

9313

ARCHITECTURAL FORUM

THE MAGAZINE OF

Building

SEPTEMBER 1950

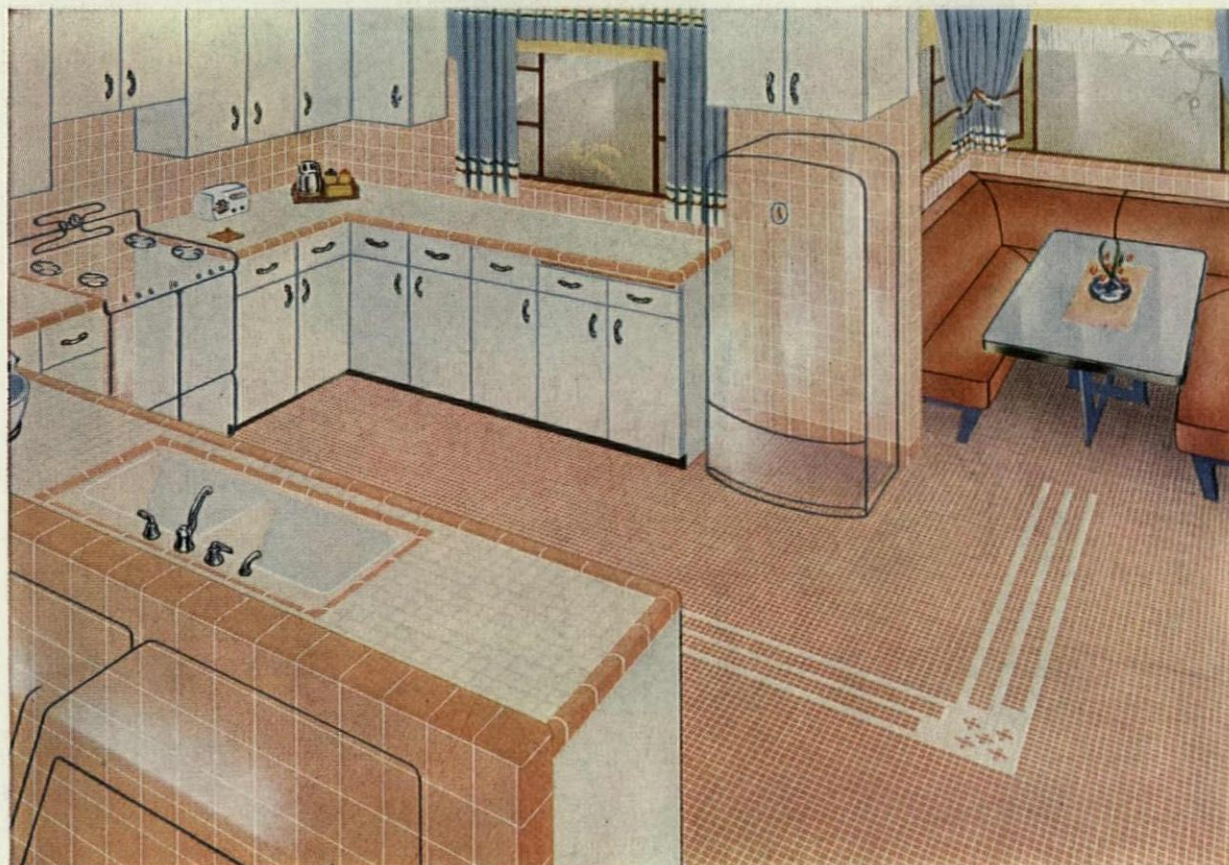
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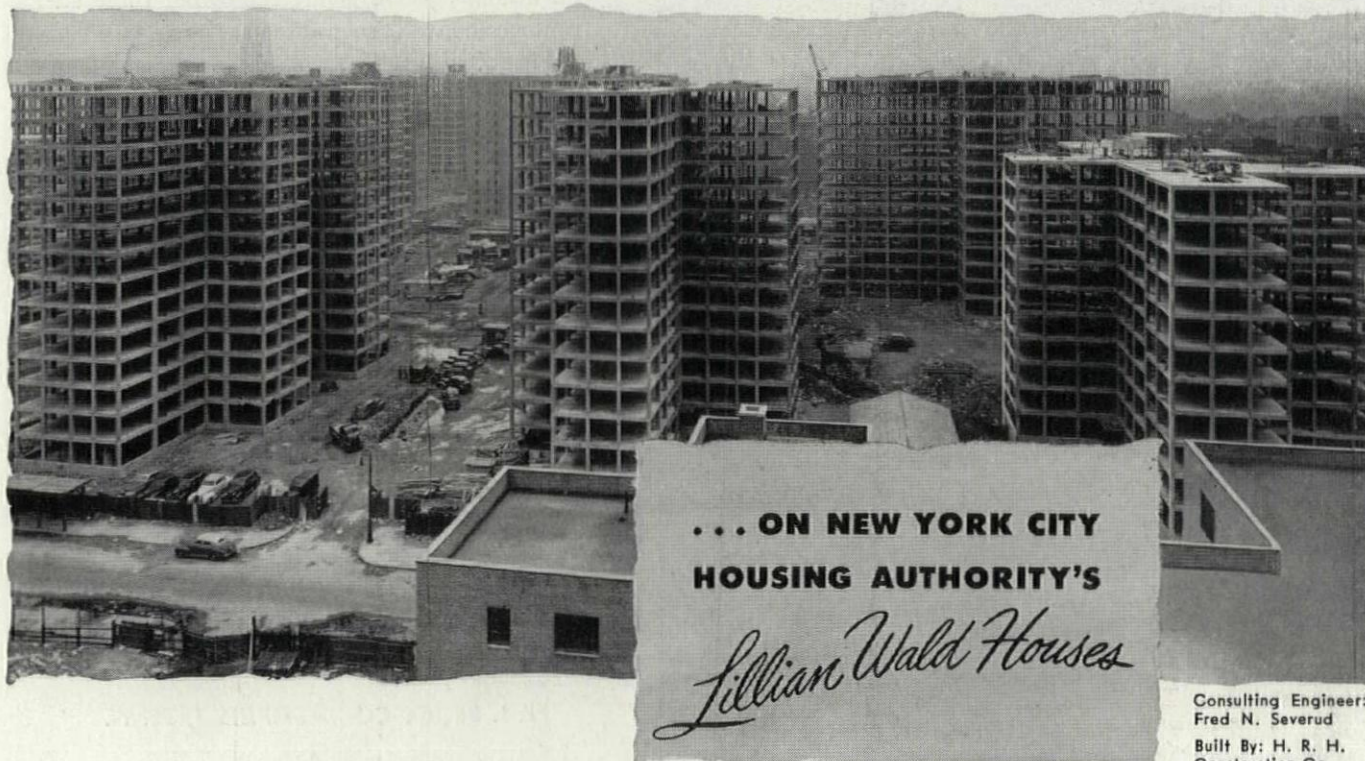
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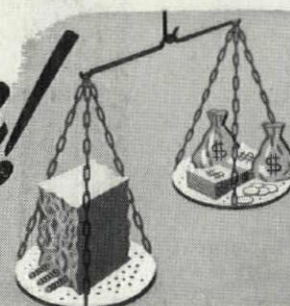
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VOLUME 93, NUMBER 3



NEWS

War's effect on building . . . preview of a controlled building economy . . . a design competition for the benefit of builders' houses.

LETTERS

REPORT FROM EGYPT

BEHIND THE BLUEPRINTS

EDITORIAL—Pittsburgh and the Architect's Problem

FOUR HOUSES BY MASTER ARCHITECTS

Machine-age living space is handsomely enclosed with steel framework and interchangeable wall panels—by Charles Eames.

A steel shelf for flexible living and enjoyment of a sweeping view demonstrates the adaptability of steel to house construction—by Charles Eames and Eero Saarinen.

A master architect, master craftsmanship and a mastery of native stonework combine to produce a modern country house—by Louis I. Kahn.

Clean, conservative design and warm wooden construction would make this California house at home in any part of the country—by William W. Wurster.

20 HOUSES BY THE AIA-NAHB COMMITTEEMEN

A man is known by his work. The architect and home builder committeemen who are charged with working out a new basis of mutual collaboration are building a motley array of houses. A round-up of the men, their opinions and their houses.

NEW HOSPITAL DESIGN IDEAS

Robert Stanton—a hospital specialist with imagination—stirs things up in California.

MODEL ZONING ORDINANCE

New York decides that the big city is here to stay and plans to change its zoning accordingly. The setback system itself suffers a setback which promises to alter the design of new buildings in every big U. S. city.

BUILDING REPORTER

A progress report on two of the most significant projects now abuilding: Equitable Life's Golden Triangle office building project in Pittsburgh and General Motors' research center in Detroit.

THEATERS-IN-THE-ROUND

Some reasons for the new interest in arena-type theaters and a look inside a big one planned for Broadway by Architects Pomerance & Breines.

TWO SMALL RESTAURANTS

Architect Douglas Honnold achieves delicate balances between flashy interior design and low-cost exposed construction, between conviviality and over-crowding in the Bantam Cock and the Surf Room.

DISPLAY

A fabric showroom with an aluminum mesh ceiling by Architects Associated.

An art museum of triangular steel construction which eliminates walls by MacKie & Kamrath.

A small shop and art gallery with a triple-threat wall finish by Joseph McCarthy.

TECHNICAL NEWS

A new air conditioning system uses high velocities to cut air supply in half at 10° lower temperatures, uses six miles of ducts to achieve complete flexibility for future changes.

The plaster pump at last brings technological progress to a lagging handicraft, offers plasterers a new market in curtain walls and fireproofing.

The galvanized window gets a new lease on life, may give aluminum newcomers a run for their money.

REVIEWS

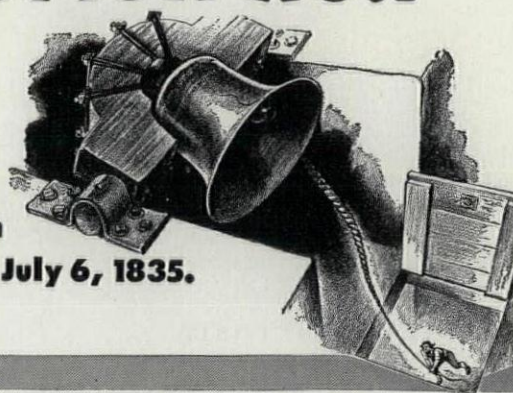
PRODUCT NEWS

TECHNICAL LITERATURE

MISTAKEN NOTION NO. 1

SOME FOLKS think that
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rung on July 4, 1776.

THE FACT IS it was cracked when
tolled for the death of Justice Marshall July 6, 1835.



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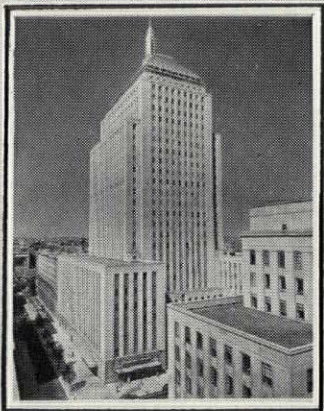
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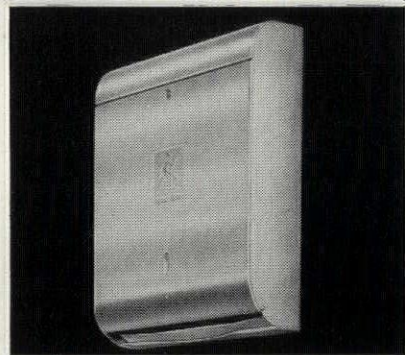
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Architects: Cram and Ferguson

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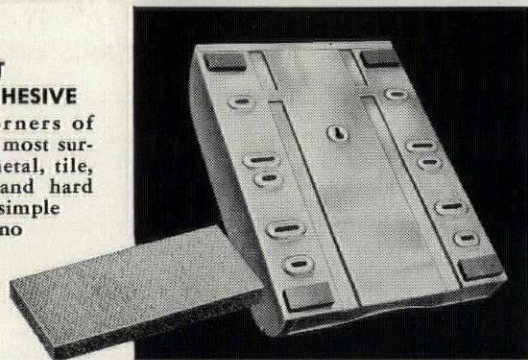
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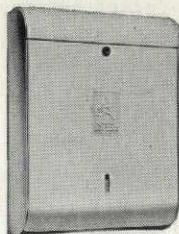
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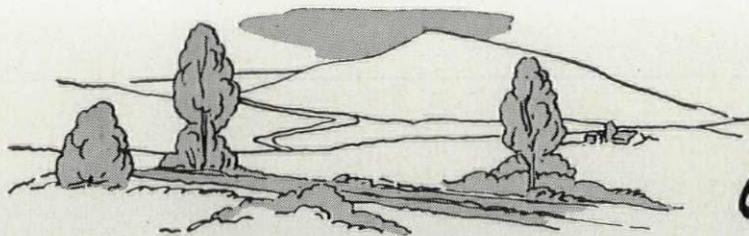
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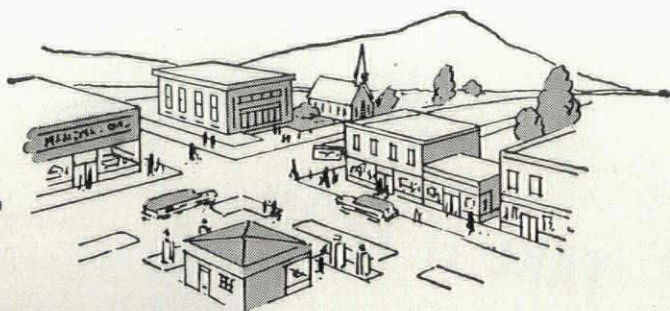
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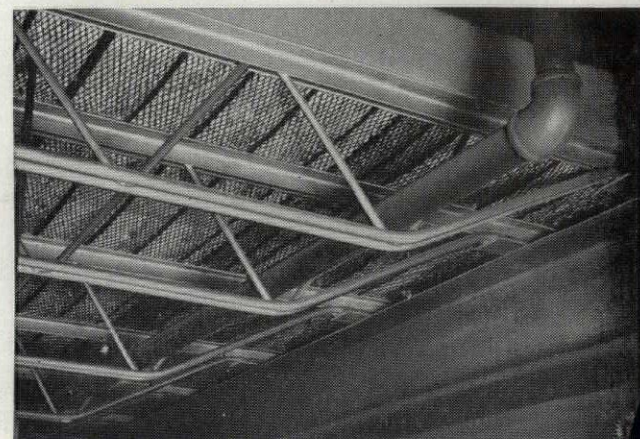
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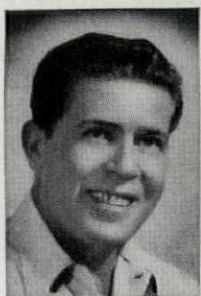
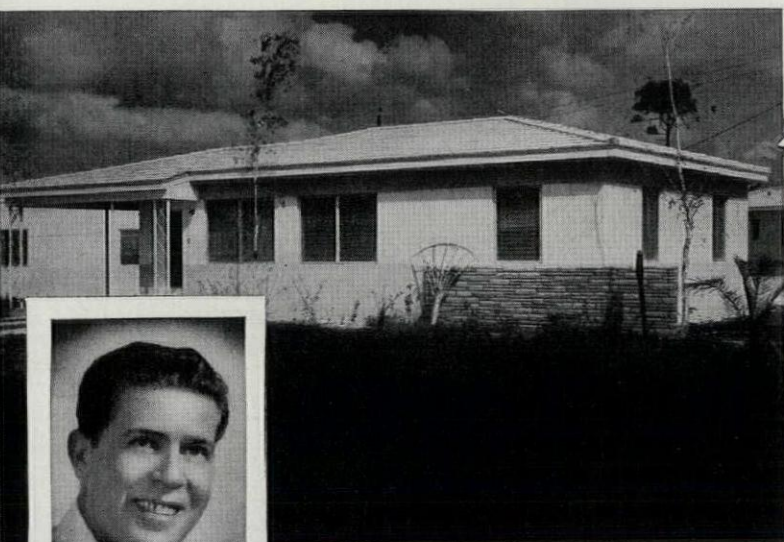
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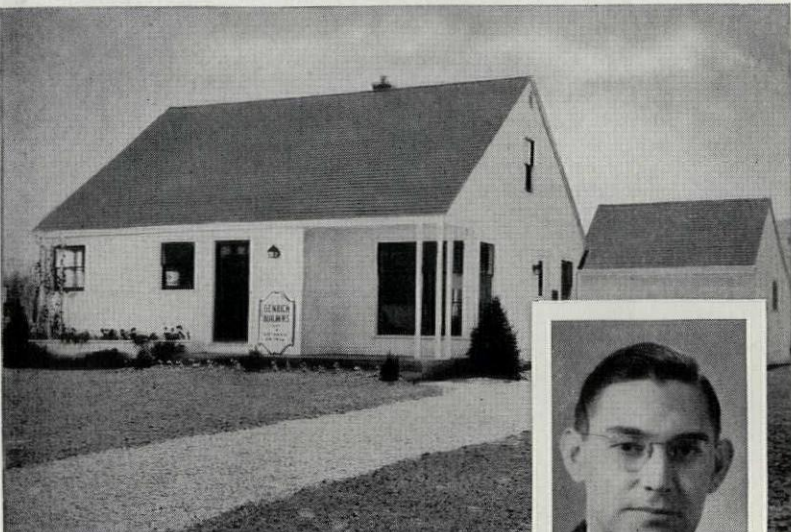
Kelvinator has co-operated with builders everywhere to make this year's National Home Week a success in every way, and Kelvinator salutes the building industry for the outstanding job it is doing in meeting the nation's housing demands.

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BUILDING'S NEW PACE: despite continuing setbacks and shortages, the industry will meet its demands, if it acts wisely

After two months of part-time war, the building industry began to see how it shaped up in the new economy. Its shape-up was not unlike that of the Korean War itself: discouraging in spots (mostly the spots where the fighting—and building—was being done), hampered by a still inadequate supply of materials and men, but generally hopeful in the long view. And the long view was that the pace of part-time war (assuming, of course, that it stayed part-time war) might do little more than trim the fat off construction's swollen boom.

To piece together the industry's status in the general confusion, BUILDING last month conducted extensive surveys, on every level of the industry. Little cheer was found on the local level. There individual builders were still harassed by the shortages of vital materials and labor which threatened to cut back their plans to the nether side of the profit line. There worry over the market and the government was making individual lenders extra cautious in doling out construction money. There individual materials dealers were frankly discouraged about the prospects of furnishing builders enough cement and lumber and gyp board to finish their operations.

Stocks down, prices up. The check list of complaints totted up by merchant builders and general contractors was discouraging, indeed. The list of materials in short supply had swollen and in some cases become acute; that acuteness was directly reflected in the ever-jumping prices. (One Detroit builder said that new prices lists came out like the editions of an afternoon newspaper.) BLS' wholesale price index for construction materials registered a 5½ per cent increase between the first part of July and the last week in August. (Month-end figures showed that finishing materials rather than starting materials now reflected the sharpest price increases; hardwood flooring, plumbing and heating equipment all spurted up.)

Labor was another real and continuing headache. Many builders felt that the shortage of labor was more serious than the materials situation; bricklayers, cement finishers, lathers and electricians were becoming increasingly hard to find. And when builders did find them, they had to fight to keep them.*

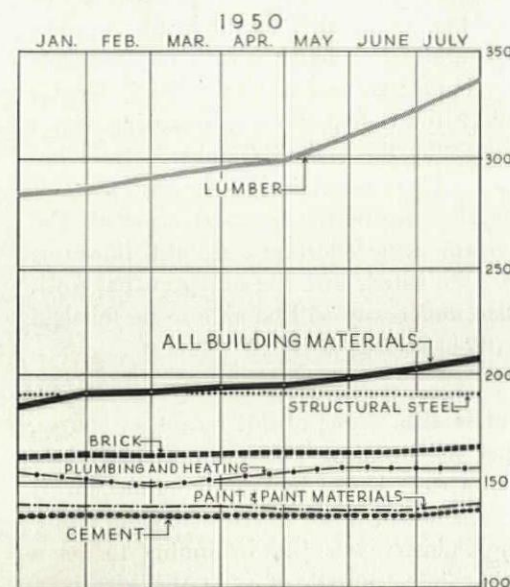
"Like the war." Labor pirating was becoming serious in many places. (Said one Washington contractor: "Just like during the

war!") Premiums and strikes were pushing labor costs up. Scarcity of materials was threatening to push its productivity down.

It was getting tougher and tougher for a builder to get a construction loan. Meeting with the city's mortgage bankers, San Francisco's Associated Home Builders asked them to stop requiring material stockpiling from builders. The bankers politely said they would study the matter. (Commented one observer: "Translated—no dice.") Not all lenders yet were demanding that materials be on hand, but that requirement was obviously gaining favor. So was the demand for more equity.

If there was any clear pattern of reaction to these local level crises, it was not to be found easily. The first effect of the Korean war—and the subsequent tightening up of FHA-VA financing*—had been a stimulation of the already well-stimulated housing market. July starts climbed to the all-time high of 143,000 units; August might be at least 125,000. BUILDING's survey, which took in 70 merchant builders and general contractors, indicated a great uncertainty among them. A Houston investment developer, frightened by the prospect of being caught with a half-completed structure and no materials to finish it with, shelved plans for a \$4 million, 18-story office building. A merchant builder in the same city, frightened by the same statistics, stepped up his plans for a 600-unit project. Houston's situation was duplicated throughout the U. S. For every client to shelve a building order, and every builder to put his plans for a new development back in the drawer, there was another client, and another builder, to decide that now was the time to get busy, be-

*The almost-no-down-payment financing under the VA program, which President Truman's credit restriction eliminated, represents a roughly estimated 6 to 10 per cent of the total new houses started this year.



1926=100.0
BLS PRICE INDEX shows that, during 1950's first seven months, lumber was the only building material to climb sharply. August figures will lift curve higher.

fore it became impossible to get materials. But Washington, encouraged by the fact that FHA applications had dropped off 29 per cent during the first three weeks of the new restrictions, looked for a substantial dip in house starts in the fall.

Top-level hope. These were the harassments which made the long view hard to find. The hopeful signs lay in top-level factors, which had not yet trickled down to the job site in Houston or San Diego or Pittsburgh—factors such as the statistics of lumber production, which showed that, for the first time in a year, lumber production exceeded both shipments and new orders. The Department of Commerce estimated that the total lumber supply this year would approximate 40 billion board feet, breaking all records since 1916. To round out lumber's hopeful story, there were indications that the crippling shortage of rail cars—which has been the No. 1 reason why builders have been unable to get lumber—might ease soon. Other production figures were similarly encouraging. (For full discussion of construction materials, see p 12.)

Manufacturers knew that their super-swollen order lists did not represent actual need—that much of it was duplication, orders from builders who had their oar in everywhere. Defense officials added their bit of brightening-up with constant disclaimers that military orders would take a large bite out of supplies. (The fact that these soothing statements had to be repeated so often, however, bore eloquent testimony to the jittery state of the market.)

*In San Francisco, the Metropolitan Life Insurance Co., eager to complete a lagging \$35 million apartment house project, authorized Contractor Starrett Bros. & Eken to start working plasterers six days a week. To keep their workmen from deserting them for this extra day at double time, other contractors were forced to begin a six-day week, too.

All in all, The Commerce Department thought that "stepped-up production of building materials" would bring supplies "generally into balance with requirements for immediate use late this year." Economist Miles Colean thought the easing would come "by the end of October." Said he: "... There is not likely to be any excess of supplies during the last part of 1950. The present acute shortages, should, however, be eliminated, with the prospect that work then under way will be able to be finished without serious delays."

Cut to size. None of this meant, of course, that the building boom would roll right along as if Korea had never happened. It would be cut down to size—and the building industry was just beginning to get a glimpse last month of what that size was. Housing, for instance, the frenzied pivot of private construction, would not again soon be able to chalk up an annual output of 1.3 million units (as it is expected to do this year.) But neither should it, for it is clear enough now that Housing has not the materials nor the labor to produce that much, and when it attempts it, it creates a log jam of shortages like the present one—which the Korean War complicated, but didn't start.* Best guess last month was that Housing's speed would be slowed down to between 900,000 and 1 million units a year—a safe speed and one which Housing could handle.

There were plenty of good reasons why it should be slowed down that much, and a statement of them involves an analysis of the U. S. economy—its present limitations

*Baltimore Mortgage Banker James Rouse last month supplied a clear appraisal of Korea's impact on building. Said he, in a statement to BUILDING: "Just as mobilization for war telescopes future consumer demand into the immediate market so does it affect the demand for and the purchase of materials by builders who are as apprehensive of future shortages and price rises as are their prospective purchasers. This telescoping of material purchases by builders causes immediate shortages which are confused with the mobilization program for it occurs at a time when the activity in the building business is at an all-time high and when the capacity of the material producers is being taxed to its limits. Many builders and prospective home buyers, therefore, are erroneously regarding present material shortages as the result of mobilization when they are actually the result of advance purchasing down the line in anticipation of mobilization. All of this activity has the further effect of increasing prices. Apprehensive builders are willing to pay more for the increasingly scarce materials and apprehensive buyers are willing to pay more for what they fear may become increasingly scarce houses at increasingly high prices."



LUMBER piles up in Pacific Northwest mills, waiting for scarce boxcars to carry it to inland building sites. Mills have less than 15 per cent of the boxcars they need.

and its strength, both real and potential, and the compromises that would have to be made to improve it. Two basic facts underlie any such analysis:

Fact 1: The cost of becoming strong enough fast enough, and of helping our allies become strong enough fast enough, to deter World War III may mean a federal budget of \$60-\$65 billion, an increase of \$20-\$25 billion above the rate of expenditures for fiscal 1950.

Fact 2: The constant rise in labor productivity permits U. S. workers to turn out 2 or 3 per cent more per man hour this year than they did last year. Continue to give them the tools and the incentive, and they can turn out 2 or 3 per cent more each year. In addition, there are still untapped pools of labor: during 1949, and through April of 1950, labor worked on an average of less than 40 hours a week in the manufacturing industries; when the chips are down, it will work longer hours. Further, there is an existing and potential reserve of unemployed and retired workers, those not working for personal reasons which would not be controlling in an emergency, and new people entering the labor market each year. This increase in productivity and these untapped labor sources together are sufficient to increase our national output by even more than the necessary \$25 billion, in two years time.

In other words, if we do not have a full-scale war, and if we handle our economy effectively, we can have both guns and butter by—or shortly after—1952.

Strain on construction. But the two years that now lie between us and a guns and butter economy will impose a strain on certain vital elements of the economy, for the federal government will increase its take of certain items faster than we can increase

our production. Construction is one of these, for construction uses several materials the output of which cannot be increased rapidly by an expansion of hours of efficiency.

Steel tells the story. Steel mills are already working at, and sometimes above, capacity. Production plus imports in 1950 will approximate 72 million product tons; at the most, it cannot exceed 74 million product tons next year—and it will probably be less. Even if the supply is 2 million more tons next year than this, government consumption is likely to increase by at least 4 million tons, so the deficit for the civilian economy next year will be at least 2 million more tons than it is this year. Obviously, there must be a cutback in civilian consumption. Where?

Cutbacks must come all along the line,* but the building industry is particularly concerned with the savings it can effect. And it can save a lot simply through conservation, by making every pound of steel count, by returning to the economies used in World War II, by allowing 24,000 psi in calculations for steel in buildings, by using lightweight aggregates and other devices to reduce the weight of structures that must be supported by steel, by using reinforced concrete in place of steel for many bridges, by reducing the amount of reinforcing in highways, substituting extra cement, or using asphalt.

Cut in appetite. But even this conservation is not enough. Construction, which will

*One logical part of the line: the automobile industry. If auto production were limited to 5 million cars in 1951, a rate which would maintain our standards of auto use and not cause a reduction in our standard of living, we might save up to 3 million tons of steel.

use about a sixth of the total output of steel in 1950 (between 11½ and 12 million tons), will have to cut down on its steel appetite. Where? Not in utility or industrial consumption, for the shortage of office and warehouse space, the need for new railroad tank cars and oil lines will not permit it. Not in any other type of construction, either, for the need is vital for more, rather than fewer, schools and hospitals, and for better highways. The burden, then, is on residential construction. By dropping down to a level of 900,000—1 million units a year, Housing could save half a million tons of vital steel.

And this was only one reason why Housing should limit itself to a more workable figure. There was another which more directly benefited Housing itself. A prominent construction economist summed it up

this way: "The volume of house-building was sustained in early 1950 by ultra liberal credit. The volume of family formation, and changing housing standards, by themselves did not warrant, and would not long support the volume of construction under way. We were heading for a decline such as that which developed after 1925. (Now) demand will tend to approach a level which can be sustained over a long period. It is better for the construction industry that demand drop to a level that can be sustained, and that this demand be sustained, rather than that the industry work to supply a partially phony demand sustained by easy credit, then have a crash later. The construction industry is not making a sacrifice in having the housing volume reduced. It will benefit, and in addition will free materials for other construction. . . ."

BACKGROUND FOR WAR: Congress gives President stand-by powers over prices, wages, credit on new construction

To insure unhampered military production, Congress succeeded in patching together its version of the Administration's control bill just before Labor Day. While the President had not requested it, the lawmakers insisted on stand-by powers over prices and wages. These controls may be applied on a selective basis—one or more industries or materials may be singled out. But they must go together. Once the President clamps down on an industry with price control he must follow suit in respect to wages. In general, the measure authorizes the channeling of materials and supplies to defense industries. If additional facilities are necessary and cannot be financed privately, government-backed credit is provided but not in an

amount exceeding \$600 million. The request had been for \$2 billion guaranteed loan program for this purpose. However, Congress promised to make available at a later date the remainder of the guarantee authority sought, if and when it decided such action was necessary. Cut-off date for the control program was fixed at June 30, 1952.

New construction limits. Toned down over the original draft, the section placing curbs on private mortgage credit was restricted to new construction. Somewhat ambiguously spelled out, August 3 was made the deadline. At first reading, this gave the impression that all subsequent construction would be subject to the controls eventually decided upon by the government. However,

members of the Senate and House Banking Committees insisted that the provision would not be so sweeping. As they explained it, all they were trying to do was to discourage phony starts. If a builder tried to beat the gun by sticking in foundation posts of construction he was not planning on starting for a month or so, he would be covered. But if he were acting in good faith and went right along with his financing arrangements, the August 3 date would not apply provided his operations were under way at the time the bill became law—when the President scrawled on his signature. Crux of the matter was when the mortgage contract was signed. Construction would be exempt if this financing date were prior to the time the program was turned on.

Parity eliminated. At the last minute, a so-called "nondiscrimination" clause calling for a parity in the regulations imposed on private and government-supported credit, was eliminated. Idea had been to keep the bureaucrats from cracking down on private financing any more severely than on their own programs. But the housing agencies had disavowed any such intentions; had also contended that the amendment might work some mischief. For one thing, they felt it might jeopardize future moves to extend particularly favorable financing to programs they wanted to pamper, such as housing for defense workers.

When it came to deciding who was to call the turn over private real estate credit, Congress ducked the issue, left it up to the President. At one stage it had been on the verge of giving the reins to the Federal Reserve Board. Best bet was that the job would eventually fall into the not unreceptive lap of housing czar Foley.

Trial shots later. As far as the control timetable was concerned, NSRB and Commerce Department officials who helped braintrust the program, were not looking for even trial shots for several months, probably much longer. By an odd coincidence this would delay the date for getting down to business until after the elections. General belief was that the government would not need to make extensive use of its stand-by powers unless two things happened: 1) credit restrictions failed to slow down home building and the production of cars, radios, and refrigerators; 2) military requirement were increased by an expansion of the Korean war or further explosions on the international front. Looking ahead to next year, construction prog-

Consumption of steel and lumber by construction operations in 1950

	Steel		Lumber	
	tons used per \$1,000 housing expenditure	total tons used in millions	bd. ft. used per \$1,000 housing expenditure	total bd. ft. used in billions
PRIVATE				
Residential	.2	1.9	1.2	13.
Industrial	1.5	1.3	.36	.320
Warehouses	1.6	.467	.50	.200
Stores, etc.	.8	.570	.50	.300
Public utility	.8	2.250	.3	.900
PUBLIC				
Hospitals, etc.	.8	.340	.2	.075
Educational	.6	.521	.4	.400
Highway	.45	.882	.2	.400
Conservation & development.....	.5	.405	.3	.2

WHAT'S THE STATUS OF CONSTRUCTION MATERIALS? Production figures, consumption rates, and military requirements are not as gloomy as many have guessed

Material shortages—already reaching panicky proportions in a few spots over the U.S.—gave builders the haunted feeling of a nightmare they had been through before. But there was one big difference. The U.S. was producing more — much more — of everything. Distribution problems — especially the acute shortage of railroad cars — were responsible for most of these local shortages. A recent Department of Commerce survey found output of lumber, hardwood flooring, cement, softwood plywood and gypsum board “substantially above” the phenomenal peaks of '48 and '49. Yet this record output, the Department warned, is “just about in balance with the requirements of the civilian construction program” — a program whose core is housebuilding at the phenomenal rate of 1,300,000 starts a year. “Unless facilities are increased,” the Commerce surveyors said, “the civilian program will have to be cut back by the exact amount of military requirements.”

Last month BUILDING surveyed key manufacturers on the immediate outlook for important construction materials. Without exception the producers reported that output is still climbing and that it would climb some more. This is what they said:

Steel

Military requirements have been taking from 1 to 2 per cent of steel output. Present military needs are still in estimating stage (while Washington makes final decisions) but somewhere between 5 and 10 per cent of production is likely to be required for current military program. New plants and those now under construction will handle part of this increased demand . . . By July the industry was producing at the rate of 101 million net tons a year (or 72 product tons), as compared with 96 million net tons at the beginning of '49. New plants will up this capacity to 106 million tons by the end of '52.

Copper

Very scarce, with supply becoming tighter over last month. The government estimated that the military expansion program would take 7 per cent of the annual copper supply in the 1950-51 fiscal year. But trade sources believed that total government requirements—munitions production plus stockpiling—would actually run much high-

er and guessed the combined total at an average of 30,000 to 35,000 tons a month, or up to 23 per cent of our supply of copper.

Rankling government men as well as the electrical equipment segment of the industry was the refusal of Congress to renew the suspension of the import tax on Chilean and other foreign copper.

Aluminum

Estimated production for 1950 is somewhere between 1.3 and 1.4 billion pounds, as compared with 1.2 billion pounds for 1949. Already short before Korea, the industry has been selling 25 per cent over production—with Canada supplying the difference. Before Korea, the military program took 4 per cent of production. Current estimate is that military production will use 14 per cent in the year ending July, '51. But U.S. output will soon be boosted by three new plants, put into operation with World War II surplus facilities now being sold by the government to private operators. Additional aluminum may also be bought from Canada. Trade sources figure that increased imports and production will boost total supply to about 1.85 billion pounds—some of which will cost more than today's purchases. Moreover, military demand for aluminum will not come suddenly but will be a gradual increase. Most of it will go to the aircraft industry, and today's planes take longer to build than those built for World War II. Right now the building industry uses 18 per cent of aluminum output. Products which will be most affected by the increased slice going to aircraft manufacture are: extrusions for storm sash, screens, window frames, sheeting used for ventilating ducts, ventilators, roofing and siding, certain prefabricated panels, castings used in office buildings and other large-scale jobs.

Lumber

Douglas fir producers were celebrating the biggest cut in 21 years. But unfilled orders were stacked up 40 per cent higher than gross stocks. Despite credit restrictions, Building's use of lumber is still climbing. In the current quarter, building will use 19 per cent more lumber than it did in the same period last year. In the first seven months of the year, all lumber producers cut a total of 21.5 billion bd. ft.—about 13

per cent more than they cut in the first seven months of last year, and they will probably wind up the year with 40 billion bd. ft.

Boxcar shortage, pinching everywhere, pinched lumber more than any other building material. Badly needed lumber piled up in northwest docks and yards—there were no cars to move it. Oregon sawmills got 9,000 less freight cars last month than they did in the same month last year. One reason: the Army is routing empty cars directly from West Coast ports to the East—none of these are coming into the Oregon to load before going eastward again. Southern Pacific, one of the most important lumber carrying roads, started with only nominal car shortages in July, now reports a deficit of 2,200 cars a day. Said H. V. Simpson, executive vice president of the West Coast Lumbermen's Assn: “No more lumber can be made available to the public than can be shipped. An added complexity in the transportation outlook has been the reduction in available steamships for carrying lumber from West Coast to Atlantic ports. This has resulted in eastern buyers turning to all-rail deliveries and has thrown an even greater load on the already overburdened rail lines.”

Heart of the transport trouble is that while gross national product has more than doubled in the last ten years, the U. S. now has slightly less boxcars in use than it did at the time of Pearl Harbor. The railroads have always tried to get more cars. But with steel mills already booked solid, it has been hard to get the necessary steel to build them. The Association of American Railroads had one suggestion: “If shippers and railroads would go back on a six-day week, it would be the equivalent of adding 100,000 freight cars to the supply. Whether and when this would happen we don't know.”

Fir doors

Production for the first seven months of 1950 was 5,138,000—39 per cent over 1949. Demand for doors is running 28 per cent ahead of this boom output. Supply is expected to meet demand sometime this winter.

Plywood

Douglas Fir plywood production now at all-time high: an annual rate of 2½ billion sq. ft. and 25 per cent above 1949. This tremendous output is four times 1938 production. Since last winter, the industry has

had a six-weeks order file. Best estimate given by military officials is that a relatively small percentage of plywood will be required in the next few months provided war does not spread.

Bricks

Situation critical, and getting still tighter. Lag in deliveries in some areas as much as 3 to 4 months. Some plants are increasing capacity by working a 45 to 48 hour week. One reason: to hold labor supply which would otherwise be attracted to war plants already running on a 48-hour basis.

Cement

According to the Ready Mixed Concrete Association: "Production is seriously curtailed by the most severe cement shortage in the history of the industry." Cement production up 2 per cent from '49, expected to be 3 to 4 per cent ahead by the end of the year. But consumption is running 11 per cent above last year. In the Northeast, shipments are running from two weeks to a month behind orders. All over the U. S. distributors are on a day-to-day basis. Most manufacturers are already serving dealers on a voluntary allocation basis. Prices reflect its shaky status. Latest price increase of 10 cents per barrel in the bulk and 12 cents per bag, made by two big northeastern producers, will probably be followed by others in that area. Cement plants in the mid-west and Rocky Mountain areas raised their prices, too.

Clay pipe

Production for the first half of the year up 10 per cent over last. Inventories tight in spots and in certain sizes. As customary winter drop in construction sets in, stocks of clay pipe, flue lining, wall coping, other clay products should be in balance with demand. But sudden demand for clay pipe to replace short metals could throw this situation out of balance.

Plumbing fixtures

Production of four major vitreous china fixtures up 6 per cent over last year. Major manufacturers' stocks in these items down 1 per cent. Output of cast iron fixtures up 27 per cent over last year, with major manufacturers' stocks down 36 per cent. It will be from three to five months before July spurt in building starts will be reflected in demands for plumbing and heating equipment. Manufacturers report no pinch yet from copper or other basic materials shortages.

Insulation board

Production up 41 per cent over first half of last year. Sheathing shipments 200 per cent ahead. Current housebuilding spurt, plus heavy increase in use of insulating products, is taking around-the-clock output of industry. Capacity has doubled since World War II. Producers expect military construction requirements to be far less than those of World War II.

Gypsum products

Industry is geared to supply a million house starts a year; thus current housebuilding demand exceeds supply by at least 300,000 units. Military orders so far are negligible, but grey markets are already reported in many parts of the country—especially the Florida area. Boxcar shortage shows up here, not only in cutting down shipments of finished products, but in limiting shipments of raw materials to plants.

Roofing

Output of asphalt products (which cover 85 per cent of all U. S. roofs) is 20 per cent higher than last year. But production is handicapped by shortage of titanium dioxide (a whitening agent) while shipments are delayed by lack of packing materials and of freight cars. Inventories are extremely low. Leading manufacturers report that sales districts have been on an allocation basis since July. If mobilization is no more than partial, producers feel they can supply up to 1 million house starts in '51.

Paint

There is no shortage of paint. Sales in last reported month highest in history and 22.9 per cent over last year. Titanium only serious basic material shortage. Producers are "well able to take care of foreseeable war requirements and meet the current building pace."

Building materials—their production and use*

		12 mo.	Amount
		1950 total	used in
		prod.	const.
Lumber	MM bd. ft.	40,000	27,190
Brick	MM brick	5,850	6,000
Cement	MM bbl.	212	212
Wire nails & staples	M tons	850	750
Concrete reinforcement bars	M tons	1,500	1,630
Softwood plywood	MM sq. ft.	2,400	1,690
Gypsum board & lath	MM sq. ft.	5,500	5,470
Gypsum lath	MM sq. ft.	2,600	2,740
Asphalt roofing & siding materials	MM squares	75	74
Cast iron soil pipe	M tons	700	690

*Compiled by the Department of Commerce

nosticators in the Commerce Department were already predicting that there would be enough materials for substantially the same over-all building volume as for 1950. While they expected a certain reduction in the residential end of the industry from this year's all-time peak, they believed this would be offset by gains in industrial and military categories.

Civilian scramble. If the government does step into the breach, expectation is that first step would involve nothing more drastic than rated orders for manufacturers essential to the defense program. This would leave civilian users free to scramble for as much as they can get. Next in the degree of severity would be broad "conservation" orders dealing with basic materials such as steel, copper, and aluminum. All users, except defense industries, would be required to cut back to a specified base—say 80 or 90 per cent of their present consumption. Then would come limitation orders aimed at the end product. Only in the unlikely event that all other measures failed, would a complete rationing system be invoked.

DECENTRALIZED WASHINGTON? Defense officials think the Capitol should spread out

Last month, a plan for the strategic dispersal of essential governmental activities was prepared. Known as Operation "Scram," it involves nothing particularly new in its approach toward a reasonable degree of atomic-security, since civil defense experts have long contended that spreading out is the only feasible answer. What distinguishes it is its sheer magnitude. Interestingly enough, when it is finally completed it will not only make Washington the first truly atomic age city in the country, if not in the world, but will also be the realization of most urban planners dreams of the ideal way of dealing with traffic congestion and inner city blight—a central nucleus surrounded by a series of satellite communities.

Initially, the project calls for the erection of new buildings within a 40 to 50 mile radius of Washington. In most cases sites in or adjacent to small towns would probably be chosen so as to obtain the benefit of water and sewage facilities. But one thing the planners definitely want to avoid at this time is the building of new government towns. Such a program involving the construction of new houses and community facilities for the workers pulled out to the peripheral area would put too great a strain on the national economy.

Transportation problem. This means that workers would have to continue living in

DEFENSE PRODUCTION ACT OF 1950—A SUMMARY

As passed on September 1, the Defense Production Act of 1950 contains seven titles. Herewith is presented a condensation of those sections which are of particular interest to the building industry.

TITLE I: Priorities and allocations

Section 101. The President is given power to require that contracts or orders (excluding contracts for labor) necessary to the national defense be given priority over all other work, and to require the acceptance and performance of such contracts by selected persons, and to allocate materials and facilities as necessary to promote the national defense.

TITLE II: Authority to requisition

Section 201. The President is given power to requisition any equipment, supplies, materials, or facilities needed for the national defense.

TITLE III: Expansion of productive capacity and supply

Section 301. In order to hasten the completion of any contract for material or services needed for the national defense, the President may authorize any procuring agency to guarantee in whole or in part any public or private financing institution (including any Federal Reserve bank), against loss made in connection with a contract approved by the guaranteeing agency.

Section 302. Where financial assistance is not otherwise available, the President is given power, on any terms he sees fit, to make loans to private business and non-profit research organizations for the production of essential materials.

TITLE IV: Price and wage stabilization

Section 402. The President is given power to promote voluntary agreements and action. Where voluntary action is not sufficient, the President is given power to establish ceilings on prices, rentals, and wages. Controls on wages and salaries in any industry must be imposed concurrently with controls on the prices of the products of that industry. Excluded from control are prices and rents of real property, professional services, publications, rates charged in the selling of insurance, transportation rates, margin requirements.

TITLE V: Settlement of labor disputes

Section 502. The President is authorized to initiate voluntary conferences between management and labor and representatives appointed by him and "to take such action as may be agreed upon in any such conference and appropriate to carry out the provisions of this title."

Section 503. No action may be taken inconsistent with the Wagner or Taft-Hartley Acts.

TITLE VI: Control of consumer and real estate credit

Section 601. The Federal Reserve Board is authorized to institute restrictions on consumer credit along the lines of former "Regulation W."

Section 602. The President is given power to regulate credit for the construction of or the acquisition of newly constructed buildings as defined

below. Such regulation may prescribe "maximum loan or credit values, minimum down payments in cash or property, trade-in or exchange values, maximum maturities, maximum amounts of credit, rules regarding the amount, form, and time of various payments, rules against any credit in specified circumstances, rules regarding consolidations, renewals, revisions, transfers, or assignments of credit, and rules regarding other similar or related matters. Such regulations may classify persons and transactions and may apply different requirements thereto."

In applying real estate credit regulations, the President is required to consider "(1) the level and trend of real estate construction credit and the various kinds thereof, (2) the effect of the use of such credit upon (i) purchasing power and (ii) demand for real property and improvements thereon and for other goods and services, (3) the need in the national economy for the maintenance of sound credit conditions, and (4) the needs for increased defense production."

It is made unlawful to "extend or maintain" credit on new construction or "renew, revise, consolidate, refinance, purchase, sell, discount, or lend or borrow on, any obligation arising out of any such credit . . . in contravention of any regulation prescribed by the President."

All lenders on and sellers of new construction, including agents and brokers, are required to keep full records of their transactions, to make such reports, under oath, as the President may require, to make records available for periodic or special examination as he may require.

The President may require transactions or persons or classes thereof to be registered, and the President may suspend such registration for violation of any provision of this title.

"Real estate construction credit" is defined as any credit which "(i) is wholly or partly secured by, (ii) is for the purpose of purchasing or carrying, (iii) is for the purpose of financing, or (iv) involves a right to acquire or use, new construction on real property or real property on which there is new construction. . . . The term 'new construction' means any structure, or major addition or major improvement to a structure, which has not been begun before 12 o'clock meridian, August 3, 1950. . . . The term 'real property' includes leasehold and other interests therein."

The above type of regulation thus applies to all types of conventional lending in respect to all types of construction. Loans made, guaranteed, or insured by a federal agency are excluded from regulation under this section.

Section 605. In connection with real estate loans made, guaranteed, or insured by the federal government, the President is given specific power, irrespective of other legislation, to "reduce, for such period as he shall specify, the maximum authorized principal amounts, ratios of loan to value or cost, or maximum maturities." The President may, on a finding that the action is in the interest of the national defense, suspend any government real estate loan program. However, in every action, the President must "preserve the relative credit preference accorded to veterans under existing law."

TITLE VII deals with general provisions.

their existing homes or devise swapping arrangements of some kind if they lived on the wrong edge of town as far as their new offices were concerned. A serious transportation problem would be created by the long trek from home to office. New radial super-highways would probably be necessary to supplement existing roads and rail lines. However, they would be planned with an eye toward the long range picture. Also the government might have to subsidize the extension of bus lines to take care of workers who either lack cars of their own or prefer to use mass transportation. Eventually it is realized that new housing developments will have to be encouraged around the decentralized federal buildings so as to eliminate the excessive time and cost of traveling back and forth each day.

In most cases, the new buildings dotted around the Maryland and Virginia countryside will be of the permanent type. But they will constitute an abrupt departure in federal architecture. For one thing there will be neither time nor money to waste on fancy construction. Also, loose facing materials and the traditional gingerbread design of federal buildings would constitute an extra blast-hazard if a bomb should fall nearby. While the government men see no sense in pursuing the will-o'-the-wisp of bombproof construction, they want to do all they reasonably can to minimize the danger. Studies of the effects of the atomic bombs dropped on Hiroshima and Nagasaki have shown that reinforced concrete buildings stand up the best.

No claustrophobia advised. It is realized that the entire elimination of windows would make for greater safety. But psychologists have recommended against such a step. Their contention: It would tend to give some of the workers a feeling of claustrophobia.

Toughest part of the job will be the determination of who is to go out and who is to remain. Obviously workers in the agencies left behind as being less essential to the war effort or the operation of the government will not be too happy about their inferential designation as expendables — though they would be subject to less inconvenience. The present plan does not contemplate doing anything about the President or Congress. It is no secret that the President has his own bomb shelter to hole into, and Congress as a law unto itself — will have to legislate plans for its own safety if it feels that even a substantially decentralized Washington is a tempting target.

WAR PLANT BUILDING is not expected to boom as in World War II

Though some expansion will be encouraged in key industries such as aviation and electronics, Washington expects no war plant building boom to match World War II's mammoth program.

Master minding industrial construction are two agencies, the Munitions Board, production planner for the military, and the National Security Resources Board, caretaker of civilian manufacture. From the armed services the Munitions Board secures the list of critical items whose production must be stepped-up and it must tap industry to see how much can be produced in the existing plant. At this point NSRB enters the scene to determine how deeply civilian production may be cut to meet military needs. When industry has absorbed all the war orders it can, the surplus "moth-ball" factories will be called back to active duty. Only after these two categories fail to achieve the necessary war production level will new construction of any major proportions be undertaken.

Veteran factories. Stand-by and surplus plants are those built by the government during World War II, later sold or leased, wherever possible. The government always reserved the right to recall these factories in an emergency, promising the new occupants first crack at shifting to war production.

Some single-purpose plants remained idle, however, and Munitions Board officials freely admit that many of these not-so-old timers are fast growing obsolete. So cross-tempered has Congress been each year about voting funds for even the minimum maintenance work required on these deserted plants, that no one expects it to appropriate much money for new, updated buildings that can be dusted off and trotted out only in time of war.*

New construction. Some new construction might spurt ahead, however. Industrialists by the dozens have written the Munitions Board and NSRB that they contemplate new construction to handle military orders. Before breaking ground, they want assurances, similar to the certificates of necessity of World War II, giving them both priorities for materials and accelerated amortization for tax purposes. The Senate Banking Committee has recommended the latter be included in the pending tax bill. Priorities may be forthcoming under the new Defense

Production Act. (See pages 11 and 14.)

Washington planners prefer to leave plant design in industry's capable hands, suggesting only that, for the most part, factories be single-story, surrounded by ample land area (5 to 20 times the enclosed space), and located away from congested centers.**

As long as the nature and scale of the new war remained in doubt, estimates of industrial construction could be little more than educated guesses. Of one thing Washington was certain, nevertheless. Neither barracks building (the Army and Navy have cantonments for 16.5 million men) nor factory construction would be a major drain on critical materials.

GI MORTGAGE AID held up by Congressional committeemen

When new legislative gusts sweep across the country, Congress whirls around like a huge windmill, grinds out bills and resolutions. But it takes a sustaining blast to blow the legislation out of the committees. Last month it appeared that at least one

**NSRB will be consultant on industry location. In an earlier study it stated that A-bombing of an industrial concentration less than 5 square miles or an urban concentration of less than 50,000 would not be economically feasible.

of the measures stirred up by the Korean war was caught in the committee doldrums. This was a proposal by Representative Rogers (D) of Florida to aid service men in meeting their mortgage and rent obligations.

Under the Rogers bill, funds would be provided to advance payments of interest and principal on mortgages not greater than \$20,000 or to make payments on rents up to \$100 per month. In effect, these advances would be interest free loans. Repayment would be extended over a period four times as long as the period during which the aid was extended. Members of the House Veterans' Affairs Committee took a dim view of the proposal, felt that it would help the lenders more than the service men. Members of the Armed Services are covered by the Soldiers and Sailors Debt Relief Act, they pointed out.

Moratorium Authorities. Re-activated by the draft law, this debt relief machinery has itself been the subject of liberalizing amendments. At present it authorizes the federal courts to grant a mortgage moratorium or block an eviction for non-payment of rent. The soldier or sailor involved must be able to show through his agent that his ability to meet his obligations has been impaired by reason of his lower mili-



FIRST PRIVATE SLUM CLEARANCE project will replace shacks with duplex apartments

Memphis Builder Wallace E. Johnson (right) discusses with three Memphis Negro leaders the first unit of his half-million dollar rental housing project for Negroes, at ground-breaking ceremonies last month. The first slum clearance project in the country wholly financed through private funds, Johnson's Carver Homes will comprise 88 duplex apartments in 18 two-story frame buildings, with rentals under \$40 a month. Project was financed by Marx & Bensdorf, Memphis mortgage lenders, under FHA Title 207. Construction money was advanced by the Na-

tional Bank of Commerce, of Memphis. The mortgage loan has already been purchased by Equitable Life Insurance Co. of Iowa. In a razzle-dazzling display televised nationally, bulldozers pushed down the jerry-built shacks at one end of the five-acre site, while foundations were going in at the other end on opening day. Occupancy date for the first tenant will be 75 days from ground breaking, October 30th. Signs of the times: Builder Johnson's cost estimates on the project, for razing and new construction, are up 7 per cent over May 30th.

*The new Defense Production Act provides for \$600 million in government-backed industrial construction loans, instead of the \$2 billion requested.

tary pay. By a fluke lawyers believe Air Force men are not covered because the original act was passed before the services were unified and does not mention the Air Force in its language.

The mortgage moratorium runs until six months after the borrower is discharged from the military service. As Chairman Maybank of the Senate Banking Committee sees it, this is not long enough. He has introduced an amendment extending the period of grace to 12 months after discharge. Other amendments are promised to insure that Air Force men do not lose out if there is no way of blanketing them in under the present language.

Good chance. The Maybank amendment as well as a flock of bills opening the home loan section and other provisions of the G. I. Benefits program to new members of the armed forces, are accorded fairly good chances. The G. I. bill in its present form doesn't cover the new crop of recruits.

Still another bill reflecting the signs of the times is a measure by Representative McGuire (D) of Connecticut calling for a new war damage insurance program to be underwritten by the government. In view of the fact that modern war could inflict extensive damage on this country, insurance men claim there is no basis for setting premiums for such a program, point out that the British losses under a similar plan during the last war were far above premium collections.

HOSPITAL STOP ORDER given to VA by NSRB halts three projects

With the Washington atmosphere fairly saturated with rumors as to what the government was proposing in the form of civil defense planning, the NSRB which is supposed to set official policy in such matters has been maintaining a stony silence. Last month the sphinx was willing to talk; but only in a cryptic way. It asked the Veterans Administration to hold up work on three hospitals just about to be started until it arrived at some more definite conclusions concerning construction. The three veterans hospitals involved were to be erected in Washington, Cleveland and San Francisco—virtually the tail end of the program totalling 174 hospitals and 131,000 beds.

Completely at sea as to what to do next, the VA could only bide its time. It did not know whether the new criteria that NSRB was developing related to design or location—or both. But it was sure about one

thing. There was not enough give to its appropriations to permit extensive redesign if the NSRB finally came up with recommendations that would carry out its concept of bomb-resistance a few more notches.

PEOPLE

Administrator **Carl R. Gray, Jr.** of the Veterans Administration is leaving soon for a tour of active military duty in Europe. Rumor has it that when he returns he will ask to be relieved of his post. Mentioned as a possible successor is Senator **Claude Pepper** of Florida who failed to make the grade in his bid for renomination.

Military calls began to deplete the housing front in other sectors. **Thomas F. Farrell**, chairman of New York City's Housing Authority, reigned to take over another post: commanding general of the 301st Logistical Command, an activated reserve unit.



Farrell

Busy Los Angeles Architect **William Pereira** last month took in a partner: to help him run his bustling (\$25 million of business on



Luckman and Pereira

hand) firm, which specializes in commercial and institutional structures. The partner: **Charles Luckman**, who was college trained as an architect, but who is better known for his 20-year ascent to the top of several soap manufacturing companies (he quit his latest job, president of Lever Bros., last January, after a dispute with its British owners), which earned him the unofficial title of "Wonder Boy of the Soap Business."

DESIGN

\$100,000 DESIGN COMPETITION will feature low-cost builder's home

The biggest design competition in history, with prizes totaling up to \$100,000, is being formally launched this week in an effort to bring the architect and housebuilder closer together and thus bring better architecture to the average American home.

Subject of this big record-breaking design competition is a small (1,000 sq. ft.) house suitable for production by the nation's merchant builders.

Intended to promote closer collaboration between housebuilders and architects, this competition features local hometown design contests as well as seven regional phases, a grand national competition and several series of special awards for particular phases of house design.

Prizes will total up to \$100,000, depending upon the size and number of local contests to be conducted as adjuncts of the national, regional and special awards competitions for which \$57,000 of prize money is assured. This \$57,000 covers 84 separate cash awards the biggest of which is the \$7,500 first prize in the national competition.

Since any competitor may win a national prize, a regional prize and a prize in each series of special awards, it is possible for a single entry in the competition to win as much as \$15,750.

The national and regional competition is sponsored jointly by the National Association of Home Builders and Architectural Forum, The Magazine of Building. Associate Sponsors: the American Gas Association, General Electric Co. and Kwikset Locks, Inc. Special Award Sponsors: Douglas Fir Plywood Association, Libbey-Owens-Ford Glass Co., and Youngstown Kitchens by Mullins Manufacturing Co. (Each of these special awards sponsors is offering a separate series of prizes for the best handling of one particular phase of house design.)

For further details, see the competition announcement, pages 88A and B.

COLOR TREATMENT, by request of community, spruces up rental project

Though Brookchester Gardens had FHA's stamp of approval, and more important, its Title 608 commitment, the Mayor and citizenry of New Milford, N. J., were frankly

(Continued on page 54)

*What this
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guarantee
means to
you!*

Every Kwikset box carries the statement "Unconditionally Guaranteed Against Defects in Materials and Workmanship." What does this unconditional guarantee mean to you?

FIRST, IT GUARANTEES QUALITY MATERIALS

No manufacturer can afford to make an unconditional guarantee unless highest quality materials are used in his products. Kwikset adheres strictly to this policy of using only the highest quality materials scientifically selected for the particular service to which they are put.

SECOND, IT GUARANTEES FINE WORKMANSHIP

The finest of materials are useless unless they are processed into the final product with care and precision. Kwikset's simple design and advanced facilities make possible cost-saving precision manufacture. Tolerances are held to .001-inch... equivalent to $\frac{1}{8}$ the thickness of a human hair! Kwikset's gleaming finishes are permanently protected by a specially compounded plastic.

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Building ideas for today

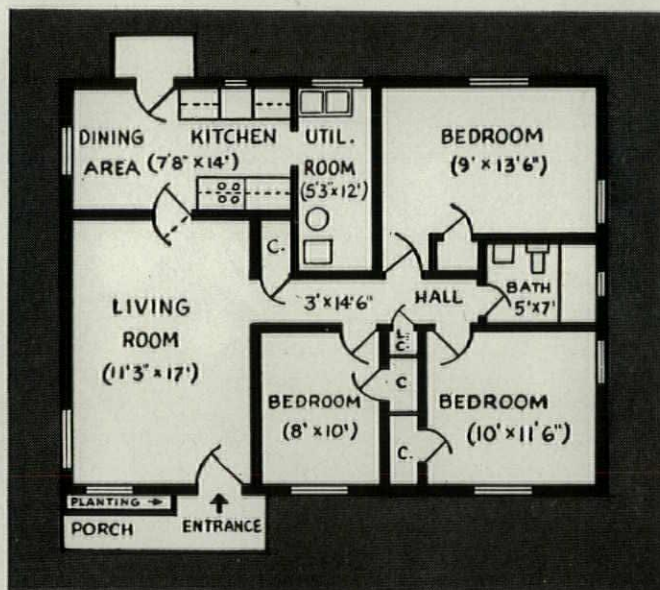


Meet Mr. M. T. Broyhill and his two sons (M. T. Jr., left, and Joel T., right) leading Washington builders and developers. They asked homeseekers "What sort of a home do you really want?"

Here is a capsule of the answers: 74% said, "I want ram-

bler!" 63% said, "I want 3 bedrooms!" 83% said, "I want a General Electric Kitchen!"

The Broyhills designed a home to meet these specifications. What followed is a most amazing success story. All 1000 G-E equipped houses were sold within 60 days!



This all-on-one-floor house is built of brick, has 3 bedrooms, a large living room, tile bath, copper plumbing, dining space, clear oak hardwood floors, furred and plastered walls.

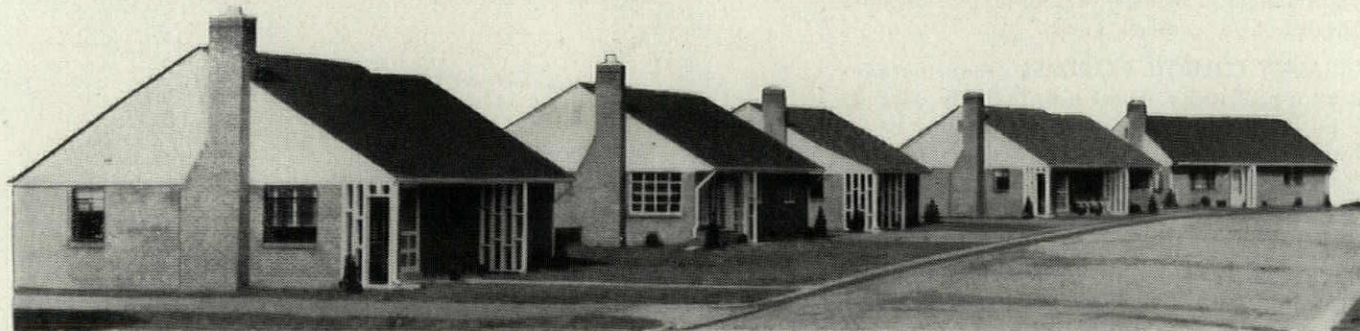
Owners were given a choice of eleven distinctive exteriors; all lots are completely landscaped and include shrubbery.



This is the kitchen 83% of the people interviewed in the survey want in their new homes—General Electric! It includes the G-E Spacemaker Refrigerator, G-E Speed Cooking Range, G-E Dishwasher, G-E Disposall® Unit, G-E Steel Cabinets and G-E Texolite® Counter Tops. Yet, the complete house sold in the \$10,000 class!

— *from Washington!*

Take a tip from an enterprising Washington, D. C. builder and developer who asked thousands of homeseekers what they really wanted . . . then built houses to their needs . . . and sold all 1000 General Electric equipped houses within 60 days!!



ADDITIONAL PROFIT . . . LESS SELLING EXPENSE . . . MORE SATISFIED HOMEOWNERS

. . . when your houses are equipped with General Electric Kitchens!

TODAY, MORE THAN EVER, people all over the country want complete General Electric Kitchens in the homes they buy.

And that's *good* for you!

It means you can realize an additional profit on your houses. The cost of the General Electric equipment is simply included in the selling price of the house. People recognize this additional value. Furthermore, you can include G-E Kitchen equipment in your homes for as little as \$4.80 a month under the "Packaged Mortgage" Plan.

It means that your selling costs may be reduced. Builders all over America report that their General Electric equipped houses sell much faster than those in the

same areas that do not offer all-electric living!

It means that your buyers will be more satisfied with their modern, all-electric home that eliminates drudgery in the kitchen!

So see your local General Electric distributor. He will be happy to work hand in hand with you on your projects.

Remember that G.E. offers you the brand of electrical appliances that people prefer to all others . . . tested merchandising programs . . . one source of supply for matched equipment . . . assistance in designing and improving kitchen layouts. And most important: G-E *dependability!*

Home Bureau, General Electric Company, Bridgeport 2, Connecticut.

