance can be cut, too, because Fiberglas Roof Insulation, with its fibers of ageless glass, will not rot, warp or buckle. It contributes to longer roof life.

Fiberglas Roof Insulation was specifically designed for roof insulation use. It has been thoroughly tested by independent laboratories and proved in use through installations on plants of many leading manufacturing and industrial concerns. It is applied by leading roofers and contractors everywhere. Write for manual. OWENS-CORNING FIBERGLAS CORPORATION, *Dept. 830*, Toledo 1, Ohio.

PRODUCT DATA

Thermal Efficiency: Conductance is .28 (at 75° F. mean temperature) for 1" thick material.

Dimensional Stability: Basically composed of glass fibers. Will not warp, swell, shrink or buckle.

Unaffected by Moisture: Efficiency of the fibrous material is unimpaired after laboratory equivalent of 75 years of weathering.

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

OWENS-CORNING FIBERGLAS

TM. REG. U.S. PAT. OFF.

BUILDING MATERIALS

BUILDING INSULATION • ACOUSTICAL TILE AND BOARD • ROOF INSULATION • MEMBRANE FABRIC

NEW
ANTI-SIPHON UNIT
B-9861

NEW
REGULAR UNIT
B-9860

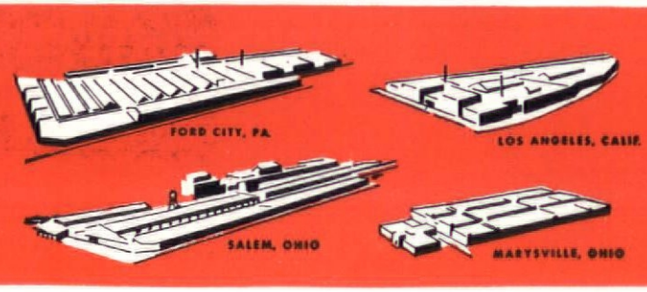
10 Reasons for Using ELJER'S NEW Ballcocks

The NEW ELJER BALLCOCKS, made in our own modern factory, feature design and construction principles that assure *efficient, long-life service* for the user. Supplied in all Eljer Tanks . . . and available to meet the big demand as replacements in existing installations. *So, use the best . . . use* Eljer. See your Eljer Distributor or write Eljer Co., Ford City, Pa.

HERE'S WHY! 1. Balanced piston—closes tightly regardless of pressure. 2. Snap-action closing—no cutting of seat—no water hammer. 3. Simple, direct lever arrangement. 4. Flow Regulator—adjustable to conditions. 5. Shutoff Stop permits re-washering—saves time. 6. Working parts of the two types interchangeable. 7. Oversize, 5/16" refill tube for full bowl seal. 8. All parts are readily accessible. 9. Standpipe of red metal assures long life. 10. Efficient service—free flow, quick filling and instant shutoff.

It pays you, it pays us— because we specialize in Plumbing Fixtures and Brass

ELJER



THE

"OVERHEAD DOOR"

TRADE MARK

WITH THE MIRACLE WEDGE

service the modern way . . .

COPYRIGHT, 1949, OVERHEAD DOOR CORPORATION

● Today's definition of service includes economy of time, labor, and expense for both customer and owner. The "OVERHEAD DOOR" with the Miracle Wedge is essential equipment for a building in which such a standard is to be maintained. This door, expertly engineered from quality materials, gives instant service year in and year out, is easily operated, and requires the minimum of maintenance. The "OVERHEAD DOOR" is built for commercial, industrial, residential, or rural use and may be manually or electrically operated.

TRACKS AND HARDWARE OF SALT SPRAY STEEL

Nation-Wide Sales—Installation—Service

OVERHEAD DOOR CORPORATION • Hartford City, Indiana, U.S.A.

MANUFACTURING DIVISIONS

GLENDALE, CALIFORNIA
OKLAHOMA CITY, OKLAHOMA

DETROIT, MICHIGAN
PORTLAND, OREGON

HILLSIDE, NEW JERSEY
LEWISTOWN, PENNSYLVANIA

CORTLAND, NEW YORK
DALLAS, TEXAS