You can put your confidence in—

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Quite a far cry

FROM THE

LITTLE RED SCHOOLHOUSE

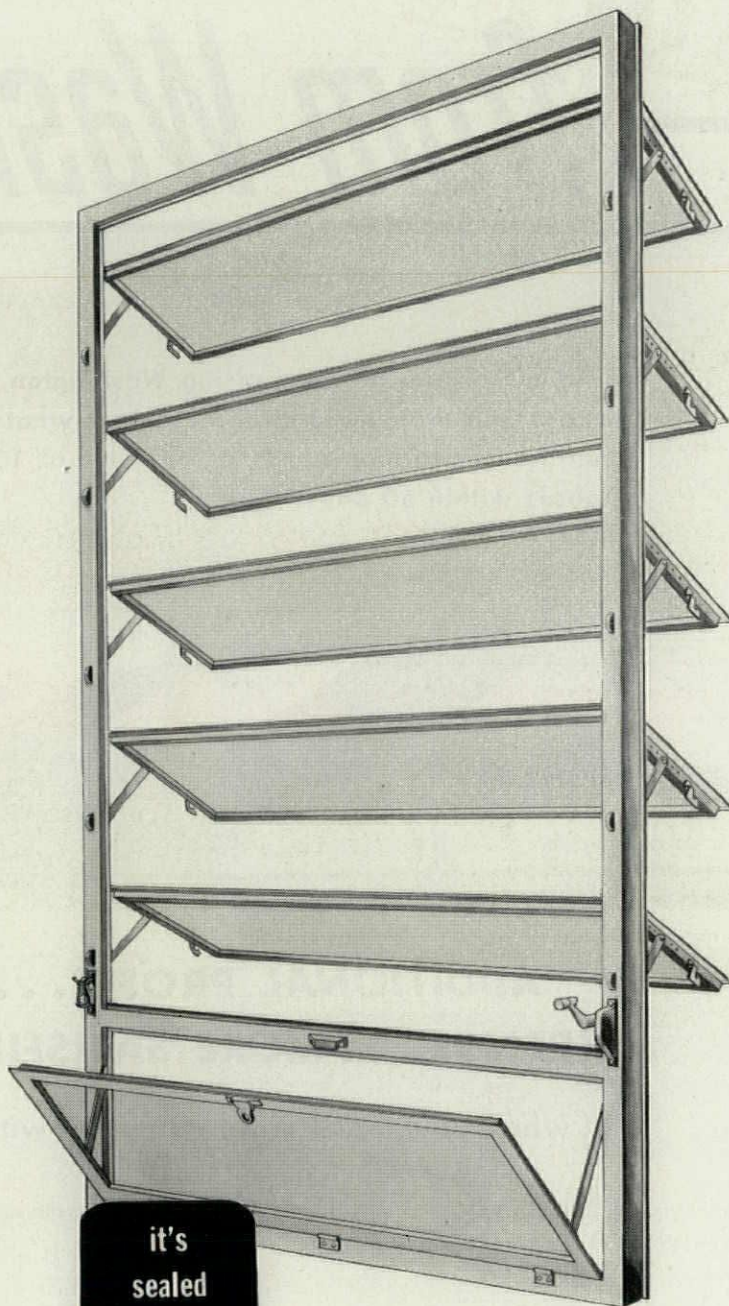
Yes, the modern school building is a vastly different structure from the little old red schoolhouse of cherished memory! And nowhere is the difference more noticeable than in the trend to Auto-Lok Aluminum Awning Windows that provide controlled ventilation and protection against cold-breeding drafts caused by leaky windows. No architect, no layman, for that matter, needs the word of a medical man on the importance of those factors to the health of our growing youth.

PROTECTION AGAINST CLIMATIC EXTREMES - Students who sit near weatherstripped Auto-Lok, *the tightest closing windows ever made*, are not subject to drafts and cold air due to air infiltration. The sick roll is smaller! Auto-Lok's unrivaled tight closure means more uniform heating and cuts fuel bills in cold weather. It is Auto-Lok's automatic locking feature that makes its weatherstripping effective.

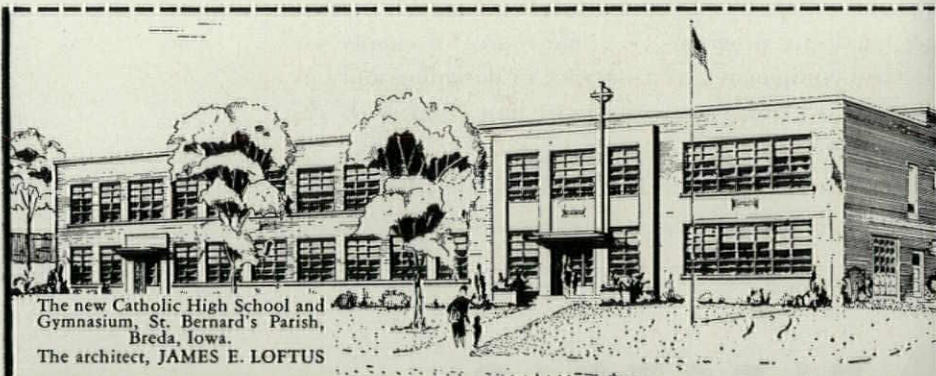
DRAFT-FREE VENTILATION - Even when it's raining, classrooms equipped with Auto-Lok Awning Windows provide healthful, draft-free ventilation. This all-climate window opens to almost 90 degrees and scoops in welcome breezes, yet keeps the rain out. Easiest to operate, Auto-Lok windows are instantly and effortlessly opened or closed...the days of calling the janitor when it begins to rain are over!

DURABILITY - Auto-Lok is a sturdy window, engineered for a lifetime of service. Extra strong aluminum sections. No painting required. Precision balanced, patented Auto-Lok hardware is built to stand the gaff. Auto-Lok can be cleaned from the inside...maintenance costs are cut to a minimum.

IN HUNDREDS OF SCHOOLS - Performance-tested weatherstripped Auto-Lok Aluminum Awning Windows are found in every section of the United States. They have been acclaimed for beauty of appearance, ease of operation, for combining the BEST features of ALL window types. An unusually wide range of standard sizes and combinations is readily adaptable to all architecture. School architects everywhere are solving their window problems with Auto-Lok windows and our engineering assistance.



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sealed
like a
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The architect, JAMES E. LOFTUS

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"TECHNICAL NOTES" is a fact-crammed newsletter that talks your language. It specializes in pointing out short cuts and time-and-money-saving techniques in brick and tile masonry and construction.

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SAFE

—because Corruform was developed to provide an extra-tough, secure steel base which maintains structural principles and structural integrity.

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LETTERS

WATER FOR THE CRYSTAL CHAPEL

Forum:

In regard to the Crystal Chapel for the University of Oklahoma (FORUM, July '50), there is something of the Wright in this inspirationally exciting design. . . .

One aspect of the design bothers me, Water plays important physical and esthetic functions. Even before Norman's and the University's post-war growth, the city was short on water. Are they drilling for water instead of oil out there now?

GEORGE D. KNEPPER, JR.
Findlay, O.

• Reader Knepper will be relieved to read Architect Goff's assurance (below) that Norman has plenty of water for the Chapel's reflective and "air conditioning" pools.—Ed.

Forum:

Those concerned about the lack of water in Norman might be interested in these facts supplied by the Superintendent of the Norman City Water Plant:

There has been no shortage of water in Norman in the last five years. Norman owns ten wells and only about three of them are used at the present time. If these wells should go dry, surveys show that plenty of water is available in this vicinity.

Not much water will be needed for the pools of the "Crystal Chapel" as they are shallow—only 9 in. deep.

Our July rainfall (July 30, 1950) is 9.45 in., and it is still raining. Don't worry! The Lord will provide.

BRUCE GOFF, Chairman
School of Architecture
The University of Oklahoma
Norman, Okla.

HAIL STONES ON THE CRYSTAL CHAPEL

Forum:

The Crystal Chapel for the University of Oklahoma, as presented in the July issue, is an interesting device in line and imagination. Under practical circumstances, a hail storm, such as swept through the Kansas State College Campus on Saturday, July 1, '50, would completely annihilate such a building. On that date, hail stones, as large as baseballs (believe it or not), pulverized asbestos shingles, tile and slate so that almost a complete replacement is necessary. It is costing the state over \$200,000 to make roof repairs from this one storm.

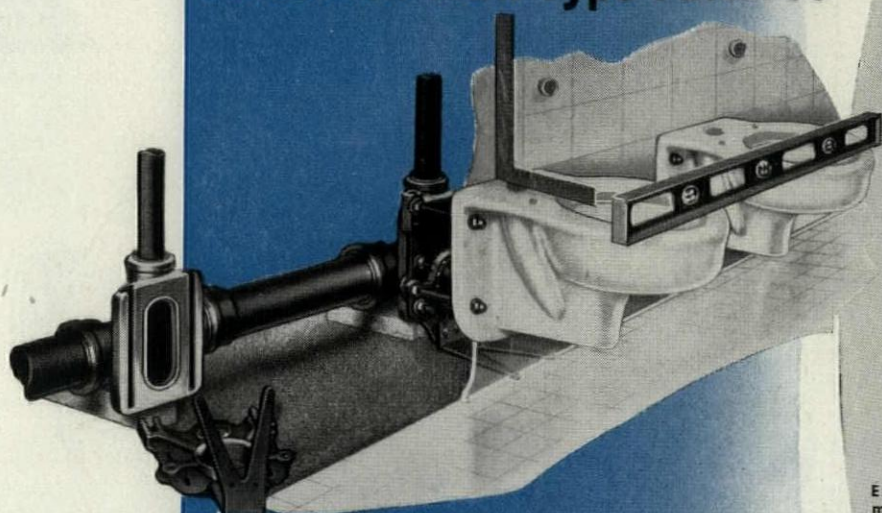
My particular interest in relation to this Crystal Chapel is that the hail stones went through wire glass skylights and the top part of metal roof ventilators as if the material were tissue paper. Ordinary glass in the greenhouses was completely destroyed. There are times when crystalline ideas are fine, but the practical aspect puts

(Continued on page 28)

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**The Simple, Fast, Safe Way
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A battery of siphon jet closets installed with Zurn Wall Closet Fittings, which provide all necessary drainage facilities up to the drainage line. Zurn Wall Closet Fittings are designed for any type or make of fixture and are adjustable to most any wall space.



Zurn Carrier for wall type lavatory. There's a complete line of Zurn Engineered Wall Fixture Carriers for all types and makes of lavatories, urinals, drainboard sinks, sterilizers and other wall type plumbing fixtures.



Wall type fixtures achieve a higher standard of sanitation, and save maintenance money. With clear, unobstructed floor areas, cleaning is quicker, easier, more economical. Their use does not leave a building that is otherwise well planned and equipped vulnerable to premature obsolescence. Wall type fixtures installed with Zurn Engineered Carriers impart no damaging strain to the finished wall.

Zurn Wall Closet Fittings and Carriers are engineered to support wall type fixtures—off the floor, free of the wall—safely, securely, and in permanent alignment. All necessary adjustments are simple; assembly and installation are fast—free of mistakes, delays and grief on the job.

Zurn Wall Closet Fittings and Carriers are widely used in commercial, industrial and institutional buildings from coast to coast—for installation of all types and makes of wall closet bowls and wall type fixtures. Consult a Zurn representative about wall fixture plumbing.

One of several types of Zurn Engineered Carriers for wall type urinals. With Zurn Carriers, fixtures may be adjusted to any required height from the floor.



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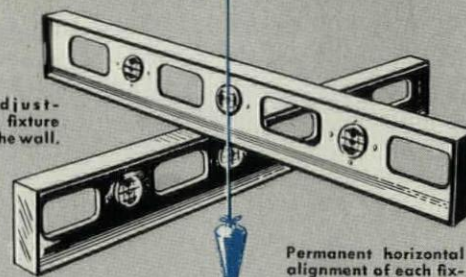
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For the Support of All Types and Makes
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Exact adjustment
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at 90° to the wall.



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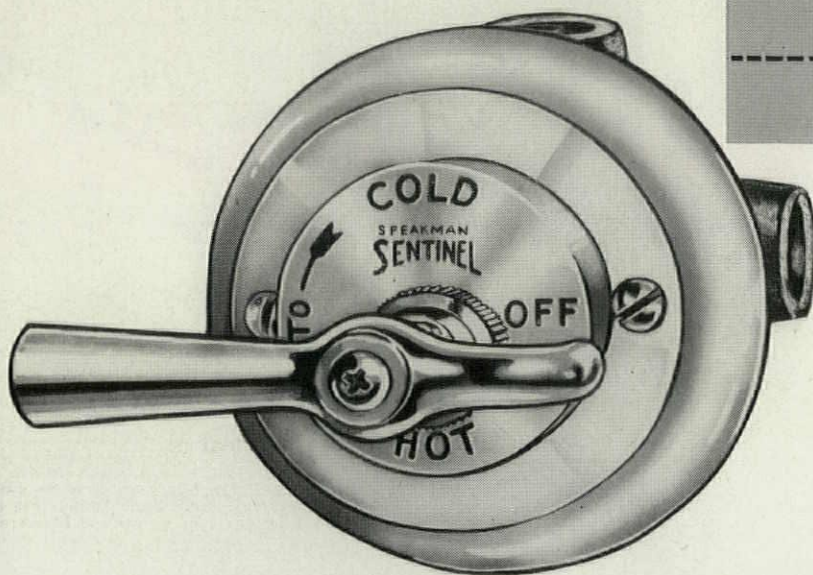
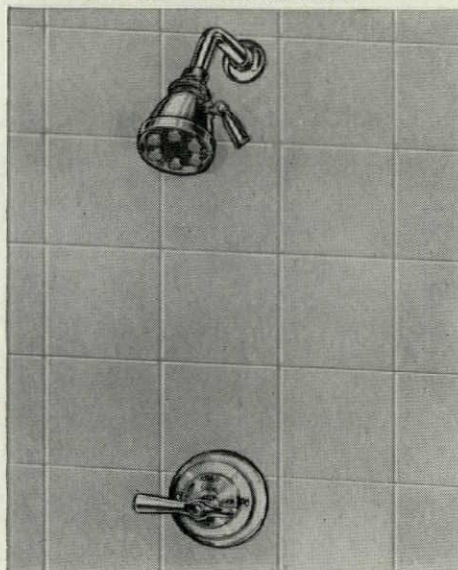


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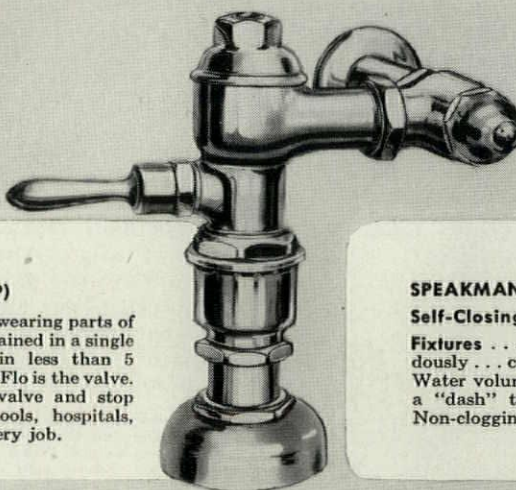
...gleaming chrome plating...easy-reading dial...working parts renewable from face of valve. Size $\frac{1}{2}$ " I.P.S.

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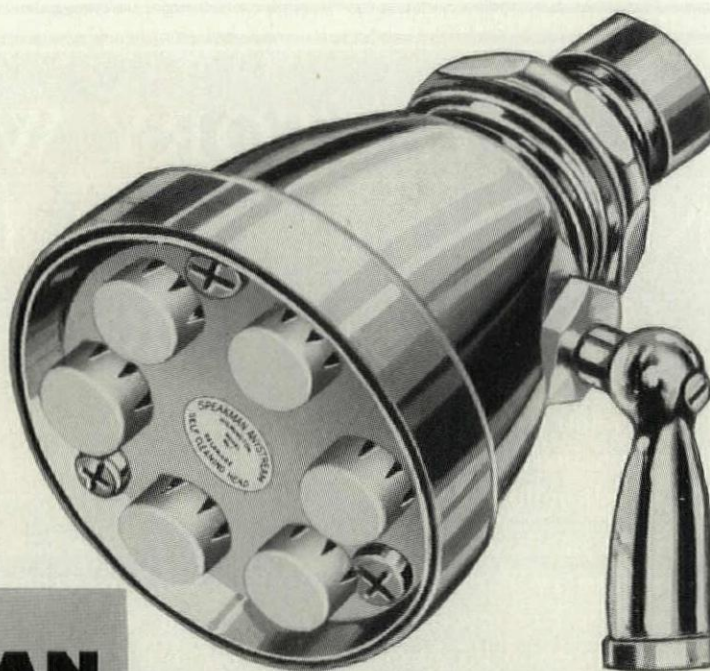
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SENTINEL Balanced Pressure Mixing Valve

The Speakman *Sentinel* Balanced Pressure Mixing Valve holds shower temperatures steady *despite water pressure fluctuations*. The miraculous f-l-o-a-t-i-n-g piston in the valve works on water pressure alone. It prevents sudden surges of icy cold or steaming hot water that often causes injury. The piston is easily removed for servicing *without shutting down the water supply*.

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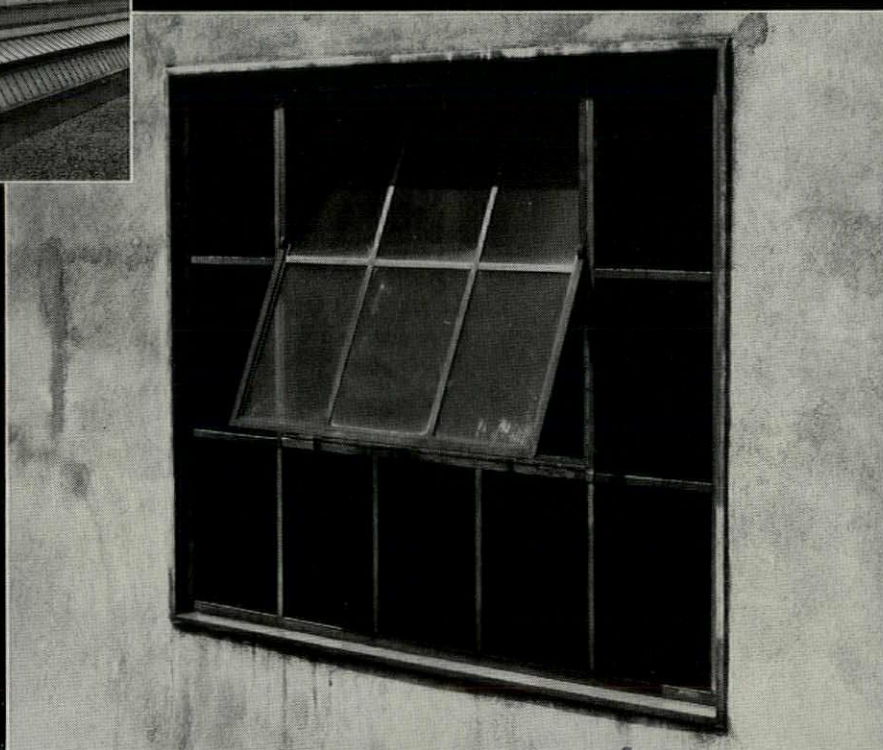
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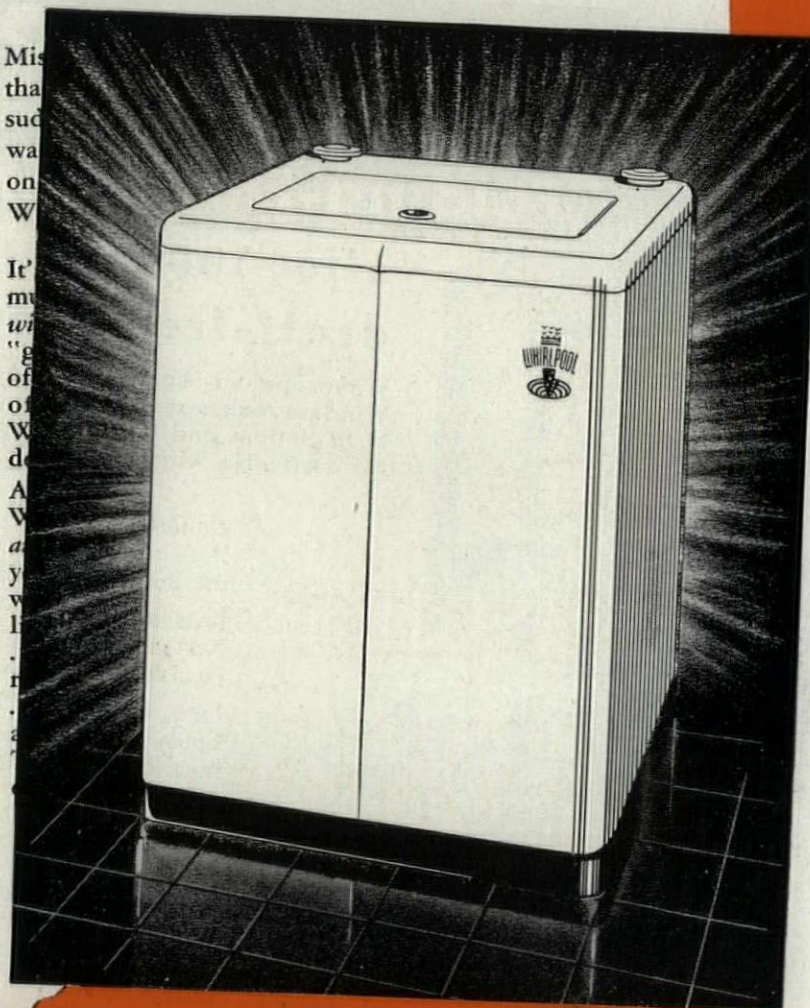
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LETTERS

a responsibility upon the architect and owner in making buildings resistant to weather.

CHARLES L. MARSHALL
State Architect
Topeka, Kans.

• Queried on this problem, Architect Goff replied: "Oklahoma has also had baseball-size hail stones. Obviously, this possibility was considered and the use of tempered glass at the angles was the obvious answer for safety."—Ed.

OFFICE BUILDING REBUTTAL

Forum:

I note that a major portion of your article on Lever House was devoted to a blanket condemnation of New York City's postwar buildings and a contemptuous characterization of the builders. My brother, Harold, and I have built three post-war office buildings in New York City. Your remarks are therefore of considerable interest to me.

Your indictment appears to be that "the post-war craze for over-building city lots" has led to the erection of buildings which are "air conditioned throw-backs to 1926" and really not worth building at all. What is your evidence to support such a scathing attack? Chief among your reiterated criticisms is that these structures have office space 90 ft. deep. I have examined the plans of the new buildings quite carefully and find practically no instance of such depth. For the most part, the average distance from the window is not more than 25 ft.

However, let us assume that this condition did exist. Of what great importance is depth of office space in modern office building? While, formerly, windows provided the main supply of light and air, this is no longer so. Today, with the tremendous technological advances made in lighting and ventilation, the office worker stationed even 90 ft. from a window can enjoy good lighting, first-class ventilation, and the benefits of humidity and temperature controls. Your analysis of Lever House notes that specifications call for "continuous fixed windows of blue heat absorbing glass." The implication is clear. Windows are not even considered as a possible source of air and natural daylight is to be tinted blue.

Your article tends to gloss over these fundamental changes. You cite the projected Lever House and Rockefeller Center, stating "widely spaced towers can be more profitable than any other buildings—daylight and open space pay off at the cash register." You stress this theory again when you quote John R. Todd of Rockefeller Center, who stated "I have never collected an extra dollar of rent for space more than 30 ft. from a window." What you fail to point out to your reader is that this statement was made when office buildings lacked the advantages of modern lighting and air conditioning.

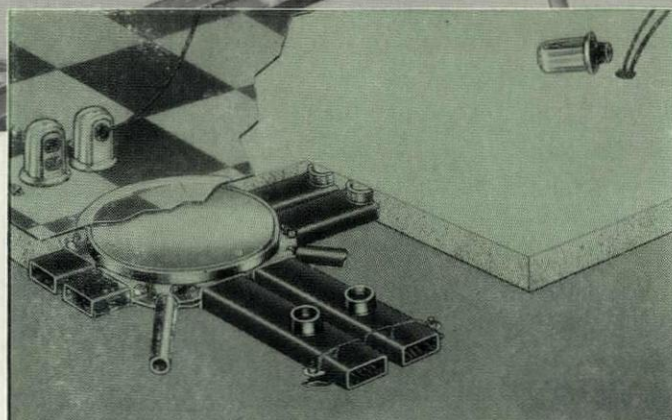
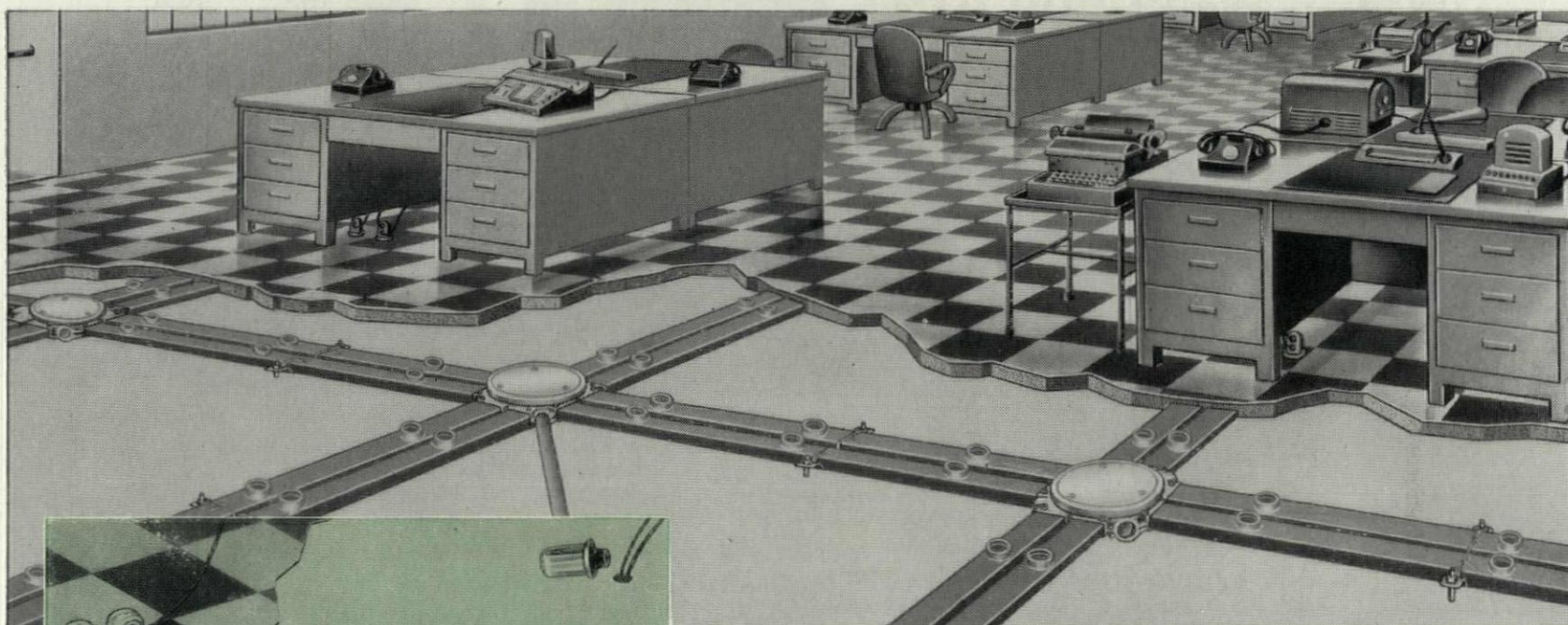
I note that the projected Lever Bros. building will cost the equivalent of \$6 plus a sq. ft. rent. It is not important to Lever Bros. that space in

(Continued on page 34)

NEPCODUCT-

the standard of convenience
outlets in the floor

promotes and protects electrical stability



NEPCODUCT is a

Single Duct, Double Duct, or Triple Duct



system for power, light, communication and telephone.

An electrical distribution system installed by electrical tradesmen in any type of floor construction.

Today's business offices are operated *electrically*. Typewriters, teletypes, machines for accounting, sorting, dictating and other functions require power. Telephone, signal and communication service is indispensable.

This dependence on electrical equipment calls for a distribution system that offers the optimum in convenience and *safety*—and for a securely *grounded* system that promotes and protects electrical stability.

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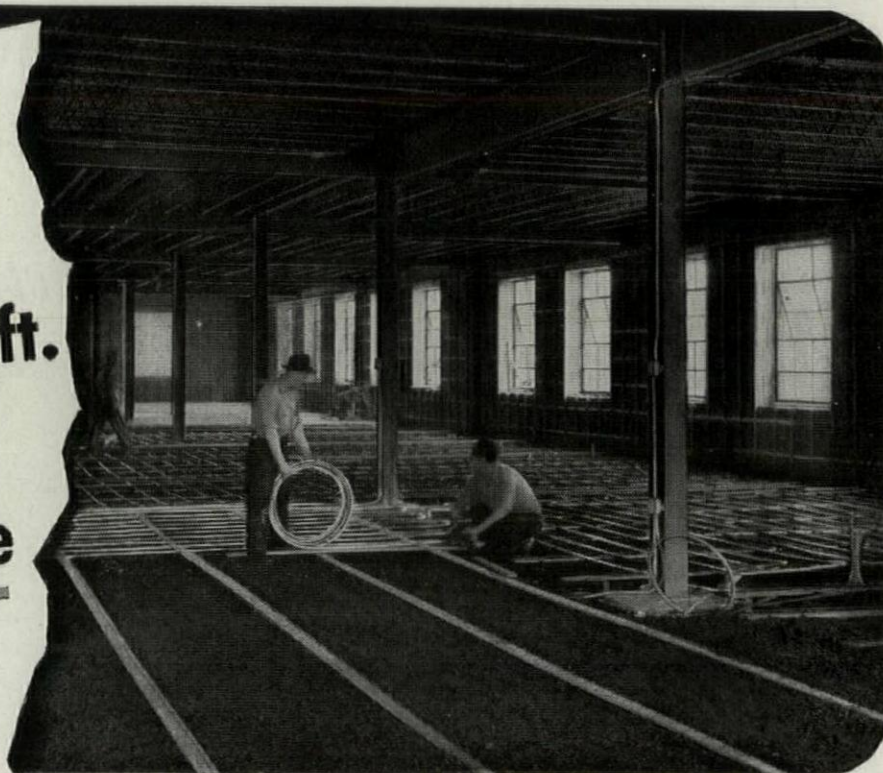
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you too will want Chase
Copper Tube in your Radiant
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EASY TO BEND
LONG LIFE
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Mail coupon for
helpful design
suggestions

IT'S A CINCH to install large radiant heating systems
(and small ones too, of course) when you use
Chase Copper Tube. Its flexibility and small diameter
make bending by hand a simple matter. Because
Chase Copper Tube comes in 60 and 100 foot lengths,
relatively few joints are needed—and they're
easily made with solder-joint fittings.

Chase Copper Tube also offers the advantages of
light weight and long life.

Chase Brass & Copper Co.
Dept. AF950, Waterbury 20, Conn.

Gentlemen: Please send your booklet "Suggestions for
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Chase



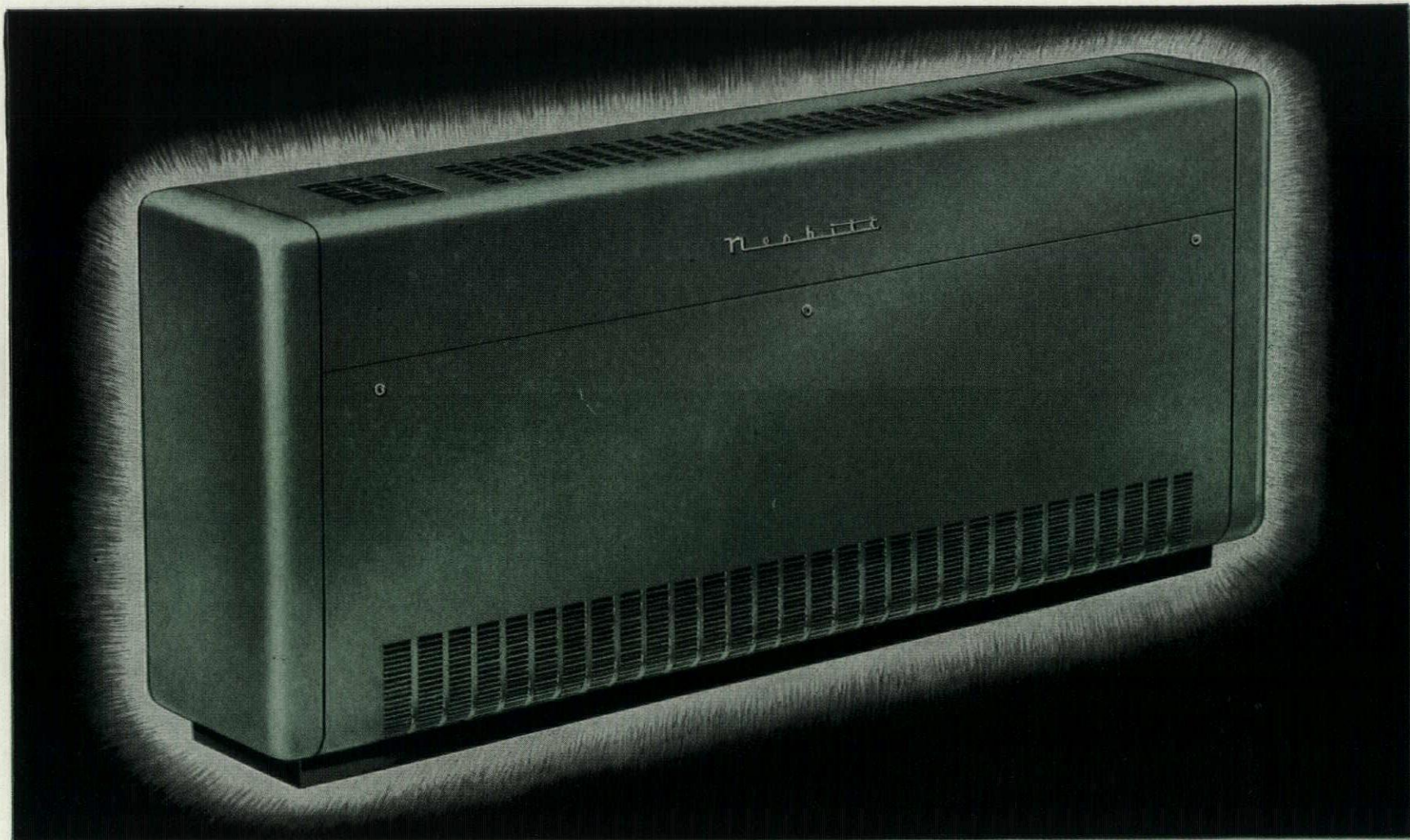
the Nation's Headquarters for BRASS & COPPER

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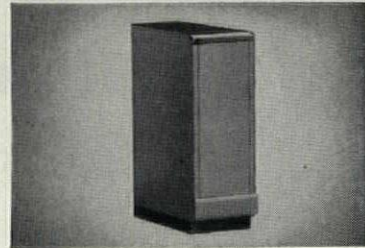
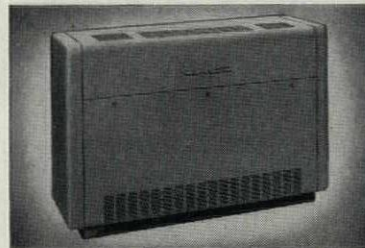
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MINNEAPOLIS! NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER! ST. LOUIS SAN FRANCISCO SEATTLE WATERBURY (Sales Office Only)



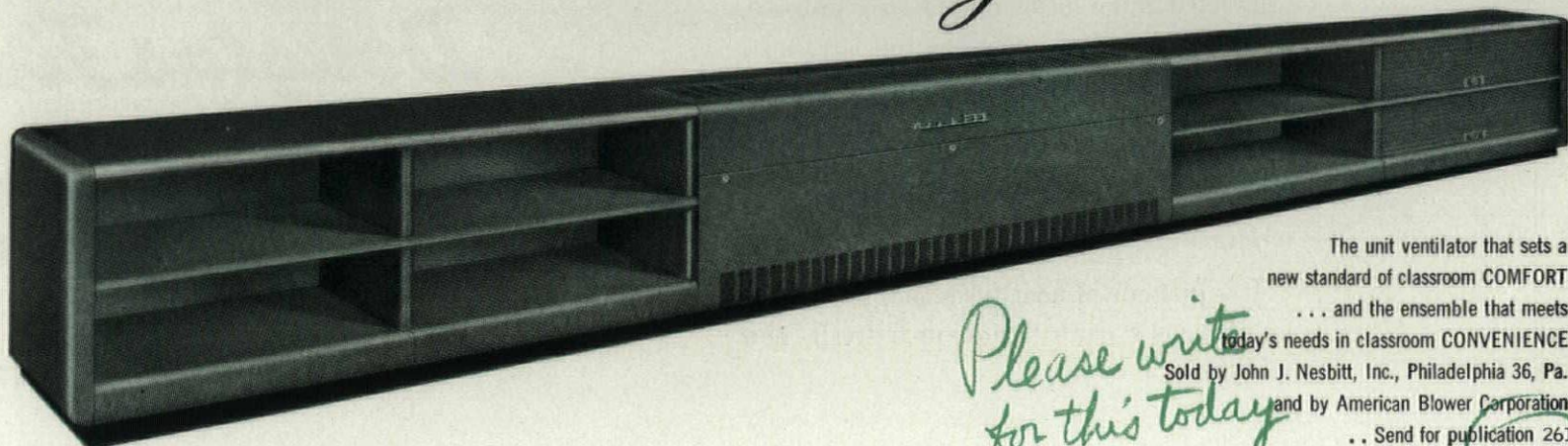
The Nesbitt Syncretizer Unit Ventilator... PLUS



Nesbitt's standard open storage cabinets . . . and closed cabinets with receding doors . . . with a Nesbitt convector, where desired . . . and adjustable fill-ins to meet the wall

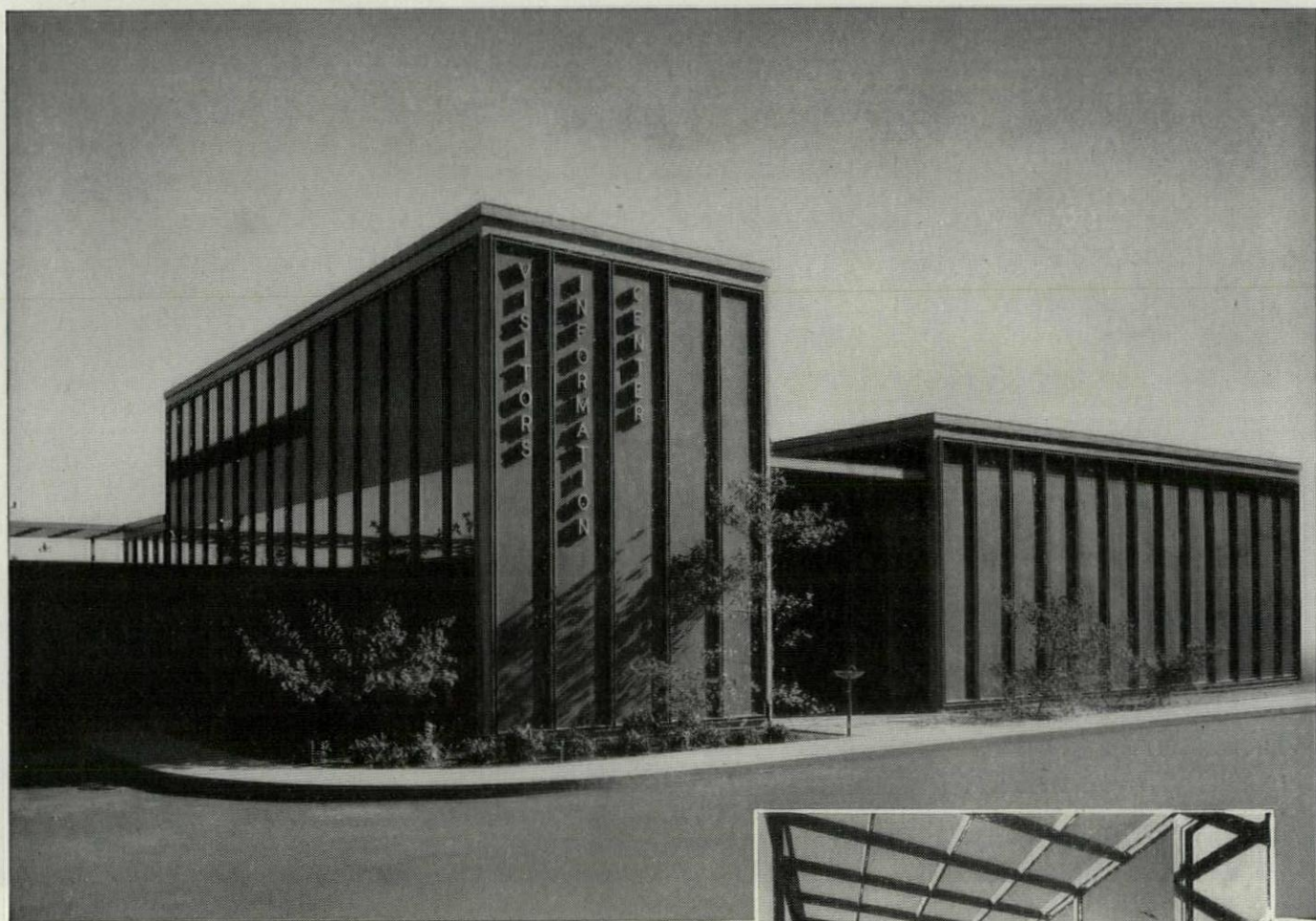
EQUALS *"The Nesbitt Package"*

WITH ONE-PIECE
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The unit ventilator that sets a new standard of classroom COMFORT . . . and the ensemble that meets today's needs in classroom CONVENIENCE
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.. Send for publication 261

*Please write
for this today*



Structure Becomes Design When You Work With Douglas Fir Plywood

TYPICAL of the simplification of approach possible with plywood is this striking Visitors Information Center of the Portland Chamber of Commerce.

Erected in the spring of 1948, this unusual, award-winning building takes full advantage of plywood's unique characteristics. The structural strength and rigidity of the panel material made possible a design both simple and effective—without unnecessary elements of either structure or design.

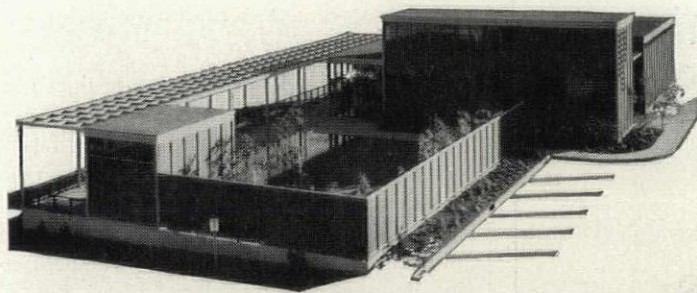
It is just one of many examples of Douglas fir plywood's contribution to a fresh, new architectural concept.



Attractive planning of outdoor areas is exemplified by this corridor connecting the public block and the garden equipment room. Decorative paneling is further emphasized by the use of bold color—deep greenish blue for the plywood panels, pale sea-green for the stops, blue-black for the exposed edges of the 2x6's. Doors are a deep wine red.

Douglas Fir Plywood

AMERICA'S



View looking down shows arbor-covered terrace and walled garden separating larger public block from the garden equipment building at lower left. Public areas consist of a lobby surrounding an information counter, two exhibit rooms, rest rooms. Staff areas provide a manager's office, conference room, and an attendant's office behind the information counter. The second story contains storage and work space.



The pleasing simplicity of design is carried inside, where smooth plywood walls offer dramatic contrast to the alternating-grain floor and ceiling treatment.



Large, Light, Strong Real Wood Panels

DOUGLAS FIR PLYWOOD ASSOCIATION
Tacoma Building, Tacoma 2, Washington;
848 Daily News Bldg., Chicago 6, Illinois;
1232 Shoreham Bldg., Washington 5, D.C.;
500 Fifth Avenue, New York City, 18.

BUSIEST BUILDING MATERIAL

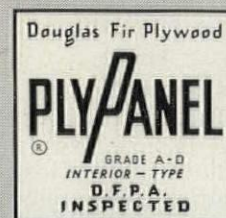
These Grades of Plywood Will Prove Most Useful in Design and Construction



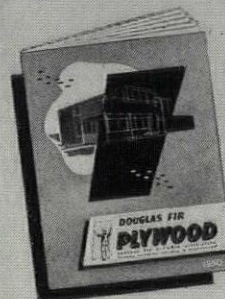
PlyShield is the siding grade of Exterior-type plywood. Fits any architectural style; can be utilized for flush surface, lap siding, wide siding, board and batten.



PlyScord is the unsanded construction grade—for strong, rigid wall and roof sheathing and subflooring. Use it for basement and foundation forms, too; can be stripped and re-used for sheathing on the same job.



PlyPanel is the "one-side" grade of interior-type plywood—for real wood paneling, cabinets, built-ins. Provides a smooth, firm underlayment for wall-to-wall floor coverings, too.



For complete data on Douglas Fir Plywood, including information on other grades, see Sweet's File, Architectural, or write for basic catalog—sent free to any part of the United States. Just write any of the offices listed at the left.

Superintendent reports "wonderful success" with ILG Unit Heaters

- 1 15% fuel saving
- 2 No repair costs in 15 years
- 3 No "cold spots"
- 4 Comfort for workers in coldest weather... beneficial effect on health, morale, efficiency



George Tintera, plant superintendent for Templeton, Kenly & Co., Chicago.

George Tintera, plant superintendent for Templeton, Kenly & Co., Chicago, reports "a clear saving of 15% in fuel bills" by using ILG Unit Heaters. In 1935 the factory heating system was modernized with 13 ILG Unit

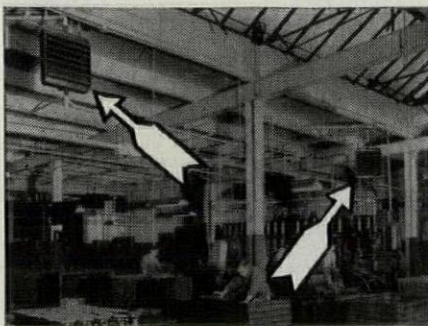
Heaters replacing pipe coils. Later 10 more ILG Heaters were installed as changes were made in the plant. Tintera's records show, "We have not had to spend a single dollar for repairs, and maintenance has been confined to periodic lubrication of the motors."

No "Cold Spots"

Tintera's report further testifies, "The entire plant is now evenly heated so that no floor space is lost in 'cold spots' during the winter months.

"Our men work in comfort during

the coldest weather. This has a decided beneficial effect on their health, morale, as well as their production efficiency." In conclusion, he states, "We regard the change-over made from pipe coils to ILG Unit Heaters thoroughly worth-while from every angle."



ILG Unit Heaters Installed in Templeton, Kenly & Co. Plant in Chicago.

New literature showing all types of horizontal, vertical and low ceiling applications (as well as electric and gas fired) now is available for the asking. Phone your nearby Branch Office or send coupon today.

Send coupon for prices, data



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STEAM, HOT WATER, GAS, ELECTRIC

UNIT HEATERS

ILG Electric Ventilating Co., 2899 North Crawford Avenue, Chicago 41, Illinois.
Offices in more than 40 Principal Cities

☐ Please send FREE new Broadside describing ILG Unit Heaters.

Name

Address Zone

City State

LETTERS

their building will cost far more than space obtainable elsewhere—which, from an office standpoint, could serve them equally well. Lever Bros. are building a permanent advertisement for their merchandise.

The postwar office builders face a different problem. They seek to erect structures containing the very many modern improvements which tend to make for comfortable working conditions. Their aim is to utilize as much of their land as possible in order to create the maximum amount of desirable office space. In doing so, they give the nation's most important corporations opportunity to centralize their offices in one building and at a reasonable cost, the average rental being well below \$5 a sq. ft. I believe it would be a grave disservice to the community for the postwar builder to erect office buildings which utilize only a small portion of the available land and which consequently impose rentals on tenants of \$6, \$7, or higher, per sq. ft.

You belittle the appraisers and the investment experts of all the leading insurance companies when you assert that builders obtain 100 per cent loans. I am sure you would have a difficult task establishing the assertion. From my own knowledge of the costs involved, I can state that the insurance companies have not only made conservative and sound loans, but as regards cost, their percentage is far below 100 per cent, and the builders have substantial equities in their projects.

While it is important that you comment on conditions as they appear to you, I feel that your conclusions concerning the activities of builders of postwar office buildings in New York are incorrect. Perhaps a survey of how those that tenant the buildings like them may help change your opinion.

PERCY URIS
Uris Brothers, Builders
New York, N. Y.

• Reader Uris apparently skipped over FORUM's statements 1) that "air conditioning and modern lighting upset the equation between better building and greater profits so carefully worked out by Rockefeller Center. . . .", 2) that "even Rockefeller Center itself is encouraging a quasi-annex that uses Rockefeller Center facing and fenestration to camouflage its shift from the openness and light that made the Center great," 3) that Lever House was "... designed partly to house and partly to advertise the giant soap maker," and 4) that the faith of other builders in the long term rentability and profitability of deep space "is not likely to be upset by the example of the only major postwar office building in New York that cannot budget a very handsome profit on \$5 rents."—Ed.

LIVING ROOM HALLS

Forum:

Too many houses are being offered these days in which the bedrooms and bath can be reached, from the kitchen or outdoors, only through the

(Continued on page 40)

SNOW MELTING

ANOTHER
PLUS VALUE OF

B & G *Hydro-Flo* Heating



Here's one more reason why B & G *Hydro-Flo* Heating is tops in modern heating. Hot boiler water can be circulated by a B & G Booster through pipe coils under the driveway and sidewalk, melting snow as fast as it falls. Another tiresome job eliminated!

B & G *Hydro-Flo* Heating is known the country over for its outstanding advantages . . . *controlled radiant warmth* . . . fuel economy . . . supreme comfort in any weather! This forced hot water system permits a choice of baseboards, radiators, convectors or completely concealed radiant panels. Whatever your selection, you'll have the finest in automatically controlled heating.

The B & G *Hydro-Flo* System matches the heat supply to the weather—so exactly that from Fall to Spring, indoor temperature is held constantly at the comfort level. And besides, it provides a year-round supply of hot water for kitchen, laundry and bath.



NO JOB TOO BIG OR TOO SMALL

Hundreds of thousands of B & G *Hydro-Flo* Systems are in operation today. You'll find them in low-cost homes, apartments, industrial and commercial buildings, delivering the same comfort regardless of the size of the building.



B & G HYDRO-FLO HEATING EQUIPMENT.

The basic units of a B & G *Hydro-Flo* System are simple and dependable—an assurance of long years of trouble-free service. Any hot water boiler—new or old—can be equipped with B & G *Hydro-Flo* Products.



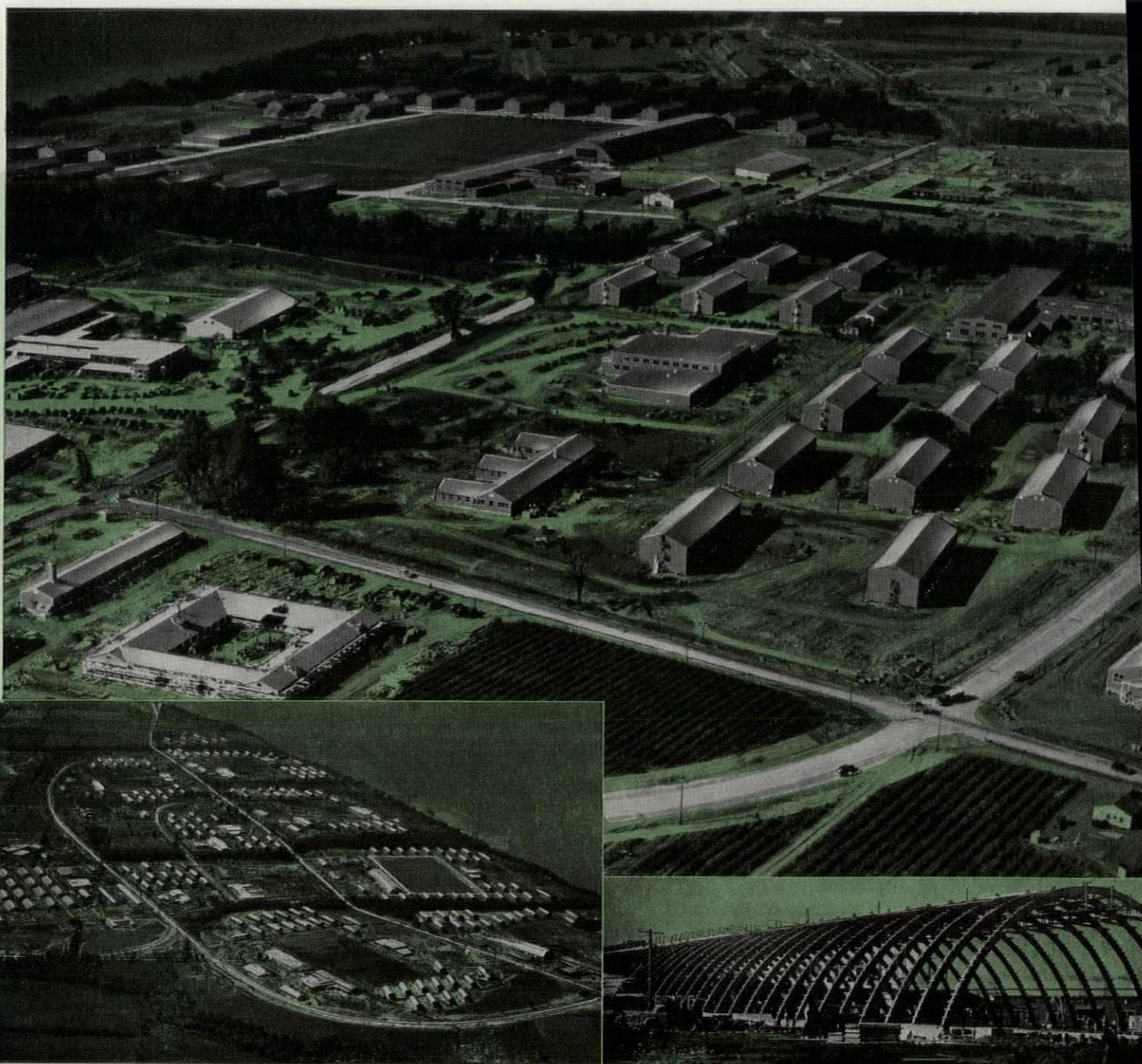
BELL & GOSSETT

Dept. BS-10, Morton Grove, Ill.

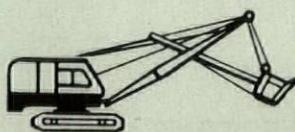
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Company

*Reg. U. S. Pat. Off



Defense Always Demands the Utmost—Two Huge Projects,



SAMPSON NAVAL TRAINING STATION, Sampson, N. Y. — 450 Buildings

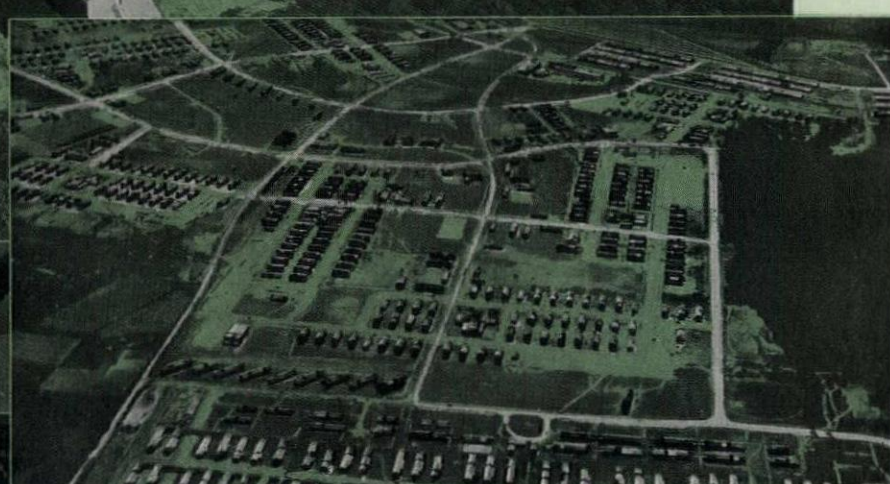
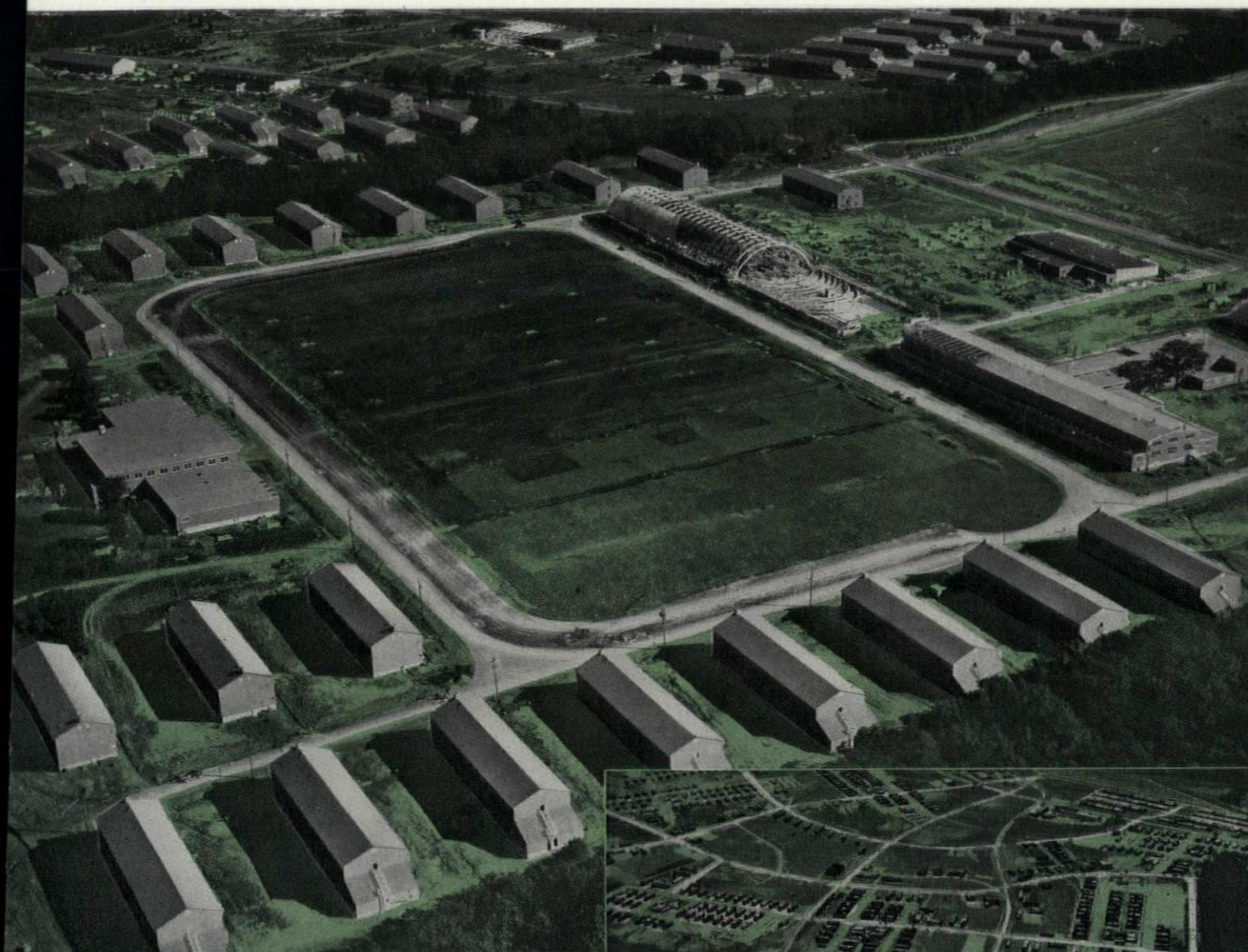
The largest Naval Training Station built in America during World War II. It comprises 450 separate buildings, and all necessary utilities and facilities, including 6 huge Drill Halls, 626 ft. long by 120 ft. truss-span, 5000-man Mess Halls, Schools, Barracks, Drill Fields, a \$12,000,000 Hospital Group, a 2 million gallon Reservoir, 52 miles of roads, 12 miles of railroad tracks, submarine cables, sewage facilities and civilian housing for a complete city of 50,000. This project for the Navy Dept. was completed in approximately seven months at a cost of \$52,000,000 . . . Shreve, Lamb & Harmon, Architect-Engineers

During the war years the Johnson Organization completed \$300,000,000 of construction in the United States for government agencies.

The two large views across entire top of two pages show some of the training areas surrounding Drill Fields, at the Sampson Naval Training Station.

View at extreme left shows practically entire area of Sampson Naval Training Station, including most of the 450 buildings.

Small picture directly above shows erection of 120' laminated Arch-Trusses for 626 ft. Drill Halls at Sampson Naval Training Station, Lake Geneva, N. Y.



Totalling \$94,000,000, Each Completed in Seven Months



CAMP KILMER, Stelton, New Jersey, U. S. Army Project — Over 1000 Buildings

A principal staging area for troop embarkations abroad. Over 1000 structures were required, and this vitally important U. S. Army project was also completed in phenomenally short time. In addition to vast housing requirements, utilities and sewerage facilities of a substantial city were simultaneously completed. *Both the above projects were completed, together with 14 others, within the same single calendar year.* Cost of project \$42,000,000 . . . Tuttle, Seelye, Place & Raymond, Architect-Engineers

**John A. Johnson
& Sons Inc.**

BUILDING CONSTRUCTION . . . "A FIRM FOUNDATION SINCE 1896"
NEW YORK • BROOKLYN • PEMBERTON • WASHINGTON
COLUMBUS • OAK RIDGE • ATLANTA

Small picture directly above: A group of connected hospital buildings at Camp Kilmer, N. J.

Air view directly above shows most of the 1000 buildings at Camp Kilmer, N. J.

24" X 96" OR 30" X 96"
OR
30" X 60" OR 48" X 96"

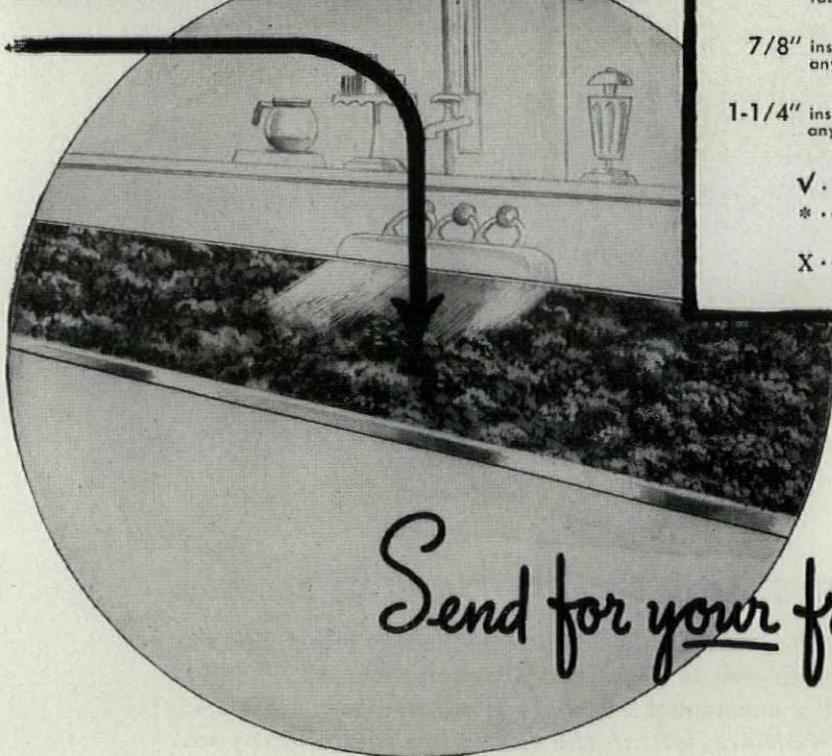
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3/4" WATERPROOF
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BACKING-
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FOR
MAXIMUM
STABILITY

The new
Bonded-to-Plywood
Panels add another
advantage to

MICARTA®



Send for your free sample
and complete Data Book



MICARTA is
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Micarta is the *quality* high pressure plastic laminate made by Westinghouse. It is preferred by experts because it is *always* uniform in coloring and pattern—because its finishes are superior (a beautiful high gloss or a perfect satin)—because it is practically impossible to scratch, chip or dent it—because virtually nothing will stain it.

Now Micarta offers another exclusive advantage—Factory-bonded Panels in **FOUR** sizes. These panels are 1/16" Micarta permanently bonded with waterproof adhesives to waterproof mahogany Weldwood Plywood. They can be sawed, trimmed, planed, drilled—worked and installed—by anyone and no special equipment is needed.

Thus you can in many cases gain efficiency and economy by having your regular carpenters install the Micarta at the same time they make and install the rest of your interior.

And with these four sizes you can cut with an absolute minimum of waste. The four sizes provide exactly the right width for almost every common use and in the great majority of installations the lengths cut with virtually no waste. As examples:

24" x 96"

for commercial counter tops and fronts, kitchen counters and bar tops.

30" x 60" and 30" x 96"

standard kitchen counter and sink tops *including back splash* (30" x 60" for built-in breakfast tables); also commercial counter tops and fronts.

48" x 96"

exactly right for walls and other large areas.

Micarta provides a size and type for every need

	24x96	30x60	30x72	30x84	30x96	36x72	36x84	36x96	48x84	48x96
1/16" installed by fabricators	*	✓	*	*	*	✓	✓	*	*	✓
7/8" installed by anyone	✓	✓	x	x	✓	x	x	x	x	✓
1-1/4" installed by anyone	x	x	x	x	x	x	x	x	x	✓

✓...available in stock from warehouses.

*...not carried in stock; available from mill and in half size on crate lot orders (approx. 500 ft.)

x...not carried in stock; available from mill and in half size on minimum order of 1500 feet.

Colors: Micarta is made in a large variety of attractive plain colors and patterns including Linens, Foams, Mother of Pearls, Truwoods, and Decorator Colors (superb pastels selected by a jury of architects).

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Please send free Micarta testing sample and complete data.

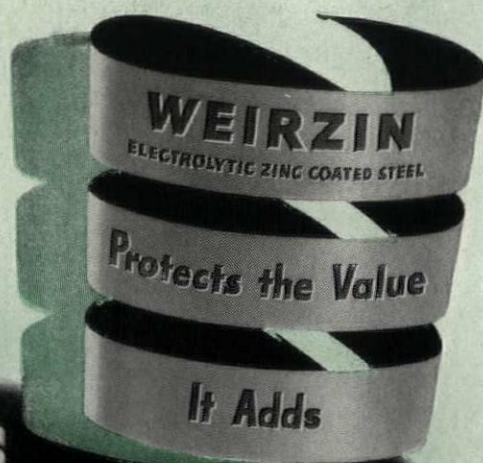
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*What smart buyers look for
in Household appliances —*



Metal sculpture by Lyman Beckwith, executed in Weirzin steel. Cutting and shaping of steel figures demonstrates exceptional qualities of Weirzin electrolytic zinc coated steel.

There's a lot of beauty in today's appliances—beauty of form, beauty of color, beauty of finish. But—when you buy—you do well to remember that their beauty should be more than skin-deep.

And that's the unseen extra beauty of products made of Weirzin—an electrolytic zinc coated steel noted for its great strength and durability. Many producers of top-quality household appliances are using Weirzin steel because it not only is highly resistant to rust and corrosion,

but also enhances and preserves the external finish. When enamel, or lacquer, or paint, is applied to Weirzin, it is there to stay. That means *permanent* beauty, because the gleaming, colorful finish is bonded to a metal that possesses extraordinary resistance to rust and corrosion.

When next you buy or specify household appliances—or metal wall tile, kitchen cabinets, or storm sash—ask what's under the surface . . . ask if it's *Weirzin*, the last word in lastingness.

- Weirzin Electrolytic Zinc Coated Sheets and Strip
- Weirite Tin Plate and Tin Mill Products
- Weirton Hot-Rolled and Cold-Rolled Sheets and Strip
- Weirton High-Carbon Cold-Rolled Spring Steel
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WEIRTON STEEL CO.

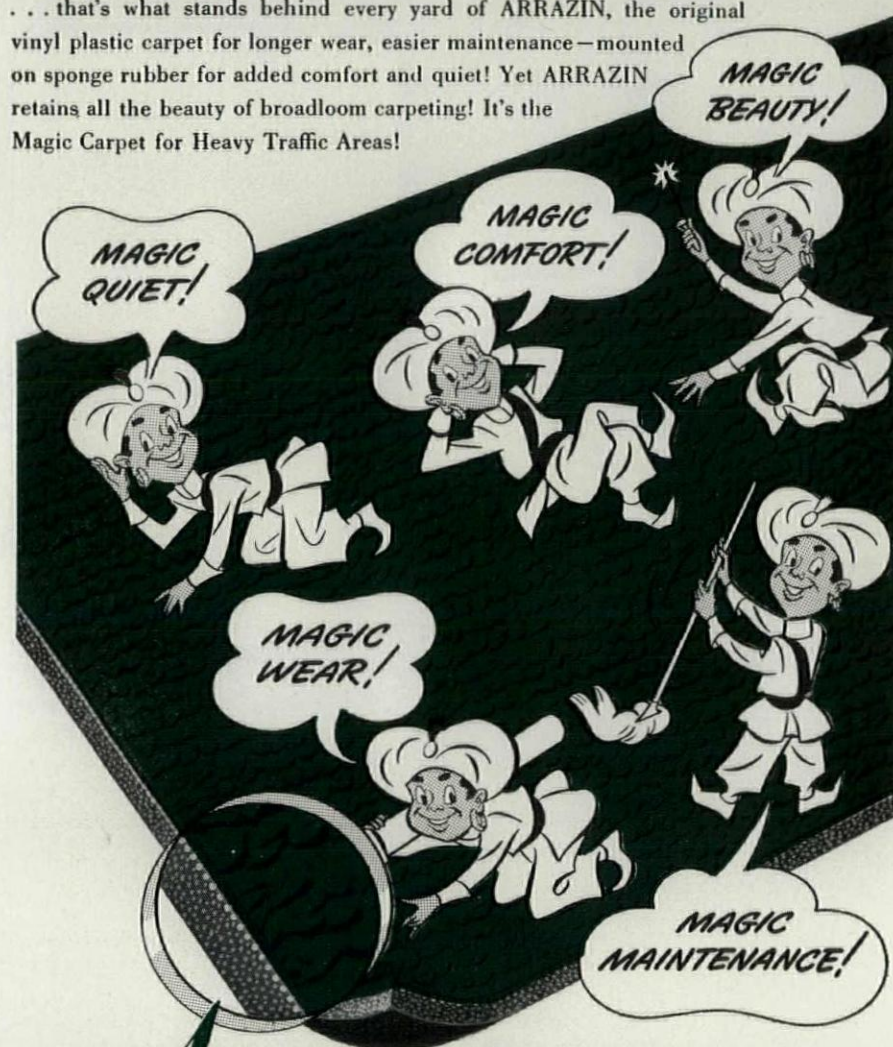
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ARRAZIN! *Say it again!* ARRAZIN!

It's the Original longer-wearing Vinyl Carpeting!

4 years of development and research! . . . 4 years of gruelling wear tests! . . . that's what stands behind every yard of ARRAZIN, the original vinyl plastic carpet for longer wear, easier maintenance—mounted on sponge rubber for added comfort and quiet! Yet ARRAZIN retains all the beauty of broadloom carpeting! It's the Magic Carpet for Heavy Traffic Areas!



Arrazin

The Magic Carpet for Heavy Traffic Areas!

B.F. Goodrich
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FREE!

Samples of amazing ARRAZIN! Information showing how to solve the problem of heavy traffic areas! Clip this coupon!

The B. F. Goodrich Co., Flooring Division
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LETTERS

living room. If you have ever cooked a company dinner, detoured around sister's boy friend, or come in hot and dirty to find guests in the living room, you know why this is important. Just run through your April Small House Issue and count the number of plans, even with three bedrooms in some of them, that have this defect. For example, the success of the Levitt house is due to its extreme livability—in other words, its circulation. Note that the Washington version has managed to lose this advantage. . . . A door between hall and utility would take care of everything in some cases.

IRENE BARLOW
Chicago, Ill.

HORRIBLE JOLT

Forum:

It is hard and probably impossible for a person to evaluate their opinions, or any other persons, with the acid of time as the true test for the "gold."

In your April Small House Issue the article "Incentive Bonus Production" gave me a horrible jolt. I say horrible for it seems the basis of the system is one of pure cannibalism or dog eat dog! How can any system that relies on the betrayal of your fellow man be considered good?

Not only the basic idea is humanely wrong, but it seems that the idea is wrong from an economic viewpoint. If this system were carried to its fullest fruition, then according to the figures given there would be 125 persons out of work for every 71 working! What good is the high take-home pay if you have to turn right around and keep the "brother" that you took the "pounds of flesh" from?

Is the building industry now in its infancy going to make the same mistakes that big industry made, and just when are we going to apply to our everyday business transactions the teachings of Christ and all the other great spiritual leaders?

A house built or inhabited without God can hardly be called a good value or expected to be proven a true value by "Father Time."

ALLEN WHITE HALL, *Architect*
Belmar, N. J.

• In the building industry, as in other industries, the long-range effect of increased labor efficiency and increased production is increased employment—not unemployment. Intermediate effects are better built, lower cost buildings and better paid building mechanics. Chances are that the less efficient mechanics who failed to meet the standards of Builder Bronson's "Incentive Bonus Production System" are gaining experience on some other building job.—Ed.

ARCHITECT AND HOUSEBUILDER

Forum:

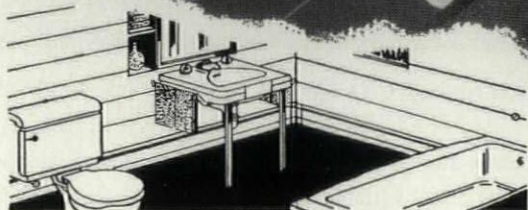
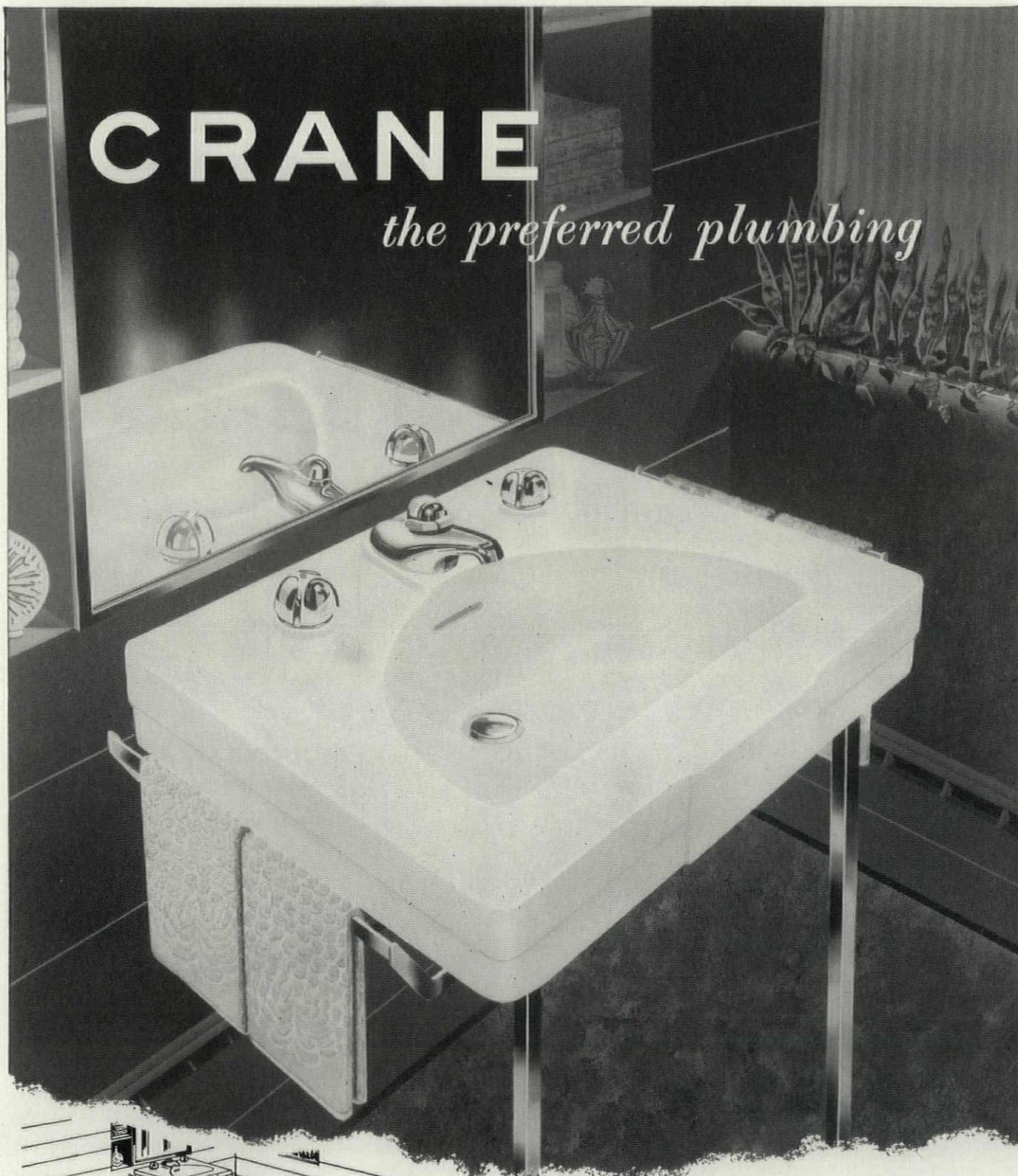
I want to congratulate you on the interest you have aroused nationally on the matter of architect-builder collaboration.

As you know, our Quality House Division has considered this one of its primary objectives from

(Continued on page 46)

CRANE

the preferred plumbing



*Styled to match the Diana Lavatory:
Criterion Closet, Criterion Bathtub.*

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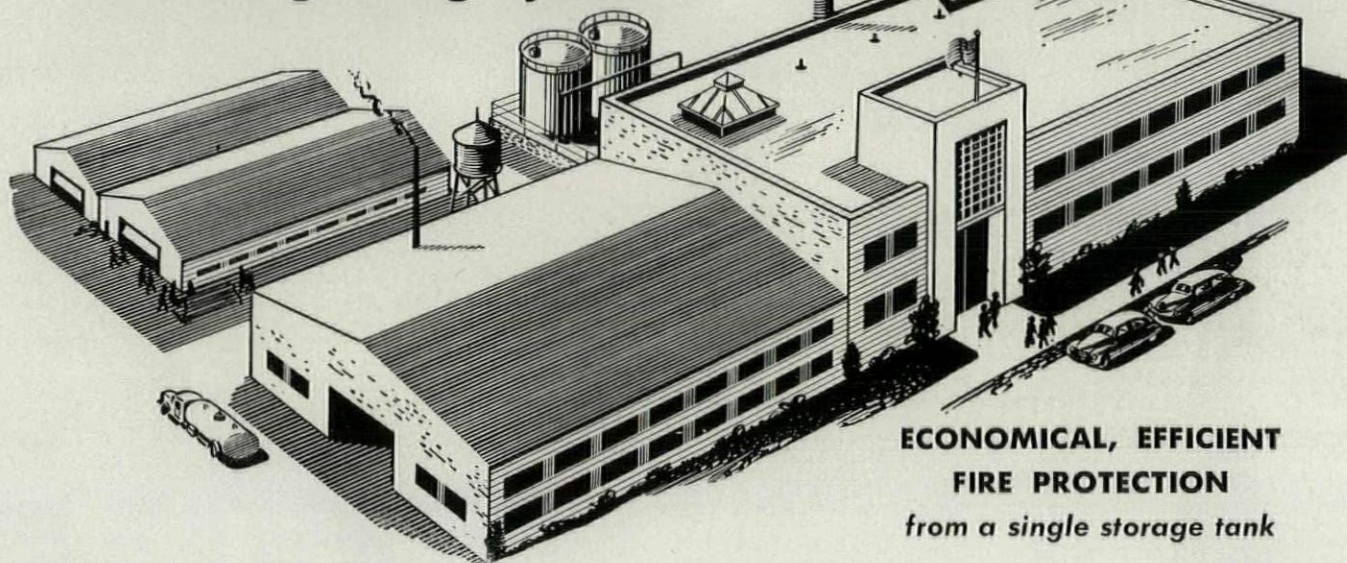
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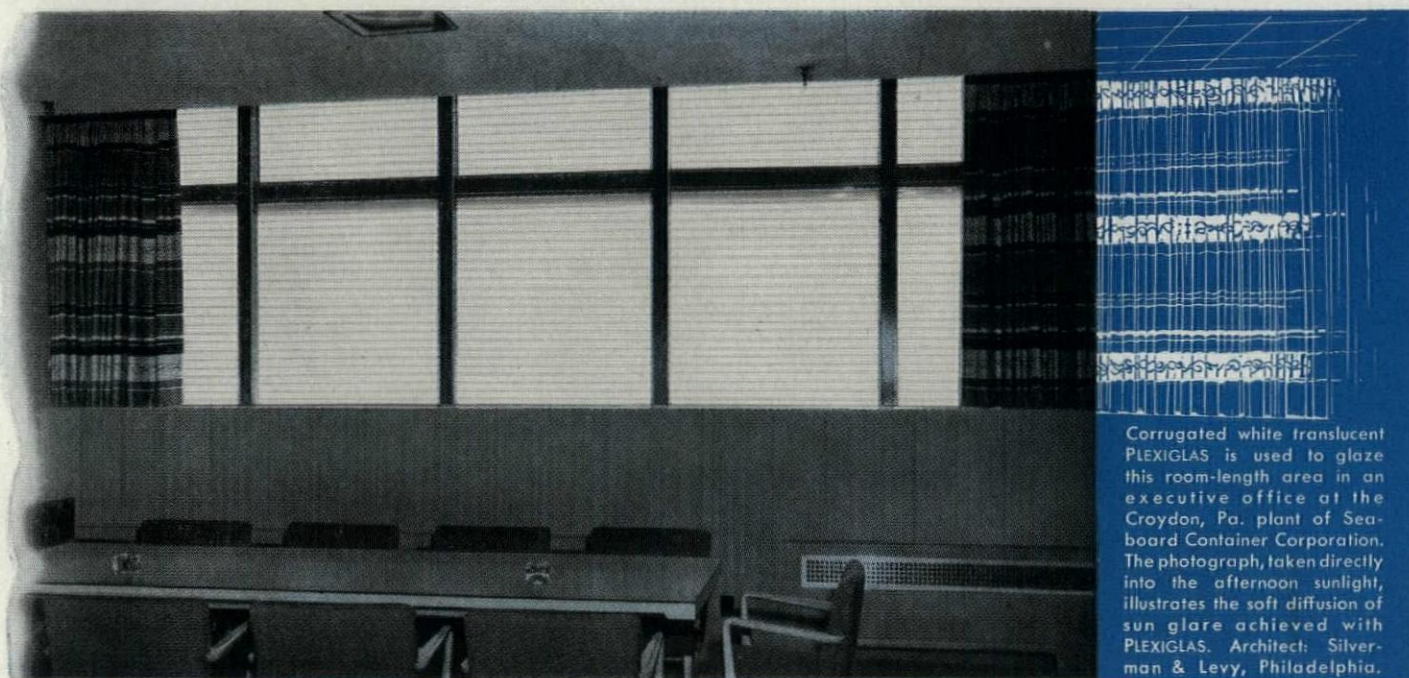
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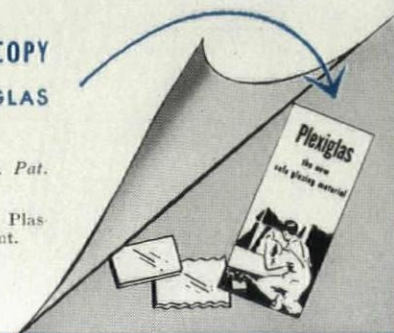
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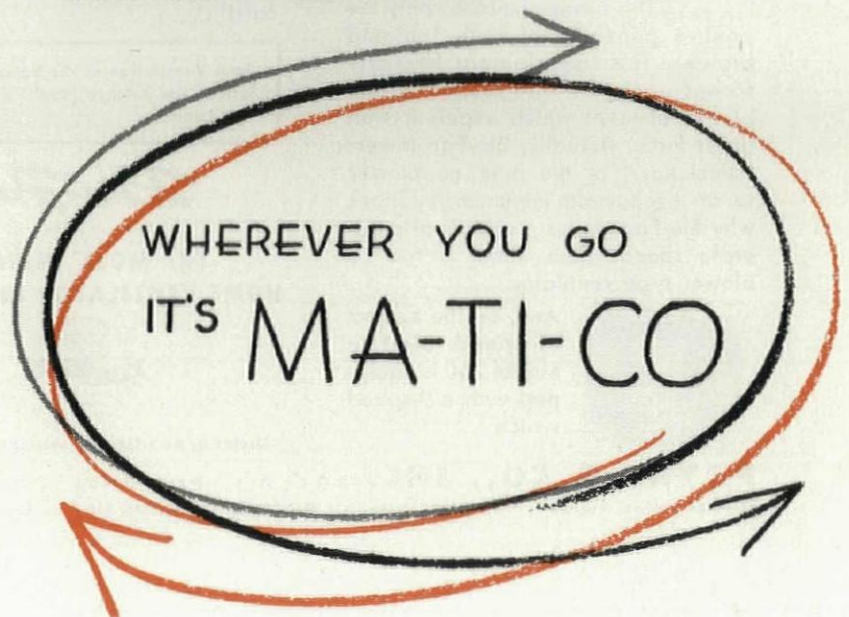
used in these West Coast projects of Metropolitan Life

*Builder: Metropolitan Life Insurance Company
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 Structural Engineer for Parkmerced: John J. Gould
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 Mechanical Engineer for Parkmerced: Thomas B. Hunter

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LETTERS

the beginning, and it is quite likely that Southwest Research Institute has acquired more actual experience in effecting good relationships between operative builders and architects than any other organization in the country.

Since the findings of a nonprofit, scientific research organization, such as Southwest, are a matter of public information and since architect-builder relations are one of our primary objectives, it is possible that the Institute could be helpful in the suggested meeting between representatives of the National Association of Home Builders and the American Institute of Architects. . . .

C. W. SMITH, Director

Division of Housing & Construction Technology
Southwest Research Institute
San Antonio, Tex.

HARASSED HOUSEBUILDING

Forum:

In your March '49 issue you published an article on the harassing of builders by the Office of the Housing Expediter on technicalities under the priorities program. I believe you will be interested in the outcome of one of these cases.

In 1946 I built ten identical houses, assuming that I had a final ceiling price of \$8,600 on them. I sold them all for \$8,500 (the VA appraisal on them was \$8,550). Subsequent investigation by the OHE revealed that, due to a mistake in lot numbers, the approved increase from \$8,000 to \$8,600 covered only five of the houses. The case went to trial, and the judge held that he could not see how an "alert, keen, able businessman" could make such a mistake and ordered me to refund \$500 on five of the houses. The end result is a windfall of \$500 for five of the ten purchasers, based on no other reason than a typographical error. The funny part of it is that the judge's memorandum on the decision, itself, contains two errors in figures in the first sentence.

The case, of course, is being appealed.

E. G. DOERNHOEFER

L. E. Mahan & Co., Mortgage Bankers
St. Louis, Mo.

THREE CHURCHES

Forum:

Just received the July '50 FORUM. Which is which: Christ Church in Minneapolis, Minn. (p. 80) or Christ Church in Cincinnati, Ohio (FORUM, Dec. '49, p. 60), or Church of Christ in Columbus, Ind. (FORUM, Dec. '49, cover)? Three churches—seemingly the same, but three locations! Let the editor explain, please.

JOHN NICKELSEN,
Designer
Flushing, N. Y.

• Three beautiful churches in three different locations, all designed by the same architects—Saarinen, Saarinen & Associates—explanation enough of their handsome similarity achieved through careful atten-

(Continued on page 52)

Bids over the budget?



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Figure your industrial plant feeders both ways—in aluminum and in copper. You'll be pleasantly surprised by the savings you get with *aluminum*.

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For copy of "Questions & Answers About Aluminum Conductors", call your nearby Alcoa Sales Office, or write ALUMINUM COMPANY OF AMERICA, 1778J Gulf Building, Pittsburgh 19, Pennsylvania.



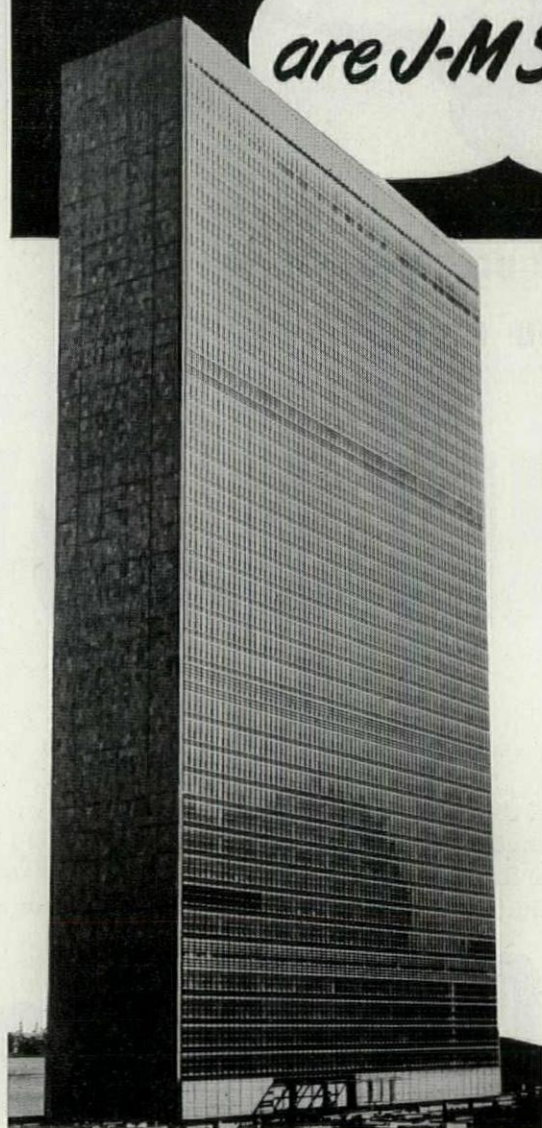
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Because so many desirable features are combined in this one acoustical product, *millions* of square feet of Sanacoustic have been installed in institutions, offices, hospitals, schools, and places of public assembly.

Consisting of *perforated metal panels* backed up with a fireproof sound-absorbing element, Sanacoustic Ceilings will not burn, rot, or disintegrate. They're ideal for suspended ceiling construction, equally adaptable for new work or remodeling. The method of installation assures perfect alignment of units, allows easy access to services. Write for "Sound Control" brochure. Johns-Manville, Box 290, New York 16, New York.

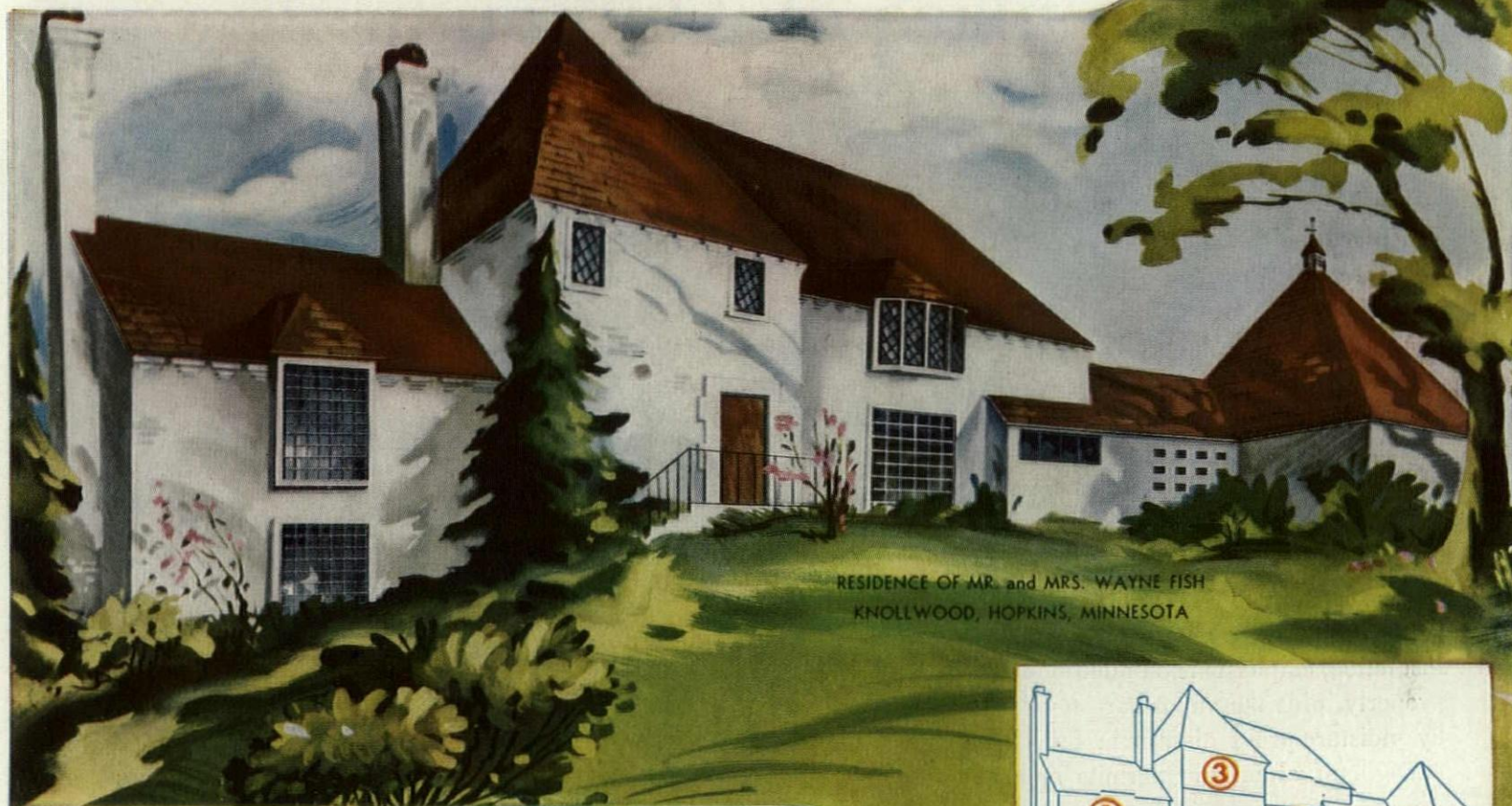


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A Mistake Was Made!



RESIDENCE OF MR. and MRS. WAYNE FISH
KNOLLWOOD, HOPKINS, MINNESOTA

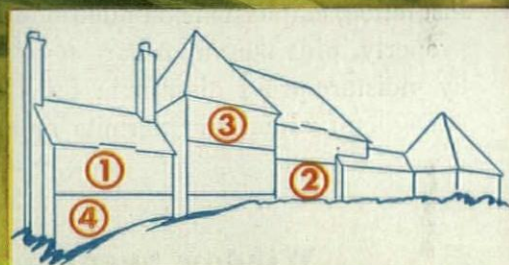
One thermostat wasn't enough!

THE ORIGINAL builders of this lovely home spared no expense on the furnishings and equipment. But it seemed impossible to heat comfortably. When the living and dining rooms were just right, the recreation room was too cold. The bedrooms never got enough heat.

When the temperature setting was raised to make the rest of the house comfortable, the living room was too hot. Honeywell control engineers were consulted—found the answer. To provide real comfort, a home of this

type should have four heating zones, each controlled by a thermostat—one in the Living Room area, one in the Dining-Service area, one in the Sleeping Rooms area and one in the Recreation area.

If you are designing a home, don't hesitate to call upon Honeywell's specially trained staff of control engineers. They stand ready to assist you, without obligation, of course. When you specify Honeywell controls, you can be certain that you will get the most faithful controls available for your clients.



This Type of Home Needs 4 Thermostats

- ① In the Living Room Area
- ② In the Dining-Service Area
- ③ In the Sleeping Rooms Area
- ④ In the Recreation Area



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The place of Aluminum in modern building

The place of aluminum, in building, has been attained far more swiftly than that of any other metal. Building uses of other materials took centuries to develop. Aluminum, in commercial production scarcely more than half a century, has been used architecturally from the very beginning—as on the dome of San Gioacchino in Rome, on the roof of the Chief Secretary's office in Sydney, on the Washington monument.

The reasons lie in aluminum's inherent properties: lightness, strength, rustproof permanence, and a unique capacity to reflect radiant heat. In roofing and siding all of these characteristics are important. In insulation, emphasis is on aluminum's heat-reflective property, plus the vapor-barrier protection afforded by moisture-proof aluminum foil. In windows, the strength of aluminum permits narrow frames and

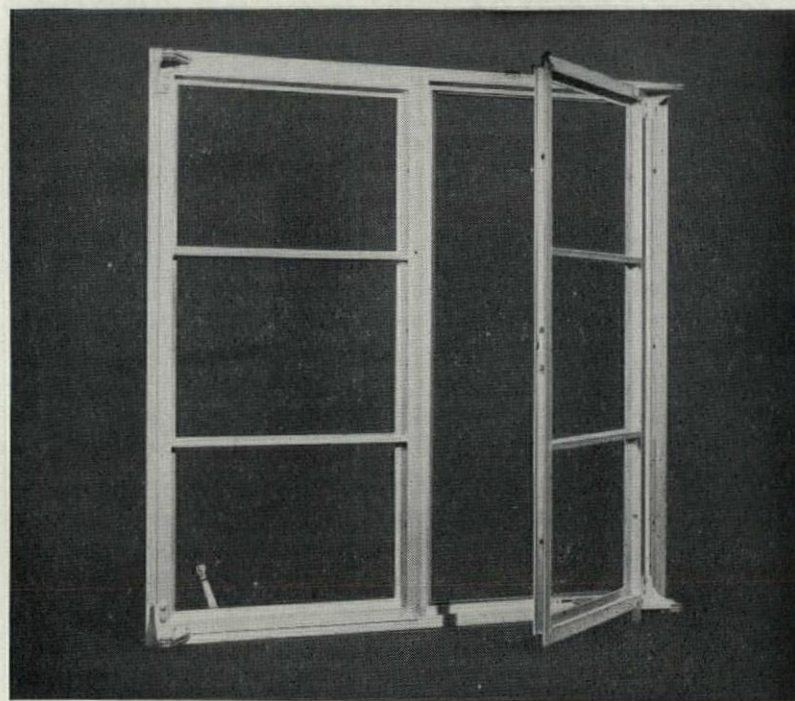
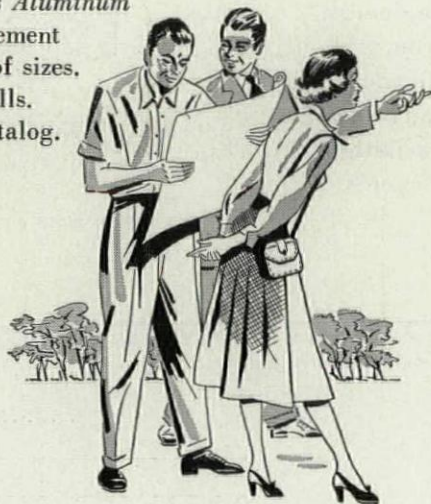
greater visibility area. In rain-carrying equipment as well as in all other uses, aluminum's rustproof nature eliminates the need for painting. And aluminum nails prevent disfiguring stains, with no need for deep setting and pultyng.

The architect will consider these functional properties together with the *appearance* of aluminum—its softly gleaming neutral tone, that weathers attractively and never stains. This appearance is distinctively modern in large-area exterior applications. It is definitely a design advantage for windows and for gutters, in combination with *any* exterior facing.

For literature in A.I.A. file form, please write to... **Reynolds Metals Company**, Building Products Section, 2019 South Ninth Street, Louisville 1, Kentucky.

Window Shopping Stops At... REYNOLDS ALUMINUM WINDOWS

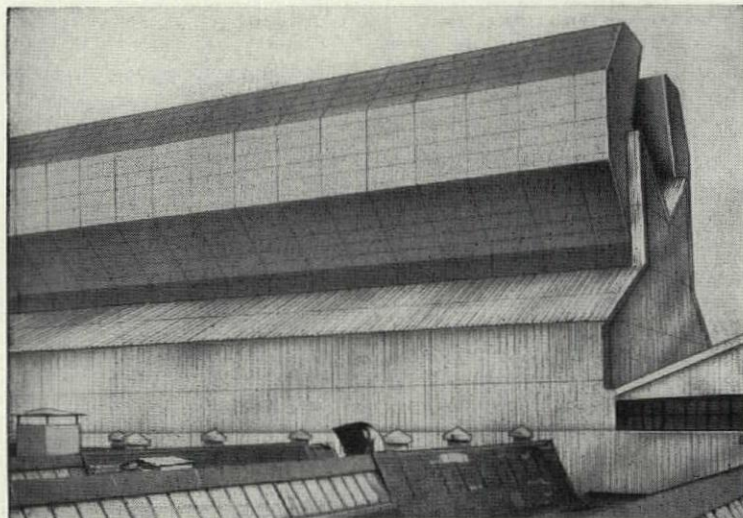
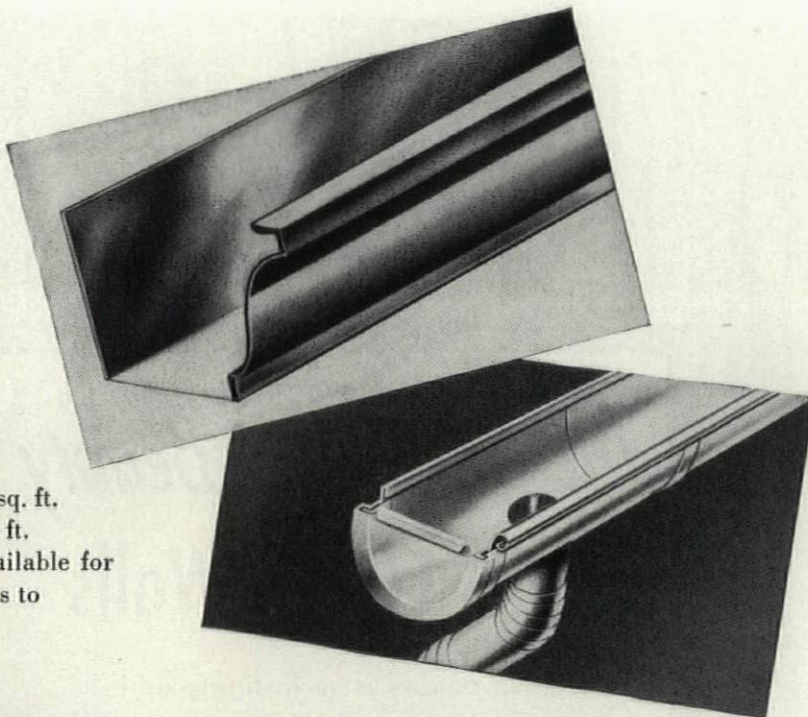
For rustproof permanence, freedom from maintenance and smooth operation, nothing equals the roto-operated aluminum casement window. Reynolds Aluminum Residential Windows, casement, fixed and picture types, are soundly engineered—with flash-welded corners for extra rigidity and weathertightness. They are outstanding for beauty of design and finish. *Reynolds Aluminum* Screens fit all metal casement windows. Full range of sizes. Also window jambs and sills. Write for detailed catalog.



REYNOLDS

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Here's rustproof permanence at about half the cost of other rustproof materials. Slip-joint installation—no soldering. 5" residential gutters available in Ogee style, with 3" downspouts to match; and in Half-Round style, with 3" round or corrugated downspouts. Both styles in either smooth or stipple-embossed finish. Specify one 3" round or square downspout for each 700 sq. ft. roof area, or one corrugated downspout for each 600 sq. ft. Also 6" Half-Round Stipple-Embossed Gutters now available for industrial and other large-area drainage (4" downspouts to drain 2000 sq. ft. roof area per pipe).



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Standard .019" and .024" thicknesses in 1½" and nominal 2½" Corrugated and 5-V Crimp, sheet lengths 6', 7', 8', 9', 10', 11' and 12'. Weatherboard Siding .024" thick, 8', 10', and 12' lengths. All in your choice of smooth or stipple-embossed finish. Also REYNOLDS *Lifetime* ALUMINUM INDUSTRIAL CORRUGATED, .032" thick, with corrugations ⅞" deep by 2⅔" crown to crown, for extra rigidity. Simple application over any type purlin. Reynolds can supply Nelson "Rivweld" Studs, the superior top-down installation. (Photo shows this Industrial Corrugated on the Anchor Hocking Glass Corporation plant, at Salem, N. J.)

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For further details on all these products—and on Reynolds *Lifetime* Aluminum Nails, Flashing, Accessories and Architectural Shapes, write to Reynolds Metals Company, Building Products Section, 2019 S. Ninth St., Louisville 1, Ky.

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LETTERS

tion to scale and proportioning. Actually, their similarity is limited for the most part to the interior design of three naves; in other respects the three churches are quite different.—Ed.

STORES—PRO AND CON

Forum:

Congratulations on your authoritative article, "What Makes a 1940 Store Obsolete?" in the July issue. . . .

Less satisfactory is the FORUM's accuracy on architectural credits in this article.

MORRIS KETCHUM, JR.
Ketchum, Gina & Sharp, Architects
New York, N. Y.

• The following stores, credited exclusively to Ketchum, Gina & Sharp, should have been credited as follows:

Florsheim shoe store in Chicago (p. 65): Mielke & Smith, Architects, William Heintz, Consultant, Ketchum, Gina & Sharp, Consultant Architects.

The specialty shop in Bogota (p. 68): Henry C. Hudgins & Co. and Ketchum, Gina & Sharp, Associated Architects.

The Davison Atlanta store (p. 68): Harold M. Heatley and Ketchum, Gina & Sharp, Associated Architects.

Moreover, the unidentified modern store on FORUM's July cover was Wallachs in Jamaica, N. Y., by Ketchum, Gina & Sharp.—Ed.

Forum:

We wish to congratulate you on this excellent article. . . .

LEE C. MIELKE
Mielke & Smith, Architects
Chicago, Ill.

Forum:

. . . The article was excellent.

WALTER HOVING, *President*
Bonwit Teller
New York, N. Y.

KUDOS

Forum:

We were pleased when you selected Norfolk as the subject for your first full-scale article on redevelopment under Title I of the Housing Act of 1949 (FORUM, May '50). . . .

You were vigorous and searching in assembling the data for this article, but evidenced a desire to be objective and at the same time give every consideration to the local viewpoint. We think you did an excellent job of reporting; moreover, we appreciate the importance of your editing the story to make it suitable for national consumption. We feel that you accomplished this without destroying its local appeal. The finished product was a faithful and comprehensive description of the program. . . .

LAWRENCE M. COX
Executive Director
Norfolk Redevelopment and Housing Authority
Norfolk, Va.



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Now, for the first time, you can preview and *compare* tile installations, with The Color Book Of Tile!

Save your time and effort. Here are 53 color pages to simplify specification of complete installations; to help you select wall and floor tile, strips, inserts and accessories. At last clients can visualize

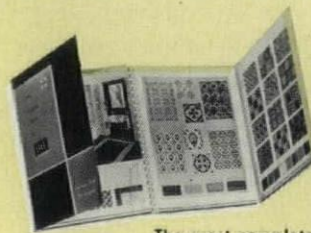
the finished installations with exact scale, full color illustrations, and with side-by-side comparison of alternate treatments.

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The Color Book of Tile



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(Continued from page 16)

appalled at the appearance of the 2,000 unit garden apartment project abuilding in their midst. As row after row of drab, barracks-like facades fell precisely into place, local bus drivers rolling past the building site took to chanting "All out for Camp Shanks!"

When Owner-Builder Joseph J. Brunetti applied for his occupancy permit, the Mayor and Town Council insisted he make the dreary-looking development more palatable. Though not compelled to (the town fathers had no legal grounds for withholding his permit), the builder readily agreed to hire a color consultant to do a cosmetic job on the buildings. Daubing luscious colors like coral, banana yellow and forest green, in integrated fashion, over the doors and shutters of the structures, Colorist Beatrice West brought needed variety to the first thousand units.

On the second group she changed a few specifications to include six different shades of wood shingle (instead of the one lone gray) to complement the bright trim colors. Delighted with the rainbow treatment, Mayor George E. Batterson said: "I don't know if it's the pink, green or blue that does it, but the color scheme makes the project blend harmoniously into the community pattern." New Milford had made its own improvements on FHA Title 608 esthetic standards.

WASHINGTON

MILITARY HOUSING: The Wherry Bill works better with the kinks ironed out

After Congress took the kinks out of it a few months back, the Wherry Act military housing program began to spurt ahead. This is the scheme for enlisting the aid of private builders and lenders in the provision of rental housing around permanent military bases. FHA insures 90 per cent mortgages on apartments up to a loan limit of \$8,100 per family unit—a hike to \$9,000 is permitted in the case of individual houses. Determination of the amount and type of building required is left to military authorities.

Until Congress adopted some sensible changes in the law, builders had not been too anxious to participate. And they had a good reason for holding back. The way it worked, a post commander would invite bids on the basis of the most sketchy sort of information. About all he usually had in mind was the number of units he wanted and the top rental range. Frequently the builders felt that the military authorities were expecting the impossible; wanted the equivalent of a campaign diet on a beer income when it came to housing for their junior officers and non-coms. But what gave them the biggest headache was the lost motion inherent in the plan. They had to

go to the expense and bother of preparing plans for a project even though only one of their number could receive the award.

Easier time. Under the modified version, builders have an easier time. The commanding officer of the post involved selects a private architect to work up suitable plans. Bids are then invited on the basis of these plans. The successful bidder reimburses the architect for his work and everybody is happy. There is not a lot of unnecessary duplication of work for builders and architects. The official plans in most cases result in a more practical type of project at lower costs since they are arrived at after careful consultation between military officials and the architect.

At the latest count, 10,800 units were under construction of which 2,280 were of the prefabricated type. This was considerably better than the 10 per cent earmarking for prefabricators that The National Security Resources Board had requested. Of course in the case of prefabricated construction, the normal routine of having architects prepare plans is shelved. Instead, the prefabricators or their agents bid directly.

Not final. But while the armed forces were leaning heavily on the Wherry Act program, they did not regard it as their final answer. There are still some 10,000 units approved by the FHA that have not yet been started and another 30,000 in a less advanced programming stage. This

MATTHEW NOWICKI 1910-1950



On the last day of August a four-engined Constellation on its way from India to Italy crashed into the Egyptian Desert. Fifty-five persons were killed. Among them was one of the most brilliant architects of his generation in the U. S.: Matthew Nowicki, born in Siberia in 1910, educated in Warsaw, Poland, and Chicago, Ill., prize winner in the competition for the Polish Pavillion for the 1939 World's Fair, teacher in Poland's wartime underground University, his country's representative in 1945 and since on the U. N. Headquarters design panel.

Matthew Nowicki was an architect's architect. His infectious enthusiasm was matched only by the incredible speed with which he

transformed the most complex ideas into brilliant architectural reality. He was the kind of designer other architects like to call in because his very presence will electrify a whole drafting room: Eero Saarinen called on him to help design the new campus for Brandeis University; Wallace Harrison asked Nowicki to stay on—even if only on a part-time basis—to help solve some of the final problems in the U. N. General Assembly and Meeting Halls buildings; and whenever Matthew came to the Planning Office the paper would start to fly, and the most exciting sketches would materialize under his pencil at the rate of one every few minutes. When Henry Kamphoefner wanted

someone to help revitalize the School of Architecture at North Carolina State, Matthew was a perfect and obvious choice. When William H. Deitrick wanted someone to help design a new museum center and a gigantic stadium for North Carolina, Matthew Nowicki was again the ideal associate. And when Albert Mayer asked him to come to India to replan the capital city of the Punjab, Matthew decided that, somehow, he had to try to fit that in, too.

Matthew Nowicki was a young man in a great hurry, a young man who somehow knew that he had an awful lot of work to crowd into his lifetime.

construction will be facilitated in every way—it is exempt from the new tightening up on mortgage credit. But for the huge remaining volume of family housing required—estimates place it well over 100,000 units—the military authorities have another scheme up their sleeves. The idea involves more direct government financing with the FHA left out of the picture. "Subsistence allowances" given officers and higher non-coms would pay off the cost over a period—which in the final analysis is the way the Wherry bill works. Advantages claimed for the new approach: It is more direct, will result in lower rents, will provide housing in more remote installations where it is difficult to attract financing under the Wherry Act.

RENT CONTROLS: Woods hopes to bring them back

In the Congressional battle over how and when restraints should be placed on prices and wages, no one seemed particularly worried over whether the weak rent control law needed strengthening. One exception was California's Democratic Congresswoman Helen Gahagan Douglas who made an unsuccessful attempt to insert a stiff rent amendment when the bill was before the House.

However, Housing Expediter Tighe Woods was by no means asleep at the switch. Undismayed by the rebuff handed him by the Los Angeles city council which flatly rejected his appeal to reconsider its rent decontrol decision, he was unobtrusively preparing a new program. Late last month he had the necessary amendments whipped into shape for submission to Congress when the time was ripe.

Three actions. To help hold the line in the event price and wage controls are slapped on, Expediter Woods was proposing to do three things to his program: 1) Restore to federal control the large number of areas decontrolled by state or local action. 2) Suspend the operation of the local decontrol provision until the return of normal economic conditions. 3) Bring new areas under control where the impact of the accelerated defense program threatened to create a housing shortage. Apparently, he intended to overlook a fourth loophole that organized labor was already complaining about. This has to do with new construction which for the past several years has been entirely out from under the controls.

Actually, there is scant likelihood of any substantial hikes as far as this new rental housing is concerned for the reason that most of it—an estimated 80 per cent—was

financed under the FHA program. As long as a project is covered by its mortgage insurance, FHA keeps careful tabs on its rent schedules; requires the owners to obtain its permission before increasing or decreasing their charges.

Pertinent questions. For their part, spokesmen for real estate and property owner groups while inclined to regard some kind of a new freeze as inevitable during the mobilization emergency, were prepared to do battle over the details. One detail they suspected Woods of wanting to gloss over was the method of bringing decontrolled rents back to heel. Would the increases that occurred after decontrol be honored or would there be a roll back to the last official ceilings? Also, how would the rent offices go about determining the ceilings for new construction that has been allowed to freewheel in recent years if such housing were made subject to the new bill? These were a few of the pertinent questions being raised.

Some critics were disturbed over the prospect of the U. S. program ending up in the same messy situation that exists in England and other countries where a series of decontrol and recontrol orders have resulted in a hodgepodge: rents frozen on identical housing units at different levels regardless of the revenue needs of the owners or the ability of the tenants to pay. British landlords have long since given up hope of trying to get controls removed. They would be willing to settle for some codification. American real estate men fervently hope they are never driven to such an attitude of resignation.

SUBURBAN GROWTH has been a tidal wave, census reveals

As the task of tallying up the score for the 1950 census neared completion, one important fact was already clearly documented. Central areas had grown little, if at all since the 1940 count. Outlying areas, on the other hand, were chalking up huge gains, in many cases had more than doubled their populations. While the march to the suburbs is not a new phenomenon on the American scene, neither the Census Bureau nor most students of urban land economics had expected it to reach such tidal wave proportions.

For the building industry as well as most lines of business interested in consumer buying habits, the suburban spurt packs a lot of significance. It is a gross oversimplification to say that it means more building and more business around the edges of town; less in the center. For one thing,

there are signs that sleepy county courthouses are at last waking up to the bustle around them and are taking steps to cope with it. This has meant tremendous new public works programs to provide virtually every type of community facility—schools, water systems, sewage lines, fire and police stations, and highways. Also it has meant a facing of the issue that the exploiting type of builder had to be halted in his tracks—the kind who tries to pass on to the community all the expenses of developing raw land. Organizations of municipal and county officials have already reported a substantial growth in subdivision control laws. Existing statutes are being tightened up and new ones are being put on the books.

Equaling if not surpassing the outward flow of population has been the decentralization of downtown business centers. While it is true that the commercial cores of most cities have not actually withered, stores and shops have shown an increasing tendency to do their expanding in outlying shopping centers. In pondering the trend, municipal finance officials are becoming increasingly worried about keeping their budgets balanced. Tax dollars gleaned from residential and business property are being lost to the suburbs. But expenditures continue high since most suburbanites continue to use the city as a workshop—demand improved highways and parking facilities.

FANNY MAY becomes a member of Foley's growing family of housing agencies

Under the Government's equivalent for adoption proceedings, the Federal National Mortgage Association legally becomes a member of HFA Administrator Raymond Foley's family on September 9. From then on Foley will be the papa, make the final decisions. Actually, the need for FNMA's secondary market operations has somewhat lessened, due to changed conditions. The new credit restrictions have diminished the demand for government support of the market and Fanny May's purchasing has fallen off somewhat as a result. On the other hand, its sales have taken a spurt. This has increased its funds on tap to \$600,000,000, an amount officials believe will be ample to carry on the backstopping function without asking Congress to put more money in the kitty.

Named as the new President of FNMA is J. Stanley Baughman, formerly in the New York office of the HOLC. Robert Reed, general counsel of the agency, will become the Vice President, will also continue his legal duties. Allen Tyler will remain as general administrative assistant.

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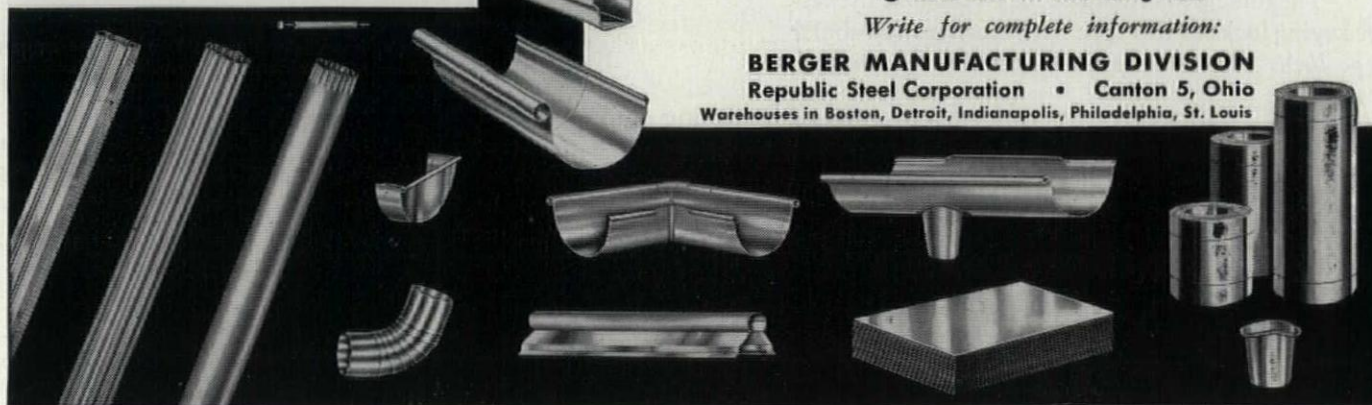
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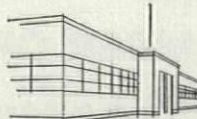
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REPORT FROM EGYPT by G. E. Kidder Smith*

Vaults, domes and arches of sun-dried brick construction characterize the new village of Gournah.

Photos: G. E. Kidder Smith

The most interesting architecture in Egypt—outside, of course, the powerful and shattering monuments of the ancient past—is the model village of Gournah across the Nile at Luxor, the Pharaonic Thebes, which is about 400 miles south of Cairo.

This village, now under construction, is being built so that the archeological zone which embraces the Tombs of the Nobles and other monuments can be evacuated of the native fellaheen who now live there. Gournah is about five miles to the east of the area to be cleared and will when finished (in about two years) provide housing for all the 8,000 to 9,000 people who are presently scattered in five clusters about the ancient monuments. By removing these people the government can turn all western Thebes into one vast open-air museum and carry on excavations which are now hindered by houses, stables and miscellaneous structures. Some of the present houses are even built into the tombs with obviously desecrating results. In addition, the local inhabitants have enjoyed first-rate opportunities to pilfer smaller objects from what has been their own backyard.

When the decision to transplant this population was first entertained, a discussion arose as to whether it would be preferable to give a cash outlay to the dispossessed or construct new houses for them. The majority of the people themselves wanted houses. Furthermore, as building costs had risen so much in the past ten years, it was thought additionally prudent to provide well-planned, sanitary new quarters, rather than pay out a lump sum of cash which could evaporate in too short order. Lastly, by planning an entire new village all at one time, housing could be carefully integrated with schools and markets, none of which are found at present in the five scattered communities shortly to be demolished.

The planning and supervision of all this new work was entrusted to a highly capable and sensitive Cairo architect, Hassan Bey Fathy. From the very beginning Fathy sought to understand the needs and problems of all the people he was to rehouse. At the outset he determined that one huge village of standardized units would not be acceptable to the people he must accommodate, no matter how ingenious the solu-

(Continued on page 64)



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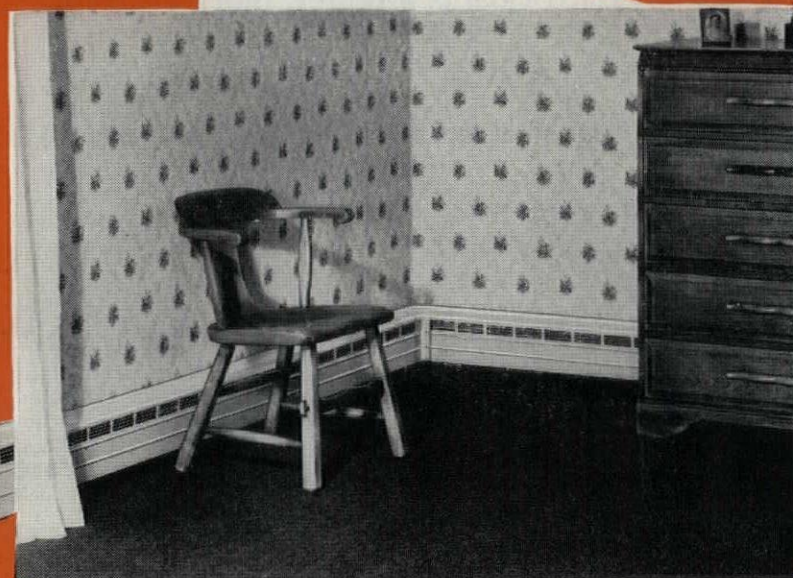
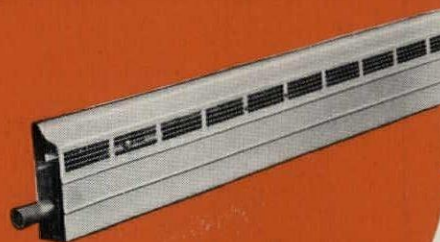
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* The fifth in a series of architectural impressions of European and North African countries, this is a report from Architect-Author-Photographer G. E. Kidder Smith, who is visiting these countries (with the aid of a President's Fellowship from Brown University) to study and photograph their native and contemporary architecture.



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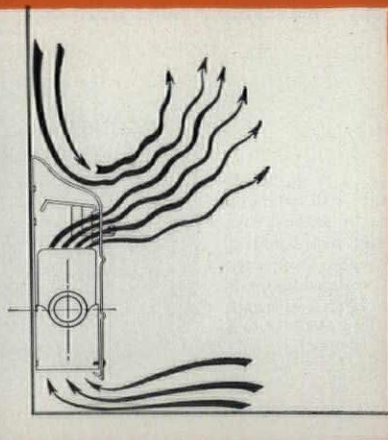


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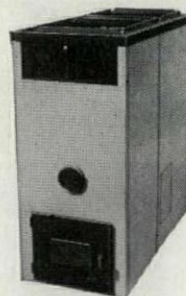
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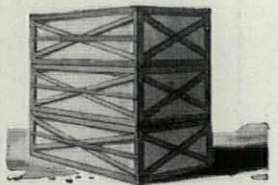


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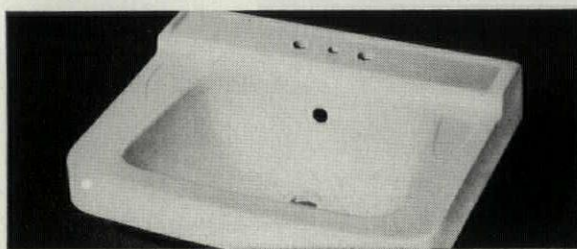
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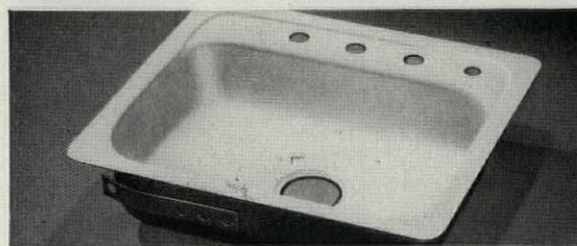
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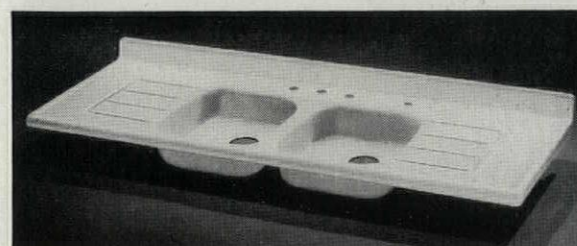
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View from house top shows roof terraces and interior courts which make up for absence of broad streets and yards in the planning of Gournah.

tion. As the people come from five separate hamlets with five separate leaders and are complicated by sometimes friendly (and sometimes fistic) rivalries, Hassan Bey laid out five separate neighborhood units in the Gournah plan. Each group of several thousand can thus maintain its own identity, yet be an integral part of the whole. Fathy has even gone so far as to put people next to neighbors *they themselves* select. The houses are furthermore largely planned to meet individual needs and preferences.

Virtually all the buildings at Gournah are built of sun-dried brick—exactly like the ancient temple walls and storehouses near the present hamlets. These brick, which are about 6 in. x 10 in. x 2 in., are made of Nile mud and chaff by workmen who turn out about 2,000 per man per day. They are baked by the brilliant Egyptian sun—a sun which rarely meets a cloud in these parts—and turned over every other day. In roughly two weeks they are ready to be laid. The walls of nearby Medinet-Habu have reliefs which show the near identical process and molds used for making this brick some 4,000 years ago.

The brick is laid on stone foundations dampproofed with bitumen. Concrete floors have been used for some units, but the architects are still looking for a more sympathetic material. A natural clay mixed with a fine chaff is used as a stucco to cover the brick, its pleasant buff color harmonizing well with the architecture.

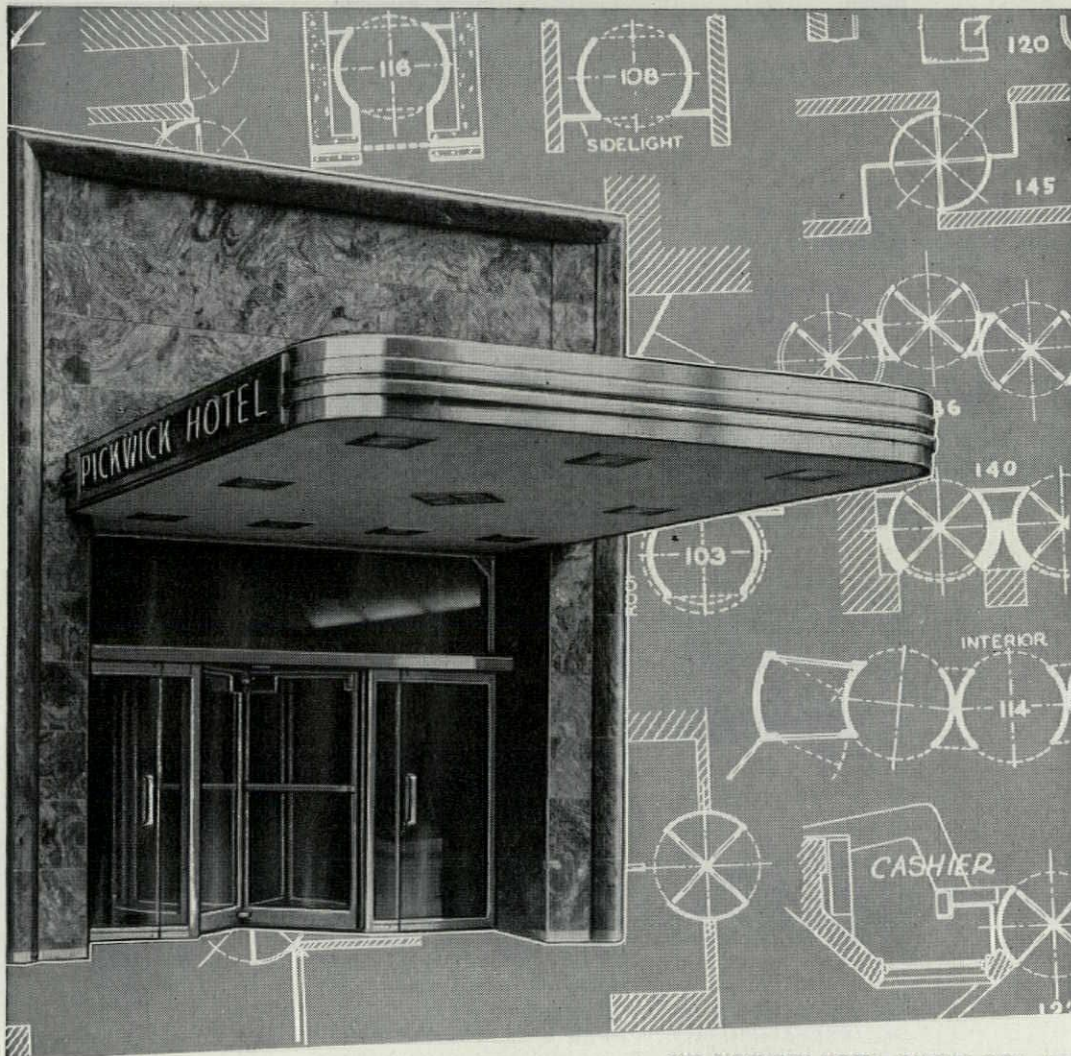
In planning both the village and the houses, great care had to be taken to introduce as much housing progress and give as many advantages to the people as possible without jerking their only possession—stability (i.e., tradition)—from under them.

In the layout of the village narrow streets were preferred because they are less sunny than wide ones. These streets are also less straight than found in the occident because the middle east prefers them thus.

In the layout of the houses much of the space that we in America would devote to broad thoroughfares is found instead in private courtyards, not public plazas. There are precious few houses in this part of the world which are built without courts, and it cannot be denied that a house built around even a small private green has a delightful air.

The main living room of the houses is oriented to the northwest breeze and this is often planned with an entrance only from the court or outside vestibule so that the head of the family can entertain his male

(Continued on page 70)



THE PICKWICK HOTEL, KANSAS CITY, MO.
Architect: Sigmund H. Sieben

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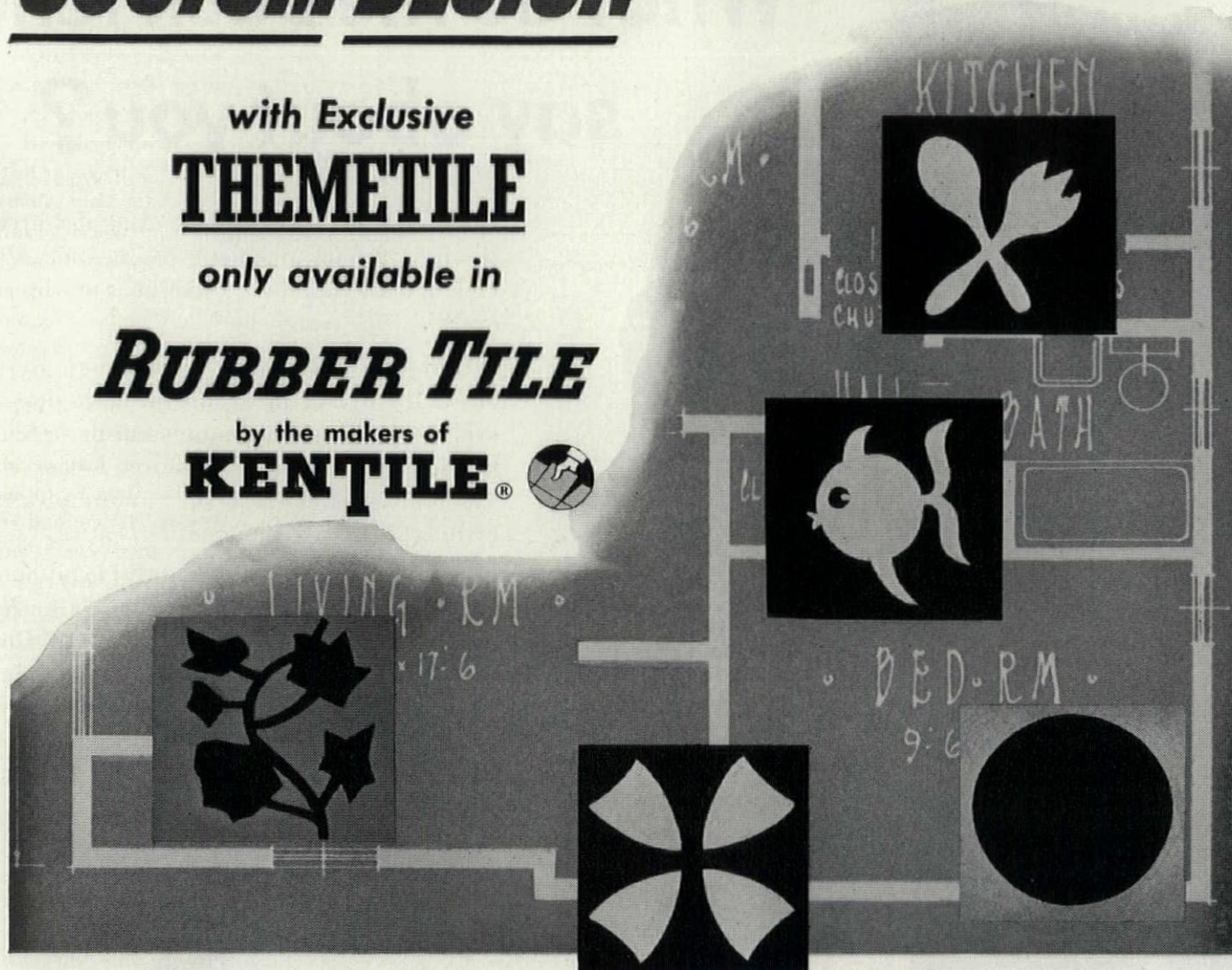
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Rubber Tile by the makers of Kentile offers your clients every practical advantage of long wearing "cushioned beauty" and easy maintenance. Dirt and moisture cannot penetrate... it resists chipping, cracking, marring... does not support combustion... will not dry out or become brittle through years of use.

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What do the back fences say about you?

One neighbor tells another. And the architect who specified Bryant automatic gas heating always rates high in those confabs . . . continues to win more clients over the back fences, too!

Customer satisfaction is built into Bryant equipment. It's drawn in by the product designers, kept safe by the finest automatic controls, retained by the heavier construction that assures longer service life. The user is better satisfied . . . more pleased with the architect who gave him *quality* heating.

Yes, and Bryant lends a helpful hand in other ways. The Bryant distributor offers a single source for most every type of gas heating equipment. He furnishes valuable engineering assistance, maintains an adequate warehouse stock. He stands ready to work with you on every job, from single installation to large project.

If you are interested in having what's said over the back fences mean more clients for you . . . *keep specifying Bryant heating!*



The most complete line of gas heating equipment in the nation

Bryant Heater, Dept. 226,
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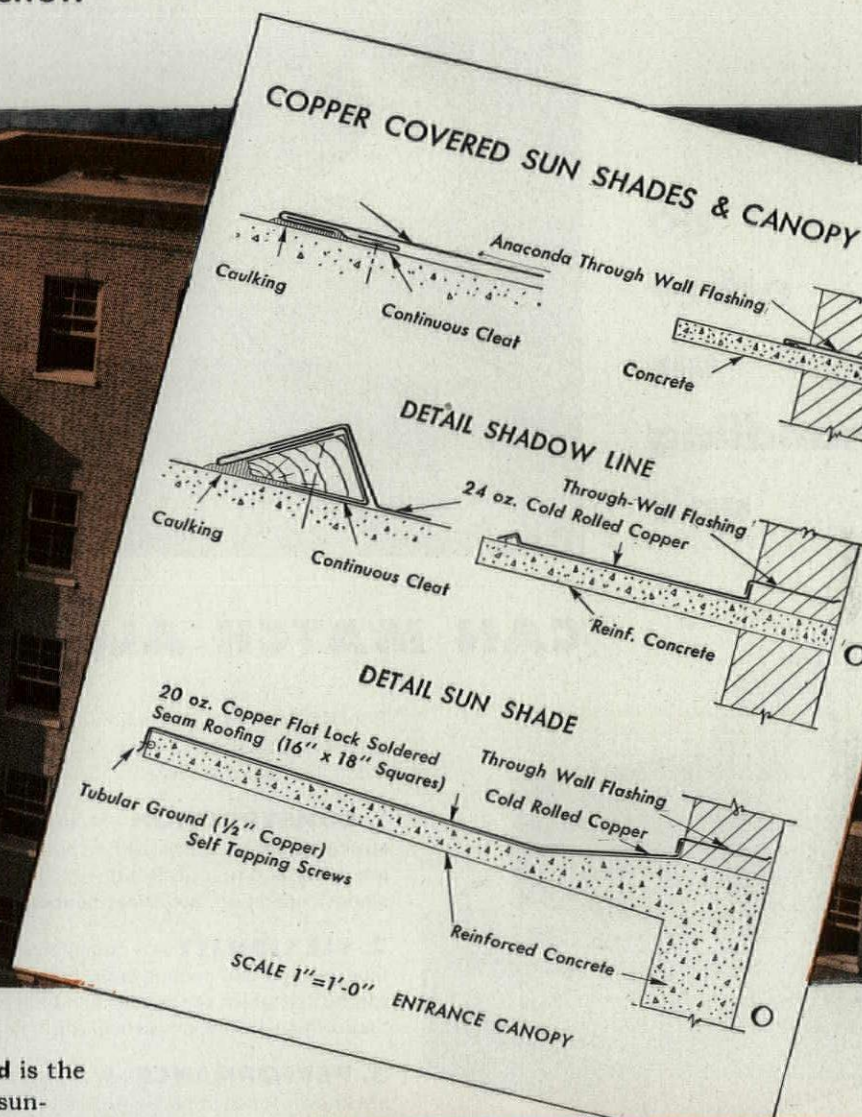
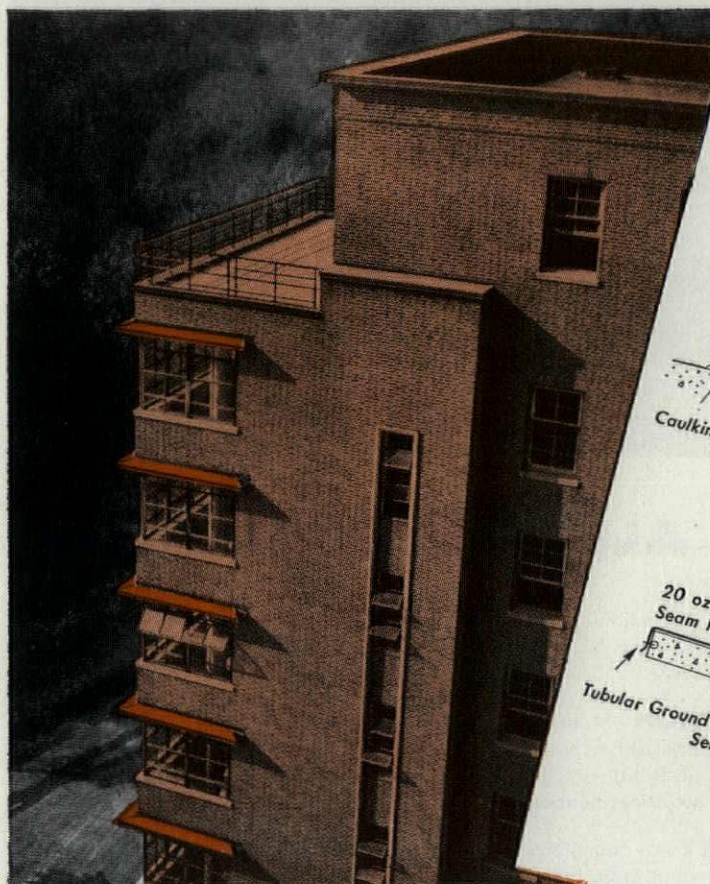
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the Bryant story. ☐ Have your distribu-
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on **COPPER** for better
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A new and interesting architectural trend is the use of copper-covered concrete slabs as sunshades over balconies and windows. This practice is detailed in the accompanying drawings. These details, on convenient 8½" x 11" sheets, are yours for the asking. Similar data, or any desired special information, on ANACONDA Sheet Copper, such as chimney or Through-Wall Flashing, gutters and various types of copper roofs, will gladly be furnished on request. Just send a note outlining your problem to The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass, Ltd., New Toronto, Ontario.

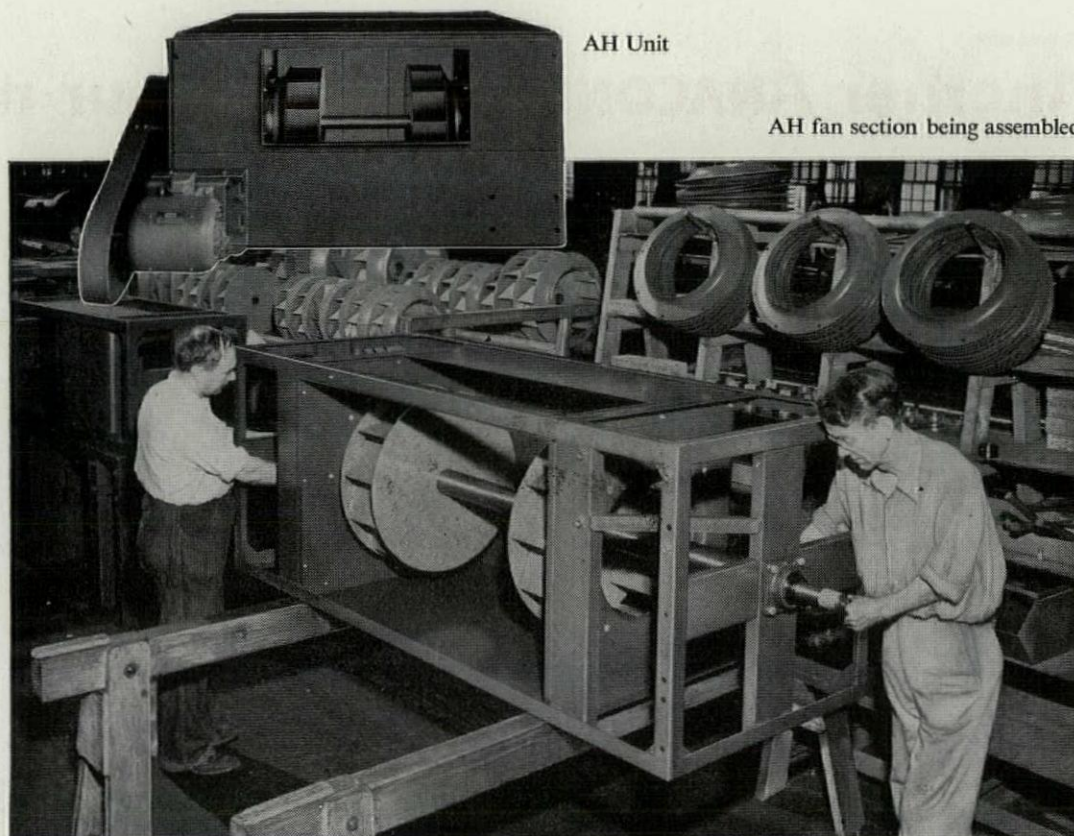
5004

PLEASE SEND ME ☐ copies of the copper-covered canopy sketches illustrated here.

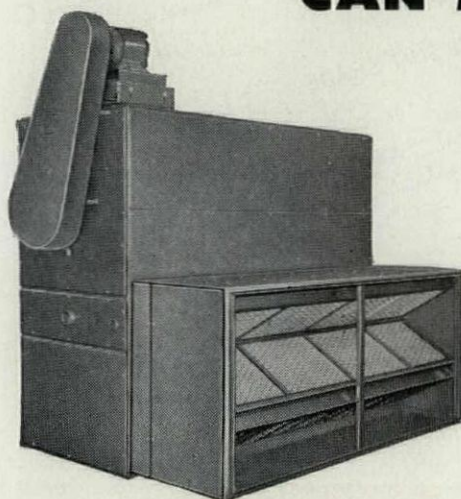
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You can build it better with **ANACONDA[®] COPPER**

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CAN MATCH ALL THESE FEATURES



AV Unit

Superior, rugged construction and sound engineering have brought wide acceptance to Westinghouse Air Handling Units. What's behind this record . . .

1. CONSTRUCTION—Sectionalized casings have welded, gusseted structural angle frames, half-inch rigid internal insulation. Rotating parts are heavy and rugged. Result—Non-distortion in shipping, easier assembly, smooth operation, better appearance, lower maintenance costs.

2. FLEXIBILITY—Westinghouse sectionally designed components—fans, heating and cooling coils, filters, mixing boxes, bases and drains—can be assembled for any air handling operation. Result—Installations "tailor-made" to your particular job requirements.

3. PERFORMANCE—Westinghouse Silentvane fan wheels are known for their stable non-pulsating air flow, silent operation, and non-overloading horsepower characteristics. Result—Long, trouble-free service life.

Behind these important features is the UNDIVIDED RESPONSIBILITY of Westinghouse for every major part. No other manufacturer today offers this "plus" value. For complete information on how Westinghouse Air Handling Units—either Type AH (Horizontal) or Type AV (Vertical)—will meet your needs, contact your local Sturtevant office, or write to Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Massachusetts.

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CONTOUR BEVEL
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**ORDERS ARE POURING IN FOR THE NEW
CONTOUR BEVEL SCORE LINE, MIRACLE WALLS by TYLAC**

Miracle Walls by TYLAC have long been the preferred prefabricated wall board with discerning architects, builders, and managers of buildings and rental properties everywhere—because they have always represented the ultimate in Beauty, Permanence and Economy.

But now, the new TYLAC, Contour Bevel Score Line, with its soft, smoothly rounded edge lines, add even greater, more lustrous charm and distinction to all interior walls—and the demand for this new and more beautiful TYLAC is increasing by leaps and bounds.

And, no wonder—TYLAC, with its 4 modern designs and 18 entrancing colors, plus the new Contour Bevel Score Line is beautiful beyond description—and yet it is so economical. It is quickly and easily installed on walls, ceilings, arches and recesses—and once applied to any wall, it is permanent and needs no refinishing. It's easy to clean, too—just an occasional wiping with a damp cloth and TYLAC is ever new and modern.

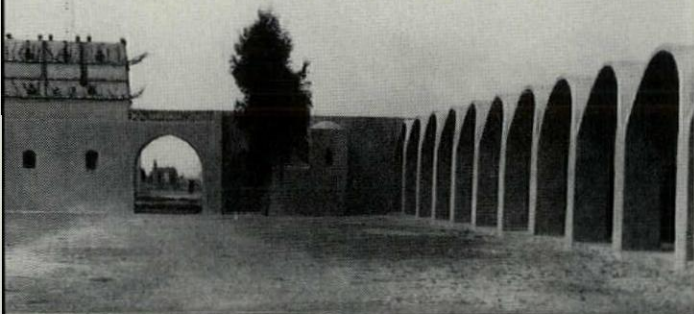
Use the new Contour Bevel Score Line TYLAC for every interior wall—especially where Beauty must be combined with utmost Economy.

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PERMANENCE
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TYLAC COMPANY MONTICELLO, ILLINOIS
PIONEERS IN THE PREFABRICATED WALL PANEL INDUSTRY



Gourni market features vaulted stalls at right, dove cote beyond gate at left.

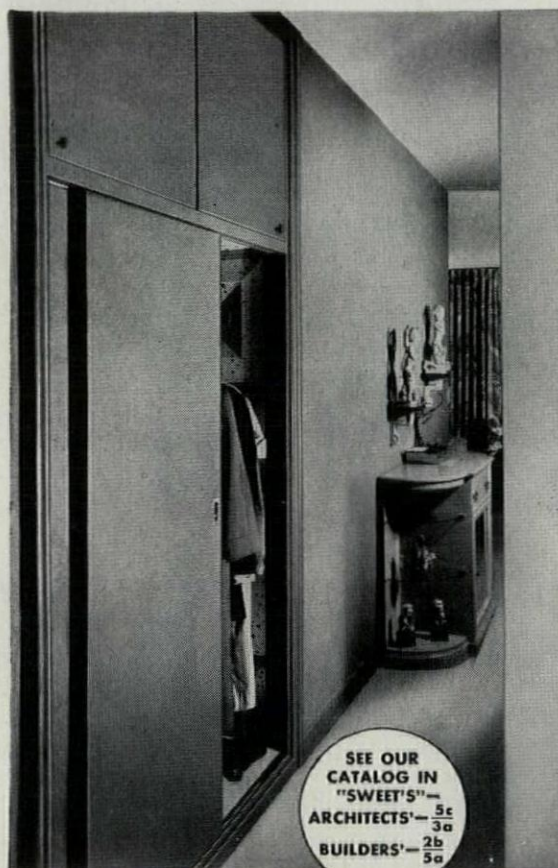
NOW MENGEL OFFERS 3 CLOSET PRODUCTS!

ONLY Mengel offers you this wide choice of products, for modern closet planning: (1) Complete prefabricated wall closets with sliding doors (illustrated), (2) closet fronts with sliding doors or (3) sliding doors and tracks only.

COMPLETE WALL CLOSETS. Provide an equal amount of storage at less cost, or more storage for the same cost as conventional wood-stud closet construction. For feather-touch operation, sliding doors are suspended on genuine ball-bearing hangers from an overhead track. Interiors have adjustable shelves, clothes rods and drawers (optional) which are easily rearranged to meet changing needs. Top compartments are ideal for semi-permanent storage. Units shipped KD with all parts fabricated and with all hardware included. Variety of sizes and models. Supplied either prime-coated for painting or in Birch for natural finish. *A brilliant, modern storage idea!*

PREFABRICATED CLOSET FRONTS. Identical to those in Mengel Wall Closets, hence provide many of the same advantages — *at very low cost!*

TOPFLIGHT SLIDING DOORS AND TRACKS. Exclusive Mengel construc-



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CATALOG IN
"SWEET'S"—
ARCHITECTS'—3c
BUILDERS'—2b
5a

tion guards against warpage. Overhead ball-bearing suspension guarantees smooth, trouble-free operation. Variety of sizes and models. *The greatest sliding-door value you can buy!*

All three Mengel products save space, are more attractive and easy to use, and permit better furniture arrangement than ordinary closet construction with swinging doors. And as the illustration shows, they permit closet installations in limited-space areas of a room. *Get all the facts, today!*

MAIL THE COUPON FOR COMPLETE INFORMATION

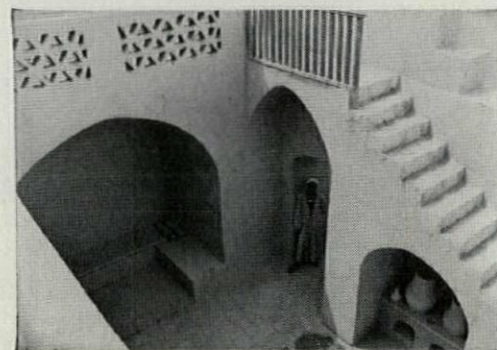
Cabinet Division — Dept. 8-F
THE MENGEL COMPANY
1122 Dumesnil St., Louisville 1, Ky.
Gentlemen: Please send me complete information on Mengel Wall Closets, Closet Fronts and Topflight Sliding Doors.

Name _____
Firm _____
Street _____
City _____ State _____

friends without distractions from the rest of the house. An open-air sheltered terrace is usually found on top.

Besides the problem of the dual entrance, the planning of the ground floor is further complicated by the fact that a fellah will not sleep away from his cattle. A place must therefore be found for them which will be sufficiently close for protection, yet sufficiently separate so that children will not get mixed up with the cows and their souvenirs and vice versa. Fathy has cleverly solved this by making a door from the stable area to the house proper wide enough for people but not for animals.

Inside the house all possible furniture is built in, from beds to cupboards. Special houses for weavers and similar trades have



Court of a typical Gourni house.

space so that these occupations can be readily carried on. Wool weaving is one of the main vocations of the villagers. Another (and vastly more entertaining one) is the making of imitation antiques!

The most interesting individual buildings are the special ones such as schools, apprentice shops, the mosque and market. These are superb expositions of vaulting made without centering. As the photographs of the school show, the wonderful structural unity which binds these buildings is only apparent before the stucco is applied. Here the indivisibility of wall, vault and roof is clearly apparent, the brick from top to bottom seemingly flowing over an invisible mold.

To make the unsupported construction of these vaults, the workman first smears a catenary shape on the wall against which the arch will be built. He then builds out the bottom of the arch with brick set on end until he has a cant which has no projection at the top of the arc against the vertical retaining wall but has perhaps as much as a foot at the bottom. He continues to build the vault from bottom to top, each course of brick being at an angle to plumb but parallel to his first course which abuts

(Continued on page 78)

it's new...it's better

an engineering
and design masterpiece by

Copco



architectural projected windows

ENGINEERED OF SOLID **HOT ROLLED** STEEL SECTIONS

Expert engineering and modern production methods combine to make Copco's new Architectural Projected windows the finest in America. Smart, slim lines and solid bronze hardware achieve modern appearance while maintaining functional quality. The solid steel, hot rolled sections are permanently joined through hydraulic riveting to assure lasting rigidity and a minimum of maintenance.

For offices, schools, hospitals, public or commercial

buildings, Copco Architectural Projected windows provide maximum light, controlled ventilation and protection from rain or drafts. Their modern appearance adds to the beauty of the building itself. A complete line, offering a wide selection of ventilator arrangements that open either in or out. Discover the reasons for the growing preference of Copco windows by leading builders and architects. Prompt deliveries are being made.

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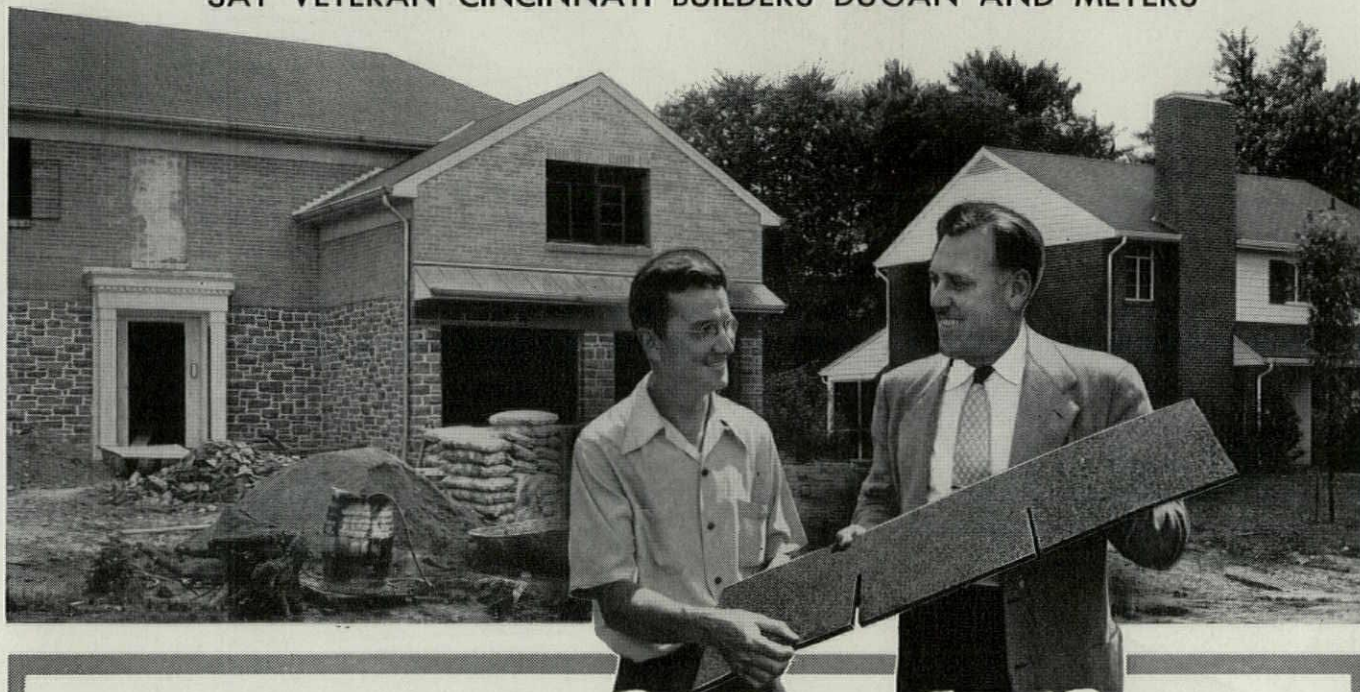
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7 OUT OF 10

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Greater Fire Safety—Actual U. L. tests proved that Carey Fire-Chex will resist a blazing wood brand 108 times larger than the size used to test Class C shingles . . . qualified these great new shingles for the highest possible fire safety rating—Class A by Underwriters' Laboratories, Inc.

Beautiful Copyrighted Roof Designs—Only Fire-Chex Shadow-Blend shingles can be laid in exclusive copyrighted shadow blend roof designs that cannot be duplicated! Available in blends of green, gray, red and blue—also rich solid shades in Velvet Black and Autumn Brown.

Years and Years More Protection—Tests under the roughest weather conditions dished up by nature—from sub-frigid cold to sizzling heat—prove that Carey Fire-Chex resist blistering, hail and wind damage far better than ordinary roofing materials.

What an array of "extras" to help you build **better for bigger profits!** See your Carey Dealer for samples and prices!

Fire-Chex Specifications:

12x36 inches—Square Butt 3-Tab—Headlap 2 inches—Exposure 5 inches—Weight: approx. 325 lbs. per sq.—Colors: Green, Red, Gray and Blue Shadow Blends. In solid colors, Velvet Black and Autumn Brown.

Please refer to Sweets Catalog for further information

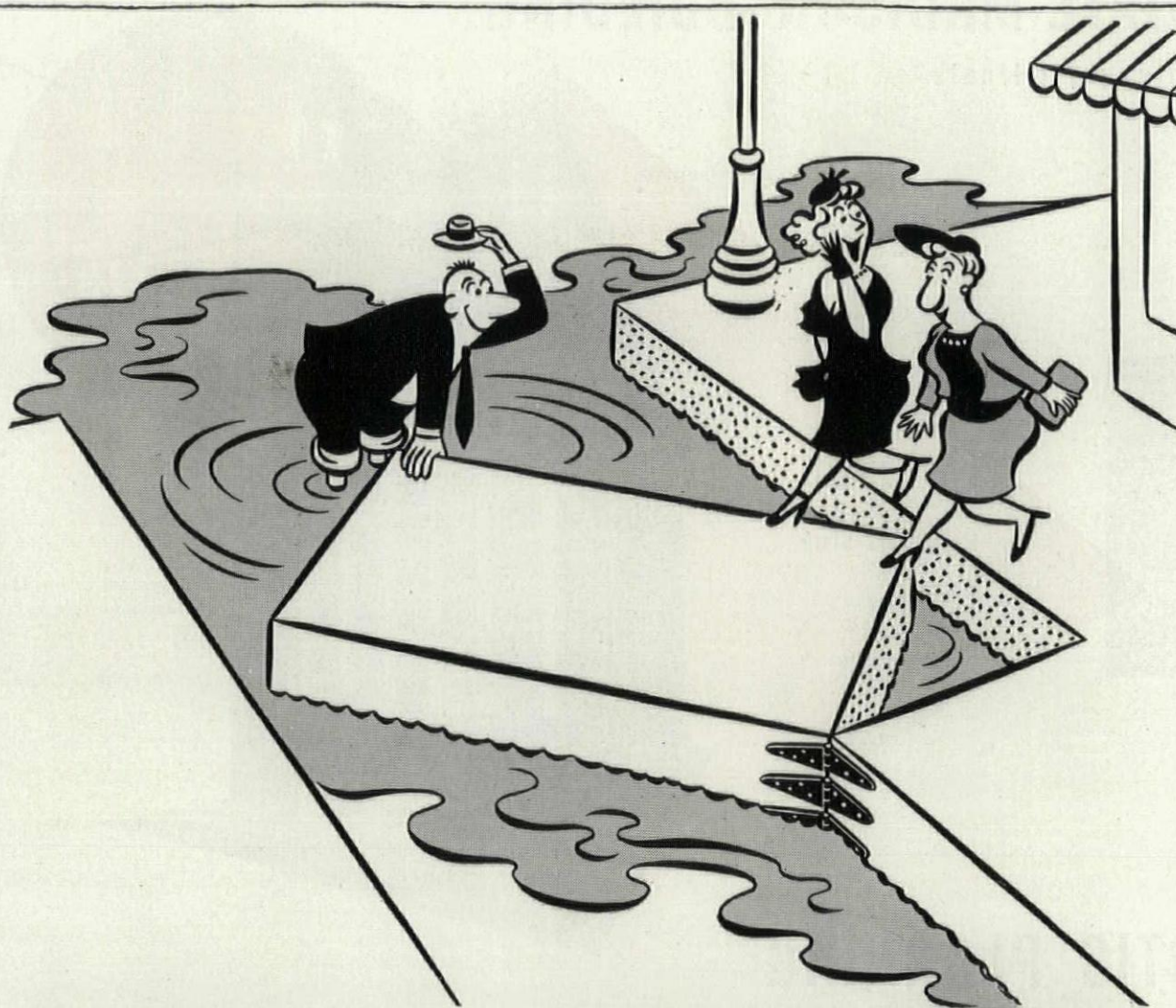
"You'll be pleased to know that Carey Fire-Chex asbestos-plastic shingles are the preferred roofing on the great majority of new homes we build. Once we tell folks the facts about Fire-Chex, and show samples of those beautiful blends and colors, no shingles but Fire-Chex will do. That's true even on jobs where it means spending a little more to get Fire-Chex, than for ordinary asphalt shingles. Naturally, we're sold on Fire-Chex. They run true to size—go on faster, give us more profit per job and provide greater satisfaction for our customers."

Jerome E. Meyers

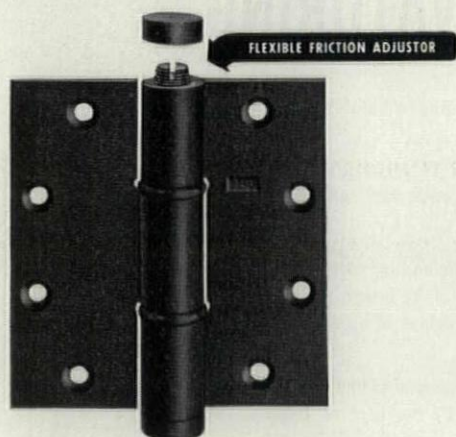
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EXTRA HEAVY FRICTION-TYPE BUTT HINGE
Available also with "Hospital-Type" rounded top ends
to prevent attaching ropes, wires, etc.

ELIMINATE NOISY, SLAMMING DOORS!

Exclusive flexible friction adjustor in the barrel of Hager Friction-Type Butts controls the friction exerted to just the desired degree. Proper adjustment of friction pressure prevents doors from slamming shut . . . holds them open to any desired ventilating position.

Removal of screw-type-plug at top end of butt provides quick access to the slotted pin. A few screw driver turns in one direction exert additional friction that retards the ease of door movement; several screw driver turns in the other direction eliminate friction . . . allow door to silently float back and forth.

Specify Hager Friction-Type Butts in hospitals or other buildings where quietness is either desirable or a necessity.

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Founded 1849—Every Hager Hinge Swings on 100 Years of Experience



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Chicago, Illinois



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from
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OTIS PLANNING helps make huge conversion a success with AUTOTRONIC ELEVATORING

Leo J. Sheridan, president of the company that conceived and supervised this major project, states, "There was never any guesswork about the elevatoring."

Otis engineers studied this project right from the start. They helped to determine that 11 AUTOTRONIC elevators, operating in existing hoistways, would make the installation economically sound and provide fast, efficient service.

"There was never any guesswork about elevator operation."

Otis designed and built this installation complete from pit to penthouse. Management and architects alike were confident of its successful operation—because they knew that every detail was being carefully integrated for over-all performance. Further, all construction was completed ahead of schedule. There were no delays in occupancy because of elevator service.

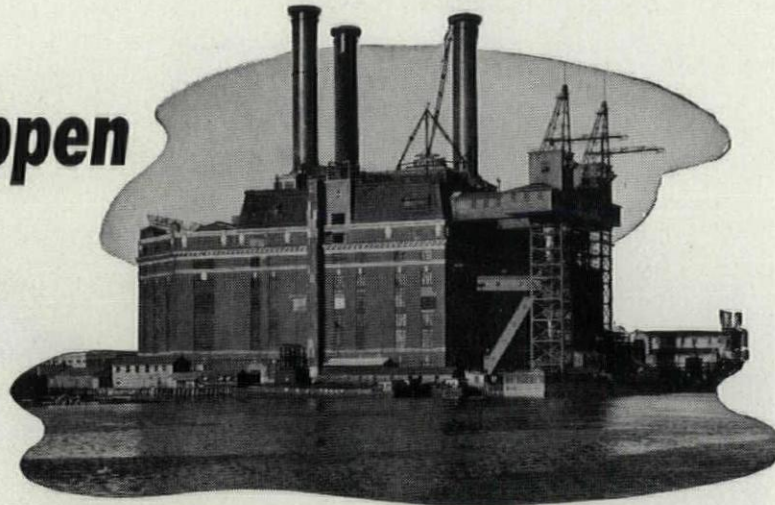
AUTOTRONIC elevatoring, with its automatic supervision and 6 basic traffic patterns, is providing the State-Madison Building with the same fast, dramatic 'touch button' service that is being featured by the best of today's new buildings.

Otis will be equally happy to remove all guesswork from your vertical transportation problems. And without obligation. Contact any of our 263 local offices. Otis Elevator Company, 260 11th Avenue, New York 1, N. Y.



AUTOTRONIC
Traffic-Timed
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How much can happen to a roof... in 37 years?



MONEL ROOFING SHEET • MONEL ROOFING SHEET • MONEL ROOFING SHEET • MONEL ROOFING SHEET • MONEL ROOFING SHEET • MONEL ROOFING SHEET

You know the beating most industrial roofs take. And the roof on this waterfront plant is no exception.

There's constant dampness. There's blistering heat during summer, and icy winds in winter.

The Sherman Creek Station of New York's CONSOLIDATED EDISON COMPANY receives and burns tons of bituminous every 24 hours.

Yet—in 37 years—all these destructive forces have had little effect on the MONEL® used at this plant. Installed in 1913, the Monel roof surfaces, coal hoist siding, downspouts, flashings and skylight frames are still in good condition.

This trouble-free record is no surprise to men who know metals. They'll tell you Monel has *corrosion fatigue resistance*. And that's what makes it practically a "life-of-the-building" material.

Just look at the properties of this $\frac{2}{3}$ -nickel, $\frac{1}{3}$ -copper alloy! It is stronger and tougher than structural steel. It resists severe stresses... wear and abrasion... corrosion by practically all alkalis, most acids, salt air and water.

Because of its low coefficient of expansion, Monel stands firm against strain and flexure. There's less creeping and buckling—and no cracking.

In short, nobody needs to worry about what's happening to Monel roofing. When you specify Monel, your clients get long-lasting, trouble-free roofing.

And they get it at a cost that is within range of even a moderate building budget. First — because the greater strength of Monel makes it safe to use lighter gauge sheet. Second—because the easy workability of Monel keeps installation costs low. (A roofing contractor's labor costs for Monel installa-

tions are no higher than for those of other quality materials.)

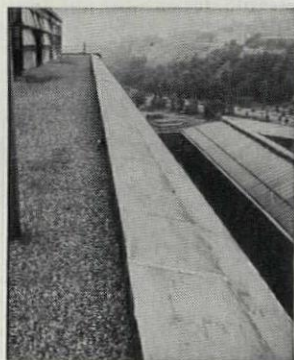
You'll find a full review of the characteristics, properties and advantages of Monel in our bulletin, *Basic Application Data—Monel Roofing Sheet*. In addition, there's a handy table that indicates how you can save your clients money by reducing gauges, a discussion of installation procedures, and a sample specification wording. Write us for your copy.

* * *

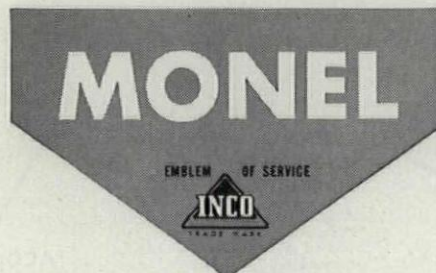
WHEN YOU NEED HELP ...

Remember INCO's Technical Service—always ready to give you specific information on contemplated uses of Monel Roofing Sheet. Samples, booklets for clients, soldering instructions and other helpful literature are also available. All without charge or obligation, of course.

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LONG-LASTING AND TROUBLE-FREE. Monel cap flashings installed on roof of Consolidated Edison Company's Sherman Creek Plant in 1913 are still in good condition.



...for the Life of the Building

THE INTERNATIONAL NICKEL COMPANY, INC.

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EXCELLENT CORROSION-RESISTANCE. Siding, roofing, gutters and leaders are Monel on the Sherman Creek coal hoist. The 37 years of service that this installation has seen have had little or no effect.



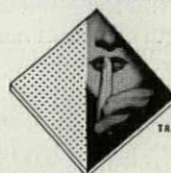
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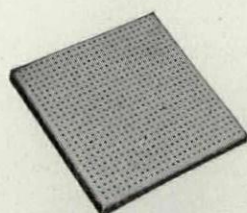
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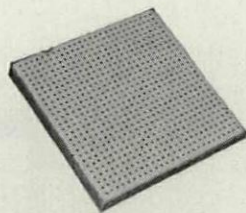
PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

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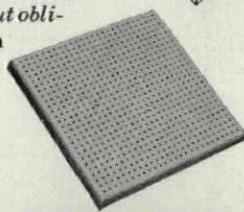
**ACOUSTI-CELOTEX*
CANE FIBRE TILE**

A lightweight, rigid unit, combining acoustical efficiency with a durable, smooth surface. Perforations (to within $\frac{1}{8}$ " of the back) assure repeated paintability, easy maintenance. Available in a variety of sound-absorbent ratings. Dry rot proofed by exclusive Ferox* process.



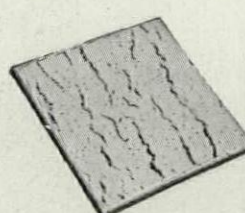
**ACOUSTI-CELOTEX*
MINERAL TILE**

Made of mineral fibre, felted with a binder to form a rigid tile with a universal rating of incombustibility. Perforated with small holes extending almost to the back, this tile provides high acoustical absorption plus unrestricted paintability by either brush or spray method.



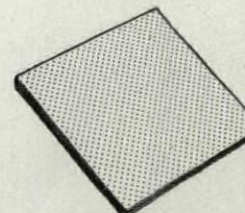
**ACOUSTI-CELOTEX*
FLAME-RESISTANT
SURFACED TILE**

A cane fibre tile with a flame-resistant surface. This tile meets *Slow Burning* rating contained in Federal Specifications SS-A-118a. It may be washed with any commonly used solution satisfactory for good quality oil-base paint finishes without impairing its flame-resistant surface characteristics and without loss of sound-absorbing capacity. Repainting with Duo-Tex flame-retarding paint will maintain peak efficiency. Supplied in all sizes and thicknesses of regular cane tile.



**ACOUSTI-CELOTEX
FISSURETONE***

A totally new mineral fibre acoustical tile. Attractively styled to simulate travertine. It beautifies any interior and effectively controls sound reverberation. Lightweight, rigid and incombustible, it is factory-finished in a soft, flat white of high light-reflection rating.



ACOUSTEEL*

Combines a face of perforated steel with a rigid pad of sound-absorbing Rock Wool to provide excellent sound-absorption, together with attractive appearance, durability and incombustibility. The exposed surface of perforated steel is finished in baked-on enamel. Acousteel is paintable, washable, cleanable.

*Trademark Reg. U. S. Pat. Off.

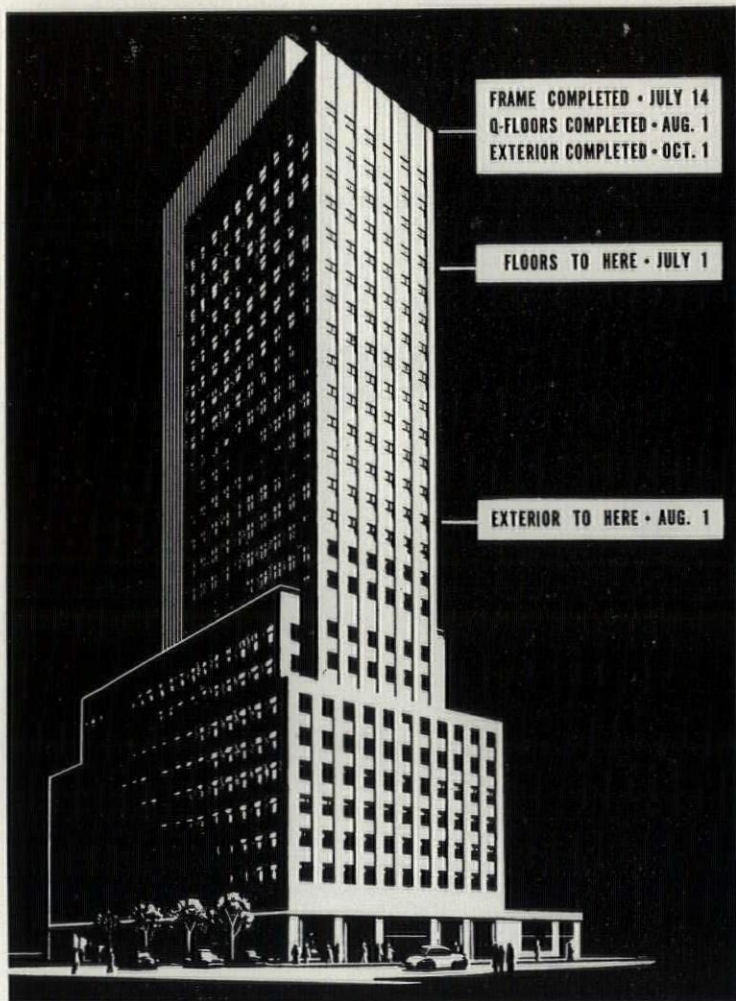
Story behind the story

in June 12th **LIFE** magazine

LIFE's story on the fast construction schedule being maintained at the Massachusetts Mutual Company's skyscraper home in New York City indicates that a new record in construction speed is likely to be set if the present pace is maintained.

LIFE's article does not attempt to explain the factors that are making this speed story possible. But they boil down to simply this:

1. Excellent job organization and co-operation among the sub-contractors; the contractor, Turner Construction Company; the steel fabricator, Bethlehem Steel Company; and the architects, Carson and Lundin.
2. The use of Robertson Q-Floor construction.



600 Fifth Avenue
 Owner—Massachusetts Mutual Life Ins. Bldg.
 Radio City, New York
 Carson and Lundin—architects
 Turner Construction Co.—contractor

Q-Floors have long since proved their ability to reduce construction time 15 to 20%. This is because:

- They are cellular steel sub-floors. Light in weight but extremely strong.
- They arrive pre-cut, ready to lay in place.
- Two men can lay 32 sq. ft. in 30 seconds.
- They are welded to the frame.
- They form an immediate working platform. Other trades proceed full speed, regardless of freezing weather, not delayed by wet materials.
- Sub-contractors store their materials directly on the floors, reducing costly extra handling. Streets are kept uncluttered.
- Forms and shoring are reduced simply to the need of fire-proofing.
- The floors can go in on the heels of the steel framework. Stairs go in right away; a distinct safety factor.
- Drafting room work is greatly simplified. Electrical outlets and partitions can be located *after* tenants move in. Elimination of pre-set inserts does away with the many revision drawings needed in old-fashioned construction.

This desire for construction speed is more than a publicity stunt. Every day of construction time saved can be counted in dollars saved by everyone concerned. Construction insurance and financing costs are reduced. The owner begins to capitalize on his investment sooner. That's why construction speed is desirable . . . it is money in the bank as well as a building in use.

Despite all this, Q-Floor costs less than the carpet that covers it! Q-Floor does not cost more, when all the intangibles (which do not show up on a contractor's estimate) are taken into consideration. Q-Floor saves time . . . saves money.

That's the story behind the story in LIFE.

Have You Read the latest Q-Floor Literature? . . . Write

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Cylinder Locks



1. one size mortise for all functions of locks



2. smooth, easy-mortise case



3. forged brass front with armored scalp



4. forged brass knob hubs



5. extra heavy long-throw latch bolts



6. first lock with reversible anti-friction latch bolt



7. extra heavy standard and long throw dead bolts with hardened steel inserts



8. balanced knob action



9. extruded or cold formed steel interior working parts



10. adjustable cylinder



Russell & Erwin Division,
The American Hardware Corp.,
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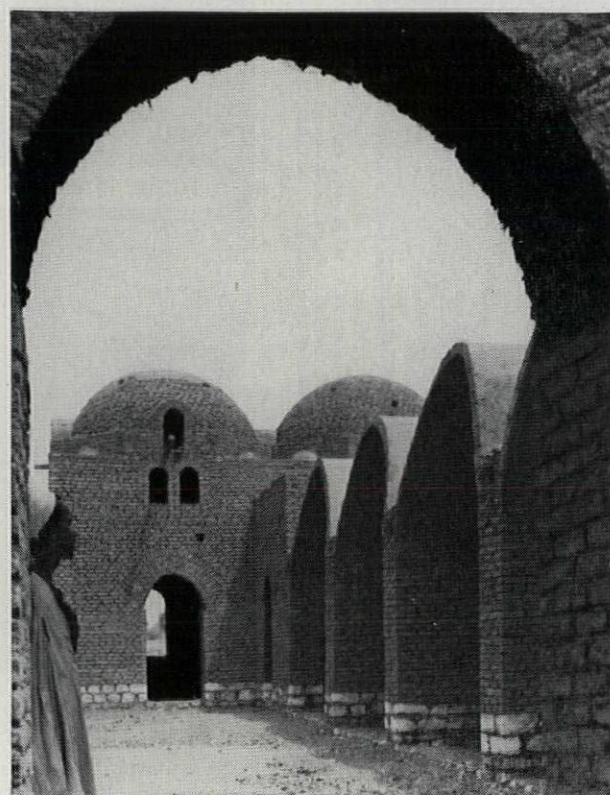
REPORT FROM EGYPT

the retaining wall. (This angle is apparent on the outside of the vaults of the market (p. 70) and school (below). To improve the adhesion of each course the brick used for vaulting has a finger-groove in the back, the groove creating a binding suction. The whole procedure is competent.

In this age of over-specialization and standardization, it is more than refreshing to find an architect who is willing (and able) to take the time to plan a village according to the needs and desires of its inhabitants, rather than producing serried ranks of identical shells. A genuine solution to a problem such as Gournah, one ticklishly complicated by local mores and prejudices, can only be found through the use of such considerate individuality. Though time consumptive, and more expensive, the architectural and sociological rewards are great.

* * *

Having lived for a week at the foot of the pyramids of Gizeh, I cannot refrain from a few words on these extraordinary constructions. There is an irrefutable, incontestable geometric rightness here: no quibbling, no questioning, no equivocation. And the pyramids, I feel, must always be considered in multiple, never as a single unit, for much of their effect depends on their inter-relation and spatial interplay—a play of solids and voids, sun and shadow, cloud and sand of immense impact.



School at Gournah

BEHIND THE BLUEPRINTS



CHARLES EAMES, familiar to millions as the designer of the molded plywood "Eames Chair," was born in St. Louis 42 years ago. Completing his architectural studies at Washington University and abroad, he returned to St. Louis to practice for six years before winning a Cranbrook fellowship. Recently, Eames has been occupied with the design of his California house (p. 90), with the Detroit Exhibition for Modern Living Show, with production details for his chair and a line of storage units.



LOUIS I. KAHN, architect of the Weiss House (p. 100), hails from Osel, Estonia. A graduate of the University of Pennsylvania (1934), he began his housing career with study in Europe (1928-29), organized the Architectural Research Group for the study of Housing & City Planning in 1931. Designer of a number of housing projects and co-author of the book, *You and Your Neighborhood*, Kahn this fall will be resident architect at the American Academy in Rome.



ROBERT STANTON is a well-known hospital and school architect with 7 hospitals and 14 schools now under construction. Many others are just coming off the boards (p. 118). After receiving his engineering (1923) and architectural (1933) degrees from the University of California, Stanton became a partner of architect Wallace Neff before opening his own office in 1935 in Carmel, Calif. **CHESTER R. PHILLIPS** joined Stanton in 1946 as an associate.



Canadian born **DOUGLAS HONNOLD** trained at Cornell and the University of California, hung out his shingle just before the depression. With the 1929 gloom he joined MGM, an experience which not only netted him house commissions for many famous Hollywood celebrities—Sam Goldwyn, Greta Garbo and others—but eventually led to such commercial projects as the United Artists Offices, Hollywood's famous Ciro's, The Trocadero and several other restaurants. (p. 134)

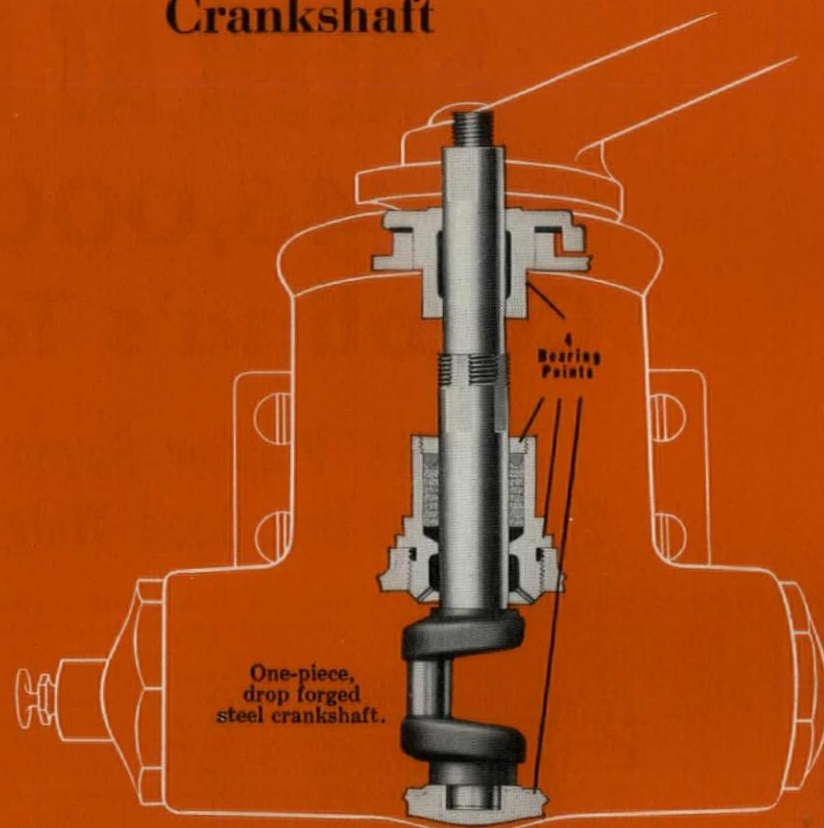


Architects **FRED J. MAC KIE, JR.** and **KARL KAMRATH** met while working in Chicago, though both were alumni of the same University (Texas). Returning to Houston in 1937 to form a partnership, their prize winning design of the Fire Alarm Building launched what is today one of Texas' leading architectural firms, among whose many outstanding accomplishments is an imaginative, triangular Art Center (p. 136).



The architectural quintet responsible for the Covington Showroom (p. 137) operates under the firm name **ARCHITECTS ASSOCIATED**. Its originators, Sidney L. Katz and Taina Waisman, expanded their partnership to include Joseph Blumenkranz, Richard Stein and Read Weber because they believed that collaboration by partners with varied educational backgrounds and points of specialization could evolve a sounder architectural practice. Design of the Covington Showroom indicates that this premise was valid.

Russwin Surface Door Closer with 4 Bearing Crankshaft



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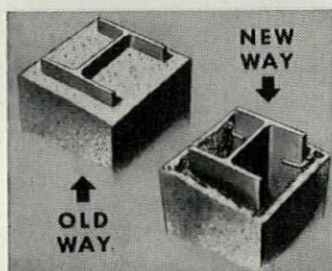
Every architect knows weight costs money. That's why so many hail lightweight Zonolite Vermiculite Aggregates for plaster and concrete.

The Cornell Arms Apartment building in Columbia, S. C., a 119-apartment, 18-story structure, has beams, girders, columns fireproofed with Zonolite plaster instead of heavy concrete. The saving in fireproofing materials for the beams and girders alone was \$30,147! In addition, 200 tons of steel were eliminated due to the reduction of dead load, an additional saving of \$16,000.

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Zonolite Vermiculite Plaster is only $\frac{1}{3}$ the weight of plaster made with sand. It saves time in preparation and clean-up, helps avoid costly construction delays. In one recent multiple-story building, Zonolite plaster used throughout, was instrumental in saving 86 days in construction time.

Zonolite plaster has attained fire ratings up to four times as great as sand plaster. Send coupon today for summary of fire tests, and details of how Zonolite Vermiculite Aggregates can save time, money and critical materials on your next job.



New method of fireproofing structural steel with Zonolite plaster slashes costs, speeds construction, reduces steel requirements.



Hoisting time was reduced 87% in Wire Building, Washington, D. C., because Zonolite Plaster Aggregate was used instead of sand.



The Cornell Arms Apartments,
\$1,500,000 Columbia, S. C. building,
Architects: Stork & Lyles; Bissett, Carlisle and Wolff.
Structural engineers: Johnson and Shand.
Contractors: Congaree Construction Co.



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Please send complete specification material on Zonolite Vermiculite Plaster, including summary of fire tests.

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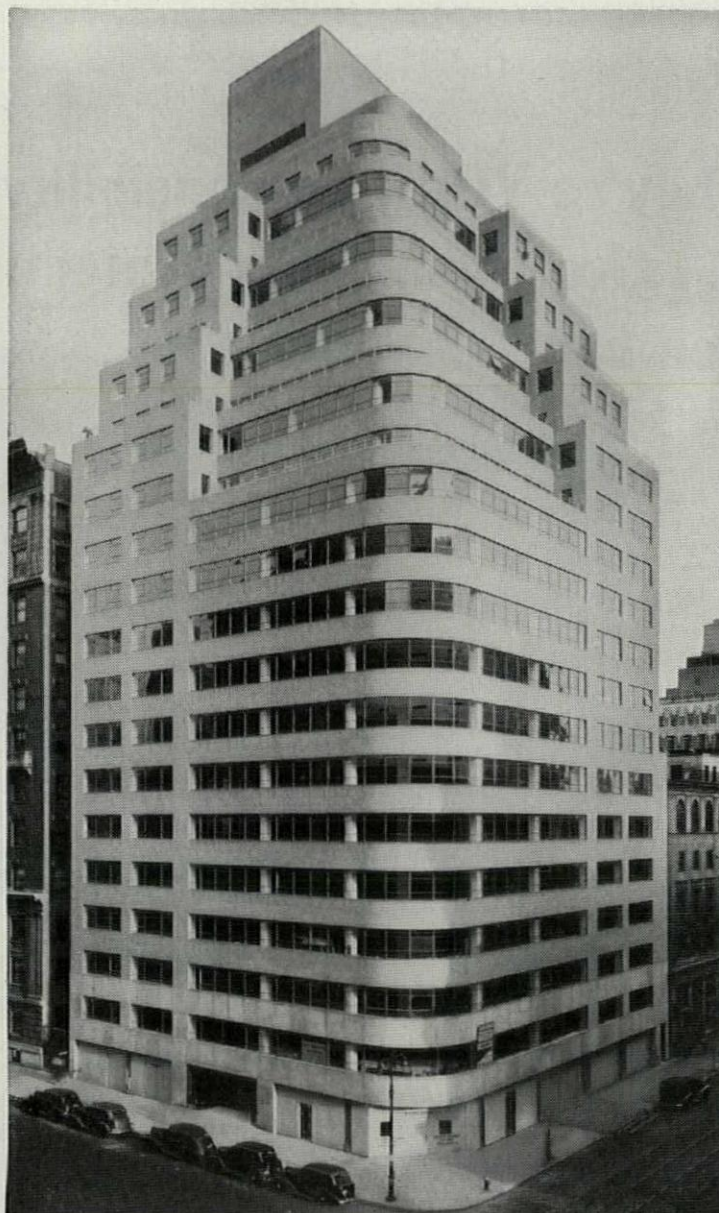
equipped with

KOHLER PLUMBING

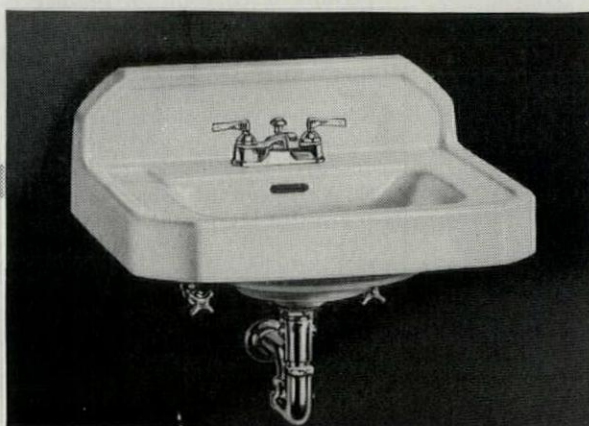
The new 505 Park Avenue Building, rising into the New York skyline, provides thousands of square feet of needed office space. Kohler plumbing fixtures and fittings equip modern washrooms, women's lounges, corridors and maintenance rooms.

This is one of the many important new building projects, including large housing groups, apartment, office and industrial buildings, hospitals, schools and other structures, for which Kohler plumbing has been selected. These major installations substantially confirm the Kohler reputation for excellence in plumbing products—earned through more than three quarters of a century of adherence to high standards of design, workmanship, durability.

Fixtures and fittings used in this Manhattan skyscraper include Greenwich vitreous china and Hampton enameled iron lavatories; Daybrook drinking fountains; Welland and Downing closets; Bardon and Stanwell urinals; and Bannon service sinks. Write for detailed information on Kohler plumbing suitable for any type of installation, large or small. Kohler Co., Dept. 19-P, Kohler, Wis.



Uris Brothers, owners; Emery Roth and Sons, architects; plumbing furnished by Glauber, Inc., Kohler distributor, installed by Wachtel Plumbing Co.



GREENWICH vitreous china lavatory, K-1955-C.

HAMPTON enameled iron shelf lavatory, K-2720-A.



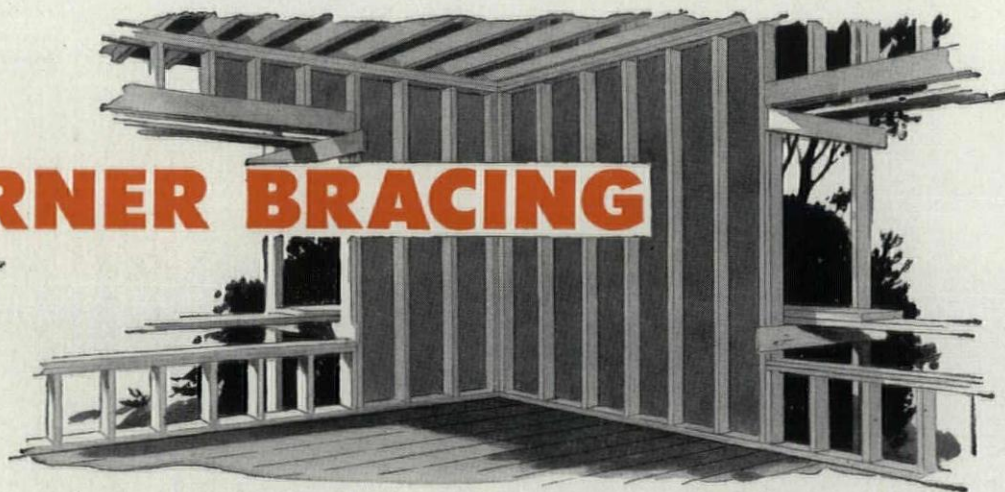
DAYBROOK drinking fountain, K-5335-A.

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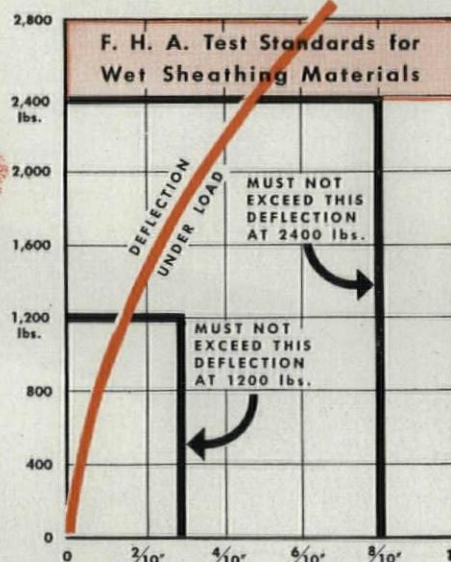
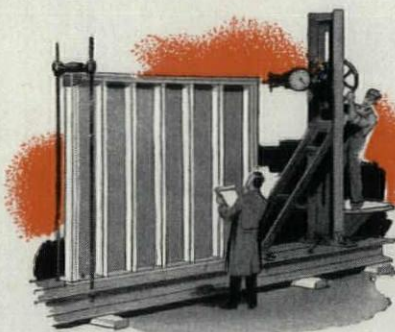


4 ft. **BILDRITE*** is the first insulating sheathing to meet requirements of F.H.A. without use of corner bracing

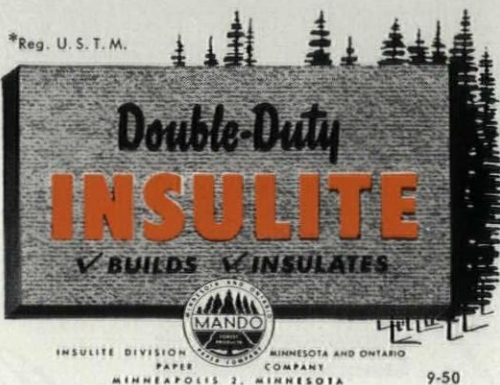
NOT only is BILDRITE the *original* asphalt impregnated insulating sheathing, but it is now the first to satisfy the rigid requirements of F. H. A. without using additional corner bracing.

F. H. A. standards require bracing strength equal to horizontal wood sheathing *with corner bracing*. Recent approved laboratory tests prove that 4 ft. BILDRITE *without corner bracing* is actually much stronger than that. Consequently corner bracing is no longer required when using 4 ft. BILDRITE on jobs under F. H. A. supervision.

In other words, you can now use BILDRITE without corner bracing and save from \$25 to \$50 per average house, plus the assurance of better wall construction because BILDRITE also insulates as it builds. Now, more than ever, BILDRITE is the best buy for quality construction at reasonable cost.



Test Chart tells the story.
BILDRITE far surpasses
F.H.A. requirements.



Racking tests in accordance with F. H. A. specifications were recently conducted by an independent laboratory using 4 ft. BILDRITE in 8'x8' panels of standard wall framing without corner bracing. F. H. A. required that the deflection of *wet* sheathing must not exceed 0.28 inch at 1200 lbs. pressure and 0.80 inch at 2400 lbs. pressure.

The red line on the chart shows results of test. Note that BILDRITE stayed well within these limits . . . without corner bracing! There was a 100% margin of safety at 1200 lbs. pressure and a 77% safety margin at 2400 lbs.

And remember, this was *wet* BILDRITE—sprayed with water intermittently for a total of 18 hours on both sides before the test! The *dry* tests (not charted here) were equally impressive—as you well know from the record of BILDRITE in practical use. For better wall construction at lower cost . . . Double Duty INSULITE BILDRITE SHEATHING!

Refer to Sweet's File, Architectural Section 10a/8



WINDOWALL shown is an Andersen Casement Picture Window Unit in home by Long & Thorshov, Architects

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See Detail Catalog in Sweet's Architectural and Builders' Files, or write us for further information. The complete WINDOWALLS Tracing Detail File will be sent on request to architects and designers at no charge. Andersen WINDOWALLS are sold by lumber and millwork dealers.

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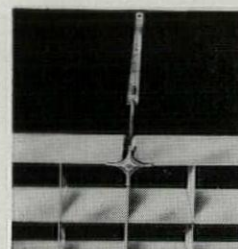
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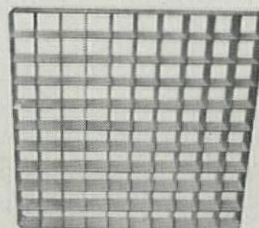


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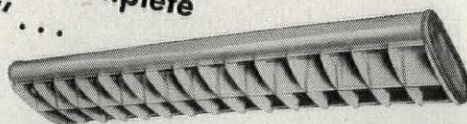
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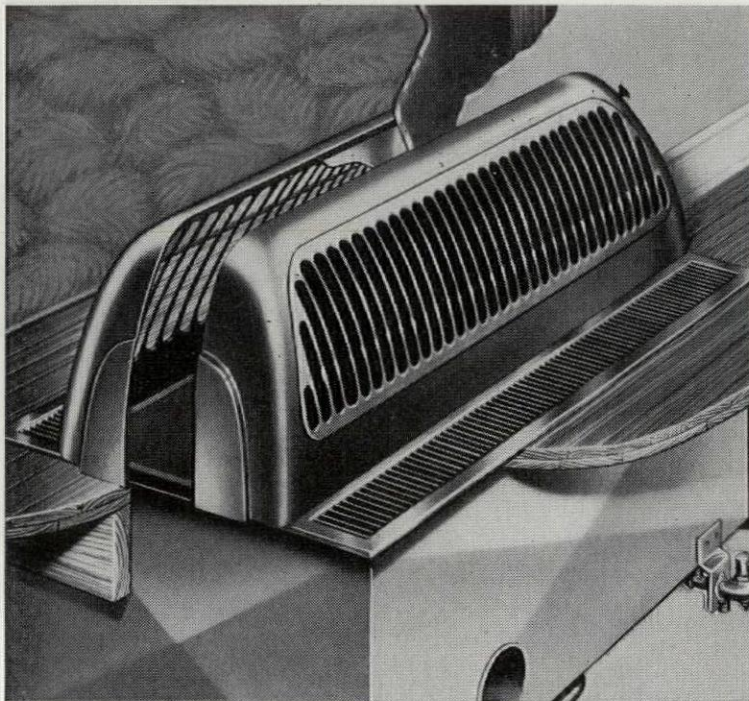
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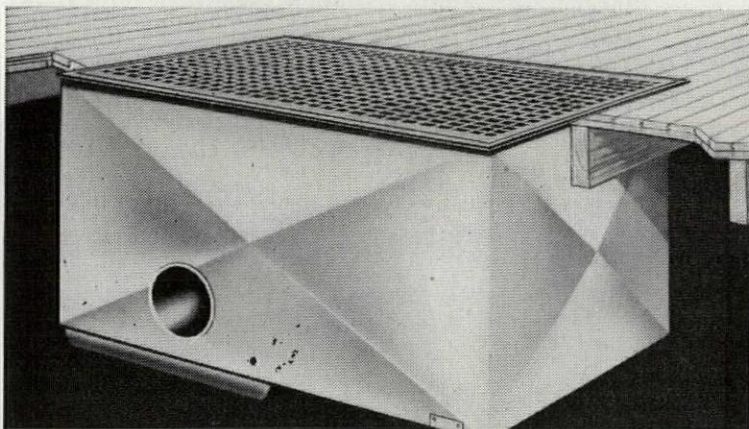
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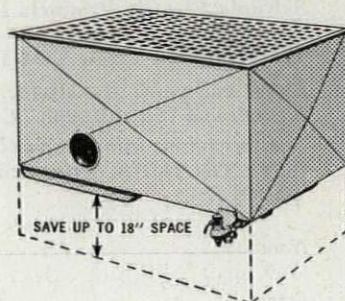


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FLAT REGISTER MODEL lies flush with floor. Easy and economical to install!

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The little furnace with big-furnace heat! So shallow it saves up to 18" on depth. It's flood-proof to 19" below floor. Though small, it has the dependable heating efficiency for which the larger models are famous.

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ECONOMICAL FOR BUILDER AND BUYER—The modern low-cost heating unit that keeps costs down. The Coleman Floor Furnace fits in the floor and gives clean, silent, economical heating. Installation is easy and low-cost because (1) No basement or pit is needed; (2) There's no expensive plumbing; (3) There are no air ducts. A Coleman makes and moves the heat for circulated warm air through 4 to 5 rooms, with a complete change of warm air 3 to 5 times an hour.



Saves space • Saves cost
COLEMAN'S
Handy GAS WALL HEATER

Fits in wall between upright studs; extends out only 3 3/4". Uses no room space. Ideal for slab-floor homes. A heater-mover that circulates warm air. A heater of many uses.



Also in Dual Wall model to heat two adjoining rooms at the same time.

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COSTS SO LITTLE
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Please send information on:

- ☐ Coleman Floor Furnace
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Coming Next Month...

what can you do with an old building
to make it act like a modern building
to make it look like a modern building?

At the height of history's greatest boom in new construction, the biggest potential is still in the modernization market and that market will be covered by the October Magazine of BUILDING as it has never been covered before. We are devoting the entire October issue to

modernization...

because . . .

**For every new school being built,
there are 10 old schools that need modernization.**

**For every new office building being built,
there are 50 old office buildings that need
modernization.**

**For every new hospital being built,
there are 20 old hospitals in need of modernization.**

**For every new hotel being built,
there are 50 old hotels that need modernization.**

**For every new apartment house being built,
there are 10 old apartment houses in need of
modernization.**

First, we will examine each of the major new technological developments, without which old buildings are obsolete:

Air conditioning as it applies to old buildings.

Elevators of the modern high-speed, self-leveling type as they apply to old buildings.

Acoustics as it applies to old buildings.

Modern heating, plumbing, moving stairs, wiring, communications, exterior finishes, interior color and finishes, and lighting as they apply to old buildings.

We will present a series of actual cases with specific suggestions for:

Putting old school buildings in step with modern teaching methods.

Remodeling apartments and office buildings and hotels to meet the competition of the '50's.

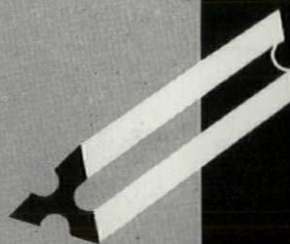
The practical things that can be done to bring old hospitals up to the standards of today.

In brief, here is the building industry's modernization handbook . . . bound to sell out quickly. Don't miss it . . . *next month.*

ARCHITECTURAL FORUM
THE MAGAZINE OF

Building

**\$100,000
NAHB
forum**



house design competition sponsored by the National Association of Home Builders and Architectural Forum the

**To improve the design
of builders' houses and
to interest more architects
in builders' houses.**

Of the 925,000 houses being built this year, roughly 70 per cent will be small houses, selling for less than \$10,000 to families of modest income. Most of them will be built and sold by the members of the National Association of Home Builders. They are the builders of the average American home for the average American family.

More often than not, this home is built with a minimum of professional architectural service, and its livability and appearance suffer accordingly. Responsibility for this unfortunate condition rests on both the architectural profession and the home builders—as has been frankly admitted by spokesmen for both groups on the pages of the Architectural Forum, The Magazine of BUILDING.

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American Gas Assn.
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special award sponsors

Douglas Fir Plywood Assn.
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Youngstown Kitchens by Mullins Manufacturing Corp.

purpose of competition

The purpose of this competition is to bring better design to the small house, including better use of space and materials; to bring architect and home builder closer together 1) by prompting and encouraging the architect to study the home builder's problems for their mutual benefit and the benefit of the home-buying public and 2) by demonstrating to the builder the advantages of good professional design.

It is also hoped that this competition will introduce the architect to the financial and social possibilities of a largely untouched field of design.

eligibility

The competition is limited to architects, designers, draftsmen and students who are residents of continental United States, except that Jury members and the employees and families of the Jury members and the various sponsors of the competition are not eligible to participate.

Magazine of BUILDING

the problem

Design a detached, one-family, low cost house suitable for a 60 x 100 ft. lot. It must have three bedrooms, no basement and a floor area of 1,000 sq. ft. or less. Its design and construction must meet general FHA and VA requirements and use only materials which are commercially available.

Competitors need submit only a floor plan, a perspective, several small elevations of the house and a site plan—plus such detail drawings as they may choose to make.

basis of awards

Awards will be based 1) on the functional layout and esthetic appearance of the house design in combination with its solution to the problem as detailed in the program and 2) on the extent to which the following desirable features are considered: contemporary design, ease and economy of construction, imaginative use of materials, use of standard material sizes, suitability for repetitive construction, acceptability by the home-buying public.

Awards will be made primarily for the thinking behind the designs, with skill in presentation considered only insofar as it renders the design ideas clear and concise.

This competition has been approved by
The American Institute of Architects

Contestants must register (coupon, right) to receive the program which will include further details of the competition. This is an announcement only; conditions governing the competition and the awards are set forth in the program.

up to \$100,000 in awards

national awards

First prize	\$7,500
Second prize	5,000
Third prize	2,500
Fourth prize	1,000
Nine honorable mentions of \$500 each	4,500

\$20,500

regional awards—seven regions

Seven first prizes of \$750 each	\$5,250
Seven second prizes of \$500 each	3,500
Fifteen honorable mentions of \$250 each	3,750

\$12,500

special awards

Three series of Special Awards will be made for the best handling of various phases of the house design and the best use of various materials. (Details will be announced in the program.) Each series of Special Awards will include the following:

First prize	\$2,500
Second prize	1,500
Third prize	1,000
Fourth prize	500
Ten honorable mentions of \$250 each	2,500

\$8,000

Three such series of Special Awards will bring the total for this classification to

\$24,000

local awards

NAHB expects many of its local chapters to tie in with the national competition by offering Local Awards of \$500 to \$1,500 to local competitors submitting their entries simultaneously to local competition sponsors. More details of these local competitions will be announced in the program and in local newspapers.

Anticipated Local Awards.....up to **\$43,000**

Since a contestant may win one National Award, one Regional Award, and one award in each of the series of Special Awards, it is possible for one contestant with a single entry to win as much as \$15,750.

The competition closes December 15, 1950.

Carl G. Lans, Professional Adviser
c/o Architectural Forum, The Magazine of BUILDING
9 Rockefeller Plaza, New York 20, N. Y.

I intend to enter the NAHB-FORUM House Design Competition. Please send me the program, including the conditions governing the competition and the awards.

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firm (if any) _____

address _____

city _____ state _____

architect designer draftsman student?

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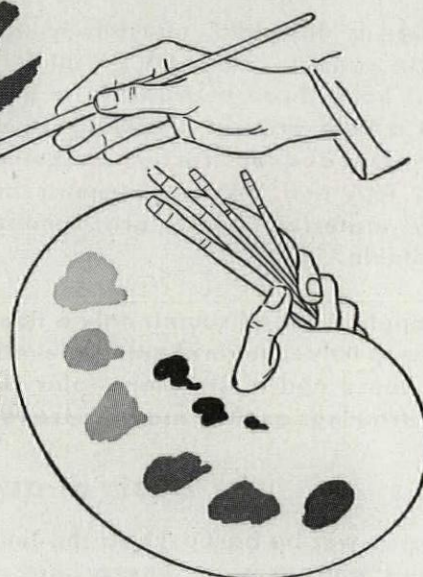
FRUCHTER

**GIVE
YOUR
CLIENTS**



Style and Color
...with this

NEW FLINTKOTE SIDING



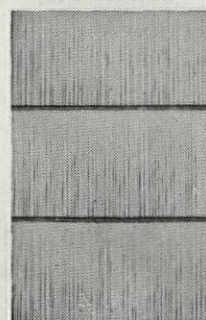
Give clients something new. Specify the sensational new STRI-TEX . . . Flintkote's newest development that gives Asbestos-Cement Sidings a *textured, colorful* beauty that adds a world of charm to any building.

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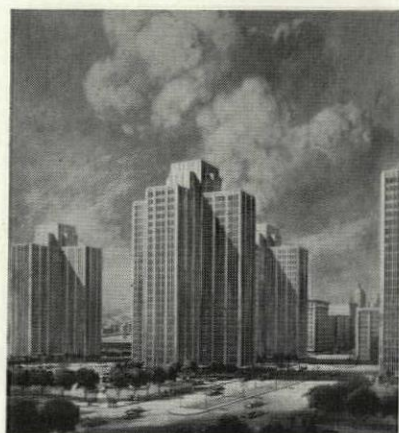
Pittsburgh and the architects' problem

What more could a great architect have done with the Golden Triangle development in Pittsburgh?

No one will ever know, for no architect was called in until the basic pattern had been set and there remained only to space the towers, landscape the grounds, vary the heights within narrow limits, detail the fenestration, "clean up" the design.

The end product is shown on page 129. The basic concept of big city office buildings widely spaced in a 23-acre park is indeed noble—the first realization of Le Corbusier's generation-old dream. The cruciform plan permits large compact floors (prime need of large corporations) of 100 per cent prime space. The fenestration and the honest placing of the columns are fine for both layout and flexibility. The all-metal skin with its 4 in. backup assures a long advance for curtain walls. The exterior is clean, honest and reasonably handsome. What then is lacking?

The answer is that imaginative something that only a great architect *working with the planners from the very start* could have contributed—the inspiration to make the whole greater than the parts, the creativeness to make the buildings really sing.



Peter A. Juley & Son

The Triangle Tip is the work of one of the greatest builders America has yet produced, Andrew Eken; of one of our two or three top real estate men, Robert J. Dowling; of one of our two or three most liberal-minded insurance companies, the Equitable. It stopped short of greatness only because the whole powerful team was on the practical side of the wagon pole, seemingly unconscious of its need for an equally powerful architect hitched on the other side.

Perhaps no other project dramatizes so clearly the problem of the architect at mid-century. He has still to convince too many builders (like Eken), too many building managers (like Dowling), too many owners and lenders (like the Equitable) that he can contribute something more important than last-minute dolling up, that he can understand their practical problems even though they sometimes fail to understand his creative ones, that he can help them create buildings that look better, work better, pay off better, and live longer.

Even more than in factory construction this architects' dilemma is pointed up by the schism in the office building field, where such architect cynosures as the U.N. Secretariat and Lever House seem completely impossible and impractical to most building owners and, conversely, the cruciform towers in Pittsburgh, which many building owners consider the finest office space in America, draws architect comment at once bitter, belligerent, and scornful.

Only Mr. Rockefeller, who paid four very tough building managers \$100,000 a year apiece to work with his all-star team of architects (Raymond Hood, Harvey Corbett, Wallace K. Harrison, et al.) succeeded in getting a building mecca as practical as it is beautiful and exciting.

The answer to this problem certainly is not to leave the architect out until the last minute, as was done in Pittsburgh. But just as certainly, architects would be very foolish to think they can exorcise the problem by pretending that Eken, Dowling and the Equitable are stupid.

The problem will be reconciled only when more architects are ready to listen and able to understand their clients' special practical problems and more owners are ready to study and understand the fuller meaning of architecture and realize how much they need architects to make the whole greater than its parts and to help them resolve their difficulties, not piecemeal but through a truer synthesis. And it will not be resolved until everyone abandons the hope that naive functionalism is any guarantee of beauty.

The problem goes very deep, as the architects and builders who served as hammer and anvil in the forging of Rockefeller Center know full well. But upon the wise solution of that problem the future of architecture in America depends.

LIFE IN A CHINESE KITE

Standard industrial products assembled in a spacious wonderland



Diagram by Eames shows flexibility of frame, many ways of rearranging facade of patterns

The sparkling construction shown on these pages happens to be the place where one of America's foremost young designers and his wife are having the time of their lives. More important, it is also one of the most advanced house structures built in this country to date.

So far as Charles Eames is concerned, there is no reason why a house should not be:

- ▶ *Spacious—space being the greatest luxury there is;*
- ▶ *A sophisticated industrial product;*
- ▶ *And as light and airy as a suspension bridge—as skeletal as an airplane fuselage.*

Having got this straight in his own mind, Eames asked himself these questions: How cheap is space? How industrial is our building industry? How light is steel?

LOCATION: Santa Monica, Calif.

CHARLES EAMES, Designer*

LAMPART, CAFER, SALZMAN, INC., General Contractor



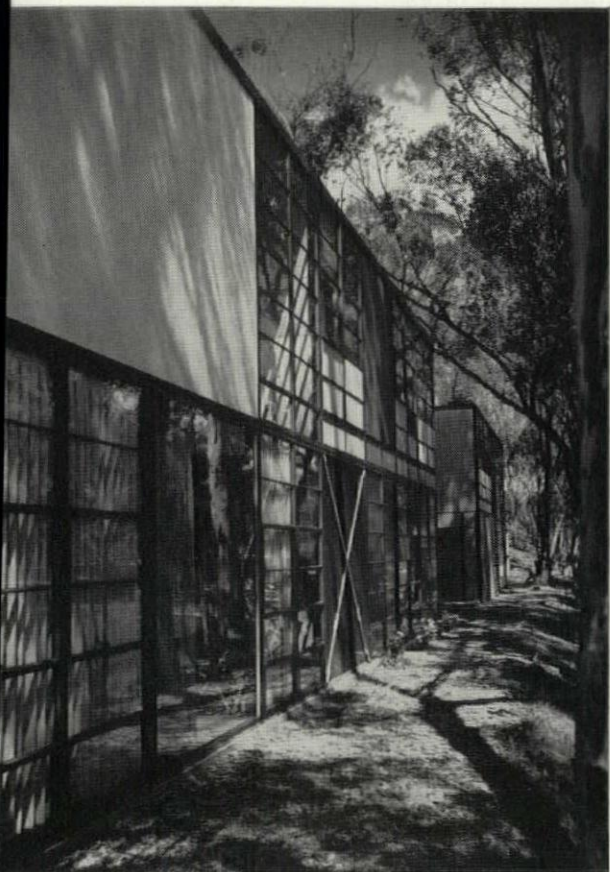
Two-story living room (opposite) faces southwest. Eames-designed step-ladder at left is useful in opening projecting sash, climbing up to bedroom gallery in rear.

Porch at southwest end of building (left) is partly enclosed by 8 ft. retaining wall. Latter is 200 ft. long, accounted for large chunk of building budget.

*Designed and built for the Case Study House program of the magazine *Arts & Architecture*.







Photos: Julius Shulman

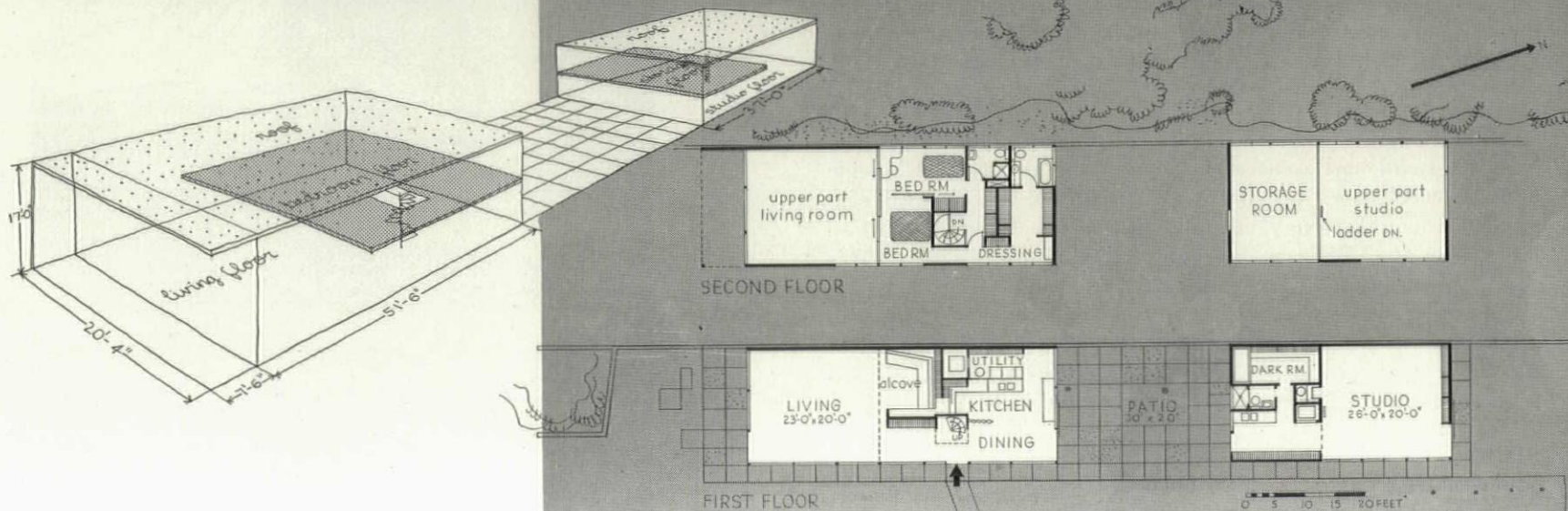
Above: stucco panels set in metal frames were designed to add texture. Studio building is in the rear. Right: View from patio between buildings shows panels of plywood, stucco, glass and asbestos set into standard frames. Pacific coastline is beyond eucalyptus trees. Opposite: Two-story end of living room has sleeping area above. Bedrooms can be closed off with sliding panels.

What price space?

To this question Eames did not get as happy an answer as Mies van der Rohe's perhaps apocryphal "air doesn't cost a cent." But neither did he accept the usual *unhappy* answer given by involuntary penny pinchers.

If space is indeed the greatest luxury—a greater luxury than swimming pools, precious finishes, perfect climate control or two-car garages—then Eames spent his money well. Every house contains a hard core of costly services: bathrooms, kitchen, utility plant. Is it not wasteful, Eames asked, to surround this hard core with a cramped, minimal living area? Is it not cheaper to "amortize" the cost of this essential core over a generous living cubage? He decided it was.

To create this generous cubage, he turned to a steel fabricator's catalogue, found the ready-fabricated parts for an open and well-braced frame such as is customary for light factory construction. Small WF sections, open-truss joists, roof and floor decks, steel sash and door frames were all detailed to be bolted together like a Meccano set. Using this gigantic, clean-cut toy, Eames carved himself some 30,000 cu. ft. of space out of the air of the Pacific coastline. The result—two frames about 20 ft. wide, 17 ft. tall, 51 ft. and 37 ft. long, respectively—was not as advanced a space-mold as Buckminster Fuller's "private sky" (FORUM, May '49, p. 16), but almost over-





Charles Eames

night it gave him an industrial enclosure within which to plan his life—and plan it generously.

The cost of the two steel and glass enclosures was partly borne by manufacturers who contributed to the experiment. Figuring back, Eames thinks it would normally have been \$11.50 per sq. ft., or the equivalent of good residential construction with traditional framing in California. *But since his usable square feet in about half the house are 17 ft. tall*, Eames' estimate brings the cubic foot cost down to a very economical \$1! This is all the more remarkable since it includes a \$5,000 chunk for the 200 ft. retaining wall along the hillside, as well as the paving in the patio and around the periphery of the buildings.

Does the all-steel frame make economic sense? Until recently, the answer for California might have been "no"—freight charges being what they are. But the crux of the matter, so far as the home-building industry is concerned in the long run, must be the ratio of cost of material to cost of labor to erect it. In traditional frame construction the cost of labor to erect framing lumber is about 50 per cent of the cost of material; in the Eames house the cost of labor was about 33 per cent of the cost of steel. That 17 per cent proportionate drop makes as much sense to the home-building industry as it has to every other American industry over the past hundred years.

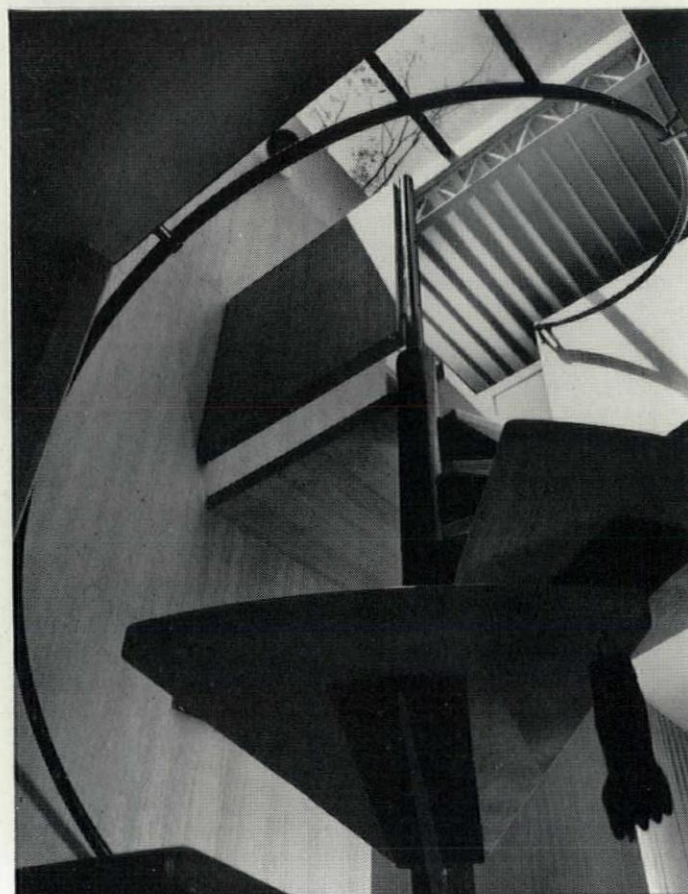
How industrial can you get?

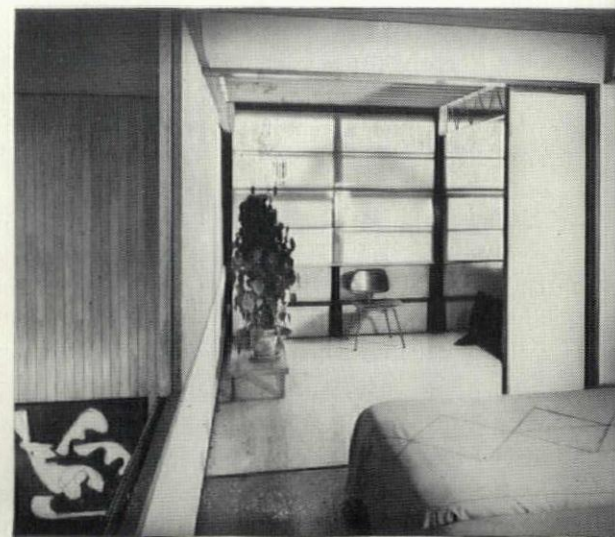
As the spare steel skeleton shot up between the retained hillside and the eucalyptus trees, the house assumed that wonderful constructivist look that every sidewalk superintendent recalls with nostalgia long after the frame has been dressed up and disguised. This constructivist look was exactly what Eames wanted.

Into the frame of his steel box kite he fitted sheets of glass, wire glass ("to make people realize it is there"), asbestos, plywood or plaster in varying colors. Some of these sheets were fixed in place—fixed at least until Eames should decide to knock them out and re-

Living room ceiling exposes underside of steel deck supported by open-truss joists. Note plates welded to ends of joists, unaffected attachment of lighting fixtures.

Stair spirals from entrance to bedroom level, is fine example of decorative use made of a functional object.





Bedroom gallery (above) shows sliding panels on left, translucent glass and synthetic sheet materials set in steel sash in rear.

Contrast between wide spaciousness of most of house and intimacy of sitting and conversation group under bedroom gallery (left and below) is most striking. Eames says he used more traditional vertical wood siding on west wall interior because he needed something to nail into.

CONSTRUCTION OUTLINE (Eames and Entenza houses): Foundations—concrete. Waterproofing—A. C. Horn Co. Exterior walls—Republic Steel Corp. decking with Cemesto panels, The Celotex Corp. set in architectural projected sash. ROOFING—steel decking. Deck—1½ in. Celotex, Celotex Corp. and built-up. WINDOWS: Sash—projected, Truscon Steel Co. Glass—Mississippi Glass Co. Floors—rubber tile. WALL COVERINGS: Living room—canvas. Bathrooms—Micarta, U. S. Plywood Corp. PAINTS—A. C. Horn Co. CABINETS—prefabricated, Bergers Mfg. Div., Republic Steel Corp. LAUNDRY EQUIPMENT—Blackstone Mfg. Co. HEATING—forced air, Payne Furnace Div., Affiliated Gas Equipment Inc.



What did it all prove? To Charles Eames it proved that life could be beautiful, and that industrial precision as the designer's ally could make it so. Yet even Eames realized that his house was just a brave first step in a good direction. What lessons had it taught him? What were the pros and cons?

2. Labor costs could be drastically cut: *Entire structural steel was erected by 5 men in 16 hours.* Three days later, one man had finished the roof deck. After that, all other trades could work continuously under cover;

4. Space sensation was greatly enhanced by lightness of steel;
5. Poor carpenter workmanship was a worry of the past;

CON: 1. Steel costs more than wood, especially if transported far:

2. Steel must be well protected against weather;

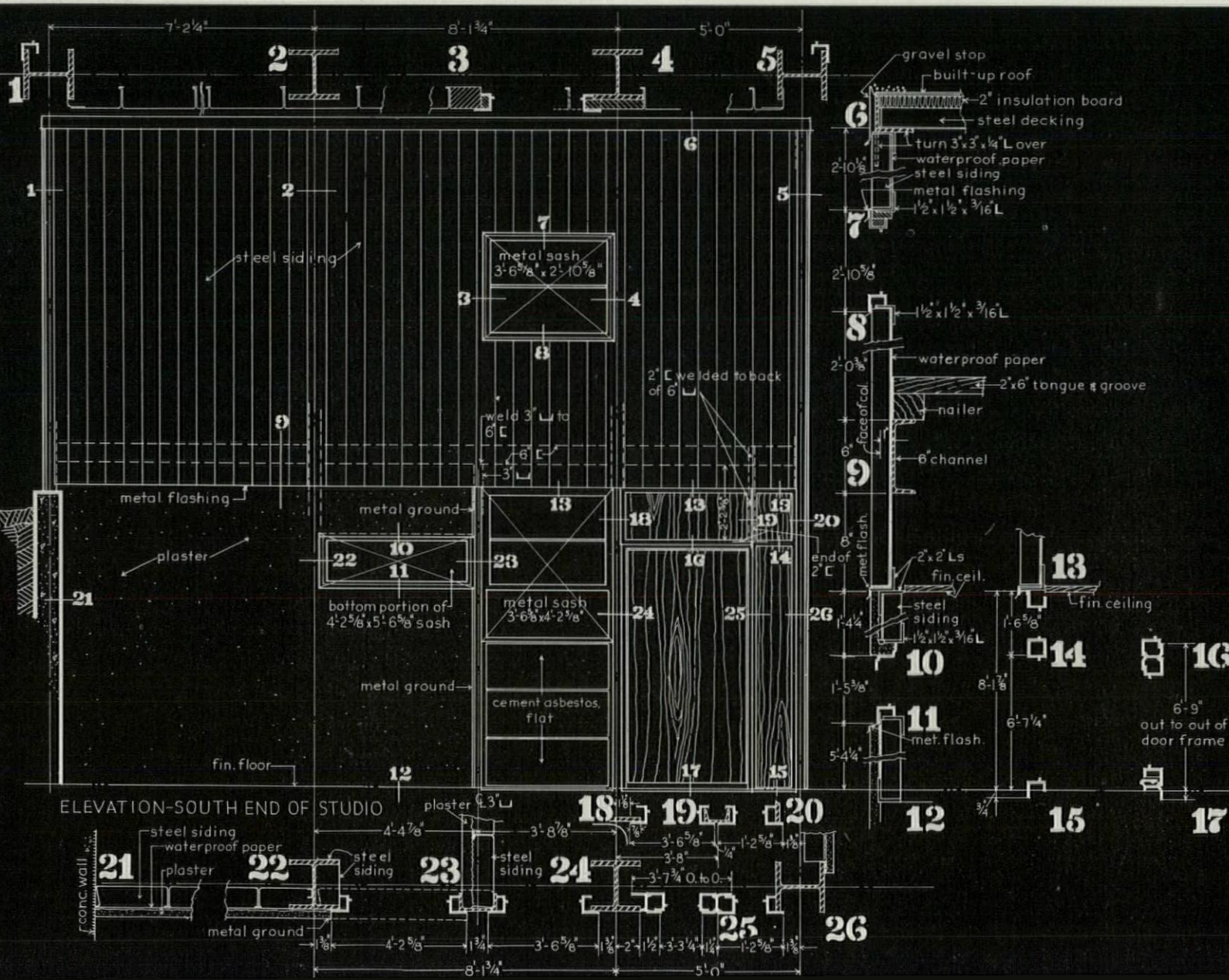
3. Residential wiring and plumbing are still hard to integrate with factory-type structure;

4. Carpenters are easier found than steelworkers.

One of Eames' many surprise discoveries as the house went up was that light steel is a distinct material, very different from its familiar, heavy parent. A delicate tracery of thin rods 12 in. deep can span more than 20 ft.; a cleverly bent sheet can bridge more than 7 ft. and still carry all the usual roof loads; a 4 in. column can rise 17 ft. without wavering; a few crossed wires and turnbuckles can pull together an entire bolted frame. This, he decided, is a material inspired by the daring of aviation engineers, rather than by the more timid techniques of traditional building.

The complicated connections between steel members were handled in the most direct manner possible: A welded plate joins the open-truss joist to its column; a window frame butts against a corner post; a wall panel is set precisely into an angle frame. Nothing is concealed, nothing is elaborately "designed."

Like the best artists, Eames is highly self-critical. An avid reader of catalogues on marine and aviation equipment, he is now sorry he stuck so close to the building industry, neglected several offerings from outside quarters. If he could do it all over again, he might treat this house more as a job of "product-design," less of architecture in the traditional sense. Yet, he would reverse few of the major decisions made in designing the house. A saving, he admits, might have resulted from spanning his steel joists the long way. He would give more thought also to integrating mechanical equipment. And, just possibly, Charles Eames wishes that he could do it all over again, because he had such wonderful fun doing it the first time.





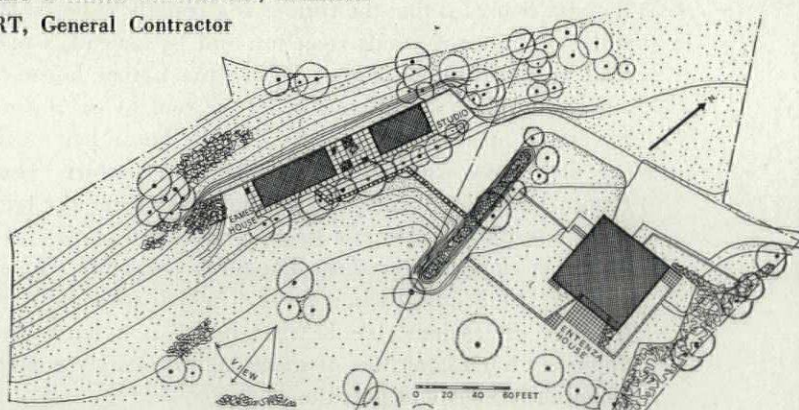
Photos: Julius Shulman

STEEL SHELF WITH A VIEW. On the edge of the Pacific, this house proves that standardized building is adaptable to many needs

LOCATION: Santa Monica, Calif.

CHARLES EAMES & EERO SAARINEN, Architects*

PAUL LAMPORT, General Contractor



The most important point about this house for John Entenza is that it is so much like the Eames house next door (p. 90). The next most important point is that it is so very different.

At first reading, the paragraph above may make very little sense. Yet, in reality, it does make sense: the two houses are technological twins but architectural opposites. Both were built from the same standardized building ingredients; but program, siting, orientation and esthetic preference have made them as different as a tenuous web is from a solid shell. As a pair, these houses are eloquent proof that standardization of building parts need not mean regimentation of design.

* Designed and built for the Case Study House program of the magazine *Arts & Architecture*



View across sunken living room shows dining area in rear, kitchen screened by free-standing partition. Changing floor level follows site contours.



Fireplace (opposite page) is focal point of house, surrounded on far side by large, U-shaped sofa (below). Bedroom alcove above sofa can be closed off with sliding door.



Abstract pattern at service entrance is reminiscent of Eames house.



Architecturally, the greatest difference between the Eames and the Entenza houses is that the former is a frankly exposed structural cage while the latter conceals structure and is, instead, a play of flat vertical and horizontal planes. Where the Eames house, for example, emphasizes the "weightlessness" of the roof by exhibiting the delicate tracery of open-truss joists, the Entenza house has a continuous ceiling of narrow wood strips to hide the structure. The trick in the Eames house is to make the ceiling disappear; the trick in the Entenza house is to make it a strong directional plane that leads the eye toward a chosen view of the Pacific to the south. Where the Eames house is a tall construction through which space is permitted to flow in three dimensions, the Entenza house is a flat metal box with a distinctly horizontal flow of space inside, strictly controlled by free-standing screens and partitions.

The result of all this is again a highly personal house, and its personal features demonstrate all the more clearly how structural standardization can be fitted to special needs. Chief among them is the living area, an amusing playground that takes up more than half the house and somehow conveys a suggestion of social life in a Pompeian Bath or cocktail parties on a roller coaster. In striking contrast is the monastic, windowless study, designed for concentrated work in an atmosphere free from distraction. And when the owner wearies of vigorous entertaining or hard work, there is an elegant bedroom which can either be small and remote, or thrown wide open to the upholstered arena behind the fireplace. To those who hold that there is no freedom of design within standardized building systems, this plan—a portrait, almost, of its owner—is about as good an answer as anyone could find.

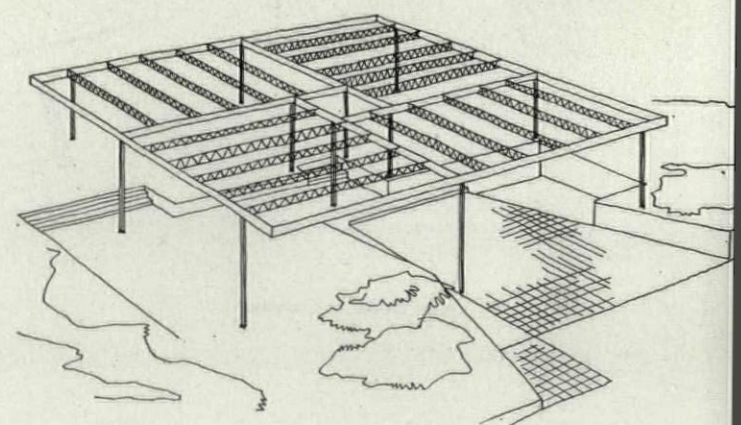
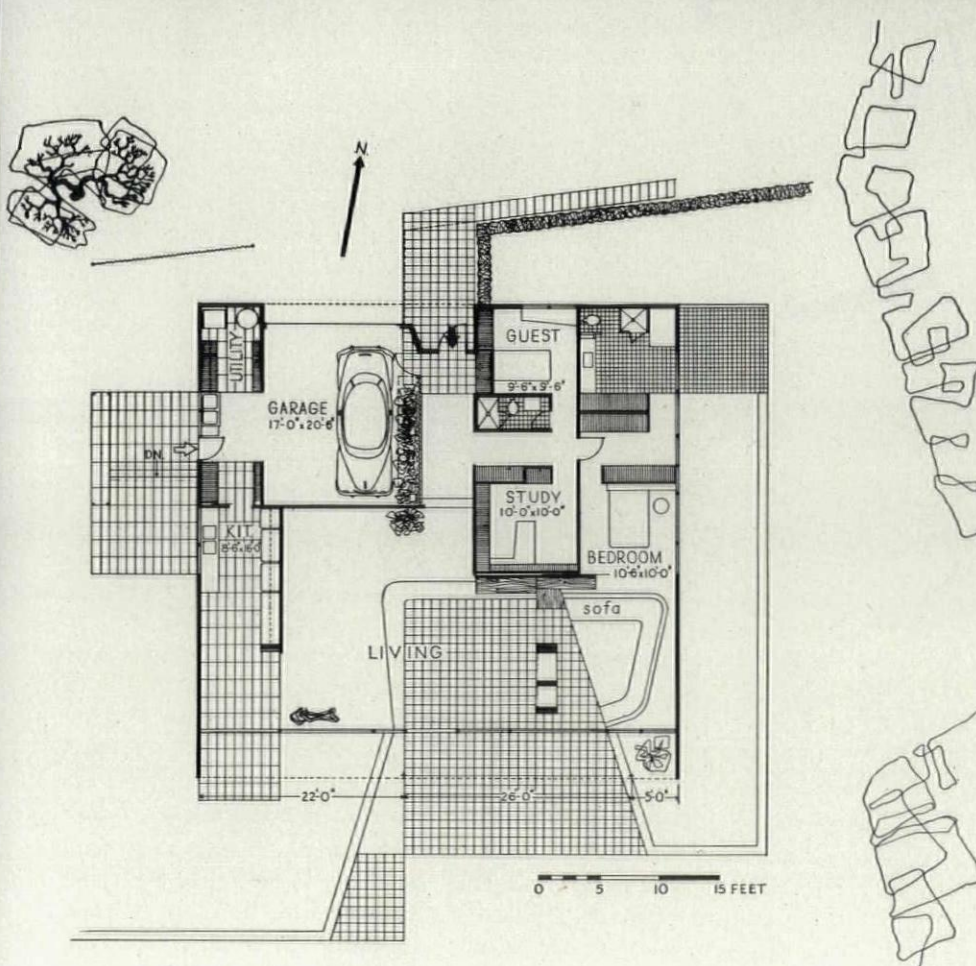
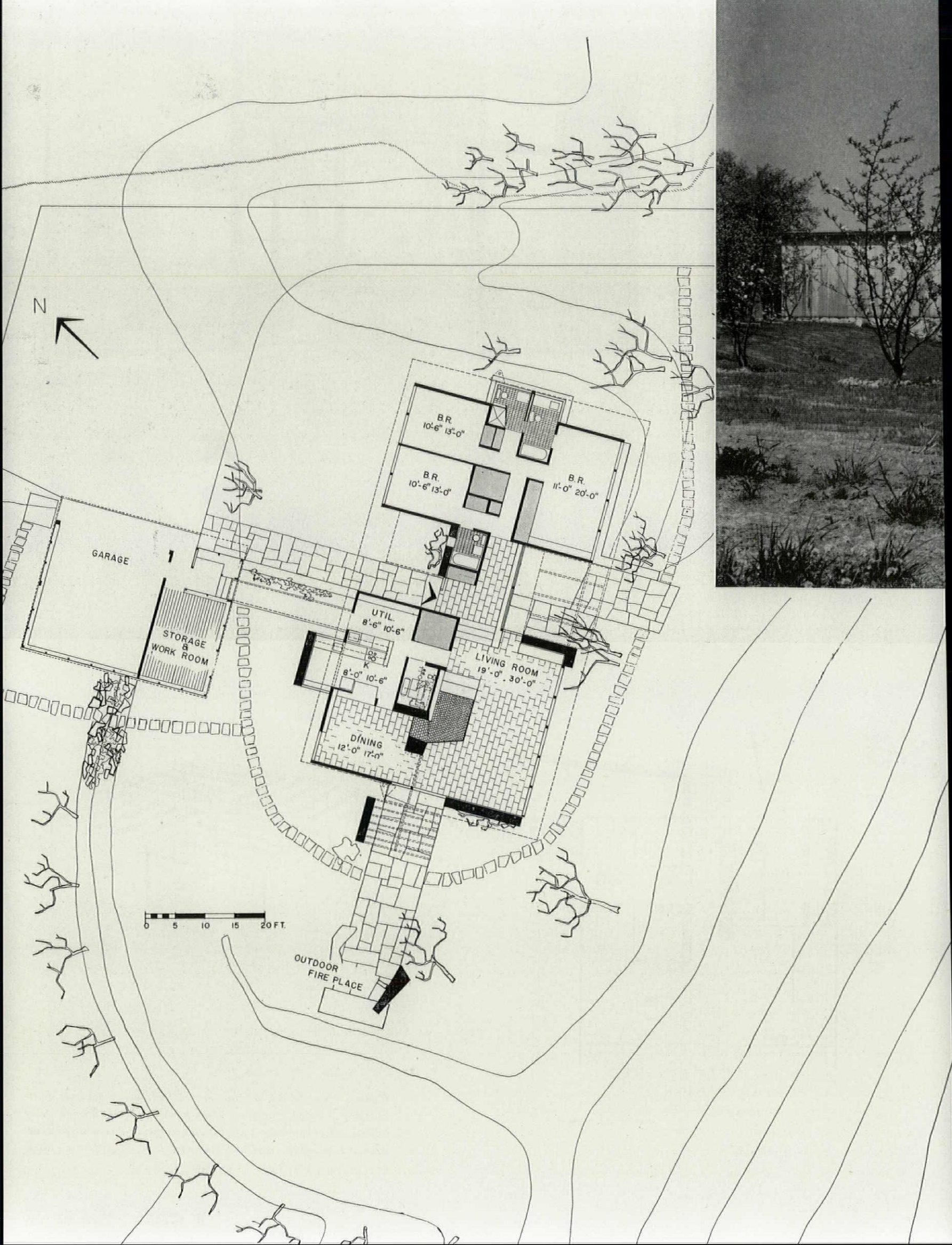


Diagram above shows framing of the roof, with open-truss joists changing direction in successive bays for better lateral bracing. Steel columns are kept away from building corners to permit easier detailing. Joists are covered with steel roof deck. Walls bear no loads, help to brace widely spaced columns.



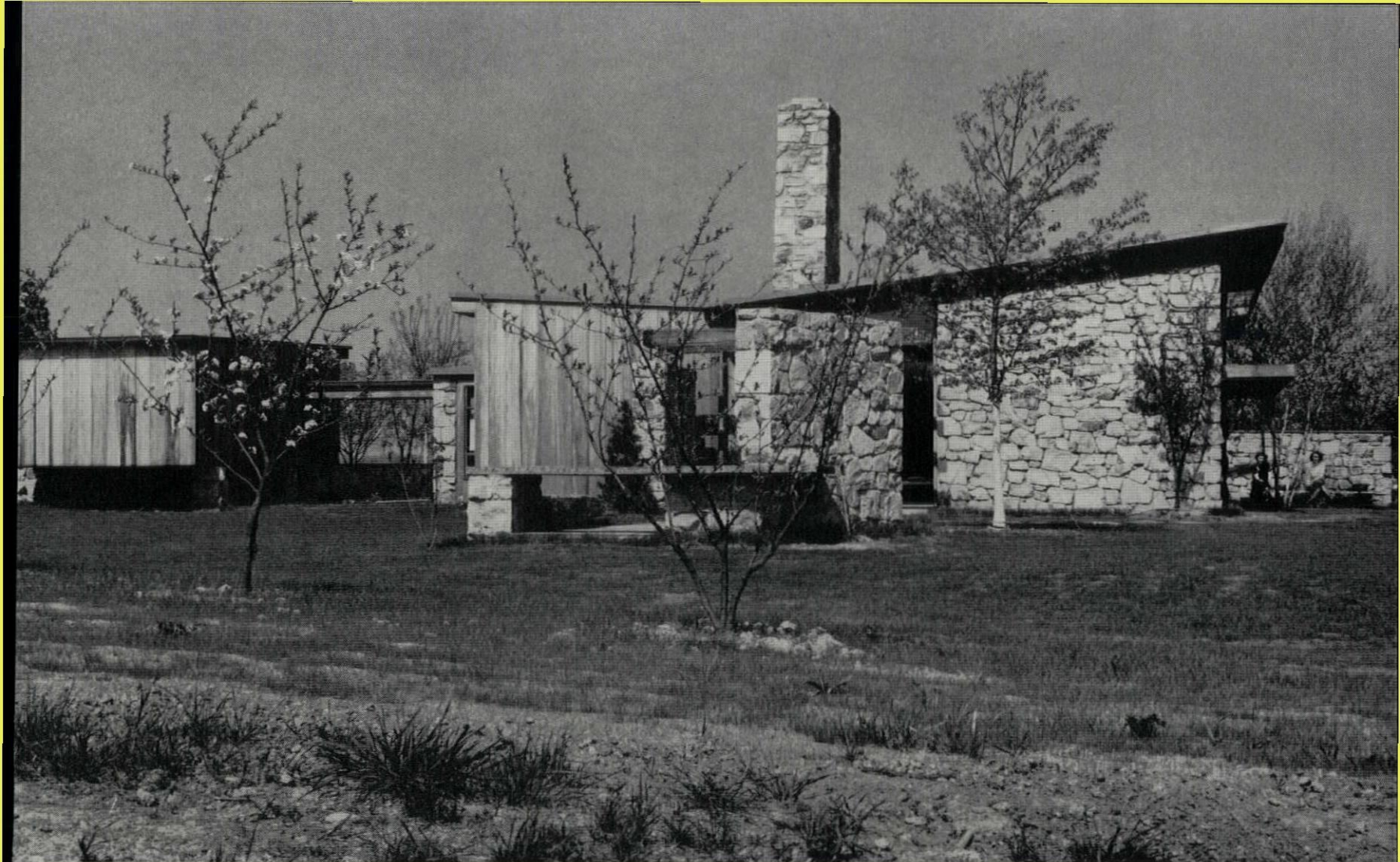


Photo: John Ebstel

MODERN SPACE FRAMED WITH TRADITIONAL ARTISTRY

The fine building crafts of Pennsylvania construct a house that grows out of its hilltop site

LOCATION: Norristown, Pa.

LOUIS I. KAHN: Architect

EDGAR M. WAMBOLD: General Contractor

From the hill on which this house stands you can see far off the smoking chimneys of industrial Norristown. Nearer at hand you can see several bulky Pennsylvania Dutch barns with stone ends and red painted sides. From over the hill to the north, you can hear occasional blasting from the quarry that produced the stone used on this job.

The house shown on these pages is as modern as the factories of Norristown, as solid as the Dutch barns, as much a part of this land as the stone in the quarry beyond.

Among the things that make it so are:

A plan as clearly articulated as a machine;

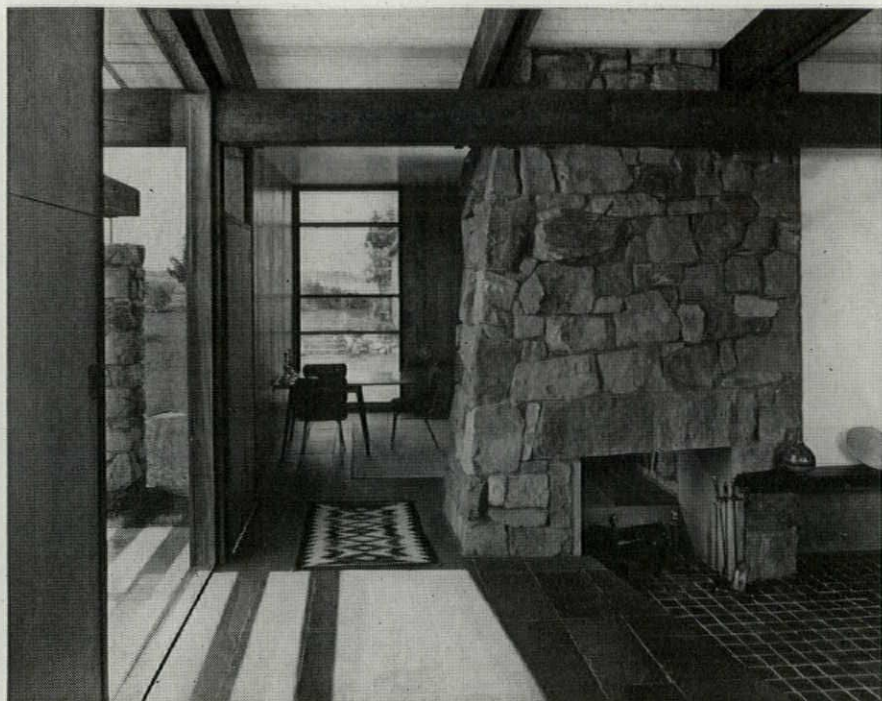
A structure as frankly expressed as a radio pylon.

Three separate elements make up the plan: the living area with kitchen and dining room is one rectangular unit; the sleeping area is another, joined to the first by a narrow entrance link. A third element, almost entirely divorced from the

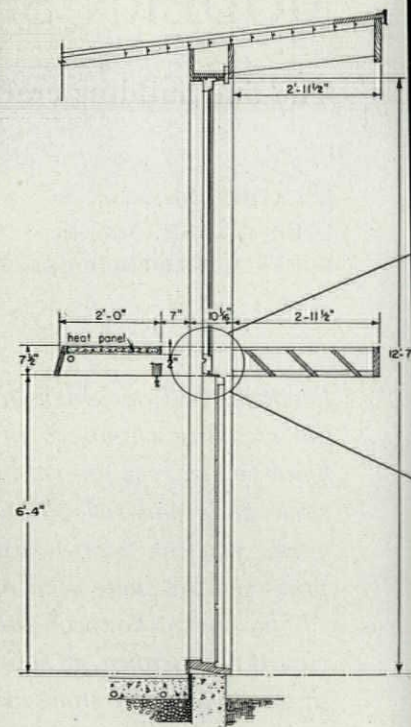
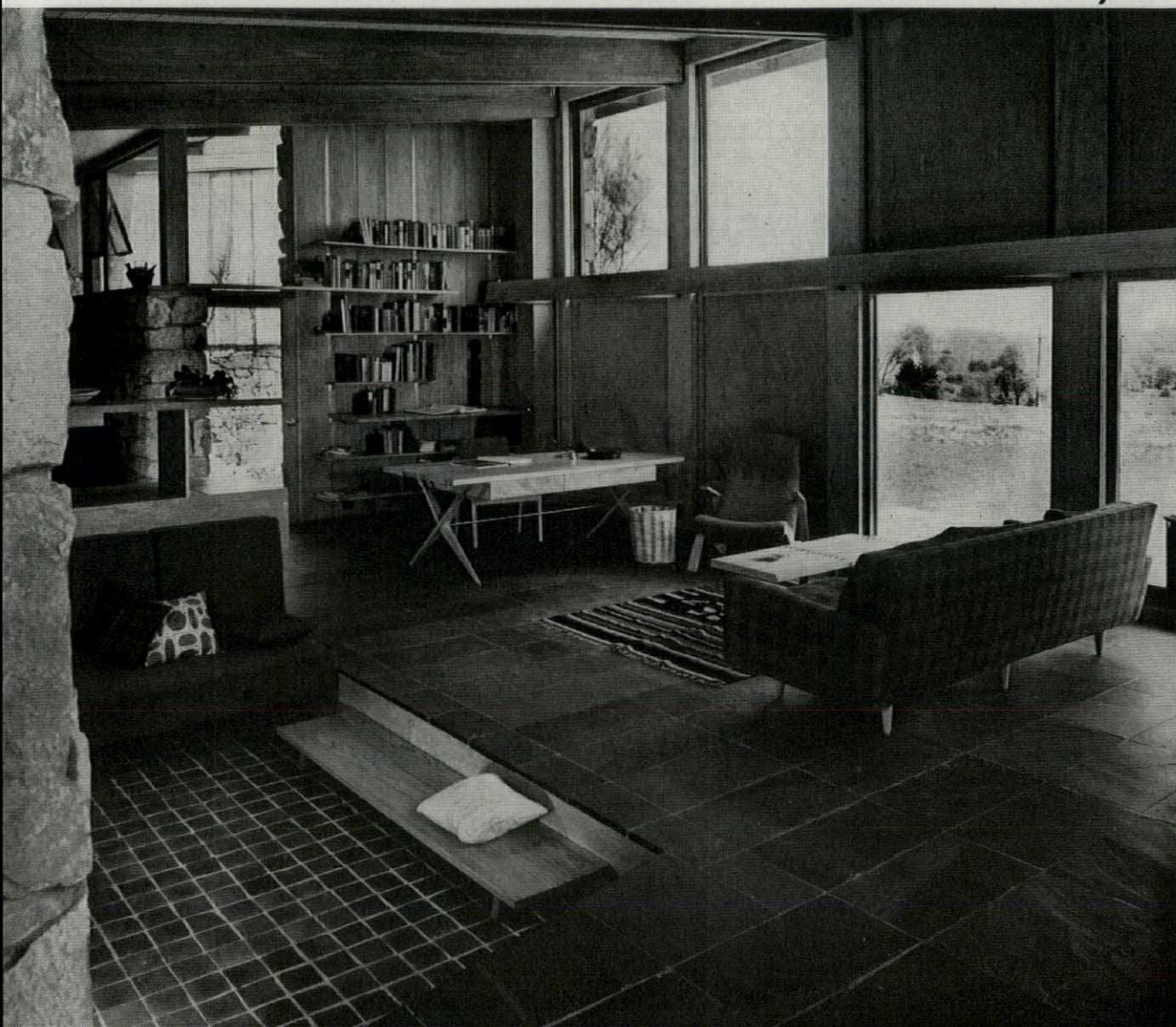
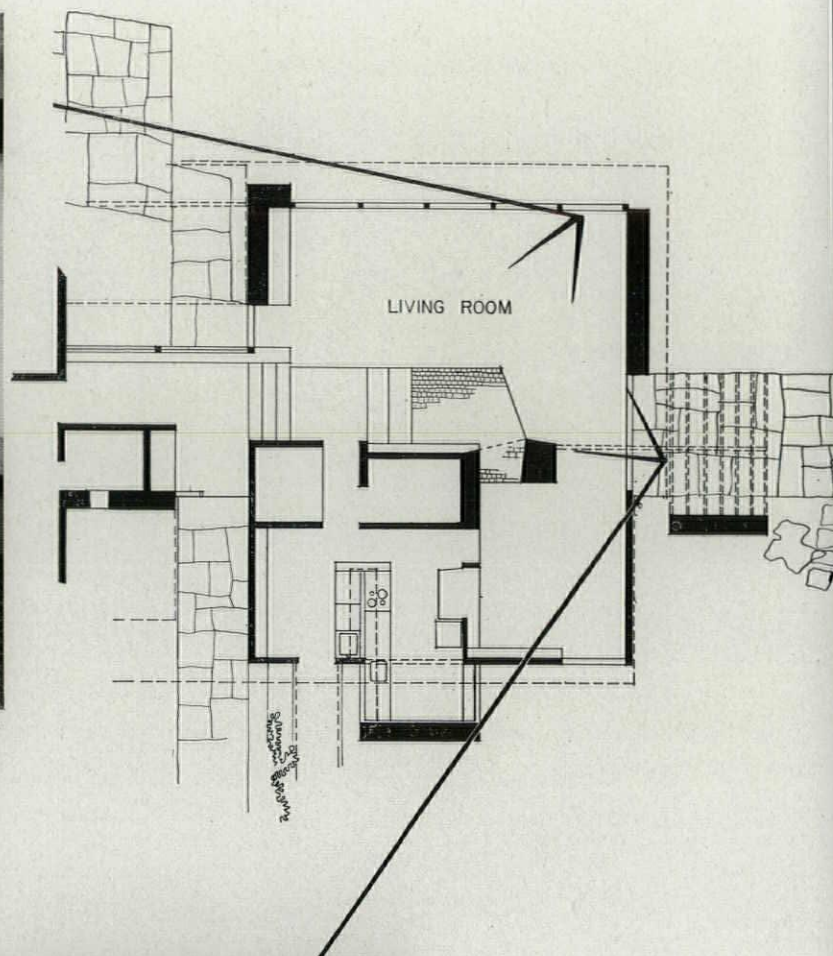
other two, is the garage with its workshop and storage space.

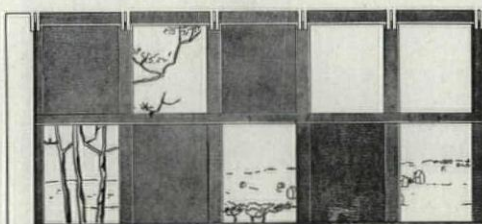
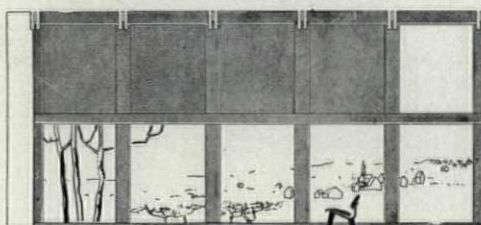
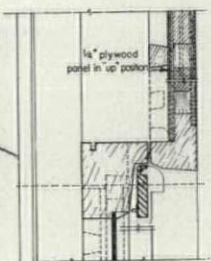
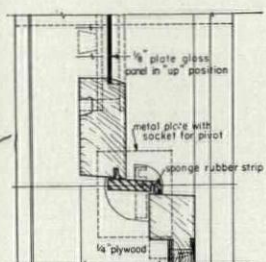
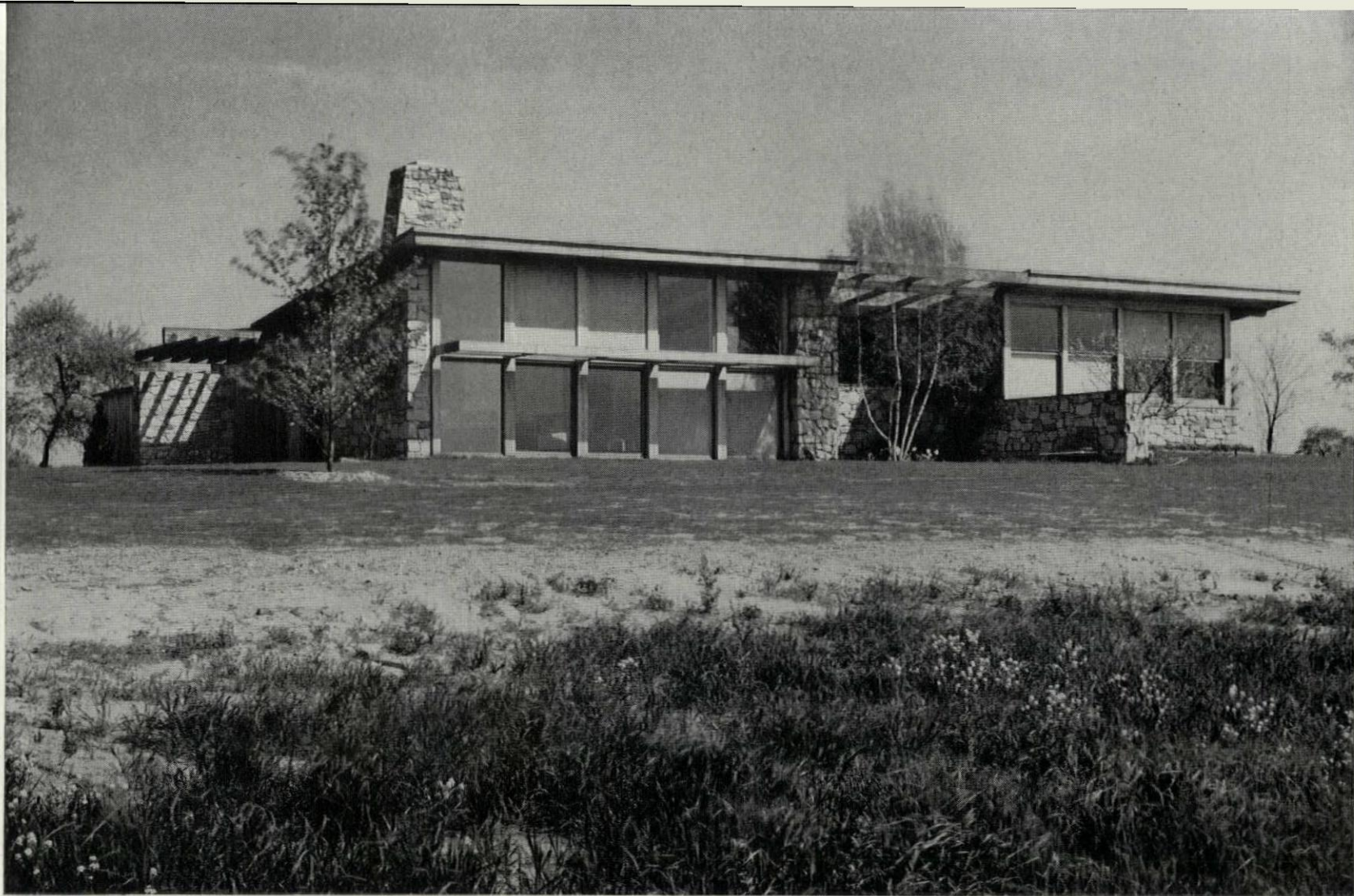
The structure is, for the most part, of heavy timbers supported on heavy posts. Frequently a girder or a post will be split so as to connect more logically with the member which supports it, or which it helps to support. Elsewhere a heavy stone wall will curve out to prop up a 6 x 14 in. girder of unusually long span. In every case the function of girder, post or wall is clearly expressed, never concealed or faked. If a heavy stone wall is merely used to screen, rather than bear loads, it stops short of the roof plane above. If a portion of the roof is framed differently, that portion is also given a different finish.

Architect Kahn was lucky in having a perfectionist carpenter, a perfectionist mason, and an ideal client to work with. Said the client: "We were warned that Mr. Kahn was highly imaginative and most insistent on having his own way. When he told us about the stonework, for example, we asked where we might look at something similar—and his answer was that



Two-way fireplace (above) juts out to prop up 6 x 14 in. girder. Dining room is in rear. Below: view of living room with sunken sitting-area at fireplace, glass and plywood sash at right. Opposite: setting of house as seen from south, showing same double-hung window wall, semi-enclosed porch in the center.



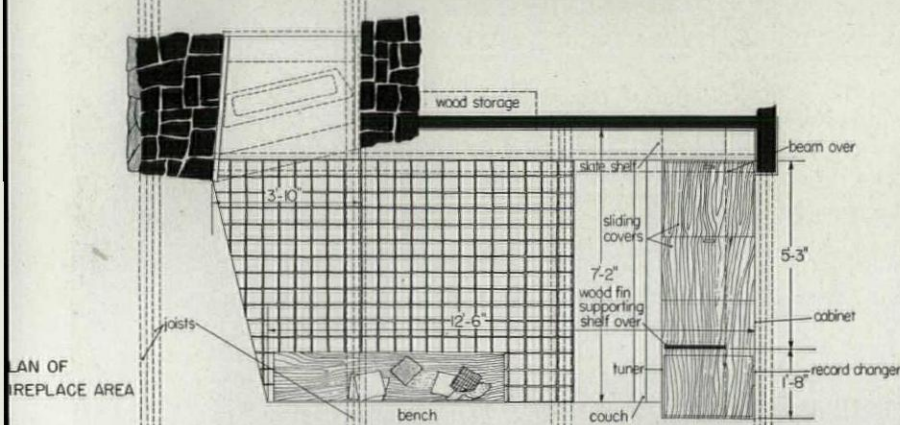
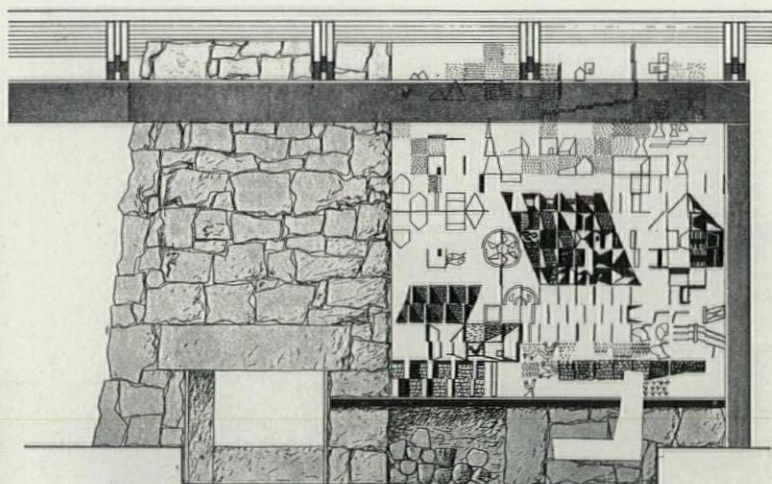


Diagrams showing possible variations in window-wall treatment. Detail at left demonstrates operation of weather-bar.

it just wasn't to be seen anywhere. Yet when Mr. Kahn explained to the mason just exactly how he should set the stone work by placing a few stones himself, the mason instantly caught his enthusiasm. As for us, we're enthusiastic still."

Perhaps the kind of architect here described by his client no longer has a place in the economic scheme of things. In any case, a master-builder like Kahn can teach the building craft a few things that no one else will teach it. Most of them are concerned with details. For example:

Along the whole south front of the house, Kahn has designed a row of huge double-hung windows, with one sash in each window glazed, the other filled with waterproofed plywood. Normally, the plywood panel is in the "up" position, cutting out the glare from the sky on bright days, and emphasizing the low horizontality of the landscape to the south. At other times the glazed sash may be "up"; in that event a tilting aluminum weather-bar (see detail) protects the crack when the inside sash is raised above the outside member. On a clear night, this position of the panels opens the living room to the sky, makes the pattern of the stars a part of the interior.



A more familiar detail is the two-way fireplace, with the resulting openness of interior space. Beside this fireplace master-builder Kahn has reserved a plaster panel for a mural he himself will paint depicting, abstractly, some of the local patterns and forms that influenced his design of this house (left.)

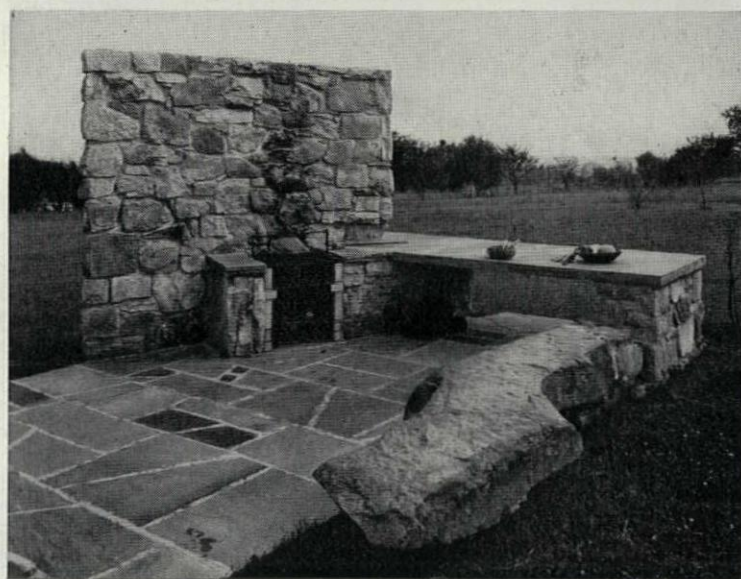
The familiar modern concept of the relationship of outdoor to indoor space has rarely been handled so well. The wasp-like waist of the house—the narrow entrance link between daytime and nighttime areas—has been used to form two handsome courts: one at the entrance to the north, the other tied in with the living room to the south, to catch the sun and break the wind. To the west of the living room there is another terraced extension that culminates in a deliberately brutal stone fireplace, a landmark, almost, from a moon-scape; beside it is a seat formed from a single rock more than 8 ft. long. Like all the other stones, this one came from the exposed, and therefore weatherbeaten surface of the quarry.

Unlike the shimmering steel skeleton of the Eames house (p. 90), this house, which won the 1950 Philadelphia AIA Chapter Medal, is easy to take. Yet it carries an equally fundamental lesson, a lesson that good building can only spring from complete mastery of material, of form, and of all the arts involved in enclosing space; that the master-builder who is now fast disappearing can be resurrected only if there is a revival of real craftsmanship—whether in wood, stone, concrete or steel. Louis Kahn went to his traditional craftsmen to try to revive master-building; Charles Eames went to the newly trained steelworkers with their pride in precise efficiency. In reality, both are brothers under the skin.





Outdoor sitting area with stone fireplace (above and right). Below: special downspout detail consisting of triangular sheet metal trough, freestanding pipe. Opposite: view of fireplace end of living room. Outdoor sitting area is beyond glass wall.

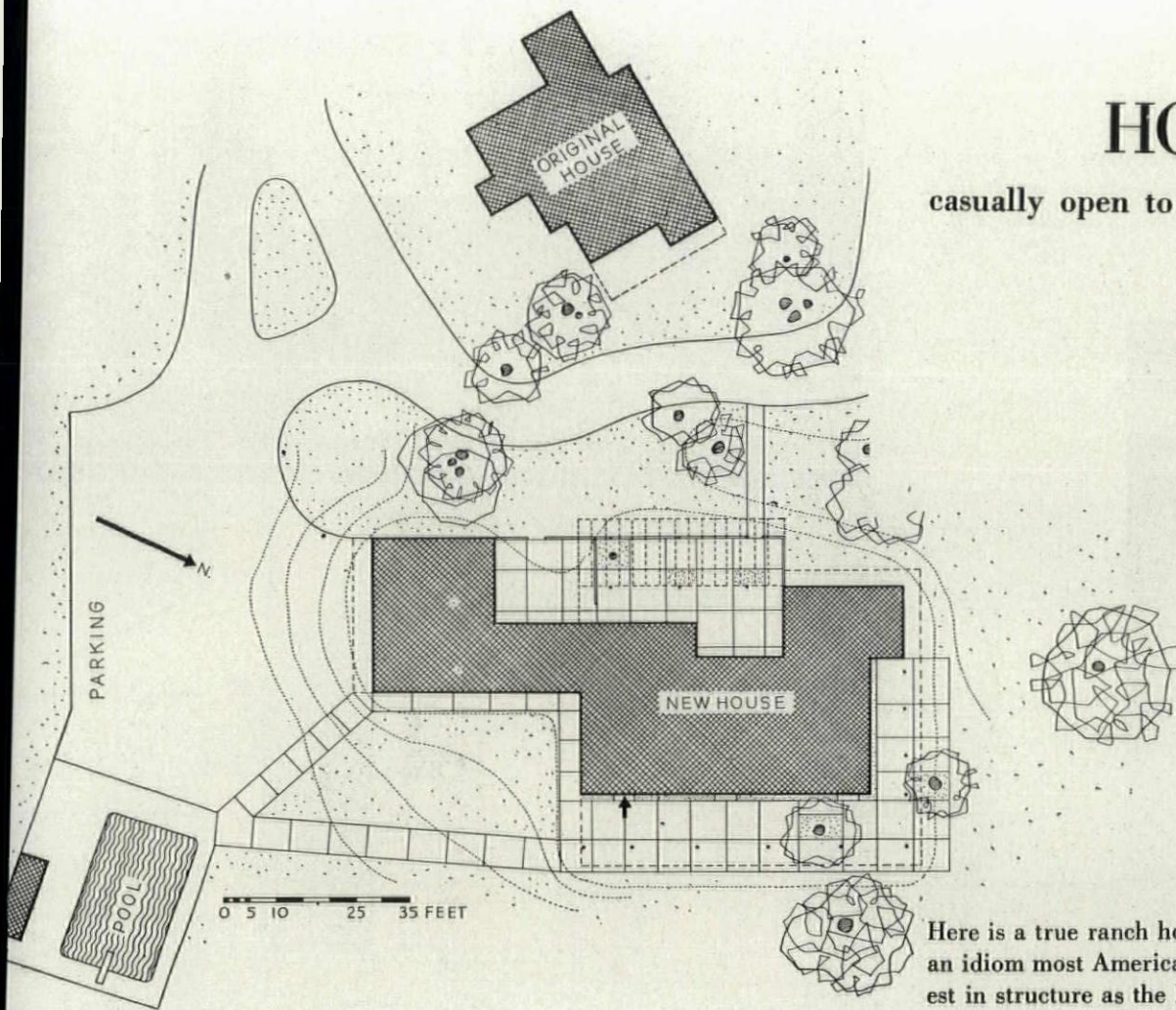


CONSTRUCTION OUTLINE: Exterior walls—18 in. stone, 2 in. stripping, metal lath, plaster or cypress, Celotex Corp. sheathing, studs, insulation and cypress or birch. **ROOFING**—5-ply built-up. **INSULATION**—Celotex Corp. and Kimberly Clark Corp. **WINDOWS:** Sash—steel, J. S. Thorn Co. Glass—Pittsburgh Plate Glass Co. Weatherstripping—Accurate Metal Weatherstripping Co. **FLOOR COVERINGS:** Kitchen—rubber tile, Armstrong Cork Co. Bathrooms—ceramic tile, Mosaic Tile Co. **HARDWARE**—Schlage Lock Co. **ELECTRICAL INSTALLATION:** Wiring—3-wire 115/230 volt, 60 cycle, single phase. Under-ground cable—Okonite Co. Fixtures—Kurt Versen, Inc. and General Lighting Co. **KITCHEN EQUIPMENT:** Range, refrigerator and cabinets—Hotpoint, Inc. Fan—Pryne & Co., Inc. **BATHROOM EQUIPMENT**—American Radiator-Standard Sanitary Corp. **HEATING**—radiant heating system in slab, walls and ceiling.



HOUSE OF WOOD

casually open to trees and sky, would be at home
anywhere in the U.S.



LOCATION: Stockton, Calif.
WURSTER, BERNARDI & EMMONS, Architects

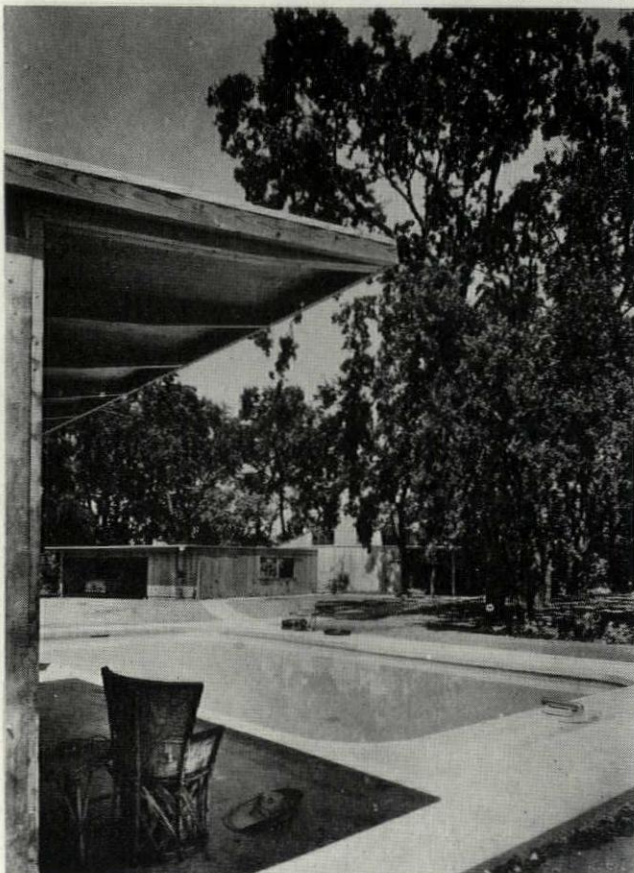
Here is a true ranch house which speaks of informal family living in an idiom most Americans will easily understand. As sound and honest in structure as the Eames and Kahn houses, it requires no mental adjustment to tight, new esthetic disciplines. Its rambling plan and exposed wood construction are as comfortable as an old shoe. Yet the house owes much of its livability to the architects' skillful, unobtrusive use of such modern industrial devices as a sawtooth roof and large areas of glare-resistant glass.

Designed for the expansive country life of a planing mill operator, his artistic wife and their fifteen year old son, this house is the result of a happy collaboration between "the Wurster office" and the client, since both are experts in the use of wood and the requirements of indoor-outdoor living. Having occupied an existing house on the site for years, the family had compressed their accumulated knowledge into a basic plan which the architects followed closely.

To gain protection from the San Joaquin valley's blistering summer sun, the house settles snugly into a grove of tall oaks and even permits one magnificent specimen to continue growing through a hole in the porch roof (photos, opposite page). Shaded by the deep overhang of this open porch, the big windows of the living and working areas overlook fields which slope away to the east beyond the grove. The garage is the only feature of the house which opens on the unshaded area to the south, where a swimming pool takes full advantage of the sun. (Photo, left.) To the west, the main rooms look out on a partially roofed garden terrace enclosed by a cedar board fence which isolates it from the family's former two-story residence. (This will be converted to a guest house.) To compensate for the light lost under the deep porch overhangs, two parallel banks of screened clerestory windows extend the length of the house, flooding its rooms with air and cool northeast light.

Exterior and interior walls are California incense cedar laid vertically; posts and beams are Douglas fir, and ceilings are redwood, resawed for textural contrast. The only finishes used were a clear preservative on the outside and wax inside. Says Architect Bernardi: "The use of wood throughout gives that feeling of a single episode which we believe is one secret for bringing dignity and character into structures that are either too small or of necessity must be divided into small, various shaped compartments. The relief comes from the varying heights, from the changing outlooks, and in the furnishings."

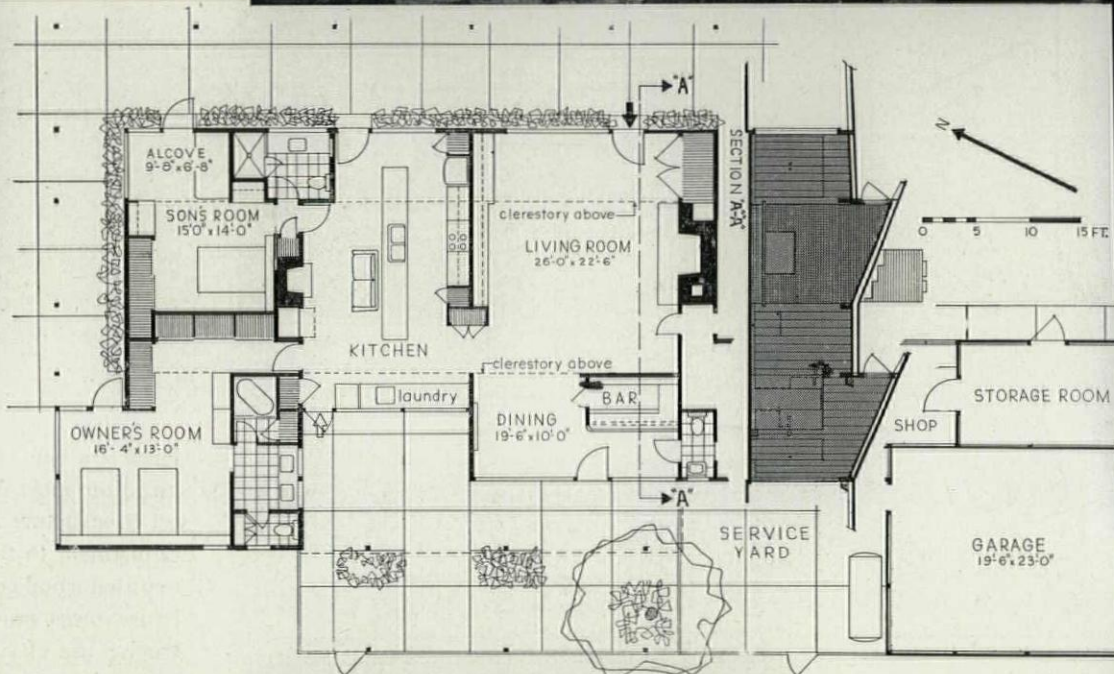
Photos: Roger Sturtevant



Except for the living room items shown here, all furniture is built-in. Cabinet work was designed by the owner and fabricated in his planing mill.



Main kitchen activity is confined to the aisle between wall units and central bank of sinks and counters. Laundry facilities are against the wall nearest to the drying yard.



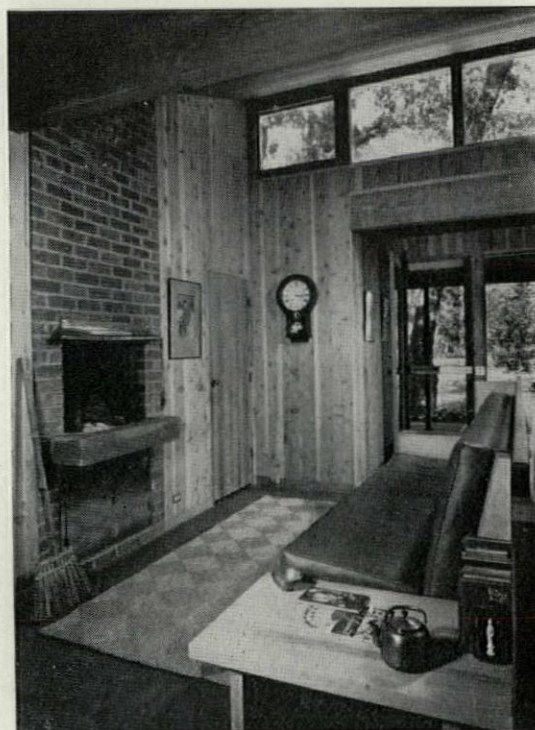
Key room of the house is a modern, 26 x 16 ft. version of the old country kitchen. Almost as large as the living room and similarly lighted and finished, it serves both as a center for congenial cooking and as a link between bedroom and living areas. Despite the kitchen's size, close grouping of related facilities saves footsteps for the mistress of the house.

For frequent, large-scale entertaining, the living room is merged with a dining area and built-in bar which overlook the enclosed garden terrace. In this long room, the high clerestory light, the blue-green tint of the window glass, the cedar walls, the soft red of the fireplace and the greens in the cement floor and the furnishings combine to produce a cool, atmospheric quality.

Mainly to discipline design, the simple post and beam structure of the house was laid out on a 3 ft., 4 in. module which proved to be of great assistance to the contractor. He found that by marking these divisions along the perimeter of the plan, the work of laying out was considerably expedited.

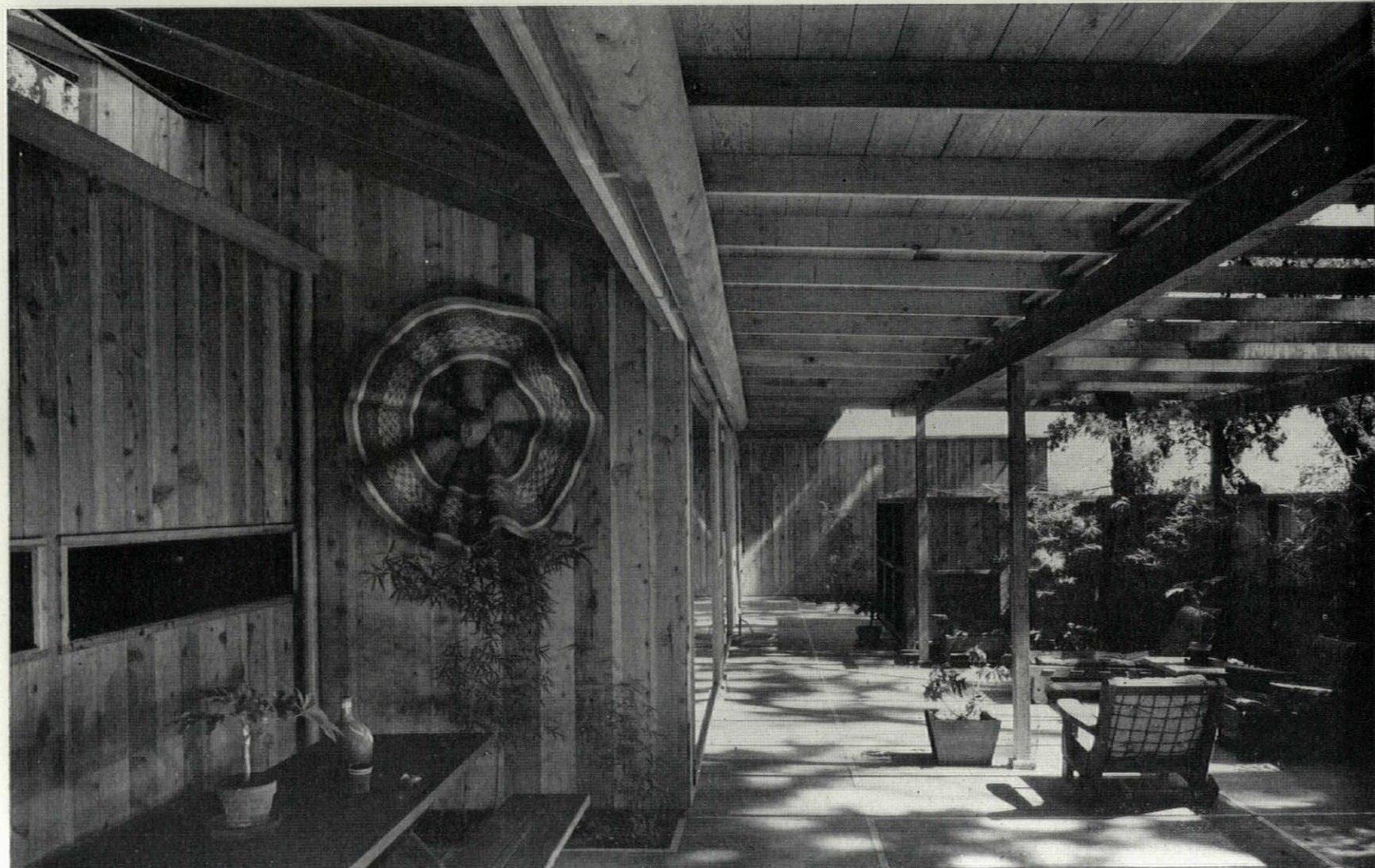
The house completely satisfies its wood-loving owners, and all the members of the Wurster office have said at one time or another, "I could move in tomorrow."

CONSTRUCTION OUTLINE: Exterior walls—post and beam, vertical interior and exterior cedar boards. Floors—concrete slab, A. C. Horn Co. hardener and color. **INSULATION**—Reynolds Metals Corp. **WINDOWS:** Glass—Pittsburgh Plate Glass Co. and Libbey-Owens-Ford Glass Co. **HARDWARE**—Schlage Lock Co. **KITCHEN EQUIPMENT**—General Electric Co. Fan—Pryne & Co. **BATHROOM EQUIPMENT**—American Radiator-Standard Sanitary Corp. **HEATING**—radiant floor system. Regulator—Barber Colman Co.



While meat broils on this copper-hooded kitchen grill, cook and guests can relax on the sofa built into the central counter.

The western porch gets added daylight and air from an opening in the clerestory over the kitchen, is indirectly lighted at night.



ARCHITECT AND BUILDER—a round-up of the 20 AIA-NAHB committeemen tapped to study the problem of better house design—the men, their opinions and their houses

For news of a \$100,000 small house design competition sponsored by the National Association of Home Builders and this magazine to promote closer relations between architects and builders, see page 88-B.—ED.

ARCHITECTS



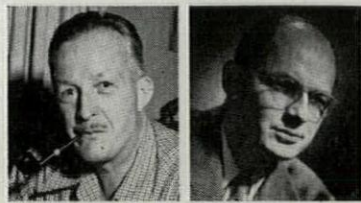
Hubert H. Crane
Ft. Worth

John S. Highland
Buffalo



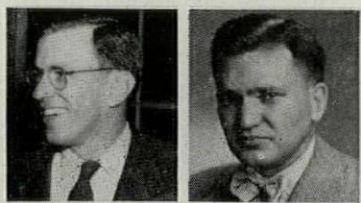
Alfred B. Parker
Miami

Howell B. Pennell
Philadelphia



George D. Riddle
Los Angeles

David B. Runnells
Kansas City



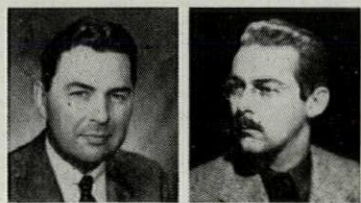
Hugh S. Stubbins
Boston

Lawrence Waldron
Seattle



Kenneth Wischmeyer
St. Louis

L. Morgan Yost
Chicago



BUILDERS



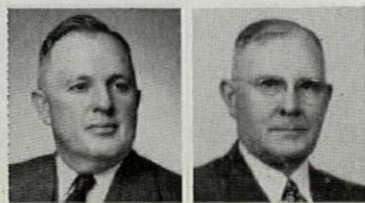
Albert Balch
Seattle

Paul L. Burkhard
Los Angeles



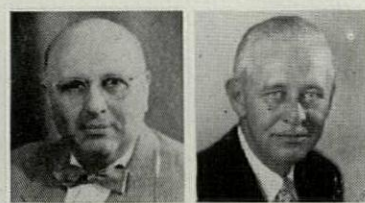
Thomas P. Coogan
Miami

Clarke Daniel
Washington



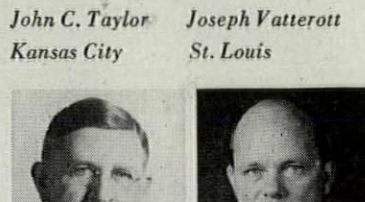
Joseph Driskell
Ft. Worth

Walter Johnson
Buffalo



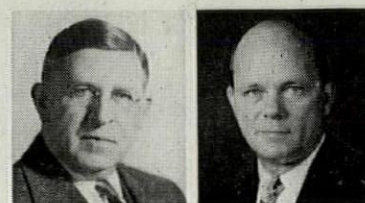
H. Morton Robbins
Chicago

Clark Sundin
Worcester



John C. Taylor
Kansas City

Joseph Vatterott
St. Louis



Few of the ten architects pictured at the left have met the ten builders, but the day they do may be a significant one for the American home. The day and the place of their meeting has, in fact, been set. It is October 14 at Houston's plush Shamrock Hotel. There these ten representatives of the AIA will sit down with the ten spokesmen of NAHB to do something about the mediocre design of the average builder's house.

Both AIA and NAHB have officially recognized their joint responsibility for better house design, and at Houston their representatives will try to formulate a new basis for team work between the men who have so lately brought the industrial revolution to housing and the men who alone can supply the design quality that is still so badly needed.

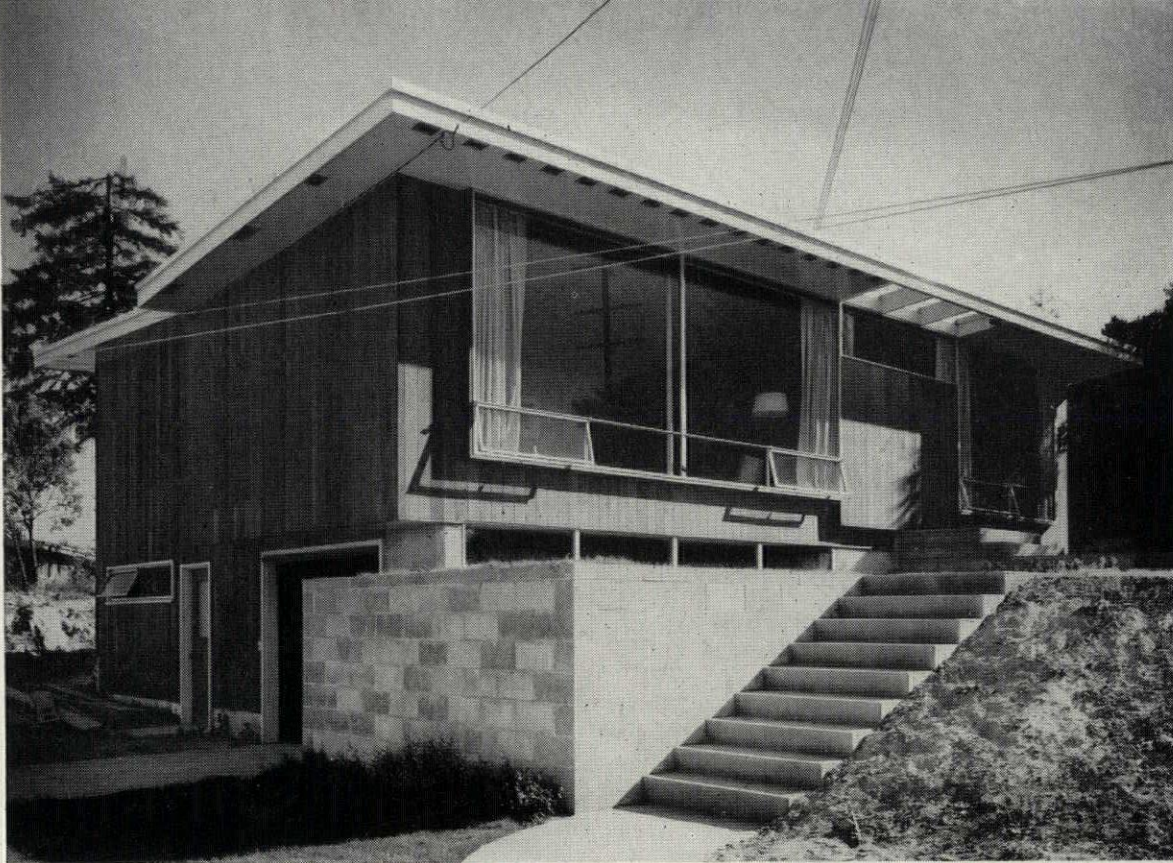
The housebuilding editor of this magazine is just back from a 6,000-mile swing through Boston, Buffalo, Chicago, St. Louis, Kansas City, Fort Worth, Miami and Philadelphia to see the houses being built by the builders on this committee or designed by the architects. A portfolio of what he saw appears on the pages which follow together with their opinions about architect-builder co-operation.

The plain and obvious fact anyone can see from these pictures is that most of the builders on the committee still have a lot to learn about design for better living, but the architects have almost as much to learn about design for more efficient and economical quantity construction. Most of the architects have never worked with a large builder; few of the builders have ever worked with a first-class architect. Taken together, the committeemen's opinions and their houses offer a realistic cross-section of the problems which must be solved before better design can be brought economically to the average home.

The two well-designed houses pictured on the opposite page might come in handy for discussion purposes when the NAHB-AIA conferees sit down next month to talk about good subdivision-house design. Both houses were designed by architect-members of the committee. Both were custom-built jobs but there is no really good reason why the right kind of architect-builder teamwork could not adapt them to the builder's mass-volume efficiencies. Each provides a livability-per-square-foot few builder's jobs can approach. Why, then, hasn't some smart builder taken houses like these and put a lot of them up for all the people who want the design advantages of a contemporary custom-built house without paying the price premium for custom design and custom building?

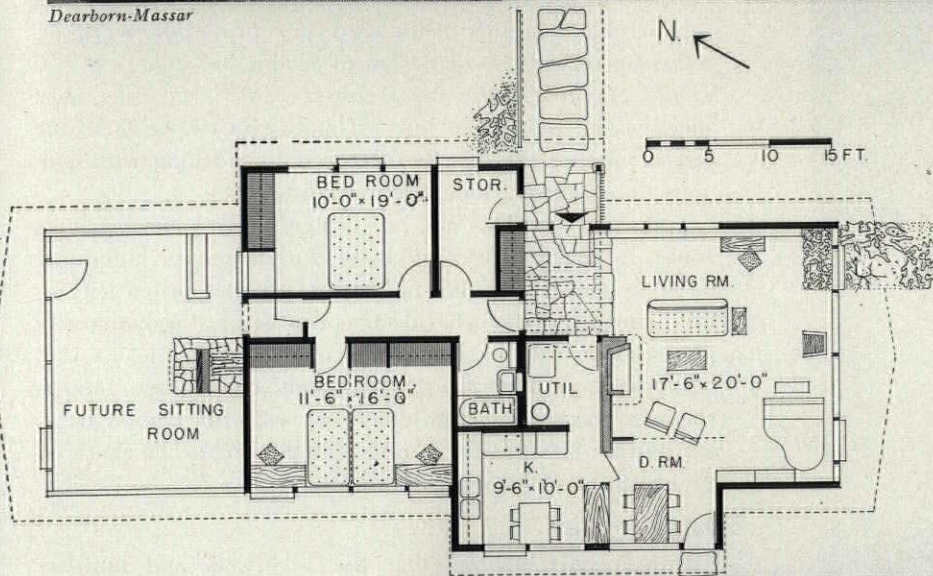
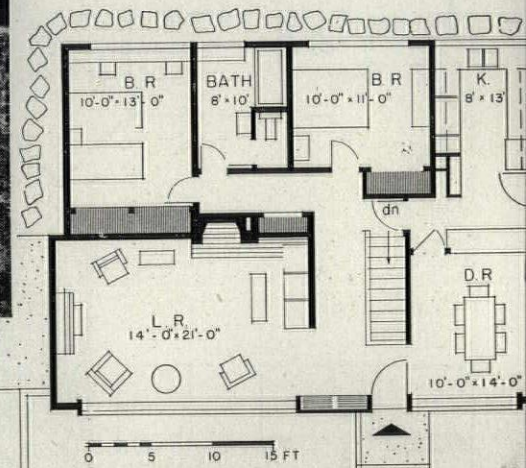
In seeking a co-operative answer to this question, architects and builders on the committee are agreed that the first step must involve a complete change in their attitudes towards one another; it is not just a matter of getting more builders to engage architects at higher fees.

Photos: Reni Photos, Oscar & Associates, Inc., Gables Studio, Arthur E. Haug, Washington Post, James Mason, Reid, Kennell-Ellis, Strauss Peyton, Harris & Ewing, Carlos Photos



Dearborn-Massar

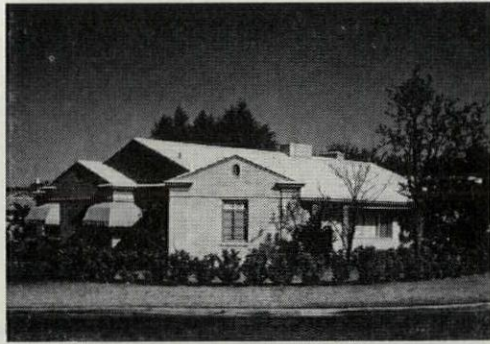
Architect Lawrence Waldron
Seattle



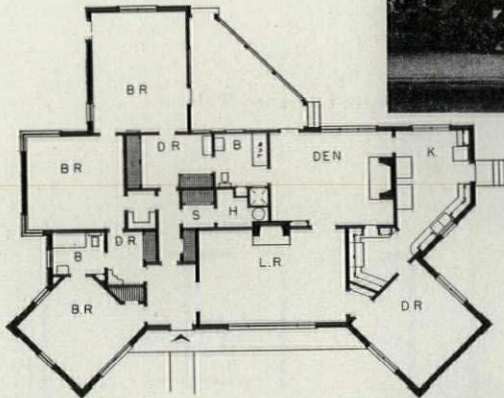
Architect Hugh Stubbins
Boston



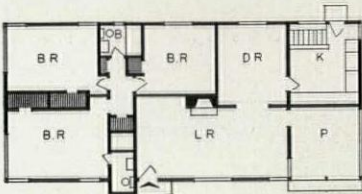
Esra Stoller



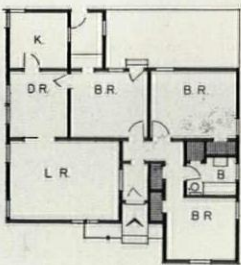
Architect Hubert H. Crane
Fort Worth



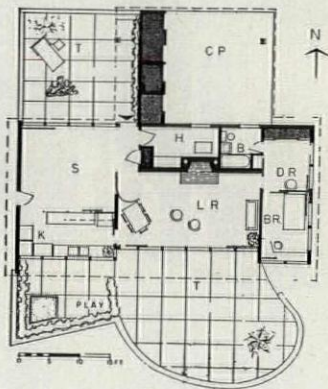
Architect Howell B. Pennell
Philadelphia



Architect George D. Riddle
Los Angeles



Architects Kenneth Wischmeyer & Charles Lorenz
St. Louis



Hit-and-run architecture

As Architect Morgan Yost of Chicago points out, most builders already use some form of "architectural service." In Illinois, for instance, it is hard for a builder *not* to use an architect since state law requires an architect's (or engineer's) stamp on the plans of every \$7,000-and-over job. Logically, this should mean that Chicago and other Illinois cities are blessed with good, well-designed houses. In reality, Chicago has the unhappy distinction of spawning some of the worst-designed new housing in the country. The architect's stamp—which a builder can buy for \$50 or less—is no guarantee of good, or even passable, design. It is, in practise, merely a guarantee that the architect has checked the plans and believes that the building won't fall down. In other areas, where state laws are not as "strict," builders use stock plans bought for as little as \$5.

AIA-NAHB committeemen generally agree that this kind of hit-and-run architecture can have no place in their plans. (Cracked one architect: "That would be like the American Medical Association endorsing patent medicines as a substitute for a doctor's care.") Most committee members agreed that the architect should offer merchant builders more help on the following points:

► **Cost analysis.** This is primarily a builder's problem but a good architect-builder team can very profitably work together on relating house design to production costs.

► **Land planning.** Here the architect's job is to make most effective and economical use of land, with emphasis on the cost economies that can be obtained by working with contours to minimize drainage and grading costs.

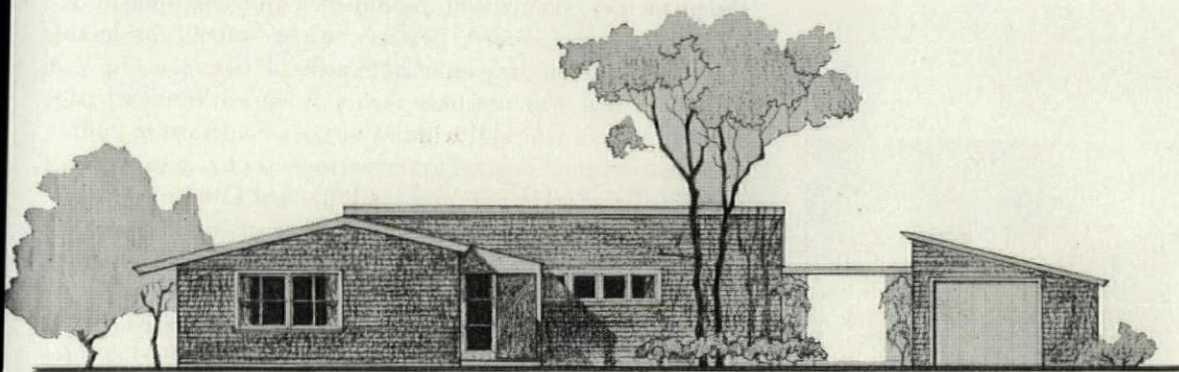
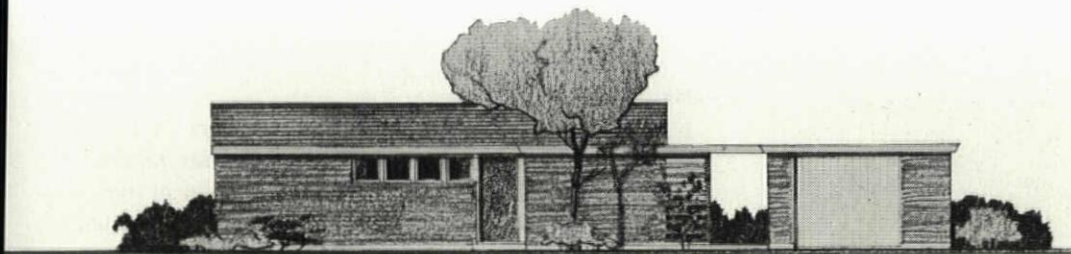
► **Product design.** This involves designing for a mass-volume house, in sharp distinction from the customary individual house design. As in other industries, product design will involve much study of what designs can be most economically produced.

► **Construction supervision.** Although construction supervision is primarily the builder's responsibility a good architect-builder team would provide for the architect's check on the execution of his plans.

Points of view

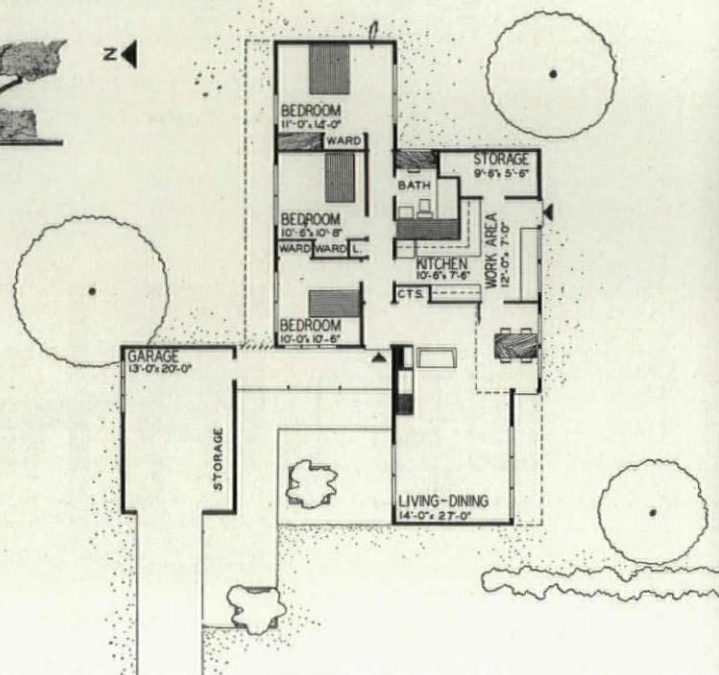
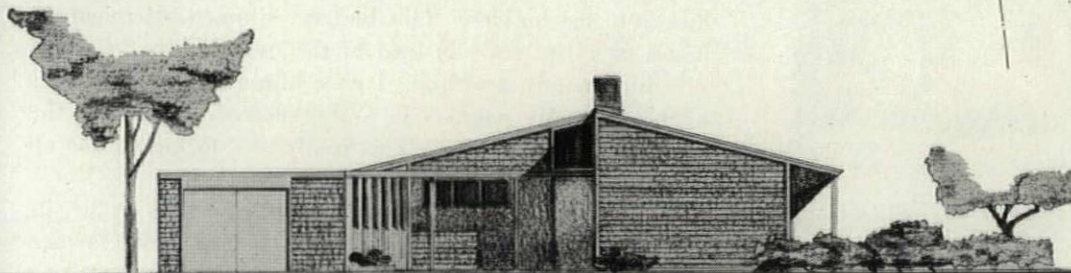
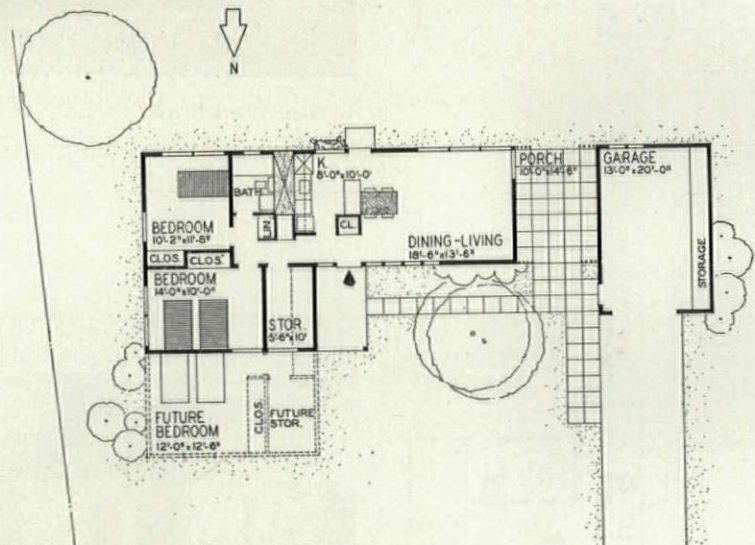
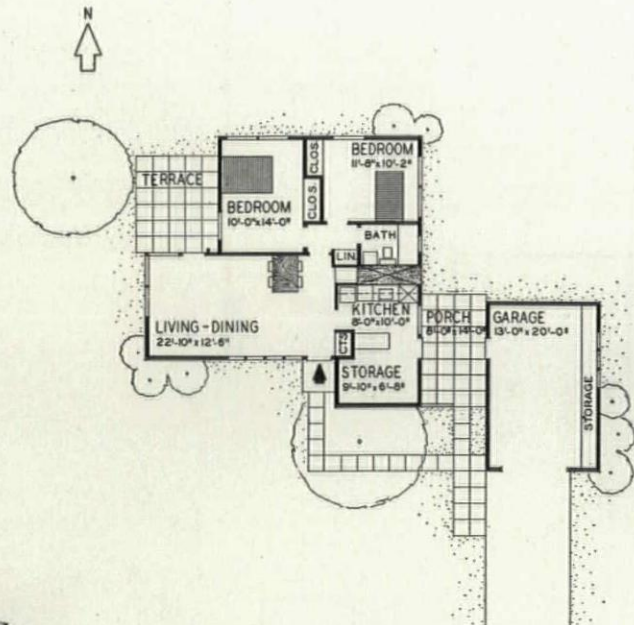
It was only natural that the architects and builders stressed different parts of this program. The builders were most interested in having the architect take more interest in his cost problems. Said Builder Walter Johnson of Buffalo: "In designing a custom-built house, an architect will draw a molding detail in his office. Often he has little or no idea what his molding means as a production problem. He doesn't know exactly how much it will cost to make it or how long it will take. On a single house, this lack of cost knowledge may not make much difference, but on a large-scale project it often means the difference between coming out in the black or in the red."

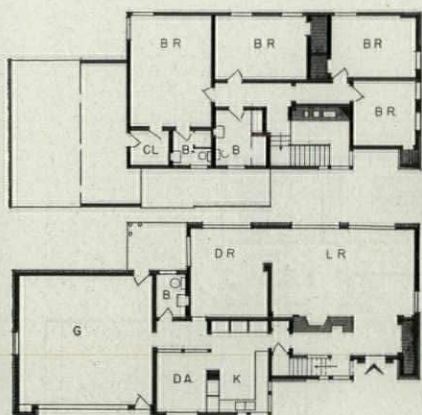
The architects, on the other hand, stressed the need for builders to understand that good design must be an integral part of a house, not something that is tacked on. As Architect Lawrence Waldron pointed out: "What the architect contributes to a building is intangible—good space planning, proportion and the like." While the AIA members of the joint committee were sympathetic with the builder's cost problems, they felt that builders would have to be more tolerant in giving architects some freedom, as much as the budget will allow, in carrying out his design concepts. They say that one serious fault of builders is that they often have rather inflexible ideas on what their houses should look like before they enter an architect's office for advice.



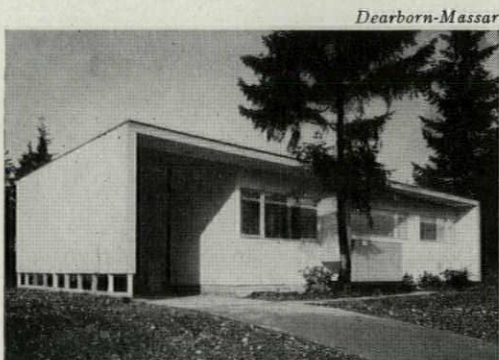
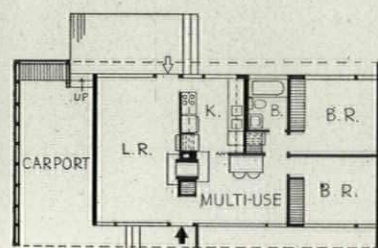
Architect Morgan Yost
Highland Park, Ill.

Architect Yost designed these houses for a proposed subdivision in a Chicago suburb. Although the subdivision is still unbuilt, the houses are shown here as an example of what a good small-house architect can do when he tackles subdivision work. Says Yost: "These units were planned almost completely around stock materials and standard construction methods. We went out of our way to make sure that they could be produced by just plain carpentry. Still I think that they have more interest than one usually finds in local projects—especially in the floor planning and in our attempt to orient them on the lots."

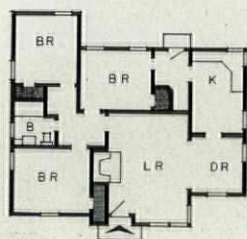




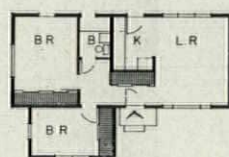
Architect John S. Highland
Buffalo



Builder Albert Balch
Seattle



Builder Paul L. Burkhard
Los Angeles



Builder Clark Daniel
Washington

Some good examples

In surveying the work of the 20 members of the AIA-NAHB Committee, it was found that at least half of the architects and builders had closely approached in their own businesses the kind of architect-builder collaboration that the committee is championing. (Among the other ten committee members, the builders were producing stock-plan houses and the architects had little or no experience in designing builder houses).

Perhaps the most advanced example of design co-operation by committee members was exhibited by Builder Tom Coogan (president of NAHB) and Architect Alfred Parker, both of Miami. When Coogan hired Parker last year to design his new subdivision, he did so with some reservations. His doubts evaporated, however, when—after considerable give and take on the part of both men—Parker came up with a house that was not only neatly designed (picture, page 115) but was also well within Coogan's construction budget. Since then, the Coogan-Parker partnership has been amiable and active. Parker not only land-planned Coogan's 160-unit sub-division but he supervises its construction (one visit per house) to make sure that his designs are being carried out correctly. Equally important, the partnership has been a financial success. Coogan's houses are selling at a good clip, largely because of their design-plus features. Parker's fee (\$500 for each of the two prototype designs plus \$25 for each house built) has added up to well over \$4,000. In addition, he has received commissions for two more subdivisions from other Miami builders. (For a complete summary of the Coogan-Parker story, see FORUM Apr. '50).

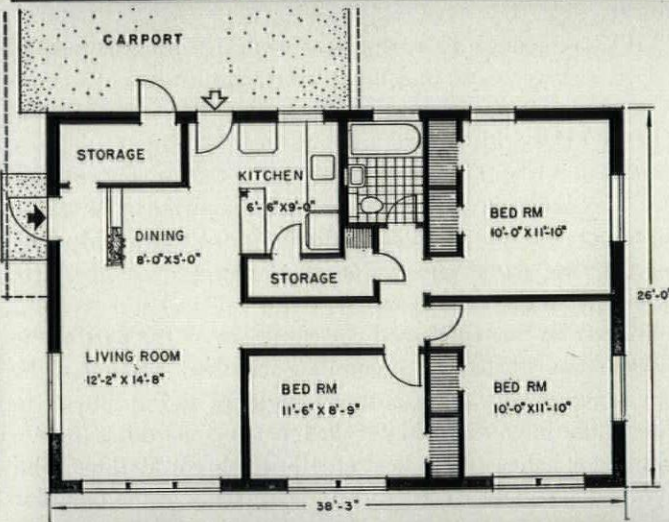
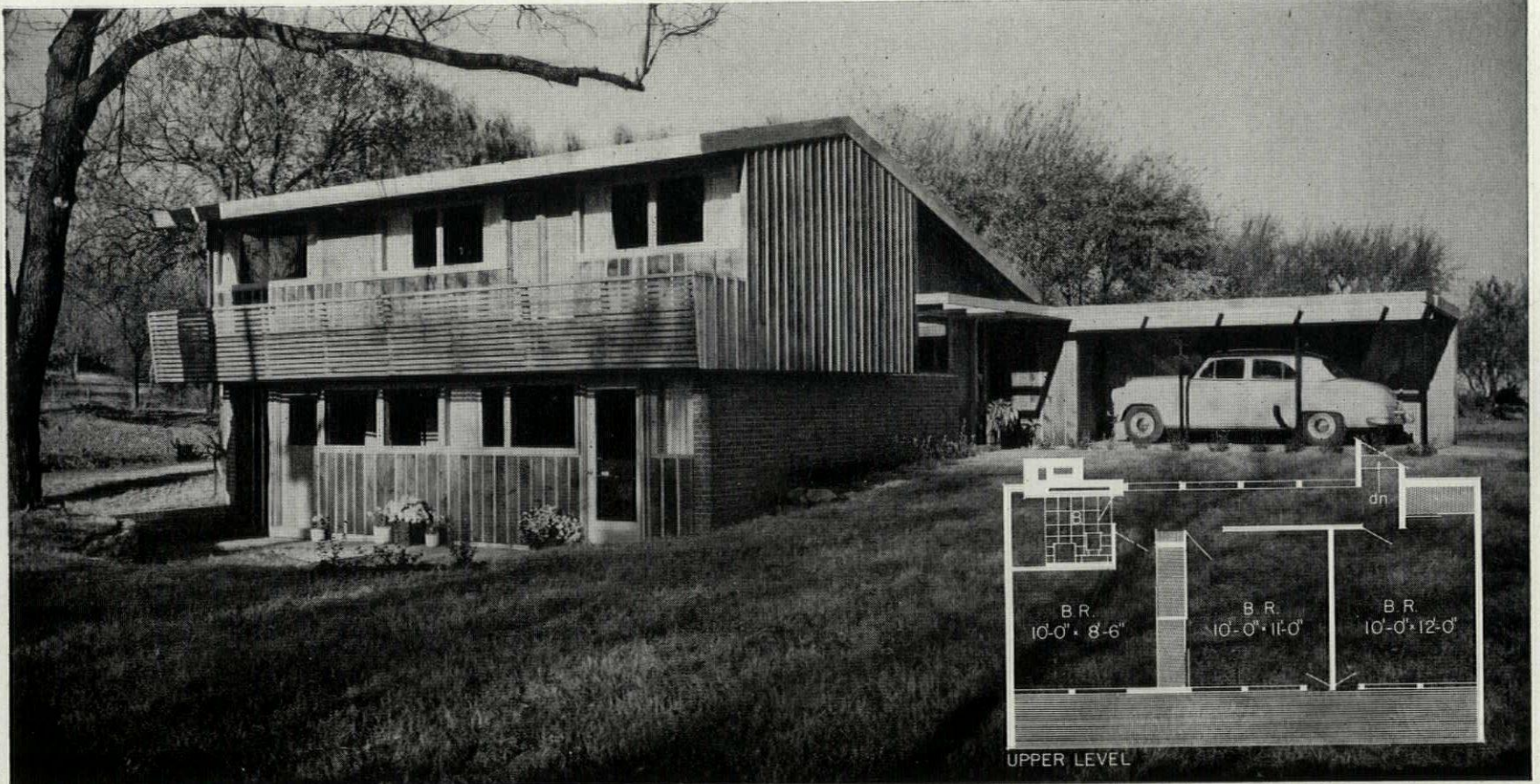
Accent on costs

Architect David Runnells of Kansas City believes that, aside from providing a well-designed house, the most important service an architect can provide a builder is a firm basis for determining costs. When Runnells designed his first subdivision house last year (FORUM, Apr. '50) he worked out a system whereby the builder Don Drummond knew his production costs down to the last penny. In the first place, Drummond turned over to Runnells a complete list of current costs so that the architect could better design his houses to the builder's tight budget. Runnells designed the house to 1/2 in. scale instead of the usual 1/4 in. "I didn't give him merely a section. I gave him a complete framing plan," Runnells points out. "We showed every stud and every batt of insulation. The result was to knock out all guess work when it came to estimating the cost of the house. It also meant that the carpenters and other trades on the site had less excuse for making mistakes." Runnells' fee for services was a flat 8 per cent for the first house plus 1 per cent for site planning and a \$50 royalty for each additional house.

Another architect who gives priority to the builders' cost problems is John Highland of Buffalo. Highland has over 30 clients and his only requirement for a new client is that he install a cost-accounting system. The requirement has a two-fold benefit. It provides the builder (sometimes for the first time in his business career) with an accurate idea of what his costs are. And it allows Architect Highland to show, in dollars and cents, where the builder can make savings by simplifying his design or by substituting materials.

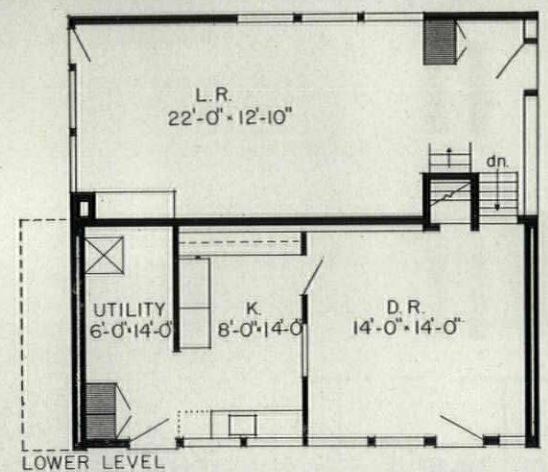
What price design?

All members of the Joint Committee were convinced that the question of fee payments was a soluble one. Not one architect on the committee indicated any objection to the fact that he would have to lower his present scale of fee-

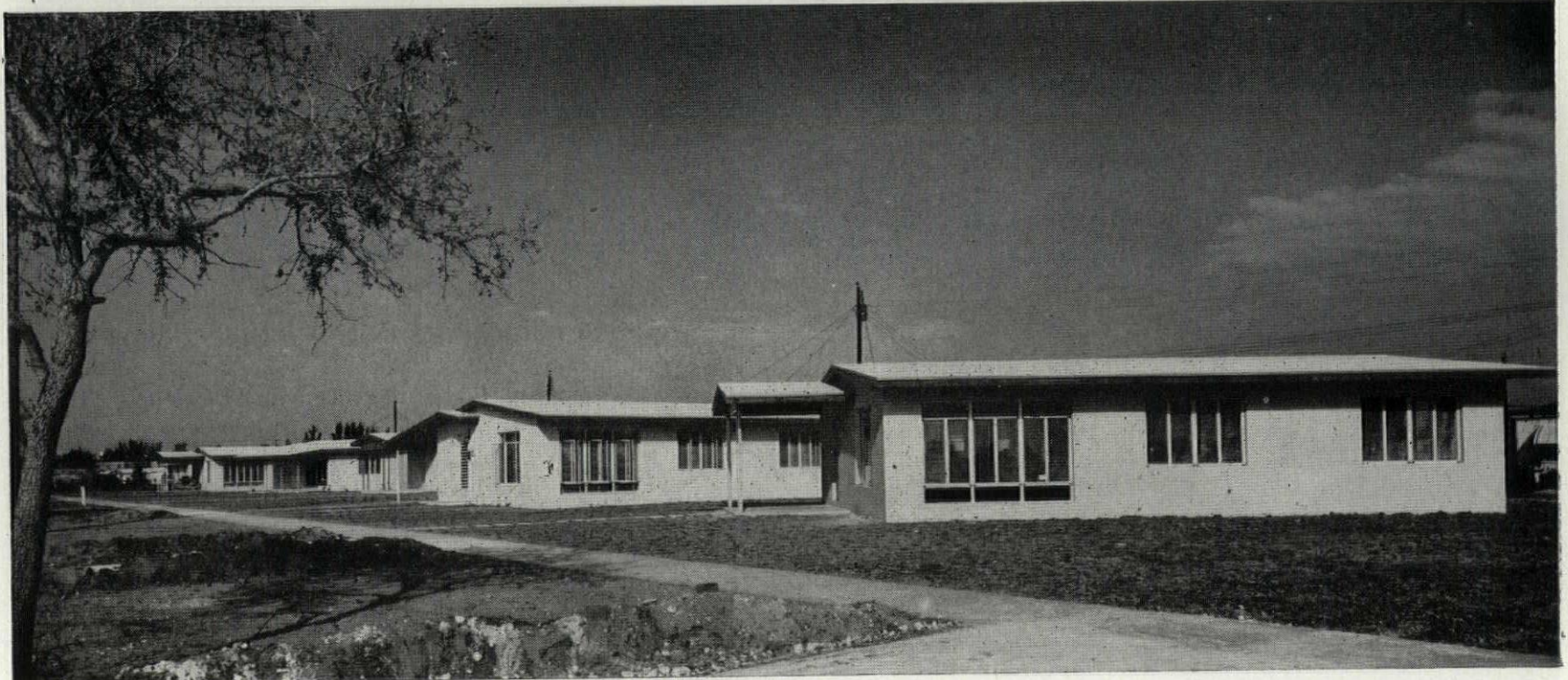


Architect David B. Runnells
Kansas City

Architect Alfred B. Parker
Builder Thomas P. Coogan
Miami

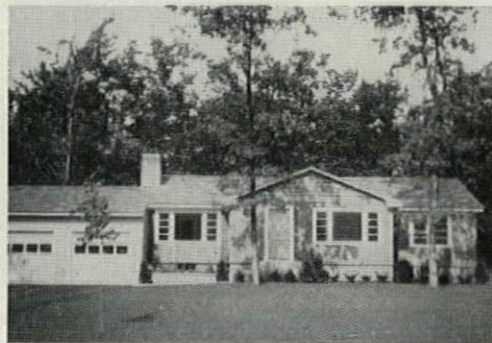
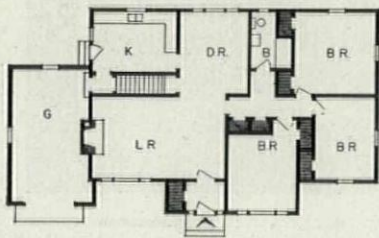


Rada

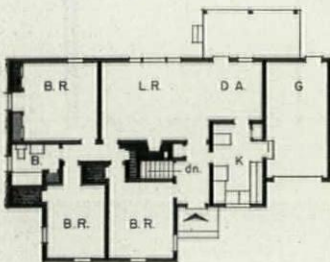




Builder H. Morton Robbins
Chicago



Builder Clark Sundin
Worcester



Builder John C. Taylor
Kansas City



Builder Joseph Vatterott
St. Louis

per-house considerably for subdivision work. Conversely, the builders were willing, in theory at least, to up their design budgets in return for closer co-operation with architects.

Individual members of the committee had some interesting ideas on how fees should be worked out. Architect Lawrence Waldron of Seattle thinks that a fee "for thorough architectural service" should be negotiated by the architect and builder "until there is enough experience gained to suggest a fixed minimum fee." Most of the other architects on the committee felt that a regular professional fee for a small house (6 to 8 per cent of its construction cost) should be charged on the first house, a small royalty for each copy.

FHA's influence

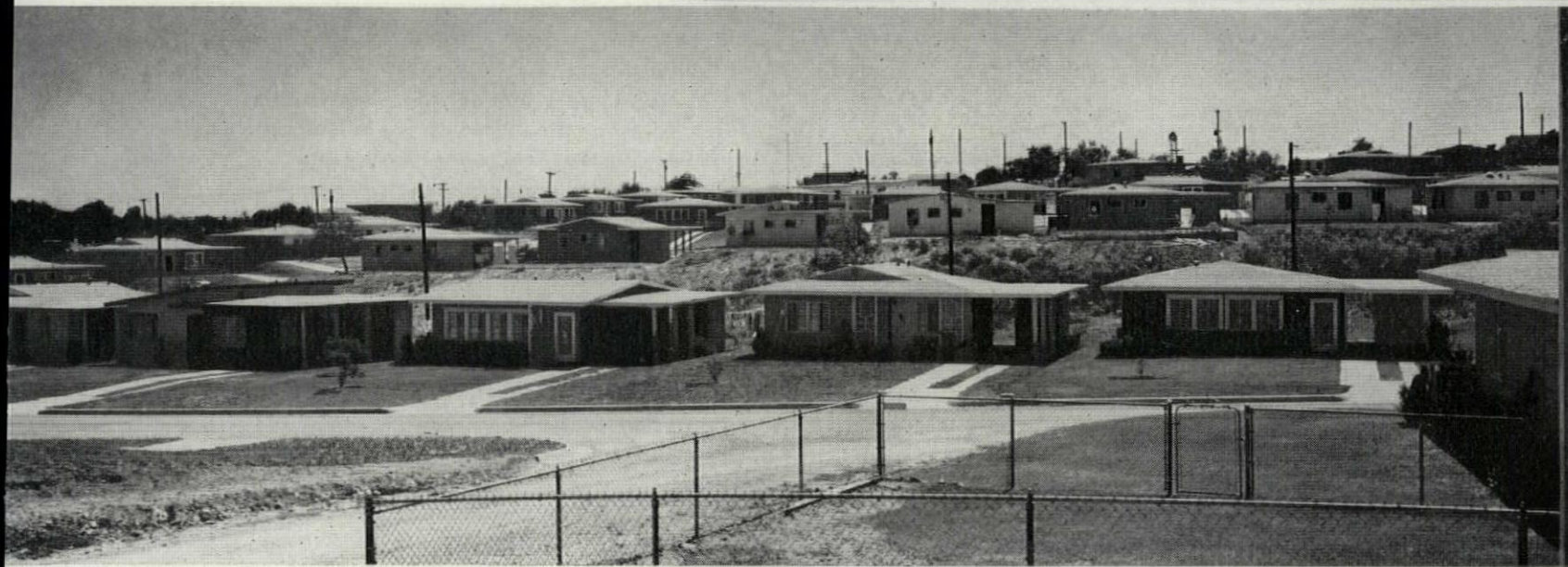
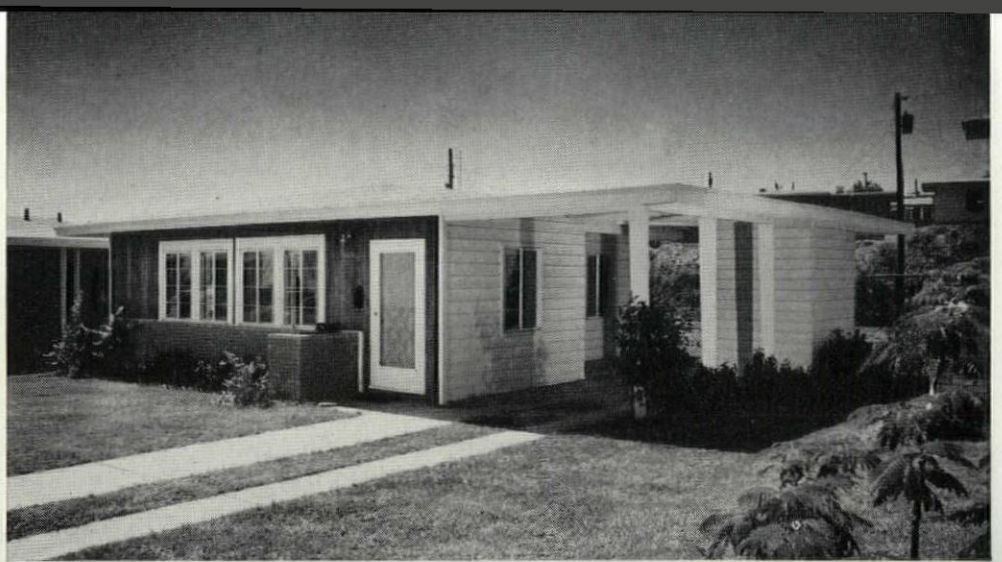
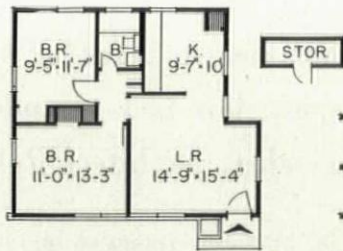
A number of committee members felt that the biggest stumbling block in arriving at better architect-builder relations was not the architects or builders themselves but the Federal Housing Administration. With some exceptions, committee members reported that local FHA offices made it hard for any builder who tried to break away from the conventional building practices in the area. As one builder points out, "They don't just come out and say, we don't like it. They give you a lower valuation—which has the same meaning. You just don't build." Well known is the fact that some of FHA's regulations are slanted against the kind of intelligent planning that a good architect-builder team can achieve.

FHA's reluctance in accepting new design ideas is usually carried over to banks and other mortgage lenders. Committee members reported that bankers have the same reservations as FHA with regard to "different" design in houses, namely, that it will have less resale value than a conventional unit. Commenting on this, Architect Lawrence Waldron points out: "If the lenders could be more thoroughly convinced of the actual sales value of planning, more operative builders would be seeking our services."

Aside from this continued conservatism on the part of the lender, most NAHB-AIA committee members agree that the time is now ripe for the nation's builders and architects to unite in the interests of better design. For one thing, public demand for better design is at an all-time high. Builder John Taylor of Kansas City attributes this largely to the fact that the consumer "home-and-garden" magazines are almost completely converted to contemporary design.

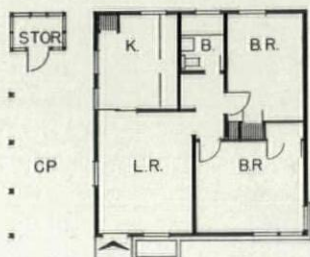
But perhaps the most compelling reason is the changing nature of the housebuilding industry itself. As an industry, it is still only a few years removed from the time when a "builder" was a carpenter who put up ten houses in a good year. He has given place to a new type of business-builder who takes a 200-house year in his stride. A recent Department of Labor survey of 15 metropolitan areas showed that, with one major exception (Pittsburgh), over 80 per cent of the small-house construction was done by this type of builder. Housebuilding is still, by its very nature, a local business but in each locality fewer builders are doing more building. The result, in terms of production efficiency and economy, has been striking.

This trend has strong implications in the move towards better architect-builder collaboration. For one thing, it means that the architect will be dealing with well organized business firms in the housebuilding field. A few hundred builders collaborating with a few hundred architects could, under this new trend toward integration in the housebuilding industry, change the design character of the nation's new subdivisions within the next few years.

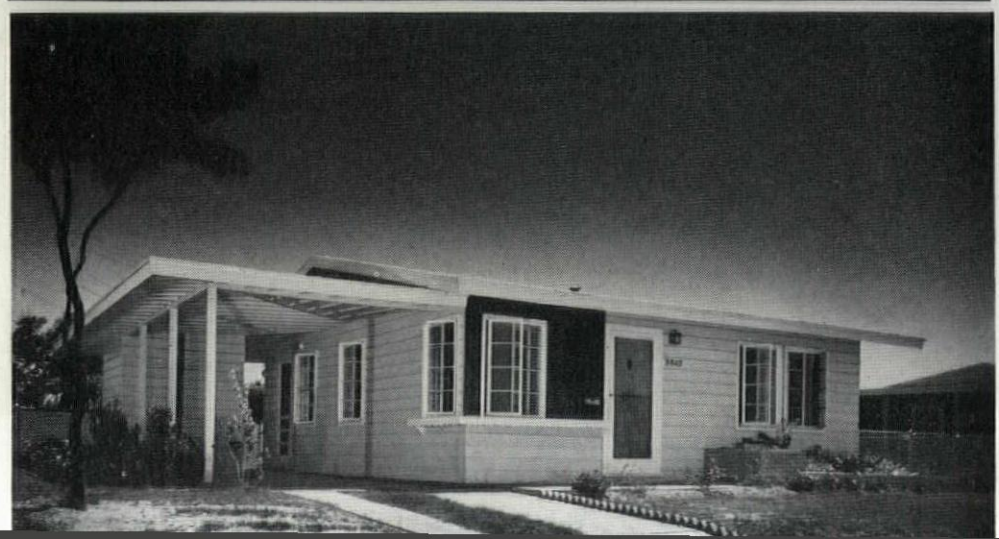


Here is some good planning in a low cost house. This group of houses being built by the Driskell Construction Co. in Fort Worth provides an important planning bonus that many more expensive new Texas houses lack: the bedrooms are oriented to the all-important southeast breeze. The 160 houses have 54 elevations. The reason: a silly FHA ruling that no elevation could be repeated on any seven adjoining lots and no floor plan repeated on any three adjoining lots. Sales price: \$6,500. Charles W. Armstrong, Architect.

Builder Joseph Driskell
Ft. Worth



Photos: Ulric Meisel



NEW HOSPITAL DESIGN IDEAS

produce more privacy for ward patients, more spaciousness for private patients. The prescription: new room shapes, new bed arrangements. The specialist: Architect Robert Stanton

Out in the golden hills of California, Architect Robert (Bob) Stanton is raising Cain with small hospital planning.

One after another he has been developing unconventional nursing rooms (hexagons and octagons), a "staggered" room plan, curved partition walls, and introducing them into his district hospitals faster than the U. S. Public Health Service can assess their working record and approve their wider use. If they prove as good in practice as they look in theory, they will answer four problems that have bothered hospital men for years:

1. Why can't the standard 4-bed ward be designed to allow more dignity and privacy for patients?
2. Why must the inner patient—even in the comparative luxury of a semi-private room—be deprived of light, view, air and spaciousness if his neighbor near the window draws curtains around his bed?
3. Why can't the oppressively 'cubicle' effect of most single rooms be relieved—especially when the U.S.P.H.S. is recommending a much larger proportion of these for smaller hospitals?
4. Why can't initial layout and equipment be geared to cut down operating and maintenance costs which are far greater in the long run than the price of original construction?

Stanton developed a challenging spirit towards hospital design over 15 years ago when he was asked to design Monterey County Hospital. He found the field wide open for his pioneering. No source of research or standards was in existence. Staffs had only the haziest notions of what they wanted. Planning boards considered consultants a waste of tax money. A preparatory three-weeks, dawn-to-dark survey of every hospital in the state gave Stanton little guidance except a tremendous list of things to avoid—"operating rooms too

small to move around in; operating rooms so big you needed roller skates; hardly any closets or storage space; most appalling of all, the patients' rooms—the standard 4-bed ward was almost cruel." Stanton started out to design hospitals in a crusading mood. He has kept right on.

Many sides mean space and light

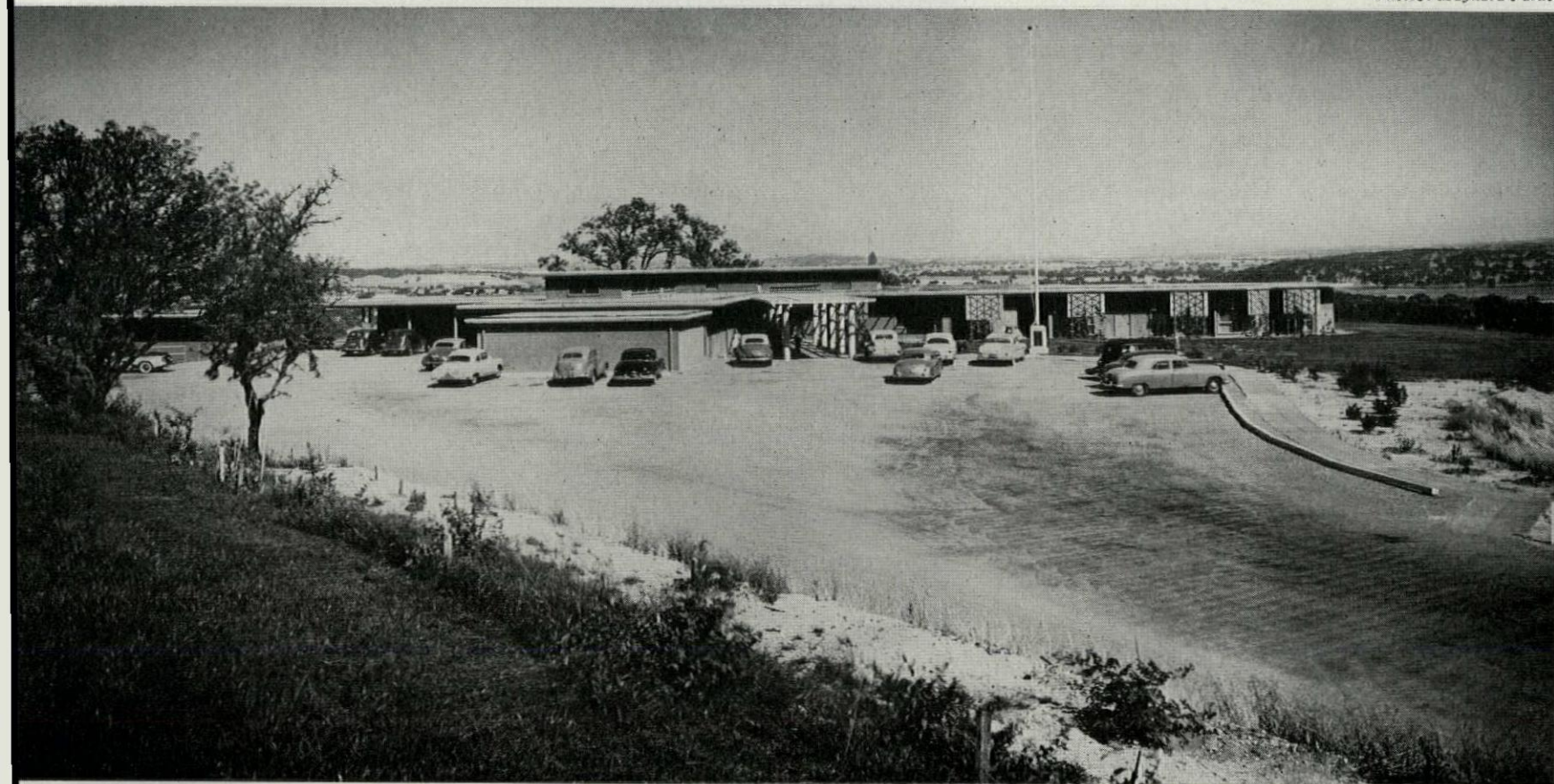
First Stanton tackled the two worst features of rectangular wards and semi-private rooms: 1) at least half the beds have little chance for light or privacy and 2) patients' heads are set too close together. The legal 4 ft. separation of beds prevents direct contamination and allows free access for attendants, but so close together a heavy-breathing patient—to say nothing of a snoring, groaning or coughing one—gives his neighbor precious little chance to relax. Pondering how to get the heads apart (the feet make no difference) and bring light to the inner half of the room, Stanton hit upon his octagon idea.

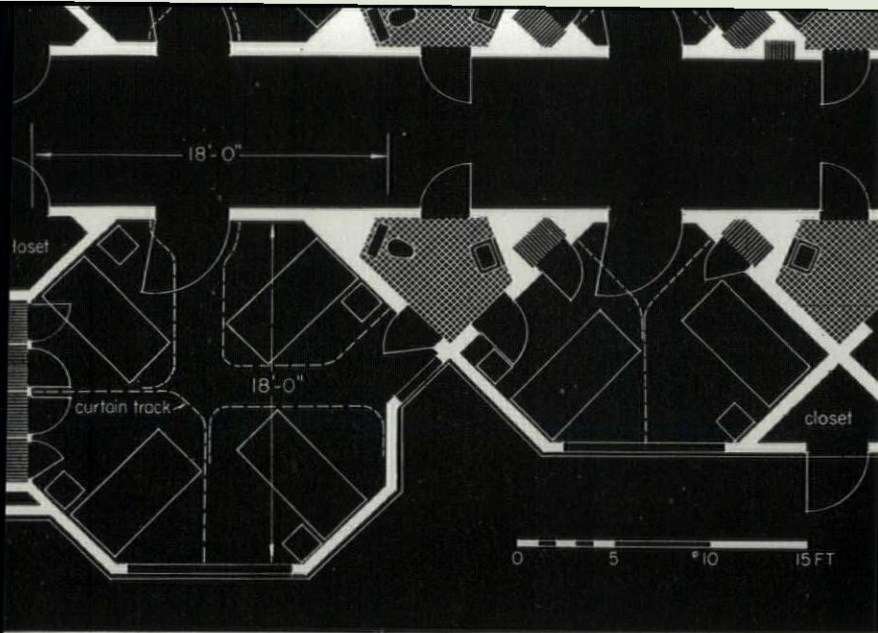
The extra sides of the octagon bring all four beds out from the dark corners of the room, yet keep the heads at least 12 ft. apart (three times the usual distance). In rectangular rooms even favored 'window' patients must face either the light or their neighbors. In the octagon, wide angles and greater distances allow patients to face any direction in privacy. A small second window (see Plan No. 1) brings light and view to one of the two inner beds. Unless all three exterior beds have curtains drawn the even fourth bed gets a measure of direct light. In no case is the patient so boxed as in the conventional ward.

Construction-wise Stanton has kept the complications of his plan to a minimum. All angles are 90° or 45°; leftover space is used for toilet rooms or closets (interior and exterior). Actual space con-

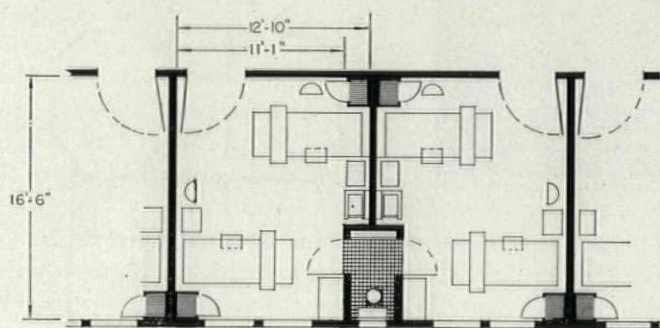
PASO ROBLES WAR MEMORIAL HOSPITAL

Photos: Maynard Parker

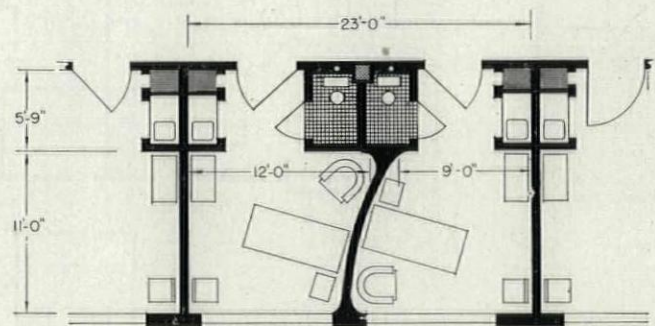




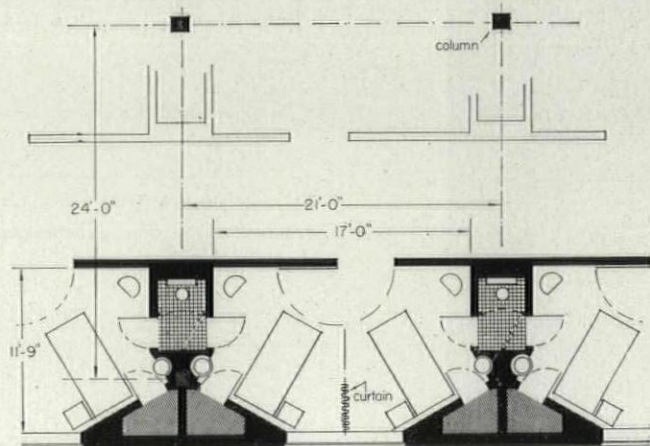
1. Four-bed octagon and two-bed hexagon keep patients' heads apart, allow each more privacy.



2. 'Staggered' room puts heads of beds against opposite walls; gets more light for the inner bed.



3. Curved walls get away from single room "cubicles" by the optical illusion of a longer facing wall, unequal angles.



4. New design for Hospital X will preserve the advantages of the hexagon without its long periphery.

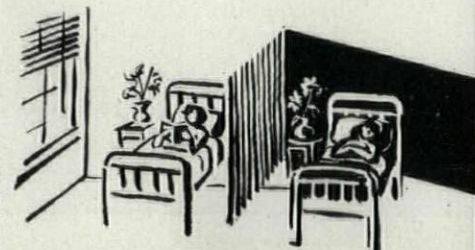
sumption of the room is 160.8 sq. ft.—less than a foot over the U.S.P.H.S. minimum for a 4-bed ward. A hexagon is used to bring similar benefits to two-bed wards (Plan No. 1).

Hospital gold rush

It took seven years and a virtual gold rush of hospital building (the gold coming from the state and federal treasuries to pay two-thirds of district hospital costs) before Stanton could find a Board with the initiative to try his octagon idea. The first test came in a 28-bed hospital completed 7 months ago in Paso Robles (and shown on the next pages). Now he is awaiting U.S.P.H.S. approval for its use in the stream of hospital projects that are coming off his boards.

"Staggered room" plan

Meanwhile Stanton has been trying to work some of the advantages of the many-sided room into a conventional rectangle. His "staggered" room is a device revolutionary only in terms of hospital protocol. It enlarges the dimensions of a double room to



Conventional two-bed room.

190 sq. ft.—which allows the heads of the beds to be set against opposite walls instead of side by side. This keeps them a full room-width apart and gives the inner patient view and light independent of the window bed. The scheme will get its tryout in the San Andreas Hospital now nearing completion—Plan No. 2. A possible snag is the close squeeze involved in moving beds in and out.

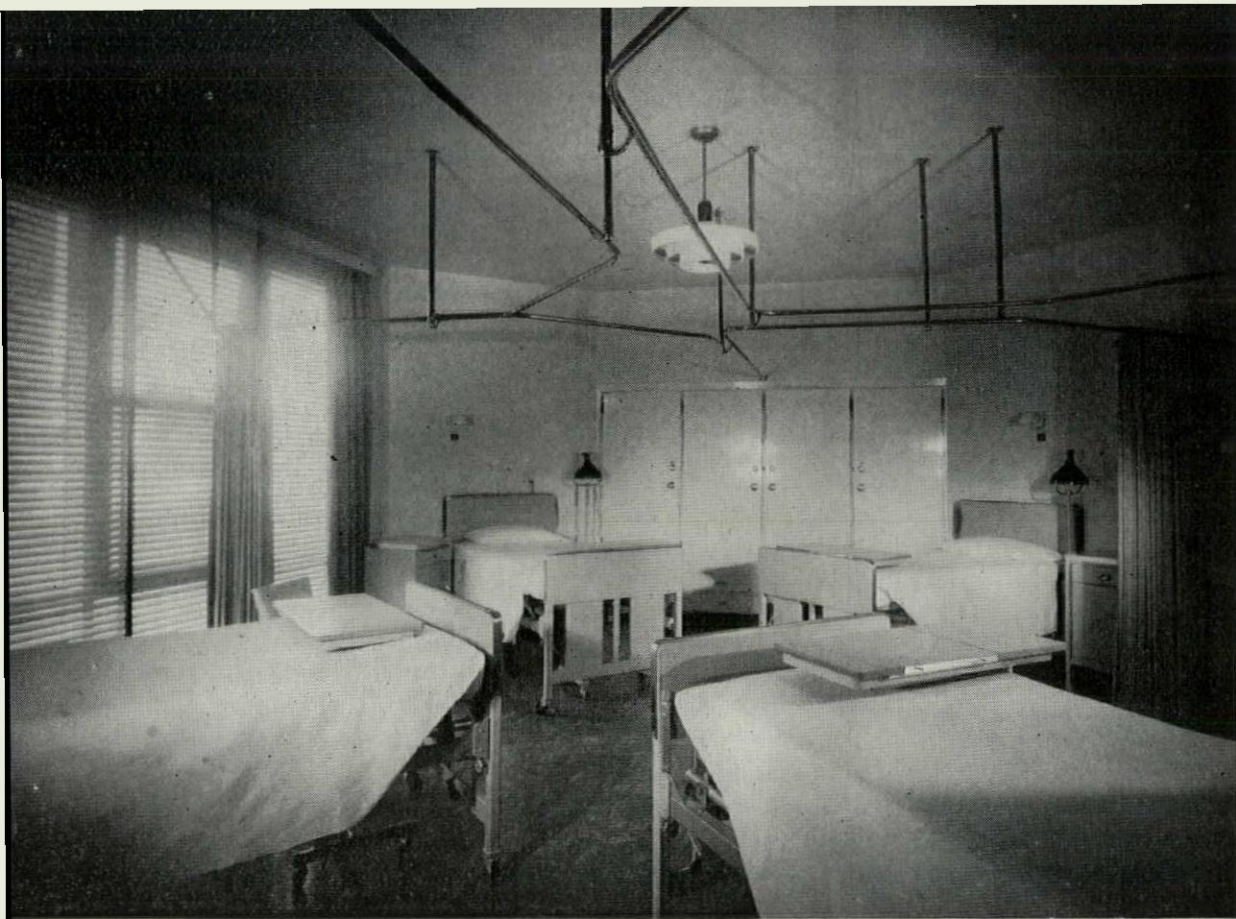
Single but spacious

The Salinas Hospital which is just getting under way, shows Stanton turning his attention from the ward and focusing it on the single room. In accordance with U.S.P.H.S. suggestions, a large proportion of these rooms are used in this hospital. The smaller the hospital the harder it is to find patients who can be doubled up in 2 or 4-bed rooms, since men and women, adults and children and patients with a number of diseases must be separated. Rural parts must also allow for elderly people set in their ways.

In arranging these little rooms (Plan No. 3, left) Stanton enlisted the laws of optics to relieve their "cubicle" effect. The long curving partition wall gives a visitor the impression of a much larger room than the minimal one he is entering. It also gets away at very small cost from the rigid grid of hospital layouts. The metal lath and stud walls are easily shaped from a single template. The extra plaster and labor required does not amount to more than \$100 per room.

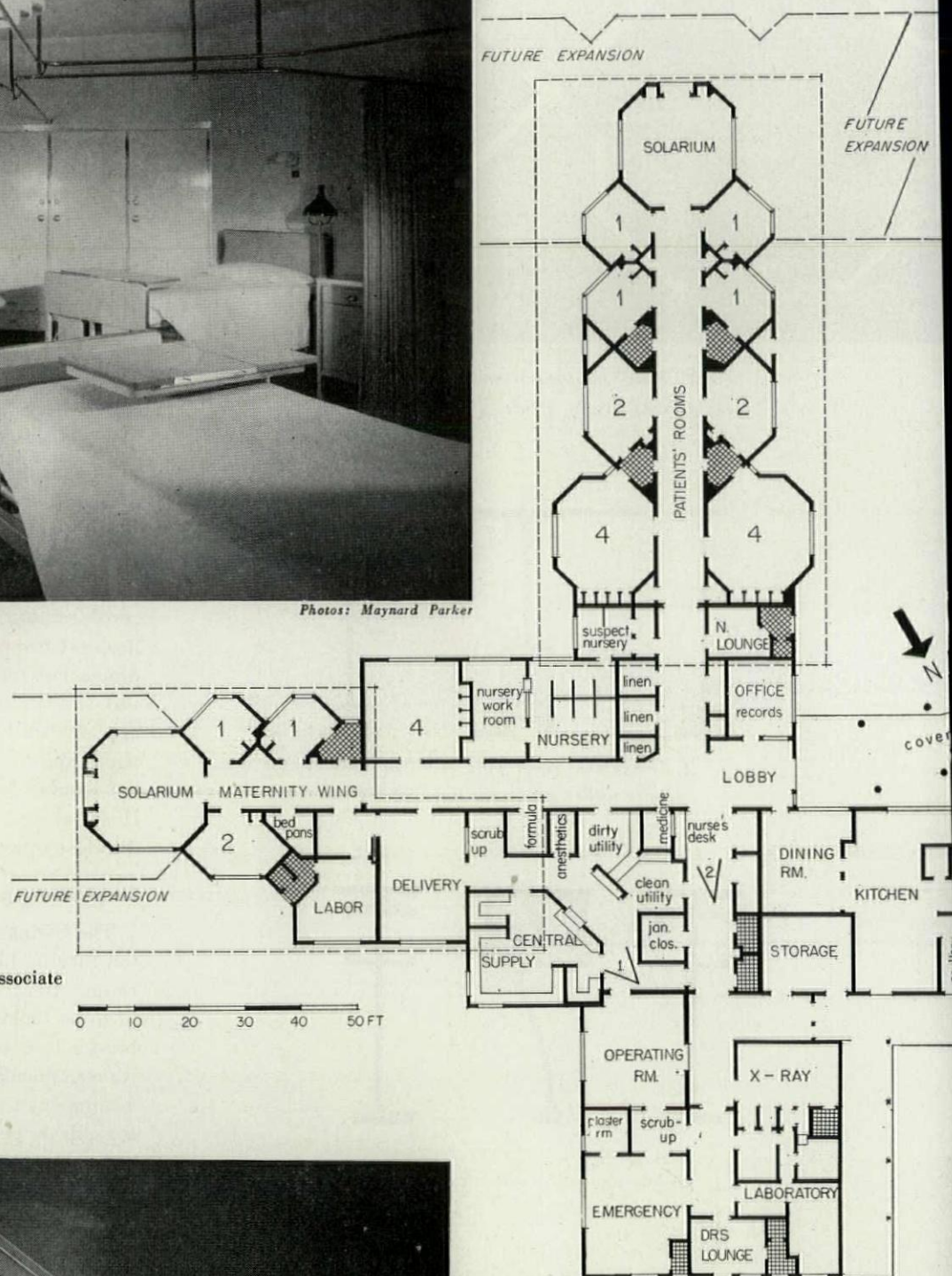
Multi-sided room "X"

Now Stanton is again at work—on a new version of a two-bed, multi-sided room for the next hospital to come his way (Plan No. 4, left). The extra sides are wisely provided here by the cabinet work, instead of expensive structural walls as in Paso Robles. (A triangular closet backs up the bed, allows a straight-line outside wall.) Facilities of each bed are completely independent. The new design is suitable for concrete slab construction, economical in California's earthquake country. It requires only two, instead of three or four cross columns—a saving that will absorb some of the cost for the extra square feet the plan requires (a lavish 240 sq. ft.). Final revision of the design will probably loosen the crowded relationship between bed, basin and closet.



Photos: Maynard Parker

Octagonal room in Paso Robles (above) has broad windows, long vision range for each patient. Heads of beds are three times as far apart as in the usual hospital ward. The plan of the hospital (right) shows integration of unconventional rooms with the rest of the building. All service and supply units are placed between surgical and maternity suites.



LOCATION: Paso Robles, Calif.

ROBERT STANTON, Architect; CHESTER R. PHILLIPS, Associate

M. D. PERKINS, Structural Engineer

G. M. SIMONSON, Mechanical and Electrical Engineer

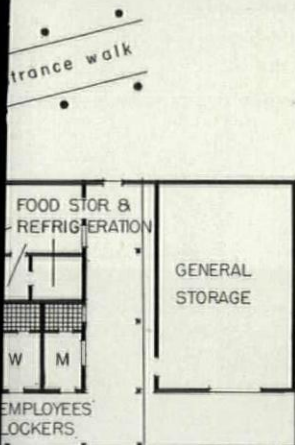
TED MERRILL and GEORGE GILES, General Contractor



Exterior of a nursing wing (left) is a dramatic expression of the unusual room-shapes within.



The two-bed hexagon, only partly visible from the door gives each patient equal light and privacy.



Service and supply rooms (below) are compact and well-equipped. U.S.P.H.S. wonders, however, if the tight, angled passages may not cause traffic problems for staff, patients and visitors.

The visitor approaching Paso Robles Hospital today, seven months after its opening, sees a pleasant one-story frame-and-stucco building perched halfway up a mountain. A Chamber of Commerce brochure boosts it as *The Nation's Most Complete Little Hospital*. The Administrator mentions with quiet pride that during the past week three specialists have flown in from nearby cities instead of bringing their patients to large urban hospitals. Nurses like the bright halls and the trellised entrance, call it "a very pleasant place to work." Patients in cater-corner beds look at the soothing rose-colored walls and are impressed by the "pretty rooms." Only the dramatic horizontal sawtooth of the hospital's exterior (photo, left below) serves as a reminder of its militant origin. The octagon achieves the supreme compliment of being taken for granted.

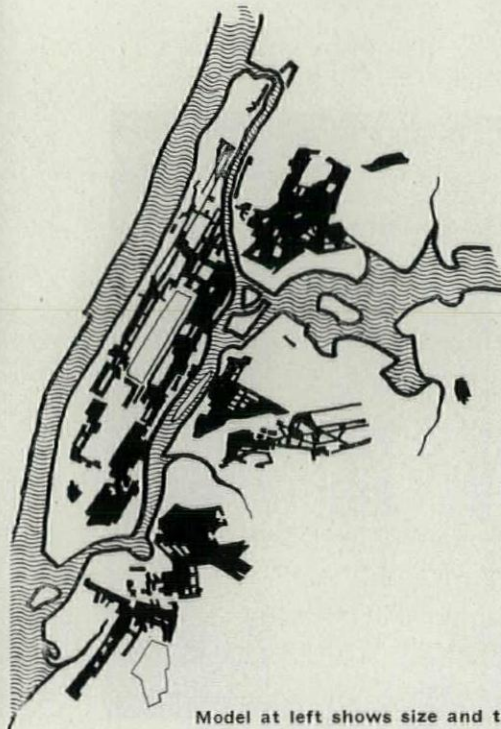
In addition to many-sided rooms, Paso Robles embodies other progressive hospital theories: ample allowance for expansion, centralized storage and supply departments, a concerted effort to make equipment save on scarce, expensive nurse service by fuller use of semi-skilled assistants. "It's a crime to build a hospital you can't expand," says Stanton, who worked for the government during the last war trying to squeeze more beds into existing hospitals—and learning what an unsatisfactory, expensive job it is. Paso Robles is provided with surgical, supply, technical, kitchen and laundry equipment that can care for 50 beds instead of its present 28. A single compact central supply and storage section is set in a block equidistant from maternity and surgery suites. Adjacent is an enclosed nurses' workroom and a nurses' station which has control of the front entrance. Located here is a switchboard for the nurse-patient intercommunication system. This piece of equipment not only eliminates the usual preliminary trip to find out what the patient wants, but means that attendants, rather than nurses, can be sent to take care of all but medical requests.

These extra facilities do run up the cost of Paso Robles, but not exorbitantly. The over-all total is high: \$464,900 (or \$27 per sq. ft.), partially due to high California building rates (\$22-24 is the average U.S.P.H.S. hospital cost). Other cost boosters: 4 per cent extra for multi-sided bedroom wings, about \$5,000 for the intercommunication system, a separate reinforced concrete laundry building, and a 4-bedroom nurses' residence set up higher on the hill.

Nurse-patient switchboard is located on the desk of the main nurse's station (extreme left of photo below). Partially seen through the window is a separate formula-mixing room.

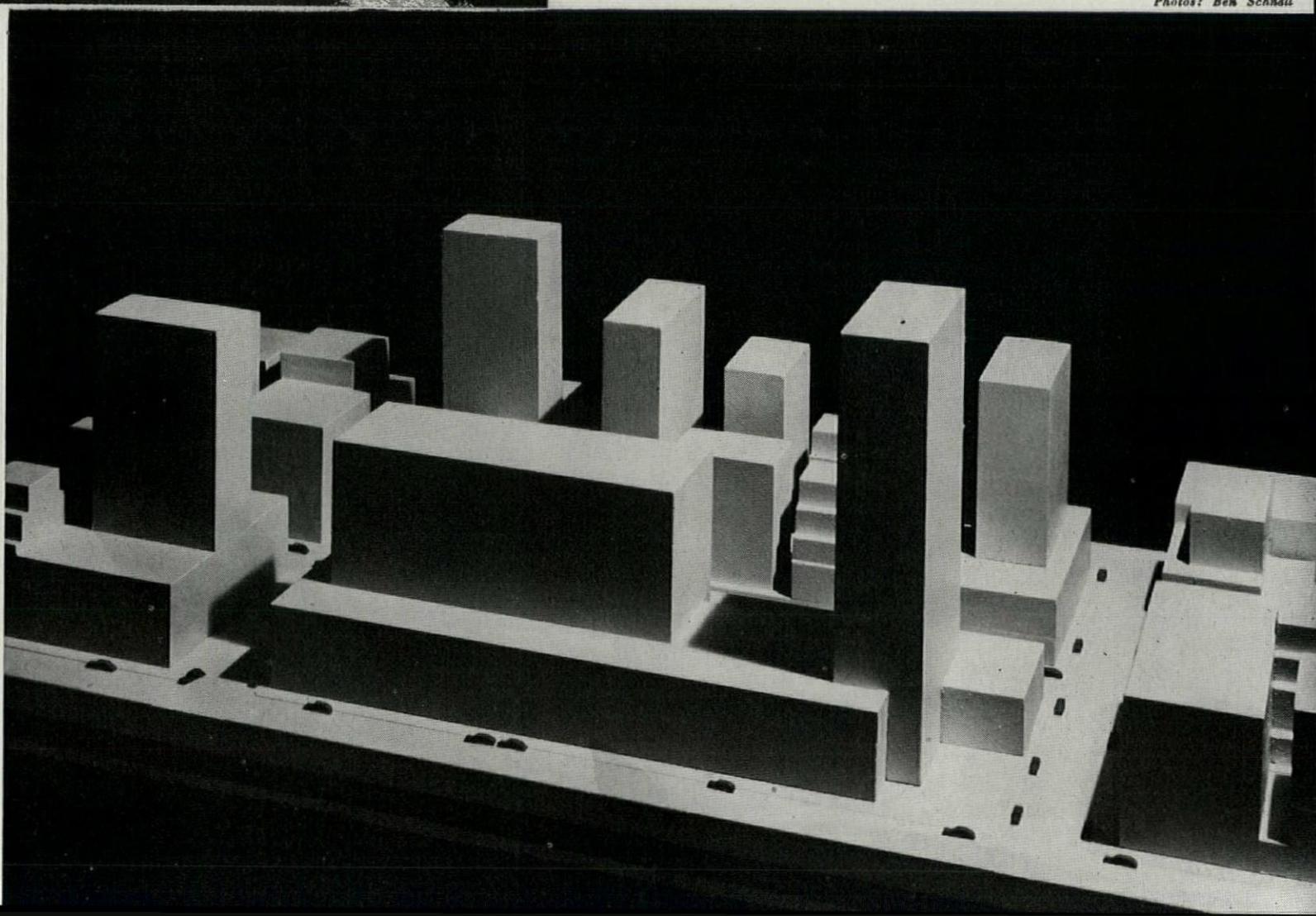


NEW YORK RETHINK



Model at left shows size and type of building bulk now possible in black areas on adjoining New York map. Below: New city architecture made possible under proposed zoning. Floor Area Ratio of model is only 10, would be much higher in midtown Manhattan block.

Photos: Ben Schnall



TS CITY PLAN.

New zoning proposal takes a good look at the big city, decides to make concentration work instead of going bucolic; takes a good look at tall buildings, decides to set the architect free

"This new zoning proposal for New York City is the most constructive activity undertaken by this administration."

New York's outgoing Mayor O'Dwyer was not exaggerating. The new zoning resolution he submitted (on the basis of a \$300,000 two-year study), will almost certainly affect city planning from coast to coast, and architects, builders, realtors and bankers must soon sit up and take notice of at least three points of national application:

1. *Architecture*—it would lift the cakemold off the skyscraper, set architects free again to do more than fill a legal building envelope;
2. *Density*—it would recognize the good and sufficient reasons for concentration in the heart of a big city, try to make concentration more workable and more livable;
3. *Blight*—it would impose much tougher restrictions on mixed land use, holding that indiscriminately mixed neighborhoods are a prime cause of blight.

The report which follows should tell the architect in Chicago, the builder in Kansas City and the banker in Boston what he most needs to know about the new thinking in New York that may influence architecture and planning in his own community.

Much city planning of late has come from people who do not like concentration and wish they could reverse the processes which create big cities. This bucolic viewpoint finds no expression in New York's new zoning plan. It recognizes clearly that some concentration is essential; that the reason copper companies from Montana and oil companies from Texas move their headquarters to New York is not to get green grass outside the windows, but to have their lawyers, bankers, advertising counsel, big customers and principal suppliers right around the corner; that the reason New York holds its biggest industries is their dependence on a host of near-by subcontractors; that the reason 90 per cent of the people who work in New York also live in New York is that they want to live near their jobs and near to the kind of central recreation only a big city can afford to provide.

Consequently, the new zoning plan calls for little lessening in the commercial, industrial and residential concentration which already exists in limited areas in the very heart of the city; it proposes only to make these high concentration areas more accessible through better parking and off-street loading controls and more livable by requiring at least some space for outdoor living for every new dwelling unit.

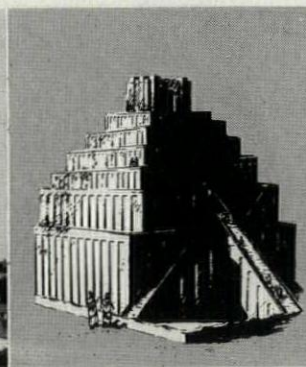
For the rest of the city, however, the new plan proposes radical changes. It would impose suburban rather than urban controls on the outlying districts, set up a new sliding scale for bulk limitation, reduce by more than 50 per cent the freedom of stores to invade residential blocks, halt the spread of industry except to certain new areas specifically protected for those industries which can be decentralized, give new sanction to "garden factories" surrounded by employee homes, and provide special zoning for the new automobile-created need for outlying shopping centers.

Photos: Brown Bros., Chicago Architectural Photography Co.

Why does New York need rezoning? The answer is partly implied in the reforms listed above. But the principal reason is that New York's pioneer 1916 resolution, copied and improved on by some 2,000 communities, now lags far behind zoning progress elsewhere, despite 1,500 complicated amendments. *Its bulk restrictions have proven tight as an iron cakemold, but its land use and density restrictions have proven loose as a billowing circus tent*—so loose and unrealistic that they could house 66,000,000 inhabitants and provide work space for 320,000,000. In brief, they left New York almost wide open to the blighting perils of a runaway town.



Sullivan: 1894



Babylon: 2,300 B. C.



Manhattan: 1950

THE CAKEMOLD AND LOUIS SULLIVAN

In 1916, a brave attempt

Forty-two stories above a lot called 120 Broadway in downtown Manhattan is the roof of the Equitable Building. This roof has almost exactly the same area as the ground floor nearly 600 ft. below. That floor, in turn, covers the entire city block.

For the pioneer city planners of 1916 the new Equitable Building was an enormous last straw. Already the streets of downtown Manhattan were canyons as deep and narrow as the sikh at Petra. To force builders to stop darkening the streets and blocking out each other's light and air as Equitable had done, they put through America's first zoning ordinance, which (except for a 25 per cent tower) set rigid limits on just how high a building could rise at any given point. As a rider (as far as the general public was concerned) it also imposed the first land use restrictions in the U.S.

The idea of opening up the streets to light and air was fine, but the rigid pattern put architects in a straight jacket and stymied the progress of skyscraper architecture. A cakemold was clamped down on the exuberant experimentation with new and borrowed forms which had given New York such diverse shafts as Woolworth and Singer, Metropolitan and Equitable in the years after Chicago surrendered its architectural leadership. In place of the tall, rectangular towers of Louis Sullivan, a lopsided distortion of the Babylonian ziggurat surmounted by a spindly shaft became the trademark of the New York office or loft building.

Equitable: 1916



Oddly enough, architects did not at first seem to mind this straight jacket. Historians like Thomas Tallmadge thought it would produce a revival of poetic forms; and city apostles like Hugh Ferriss glamorized these forms in dramatic presentations. The step-back silhouette became fashionable across the country, even where no ordinance required it.

Not until the building boom of the Twenties did architects wake up and realize that the cakemold had almost put them out of creative business in New York, where building form ceased to be a problem in design, became instead a test of ingenious, economic doodling on how to cram in usable cubage. With a few notable exceptions like Rockefeller Center, Daily News, McGraw Hill and Irving Trust, New York gave up its leadership, and since the war the best work of New York architects has been done for Pittsburgh, Baton Rouge, or Panama.

Functionally, the cakemold proved even worse. Except in block sized developments, the restriction to 25 per cent of the lot made towers so spindly they were hardly worth building, but on the lower floors, builders were left as free as ever to cover the whole site. Typical of scores of resulting bad buildings is the venture now under construction alongside Rockefeller Center, with a tower so small that it is nearly half filled with utilities and shafts, but with lower floors so big that some desks will be 80 ft from the nearest window!

In 1948, a new leaf

In the bright and hopeful days right after World War II, many an American community set out to lift its own face. New York was no exception. In the City Planning Commission quiet, studious Lawrence M. Orton, LaGuardia appointee and long-time advocate of rezoning, saw his chance when Robert F. Wagner, Jr., became his chairman. Together they persuaded the Board of Estimate to approve a special rezoning study by the young firm of Harrison, Ballard & Allen. The new proposal is the result of that study.

To architects, the point of greatest interest is the proposal to throw away the cakemold and set architects free to plan handsome and functional buildings within three broad limitations on bulk and light obstruction.

A notable innovation is that instead of applying the same restrictions to the heart of the city and to its still undeveloped outskirts, the new proposals would set up a sliding scale which would permit 15 or more times as much building bulk in high-land-value neighborhoods where transportation facilities converge, as compared with low building bulk near the city line. It would perhaps allow almost the present economic bulk in the financial district, Murray Hill, and midtown Manhattan. It would impose no cut on the highly controversial bulk of Stuyvesant Town. But in far away Queens, it would cut permitted bulk to a twentieth of what is now legal.

The three new instruments to control building density would be:

The Floor Area Ratio (FAR);

The Angle of Light Obstruction (Light Angle);

and the Area for Light Access (Wedge for Light).

The box to the right shows how these instruments will work.

From here on, order or chaos?

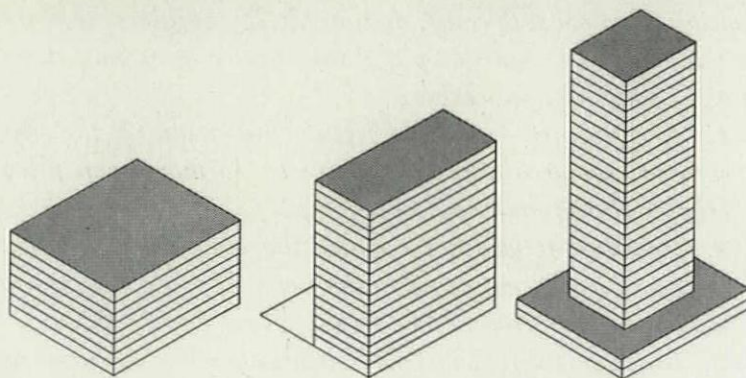
Would the new freedom result in license? Would the fairly regular street pattern of the setback law be replaced by irregular excursions into individual fantasy? The big building had been given back to the architects; in the interest of the city as a whole, they might have to police themselves.

In looking for a way, they might take a leaf from Philadelphia's book. There the local AIA has named an advisory committee to help architects with commissions in redevelopment areas to subordinate their work to the overall city pattern, to respect basic principles of orientation, massing, materials and finishes. Still in its infancy, the project is off to a good start.

HOW THE BULK CONTROLS WILL WORK

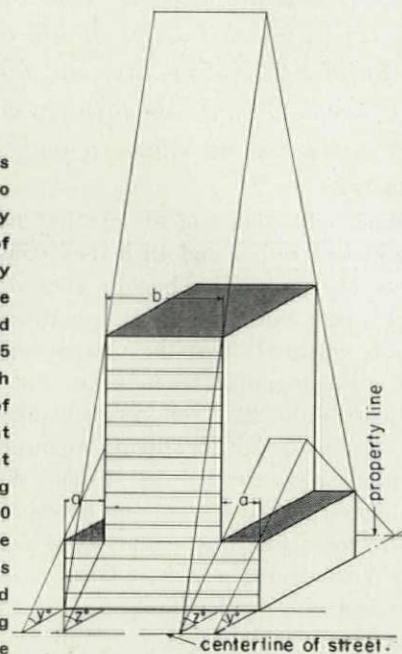
FAR—means fixing the total bulk of buildings in each neighborhood by a varying ratio to the lot size. If FAR is 8, the entire site could be covered, as in the diagram here, for 8 stories, or half the site for 16, etc.—or different spots could be built to different heights. Most probable effect in Manhattan: for stores and lofts, all space used for big floors without zigurat tops; for offices and apartments, less cubage used near the ground, but bigger and more usable tower floors. Typical FARs

proposed: 15 around Grand Central (which real estate circles think will be raised to 18 or 20 before the proposal becomes law); 15 in the Garment Center; 11 for Park Avenue apartments; 3.5 on the East River near Stuyvesant Town (where FAR is actually 3.85). Other present FARs—Rockefeller Center, 12; Empire State, 32; Crowell-Collier, 11; Tishman, 18; 100 Park Avenue, 20; Lever House (FORUM, June '50) 6; most recent Park Avenue apartments, 10—11.



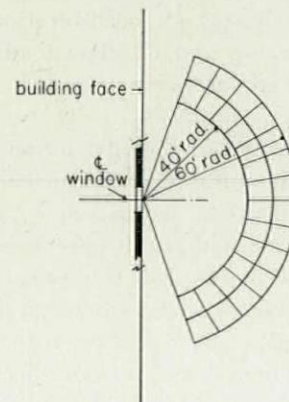
Light angle

On letting light into the streets the new zoning plan would also give architects a new freedom by fixing only the average angle of light that can be blacked out by the building. The higher the FAR, the higher the permitted angle. For example, a FAR of 15 on any street would carry with it an average front light angle of 72°, and an average rear light angle of 78°; a FAR of 5, a front light angle of 66°. By averaging the angle, in a 63° area on a 60 ft. street, a building could rise to 145 ft. for two-thirds of its frontage (at an angle of 78°) and rise to 20 ft. for the remaining third of its frontage (at an angle of 34°). By comparison, the average light angle for the RCA Building is 79°.



Wedge for light

This is a new device to protect the light of every window in a building (light angle protects light in the street). To do this, the 140° horizontal view arc is divided into fourteen 10° arcs, each of which is ruled off at 40 ft., 50 ft. and 60 ft. Eight of the resulting 28 units (5 of them contiguous) must be unobstructed.



THE CIRCUS TENT AND URBAN BLIGHT

Uneven densities and mixed uses

Until now, New York's planners have been unable to decide whether they wanted to keep the city's manufacturing, retail and office space concentrated, or whether they wanted to encourage decentralization over the five boroughs.

The 1916 zoning ordinance left enough streets open to retailing to provide frontage for just about every store in the whole U. S. It left about half the city open to manufacturing—enough area to provide work space for 320 million factory and office workers.

Now, H. B. & A. have taken a good look at the record and most particularly at statistics kept by Consolidated Edison, whose Clifford Beardsley headed up the entire rezoning study. That record shows that manufacturing, which took brief flutter towards decentralization in the early '20's, is once again as concentrated as it was in 1900 on some 6,000 of the nearly 100,000 acres now open to industry. The record shows that New York's tremendous office growth since 1900 has come almost entirely in the compact Wall Street and Grand Central districts. The study shows retailing still concentrated on a tiny fraction of the permitted frontage.

Despite this clear fact of increased concentration, many areas have been threatened with the creeping blight which can be spread quickly by incompatible uses. A single store can impair house values on a residential street; one loft can cheapen a fine office building neighborhood. Under the present zoning it would be perfectly legal to open a slaughter house within a stone's throw of Wall Street, and, within a stone's throw of swank Park Avenue, warehouses, factories, garages and breweries are still free to mingle with fine town houses and penthouse apartments.

From such license industry can suffer too, for factories in areas open to residential use can be bedeviled with injunctions. As a result, some industries that could decentralize stick it out amid the traffic jams of Manhattan's west 20's.

How to check creeping blight

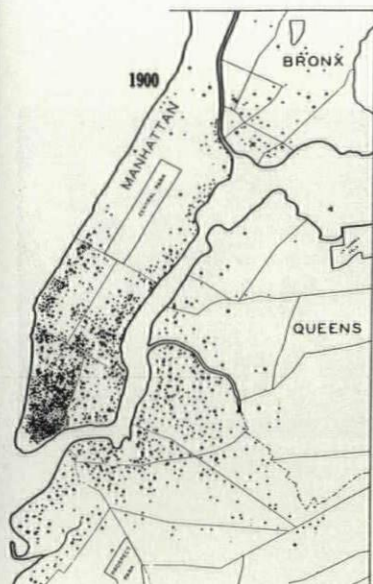
The new zoning ordinance would crack down on all this confusion by cutting from 100,000 to 10,000 acres the areas open to manufacturing; by forbidding manufacturing in office buildings; by a wholesale cut in the frontage open to retailing (especially in the outer boroughs), and by discouraging office building expansion much outside the present office building areas.

In the 10,000 acres left open to industry—mostly on the lower west side of Manhattan and certain waterfronts in the other four boroughs (see map)—industry would be protected against neighborhood complaints. Except for these greatly reduced areas set aside for industry and commerce, all the rest of the city would be set aside for varying densities of residential use.

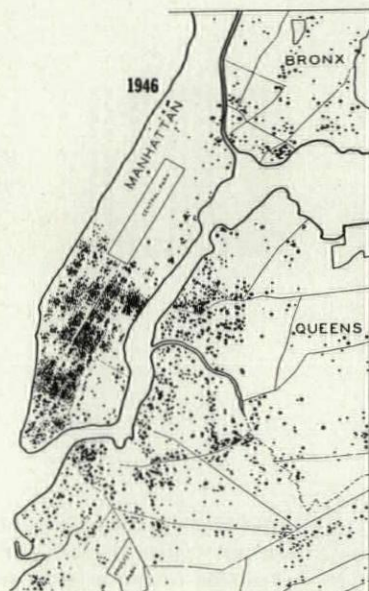
This sharp attack on the spread of incompatible uses could be of major importance to halt creeping blight.

What about existing blight?

What New York should do about existing nonconforming buildings is left in doubt. Taken all together, these represent a large investment. New York's answer may be borrowed from other cities which have already faced the problem. Chicago and Los Angeles make amortization compulsory for all nonconforming buildings within 50 to 100 years, depending on their construction. New Orleans make amortization compulsory within 20 years in residential areas. Seattle has ordered all obnoxious uses in any noncommercial district removed within six months.

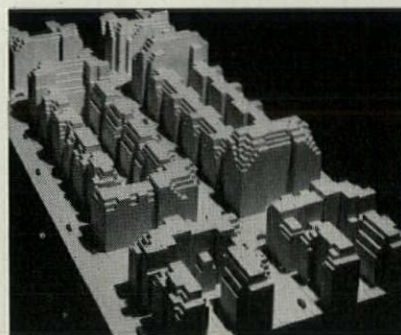


Top map shows locations of New York's six major industries in 1900. By 1920, some had tried decentralization; but in 1946 (right) most had returned, found centralization in lower and midtown Manhattan more efficient. Below: Principal manufacturing areas under new proposal. In addition to existing central locations, new proposal sets up protected industrial areas in outlying boroughs, hopes this will encourage some manufacturers to leave Manhattan island.

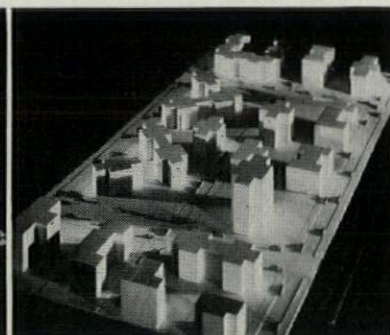




Map shows New York areas where (under present zoning) high-density and ziggurat-bulk apartments may be built, similar to those shown in model at right. Far right: This type of garden apartment layout will be encouraged in these areas under new proposal.



Before: FAR 6.5-7.5



After: FAR .57

Still another cause of blighted areas exists at the boundary line between zoning districts, e.g. where a residential neighborhood adjoins a commercial or manufacturing zone. Along these boundaries, neon signs, industrial nuisances (especially those involving noise) and other trademarks of the nonresidential neighborhood will reach out deep into the residential area, go a long way toward destroying real-estate values along its periphery. To deal with this problem, H.B. & A. proposed a system of transition zoning that creates a kind of 100 ft. cordon sanitaire around the commercial or manufacturing area involved, helps to keep the view out of many a residential window obstructed and pleasant.

But some industries are good mixers

The new ordinance would recognize, however, that there are certain light industries, free of all nuisances, which can fit very well into residential neighborhoods and provide nearby employment (example: the Sylvania factory in Queens). One of the most interesting proposals for the new ordinance would create special mixed residential and industrial zones where such plants would be approved, provided they are surrounded with landscaped grounds of at least double the factory area, with ample provision for employee parking and off-street loading.

Off-street loading

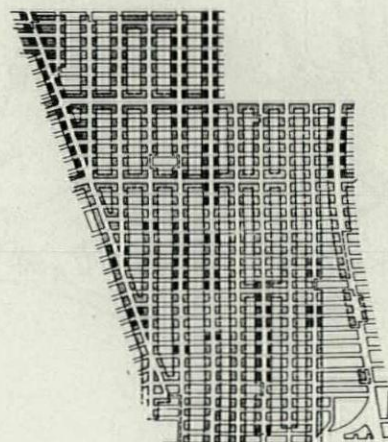
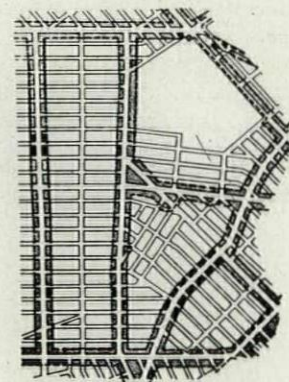
The corollary of the new ordinance's acceptance of concentration is a franker recognition that something must be done to unchoke the high-density streets. (So far, caught between the cherry indifference of the green beltters and the short-sighted selfishness of truckmen, merchants, loft owners and others, New York has not even taken such simple steps as enforcing night trucking, installing parking meters, forbidding left turns off busy avenues, and setting up more than two one-way avenues.)

To help relieve the traffic jam the new zoning would require all large existing stores and lofts to provide adequate facilities for off-street loading within five years. *The big news is that the retailers and the garment district building owners committee swallowed very hard when they heard this plan—and then approved!* (Since ground floor space in the trailer-choked garment district hardly rents for enough to keep it up, this bit of zoning surgery did not draw much real blood.) Large office structures will also have to provide some off-street loading retroactively.



Typical midtown Manhattan retail locations (black) use up almost entire frontage zoned for retailing in 1916 (gray.)

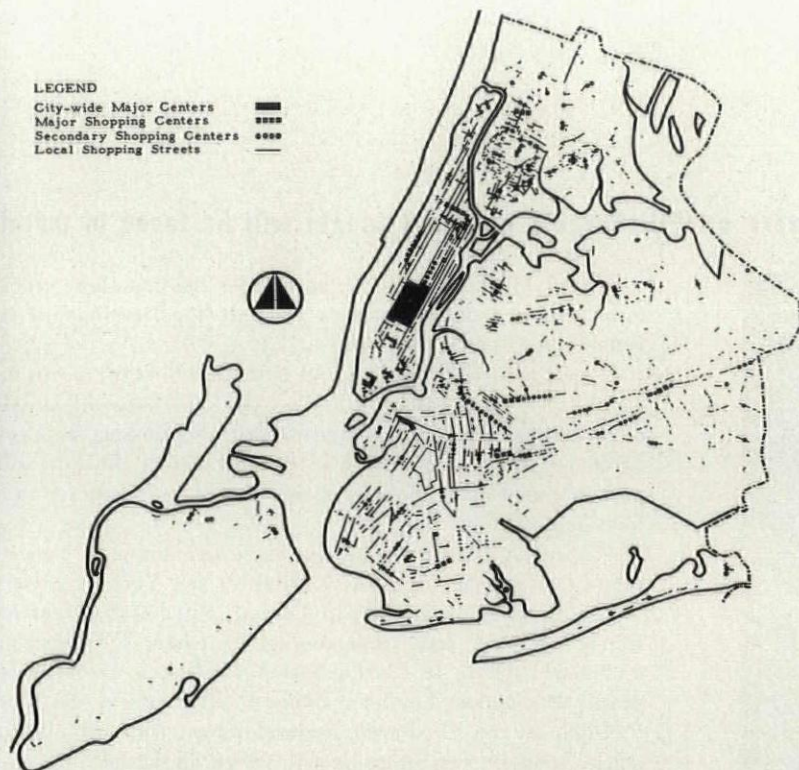
But in the Bronx (right) only a tiny fraction of zoned retail frontage (shown gray) is actually used for shops. 1916 zoners applied Manhattan retail zoning pattern to all other boroughs, where time has now proved them wrong.



In Brooklyn, Manhattan's retailing pattern was also applied without discrimination. New proposal will turn only alternate streets into shopping strips in these areas; elsewhere it will crack down even harder, prevent blight due to spotty retail locations.

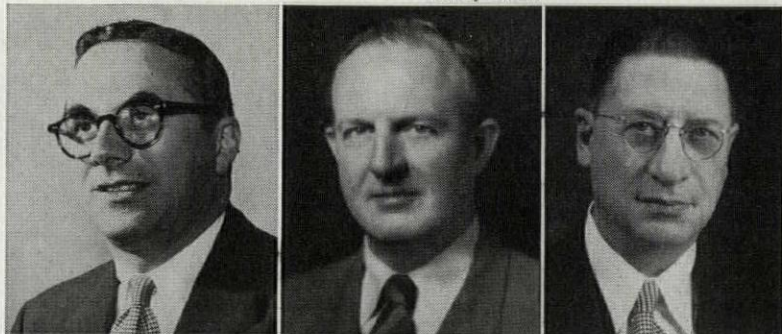
LEGEND

City-wide Major Centers
Major Shopping Centers
Secondary Shopping Centers
Local Shopping Streets



Map showing actual shopping locations in city. Midtown Manhattan is solid black shopping district; but other boroughs have only widely spaced shopping streets, and a few outlying shopping centers. New proposal will protect most existing retailing, encourage big shopping centers on city's periphery (with plenty of off-street parking). By cutting out pointless retail zones that have never been actually developed, new plan will reduce tax assessments in large parts of city.

Conway Studio



(Left to right): Planning Commission Chairman Jerry Finkelstein, Planning Commissioner Lawrence M. Orton, Con Ed's Clifford Beardsley—political savvy and energy, idealism and perseverance, and an encyclopedic knowledge of what makes the city tick.



(Left to right): Harrison, Ballard and Allen—together with two dozen planners, architects, lawyers, statisticians they went about the job of saving New York.

Usable open space and off-street parking

A basic concept of the new zoning would be to provide space for pleasanter living in the well protected residential areas all around the industrial and commercial concentration. H. B. & A. accept the fact that so many people wish to live close to their jobs that tall apartments and fairly high densities are inevitable in much of Manhattan, the west Bronx and parts of Brooklyn and Queens near the subways. *But for all the rest of the city, the new zoning ordinance would impose high class suburban controls on land use* (whereas the old ordinance imposed no very different density restrictions at the far end of Staten Island than it imposed on Park Avenue). For some 33 per cent of the residential areas, the new ordinance would impose a FAR of less than $\frac{1}{2}$; i.e., it would forbid more than 3,000 sq. ft. of living space on a 60 ft. lot. For another 33 per cent it would impose a FAR of not more than 1.5 i.e., garden apartments whose floor area would exceed the lot area by only 50 per cent.

A tremendous amount of residential building will be required inside the city in the next 20 years, the research for the new ordinance indicated. Although population is expected to rise only about 15 per cent to 8.6 million in 1970, the number of families is expected to increase 35 per cent from roughly 2 million plus to 2.8 million, and the smaller families, with less persons sharing each bath and kitchen, will require more floor area per capita.

But the new zoning ordinance would do more than control outlying density. It would also require off-street parking with all new housing (for cars for 20 per cent of the tenants on Park Avenue, 50 or 60 per cent farther out). It would also require off-street parking for shopping centers in residential areas (as in Cleveland, Detroit, Minneapolis).

But perhaps most important are the high requirements proposed for usable space for outdoor living. Patterned somewhat after the earlier plan for suburban Rye, it would require a minimum of 75 sq. ft. of usable open space for each unit in high density apartments, and up to 800 sq. ft. per unit in the low density outlying zones (Stuyvesant Town, by comparison, has 150 sq. ft. per unit). Balconies and roof gardens will be counted in the calculation, the former (because of their privacy) counting double. In single family residential areas, yard controls guarantee even greater usable open space for each family.

To understand the stringency of these controls, it might be useful to refer to the Rye plan here. There the requirement is only 500 sq. ft. per single family residence, 300 sq. ft. per family in multiple dwellings. If New York's plan goes through, it will raise the standard of open space for recreation all over the country.

AN INSTRUMENT OF POLICY

The new proposal has another basic lesson to teach to U. S. lawmakers—that complicated laws can be written to be understood.

When H. B. & A. were through, they had turned the present 3-map system into a single map, on which the area of the City was divided into districts identified by a single code like, for example, "RB4." The R would indicate a residential area, the B the class, the 4 would refer to the bulk and other applicable controls. Some 18 basically different districts are contemplated, and a small pamphlet used with the map will tell at a glance the requirements for each. Within a few minutes any prospective builder could know what he may do on his property.

There is a further, important innovation in attitude in the new proposal. While the old resolution, like most American zoning laws, was

(Continued on p. 156)

BUILDING REPORTER

Equitable's office towers on Pittsburgh's Golden Triangle will be faced in metal



Photos: Peter A. Juley & Son

Ground will be broken this month for the first three cruciform towers of the Equitable's Triangle Tip Development in Pittsburgh (FORUM, Nov. '49).

Biggest news about the project is that all the towers will be metal faced—perhaps all stainless steel, perhaps all aluminum, perhaps aluminum spandrels with continuous stainless mullions. The choice will go to the low bidder. Backup will probably be 4 in. of sprayed perlite furred and plastered to a total depth of 6 in.

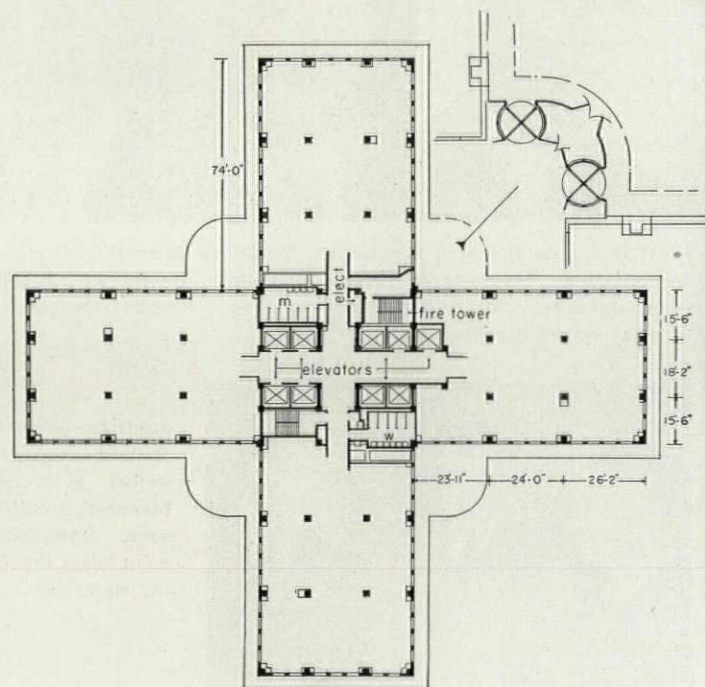
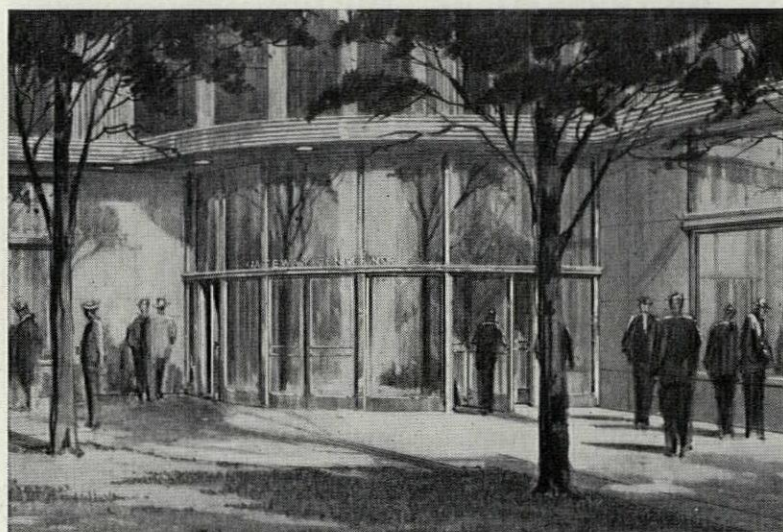
A Board of Design was appointed earlier this year, consisting of three executives of the Equitable, New York Architects Daniel P. Higgins and Irwin Clavan, Pittsburgh Architect Kenneth R. Crumpton (representing the tenants), Landscape Architect Gilmore D. Clarke, Structural Engineer Joseph Di Stasio, Mechanical Engineer Henry F. Richardson, and John P. Robin of the Pittsburgh Redevelopment Authority. Their official rendering of the project is shown on the left.

Some of the towers will be 24 stories high (the maximum without a pipe gallery floor); the rest will be 20 stories high. Minimum distance between towers will be 90 ft.

Only change in floor plan is that all four wings will be 75 ft. long (instead of two 50 ft. and two 75 ft.). Wing width was reduced to 50 ft. 6 in. outside measurement, blocking any possibility of getting from one wing to another around the service core. Both these changes were made at the suggestion of the tenants. Even on upper floors with only one bank of elevators, the tenants preferred no direct access from wing to wing.

No cooling towers will be needed for the air conditioning, since the nearby river waters can be used instead. Space between the first three towers will cover a garage for 300 cars.

For editorial comment on the design of this project, see page 89.



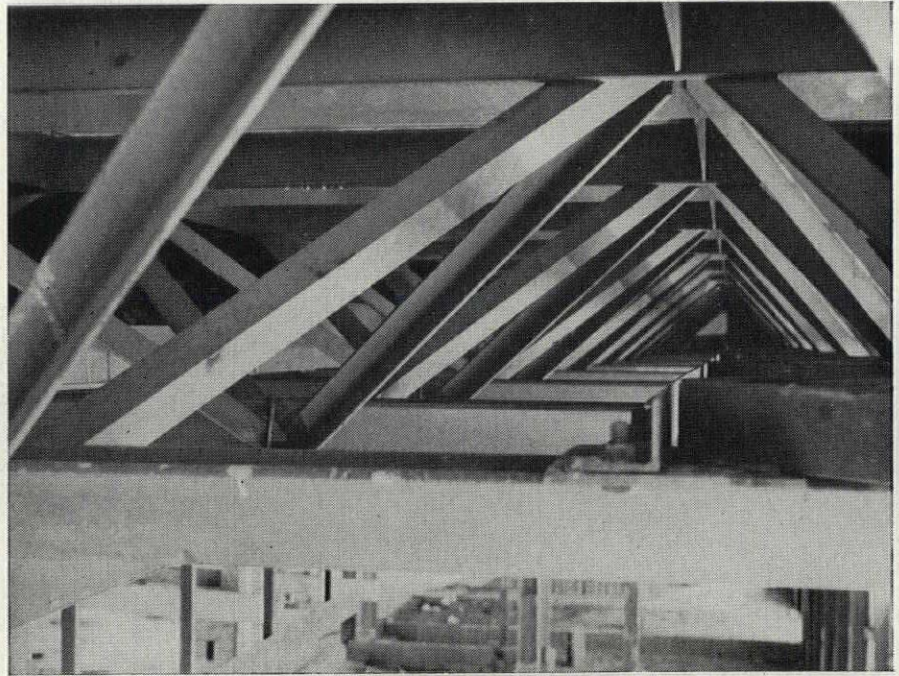
Entrances will be at the corners close to the crossing, leaving the ground floor wing tips for rental.

G. M. Technical Center's novel features come to life—a progress report

The General Motors Technical Center (FORUM, July '49) has now reached a point where some of its more novel features can be studied in place and their costs assayed. First surprise is the low cost at which the "Zepplin" framing of the office building (photo, right) went up. Many builders shook their heads at its intricacy, but a nearby fabricator welded it together in jig time at a cost of \$159 a ton erected, only \$19 a ton more than the conventional low cost truss framing of the adjoining engineering shop. And that cost includes the plates for hanging the modular ceiling sections.

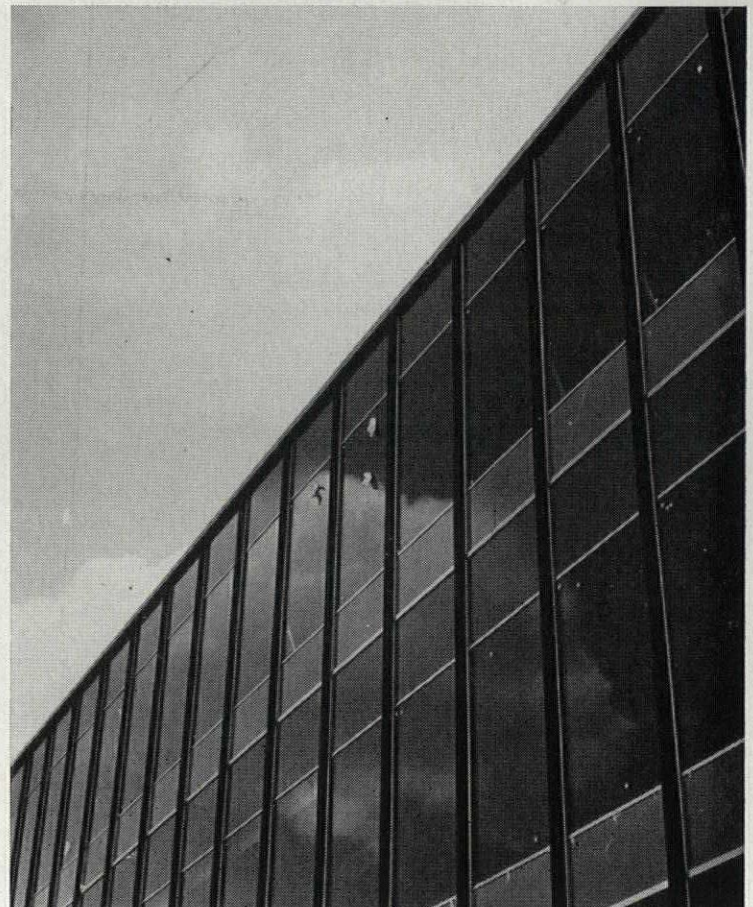
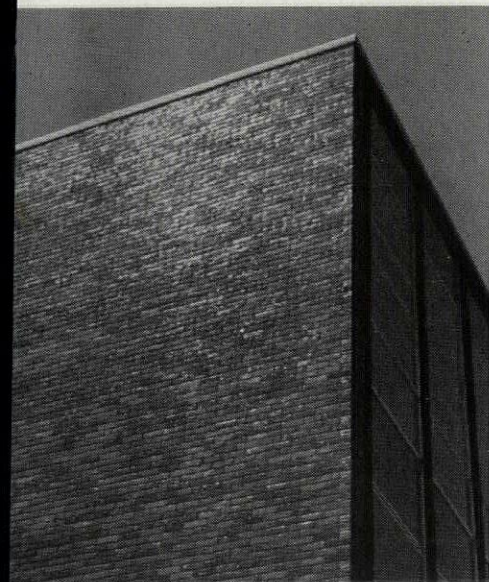
The porcelain enamel spandrel looks fine and smooth. In the engineering office building the prefabricated spandrel sandwiches filled with honeycomb and perlite cost \$3.25 per sq. ft., f.o.b., were just slipped into the extruded aluminum frame and calked at very little cost. Sandwiches filled with silicate asbestos for better fireproofing cost a little less, but had to be twice as thick.

Common brick specially glazed in bright colors at \$140 per M are used for end walls, a different color for each building. They came in cartons (7 bricks per box) to avoid damage.



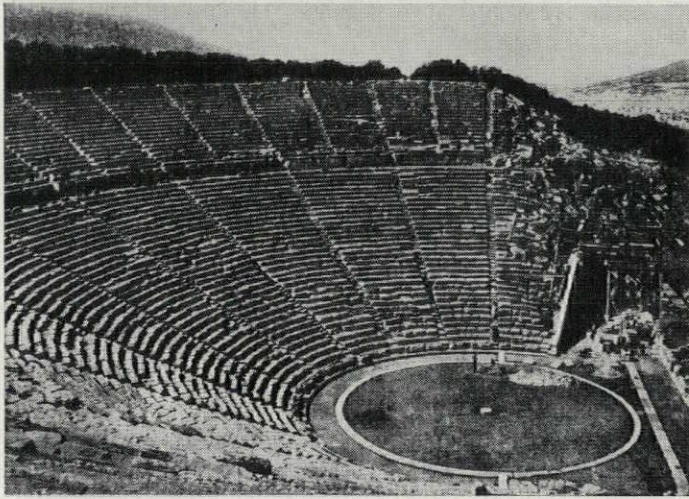
Ceiling is a grid of 10 in. deep baffles on 5 ft. 2 in. centers. Each square is further subdivided with baffles between the fluorescent lighting tubes. Cylinders 6 in. in diameter are sleeves for air conditioning nozzles and sprinkler heads.

Office building spandrels (right) are sandwiches only 2 in. thick of honeycomb and perlite faced inside and out with two tones of porcelain enamel. In the shop (below) where stronger walls were needed, the porcelain enamel is backed with 5 in. of concrete. Erected cost: \$4 per sq. ft.



THEATERS IN THE ROUND

Their recent success in hotel ballrooms may presage a new type of theater building



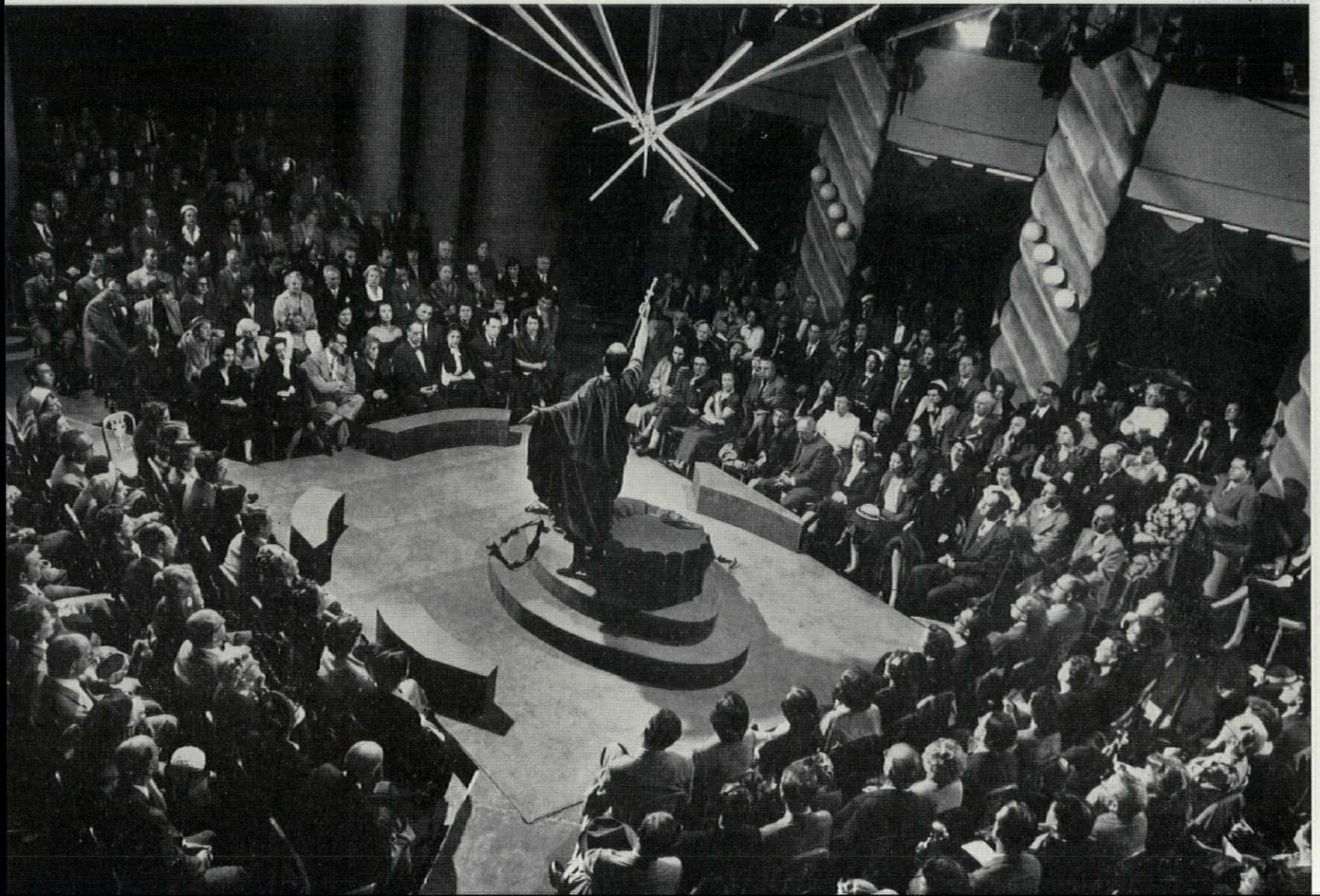
Like their vanished counterparts in the Greek theater pictured above, the members of the audience at Broadway's first arena theater are often used as participants in the drama. Below they take the place of Roman citizens listening to Mark Antony's "Friends, Romans, Countrymen" at the funeral of the murdered Caesar.

The zooming popularity of shows staged right in the center of the audience is making showmen rethink their building requirements for every sort of live theater—from the legitimate stage to department store fashion shows and on to television. Today, theater-in-the-round is flourishing largely in tents and hotel ballrooms; tomorrow, it may move into new, multiple-purpose theater buildings, as envisioned in the scheme shown on pages 132 and 133.

Though new to most Americans, this intimate type of production is actually the oldest form of drama. Like the amphitheater of ancient Greece and the Elizabethan playhouse, the modern arena theaters pictured here use little or no scenery. A blackout takes the place of a curtain for scene changes, and between acts a few stage hands put on a show of their own moving props and furniture. Since footlights would blind the audience on the opposite side, the stage is lighted from above. Actors enter and exit by ramps.

Like the silent movie or the opera, this extremely simple staging makes new demands on theatergoers' imaginations, but it has one enormous advantage—it undercuts the high costs which today threaten to kill off the legitimate theater completely. With this incentive, small arena playhouses have recently mushroomed in temporary quarters across the country, bringing professionally produced live drama back to cities where it has not been seen for years.

LIFE: Ralph Morse





LIFE: Joe Scherschel

Central staging has been incubating in the U. S. since the 20's, mostly in experimental theaters like Seattle's Penthouse Playhouse. In 1930 Norman Bel Geddes designed a circular theater for the Chicago Fair which was never built, but ten years later the Penthouse Playhouse moved from a hotel rooftop to the first building put up in the U. S. for central staging. Since the war Margo Jones' arena theater in Dallas, Tex. (photo above), has turned a neat profit.

This spring, for the first time, an arena theater in New York's Hotel Edison met the acid test of Broadway (photo, left). Its two young producers, David Heilweil and Derrick Lynn-Thomas, converted a former nightclub and put on the first two shows for about \$15,000—less than half the cost of similar plays conventionally staged. The conversion was accomplished merely by adding a low center stage, entrance ramps for actors, lighting equipment and platforms for the surrounding seats. Production costs run between \$6,500 and \$8,500 a week; the weekly gross of its 500 seats at a \$3.60 top is about \$12,000.

After three months' operation, the hotel management has found that the theater is more profitable than a nightclub. The hotel's service overhead is reduced, and its other facilities benefit from business brought in by the theater. Encouraged by their New York success, the producers have signed with hotels in eight other cities to convert their ballrooms to arena theaters and supply them with shows.

The practicality of such theaters in smaller cities has been well tested by the Ansley Hotel in Atlanta, Ga., where a 445-seat penthouse playhouse supplanted a nightclub in the fall of 1949. (Started with an investment of about \$5,000 by former actor Don Gibson and his wife, this house has won the support of nearly 2,000 regular subscribers.) Like the Edison's management, Owner Carling Dinkler of

the Ansley finds that his arena theater is a better long-range investment than a supper club. The Gibsons, too, are extending their operations to San Francisco and Los Angeles hotels this fall.

Further impetus for the construction of permanent arena theaters may come from the highly popular musical shows in the round which are running currently in tent theaters at vacation spots throughout the East. Accommodating audiences of from 1,500 to 2,000, these theaters have demonstrated that central staging is also effective in larger quarters although sound amplification is sometimes necessary. While U. S. theater experts differ about the merits of theater-in-the-round and doubt that it will ever replace the proscenium stage, they agree that it is here to stay.



Pictured above is an application of the arena idea which may eventually influence department store planning. Designed by lighting expert Abe Feder for a fashion show in a New York armory, this large stage housed an orchestra in a concealed central pit and provided a simple, dramatic setting for a whole galaxy of models.

MULTI-PURPOSE STAGE is proposed as money-maker for new Broadway arena theater

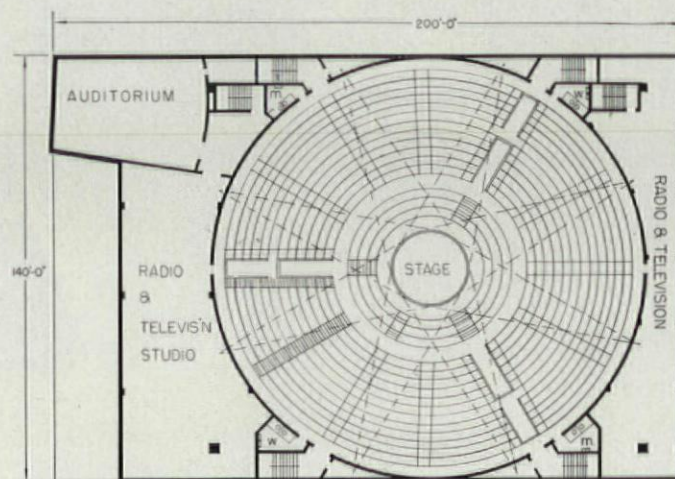
RALPH POMMERANCE & SIMON BREINES, Architects
ABE FEDER, Lighting and stage design

Here is a project to bring theater-in-the-round into the big time and the big money—a \$1,750,000 building by Architects Pommerance & Breines and Lighting Consultant Abe Feder. Designed to meet Broadway's special needs, it also suggests a positive answer to the unsatisfied requirements of smaller cities.

Unlike other plans which propose to support New York's costly playhouses by incorporating them with even more costly office buildings or hotels, this scheme aims at making the theater pay its own way with a minimum of other income-producing facilities. The designers hit upon theater-in-the-round as a solution because: 1) the flexibility and economy of central staging will permit almost continuous production of radio, television, fashion and legitimate shows—bringing in revenue 100 hours a week as against a conventional theater's 24 hours. 2) a circular auditorium seats more people in a smaller area than the average Broadway playhouse and frees space for profitable stores and such amenities as a bar and larger lobbies.

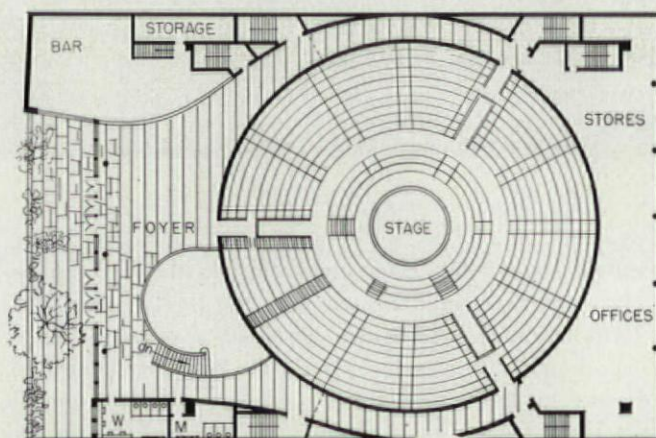
To keep their theater working full time, the designers have equipped it with a stage 25 ft. in diameter which can be lowered to the basement for rapid changes of scene. Temporary platforms will be used to extend the stage out over the surrounding orchestra pit for large productions. Television cameras housed in the ceiling may be lowered to take in the action. Pommerance & Breines think that the logic of central staging for television will become increasingly evident as the cost of conventional staging mounts and more and more audience participation shows are used as a cheaper source of entertainment. In this type production, the cameras suspended above the stage will form part of the show and catch audience reactions as well as the actors' performance.

The plan of the theater takes full advantage of the space-economy of central staging. Where an ideal design for a conventional playhouse would have to provide about five times its stage area for off-stage working space, this theater relegates scene changing to the basement, freeing high-rental space on both street frontages for stores. Besides the stores, the ground floor has two rare Broadway luxuries—an ample coatroom and a spacious lobby which encircles most of the auditorium. The bar is strategically located off a large second floor lounge near doors which open to a terrace overlooking the street. Radio and television studios, control rooms and a small auditorium are located on the top floor. The bowl-shaped main auditorium is three floors high, seating 1,500 people in 15 rows, all within 50 ft. of the stage—a big gain over Broadway's average of 1,100 good-to-poor orchestra and balcony seats in buildings of similar size.



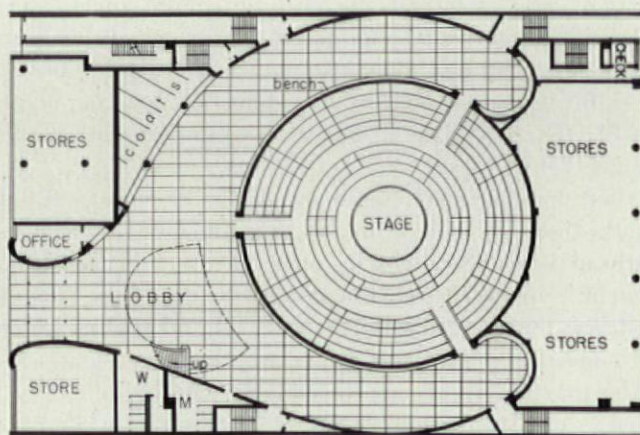
THIRD FLOOR

Top level exits from rim of bowl are for emergency use. Surrounding space accommodates spotlights, radio and TV studios.



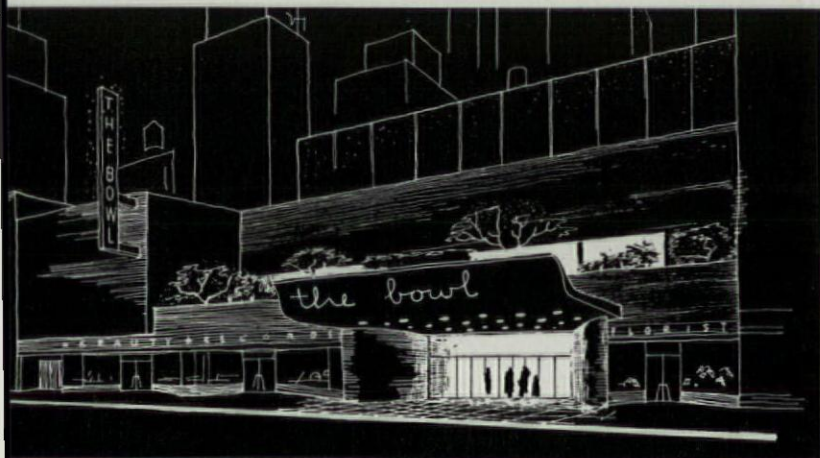
SECOND FLOOR

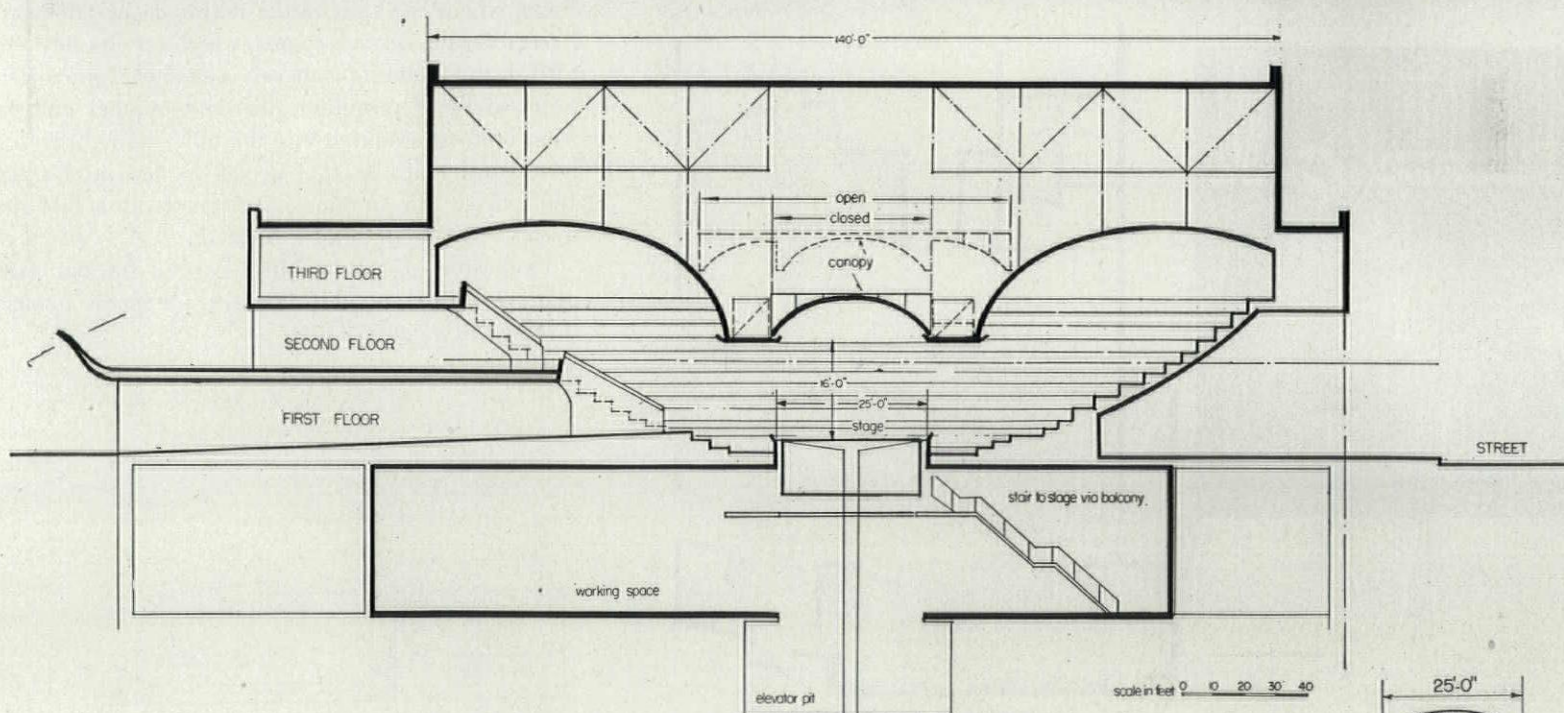
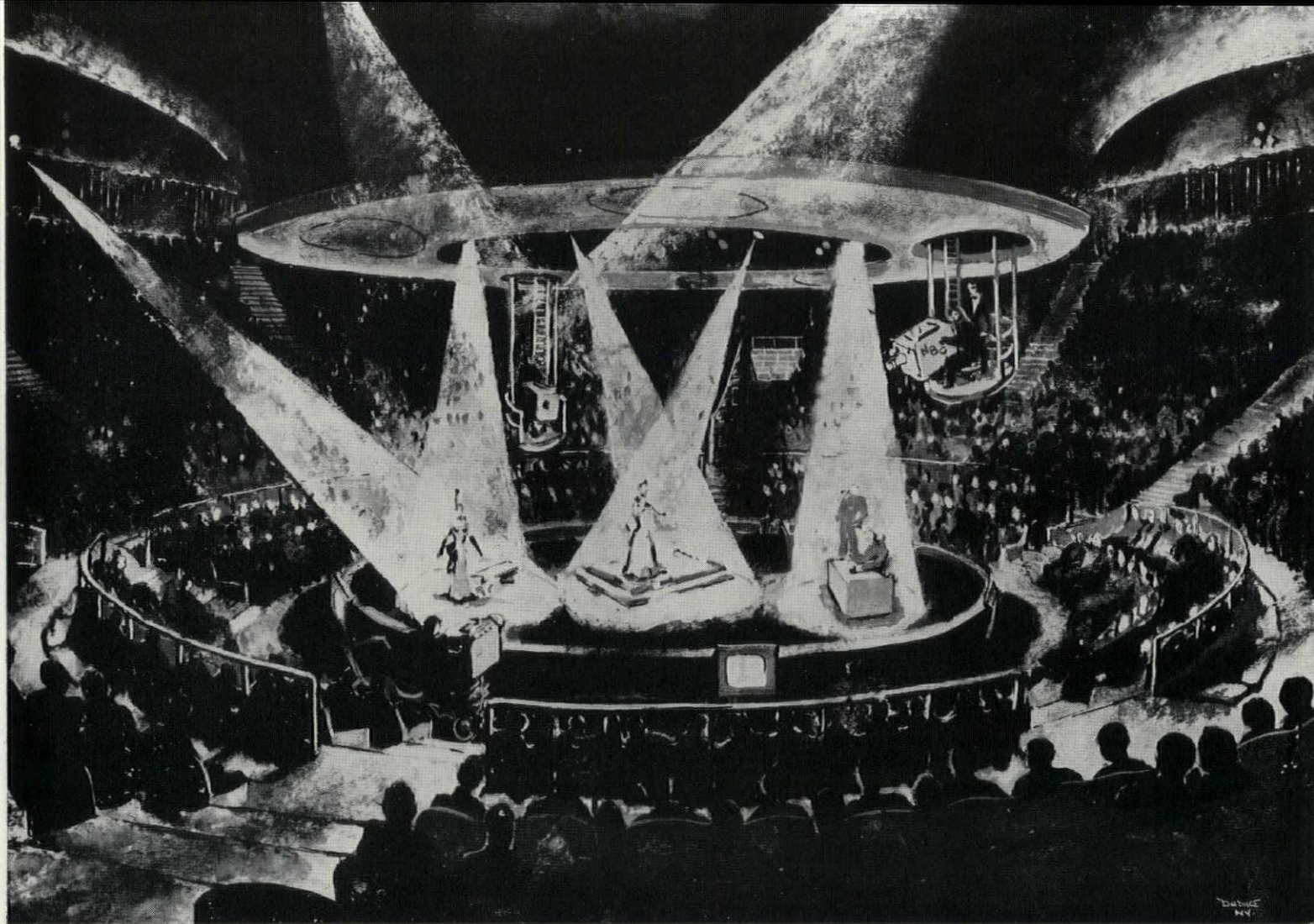
Intermediate level has big foyer which projects outdoors onto landscaped terrace with refreshment bar to one side.



FIRST FLOOR

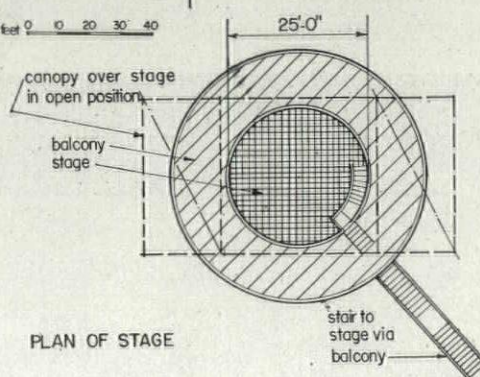
Street level lobby flows around bowl to three widely spaced aisles. Entry (left) is flanked by stores. Note ample coat room.





The auditorium ceiling curves to a point 16 ft. above the stage both to keep the theater in scale with the actors and to help lighting and acoustics. The canopy over the stage may be raised and opened for lighting effects or to permit scenery to be hoisted to storage space at the top of the building. Spotlights and television cameras are housed on the circular platform above the edge of the stage.

From dressing rooms in the basement, actors reach the stage via a stairway to a circular balcony, and from there by a small stair let into the edge of stage. For quick mass entrances and exits, the stage may be lowered to the level of the balcony below it.

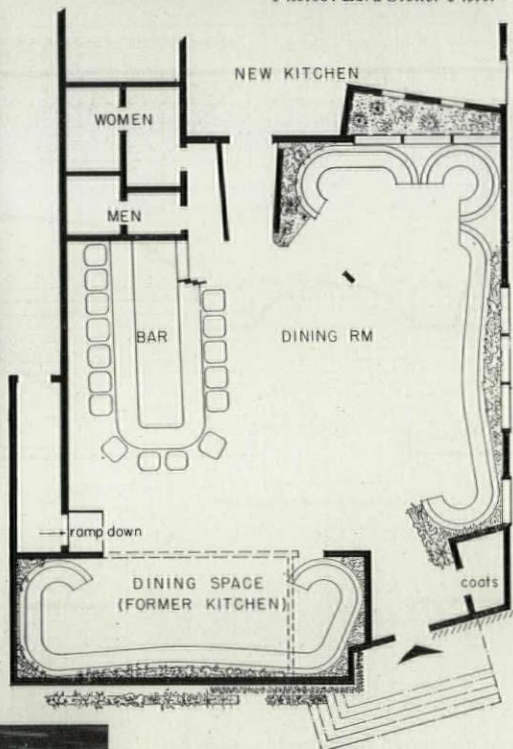
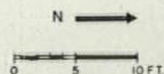
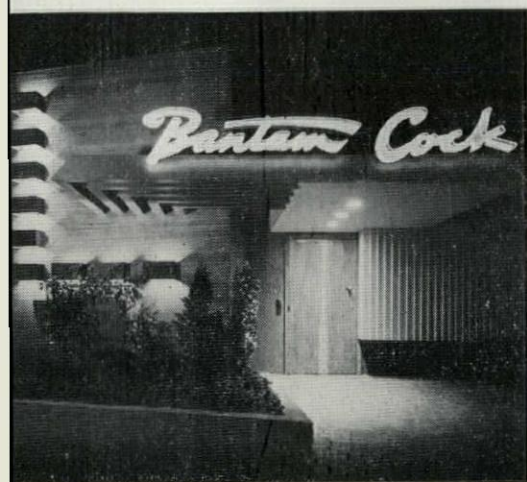


MAXIMUM AMENITIES AND A MINIMUM STAFF are by-products of thoughtful design which bring warmth, dignity and success to two small restaurants

DOUGLAS HONNOLD, Architect



Photos: Ezra Stoller-Pictor

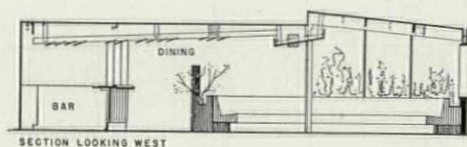


Neither of these dramatic and plush-looking little restaurants by Architect Douglas Honnold cost much money, but both have been so successful that they have had to be expanded. The first is the Bantam Cock (left), a Hollywood hot spot which has overtaken in popularity the Tail of the Cock Restaurant whose overflow it was originally designed to handle. The other is the Surf Room, the restaurant adjunct of the Neutra-designed Holiday House motel (FORUM, July '49), overlooking the Pacific north of Santa Monica. In both restaurants construction costs were held to a minimum by using the exposed skeleton and rafters as essential elements of warm, intimate and dignified design.

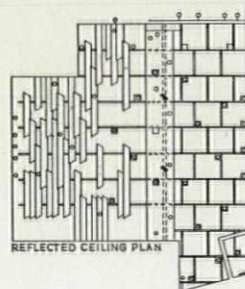
The Bantam Cock's habitués apparently enjoy the clean contemporary design which relies mainly on planting and the cost-saving exposure of structural elements for its decoration. They also enjoy the convivial atmosphere created by the hairpin bar arrangement and continuous wall seat, keeping the customers at close quarters—sociable but not crowded.

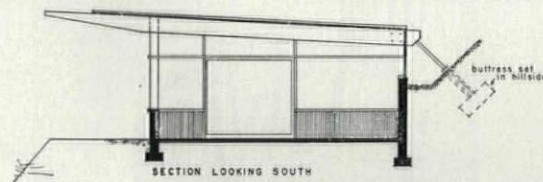
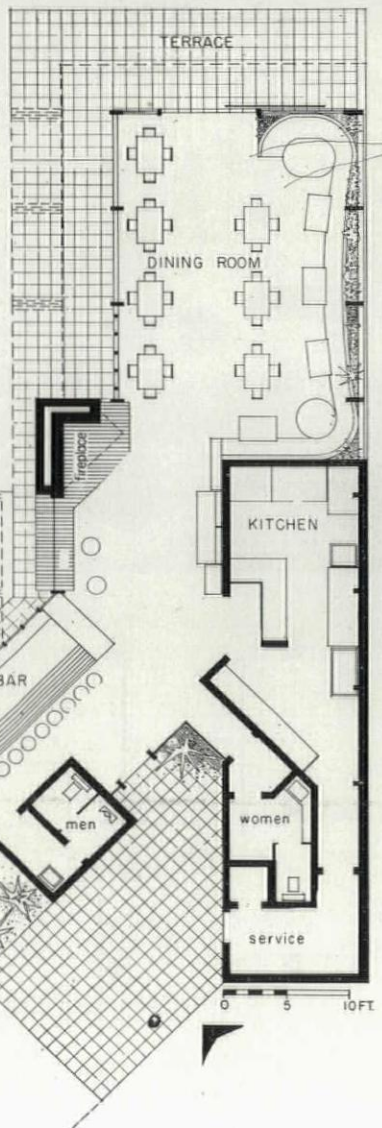
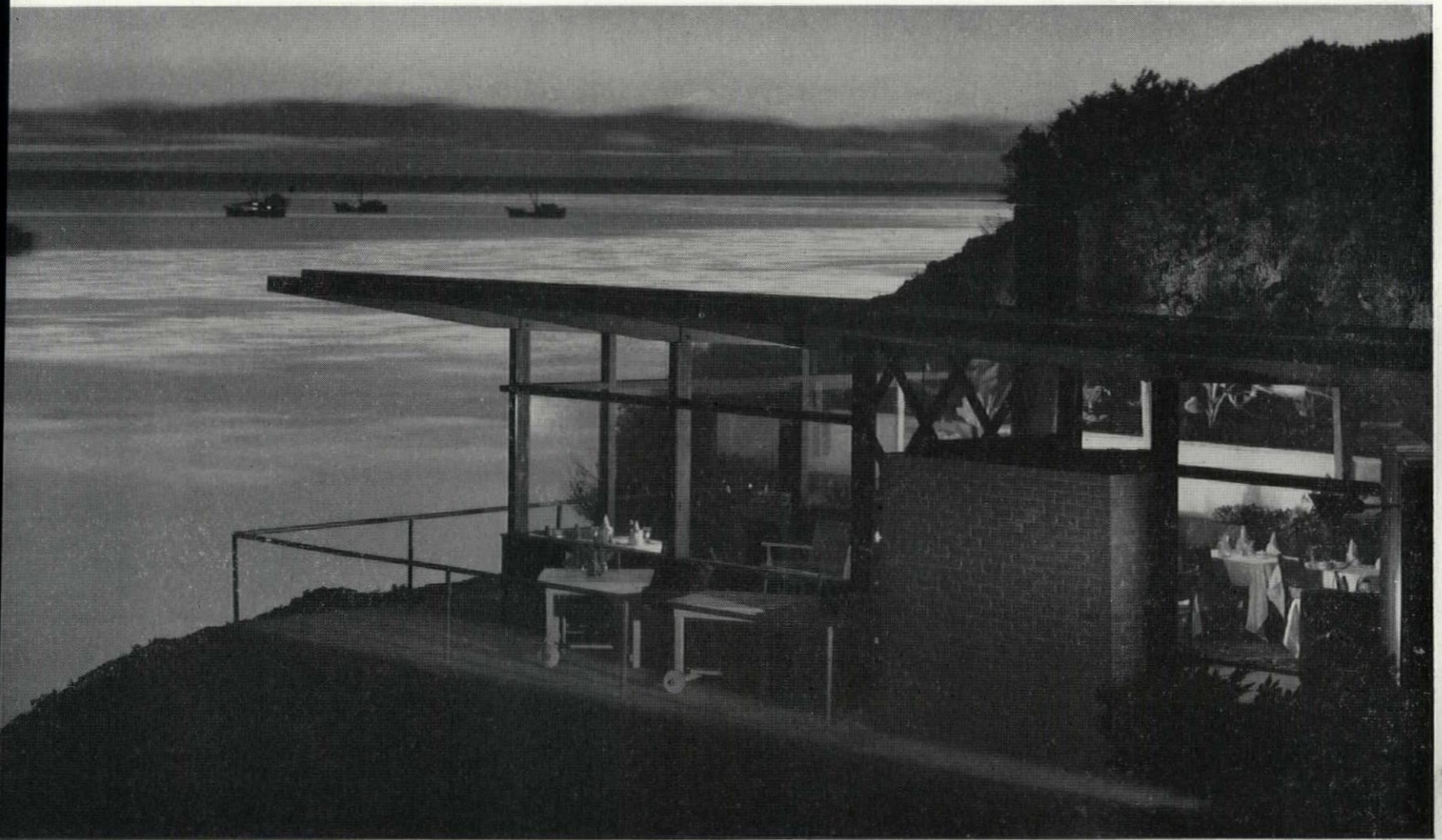
This same atmosphere was recreated for the Surf Room where the view is the major design element. Except for the service rooms, which are cut into the hillside, the building is merely a shed roof supported by columns of minimum size and number and by wind buttresses angled into the hill. So light is this framework that the roof seems to float above the 180° view. So simple is its construction that the owner was able to build it himself.

Expansion of the building beyond the bar (see plan) will provide additional terrace space, a small theater and a dance floor.

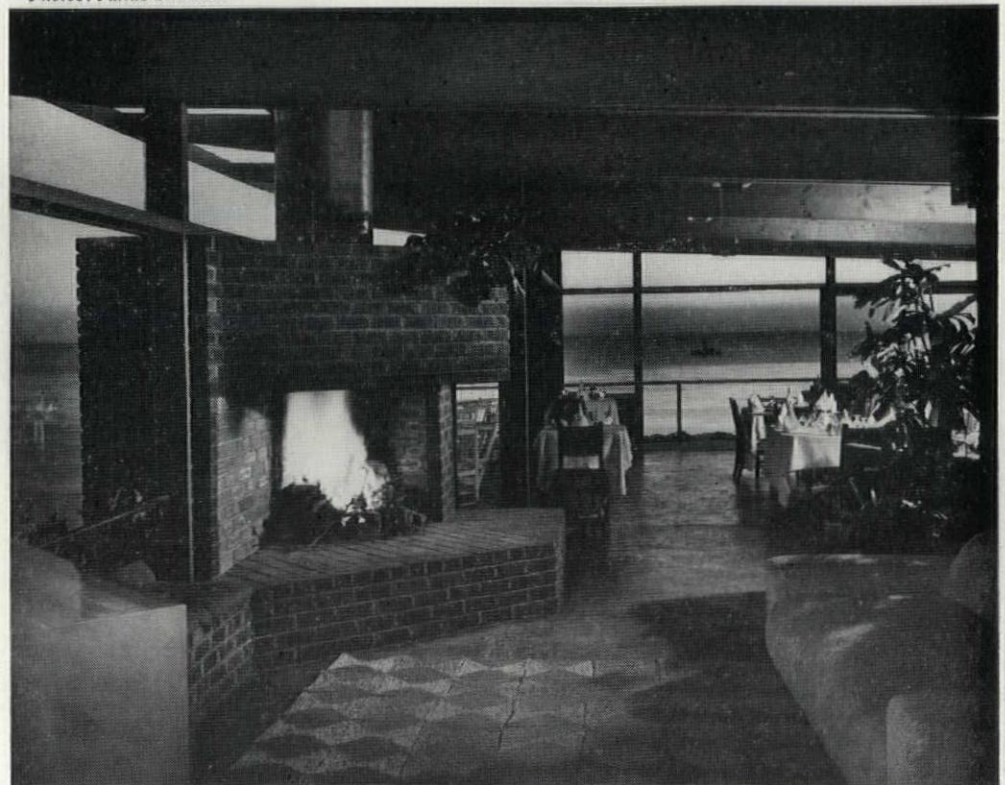


Over the bar and new dining space the low-hung trellis rafters are partially and inexpensively covered with angled panels of insulating board (photo, left; details, right). These panels produce an interesting texture and help control sound. Hadley-Cherry Construction Co., General Contractor.





Photos: Julius Shulman



So well integrated are the Surf Room's interior and the magnificent sea view that the latter appears to be a photomural on the wall shown below. Note lightness and simplicity of framework spanning the 20-ft.-wide dining room.

ALUMINUM MESH CEILING for a showroom hides overhead utilities, saves \$2.65 per sq. ft.

LOCATION: New York City

KATZ-WAISMAN-BLUMENKRANZ-STEIN-WEBER, Architects Associated

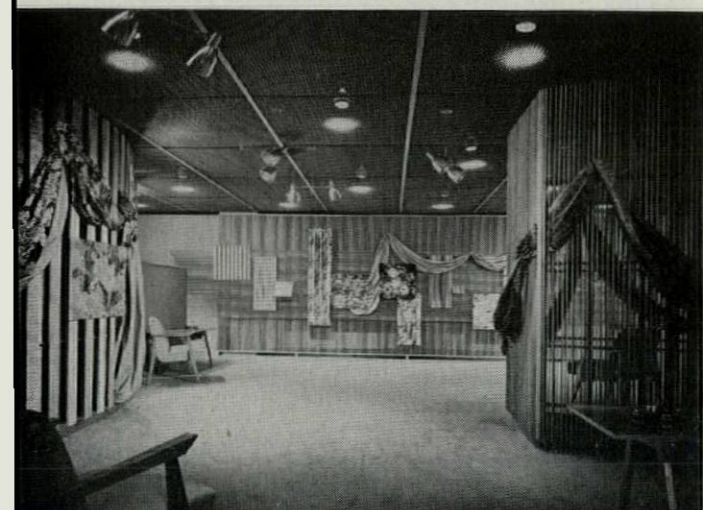
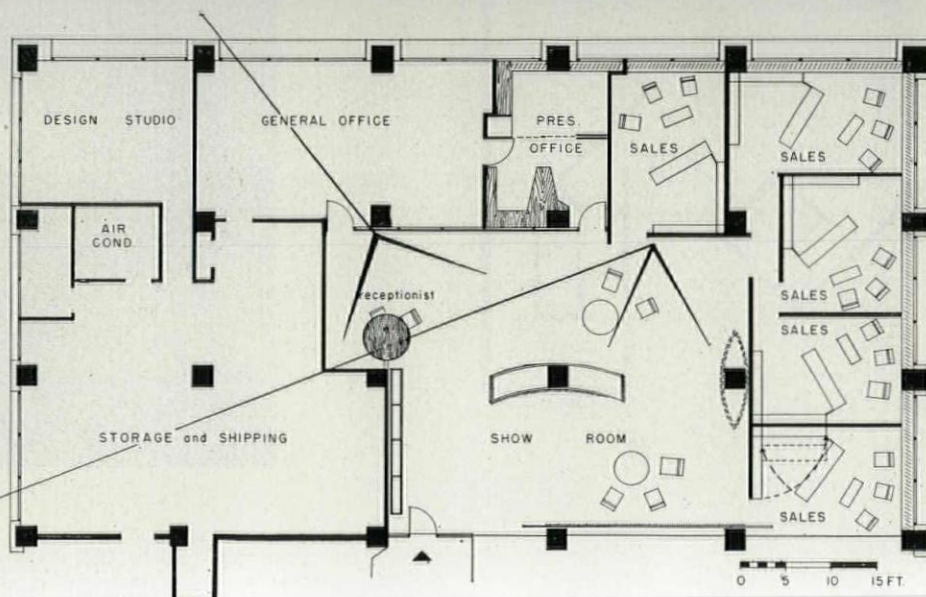
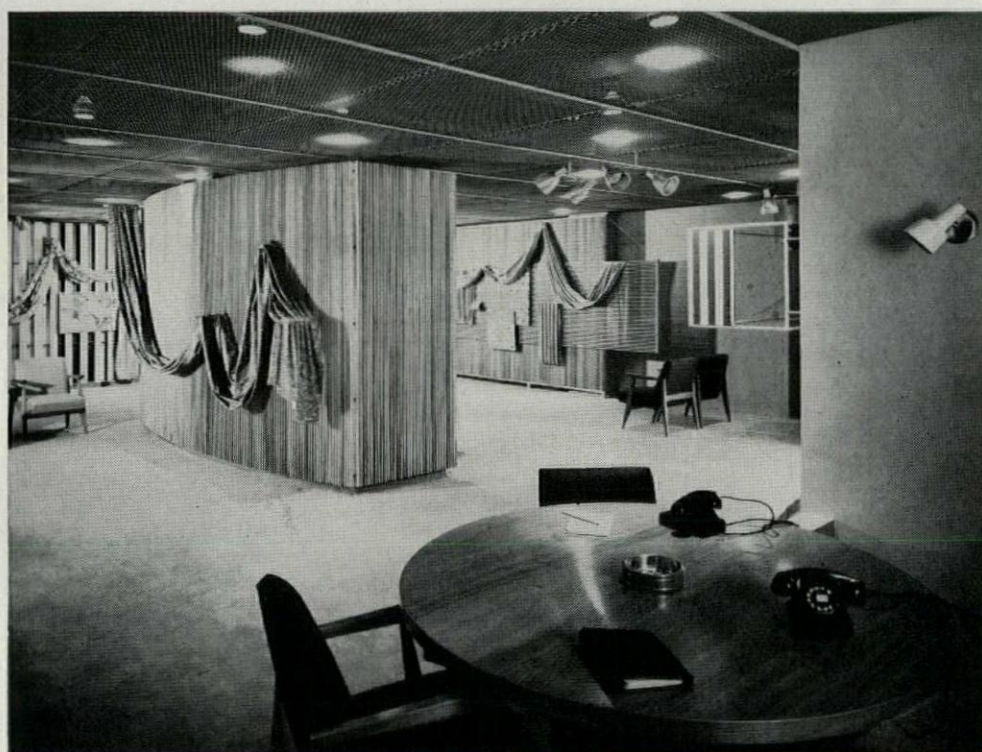
KENNERLY CONSTRUCTION CO., General Contractor

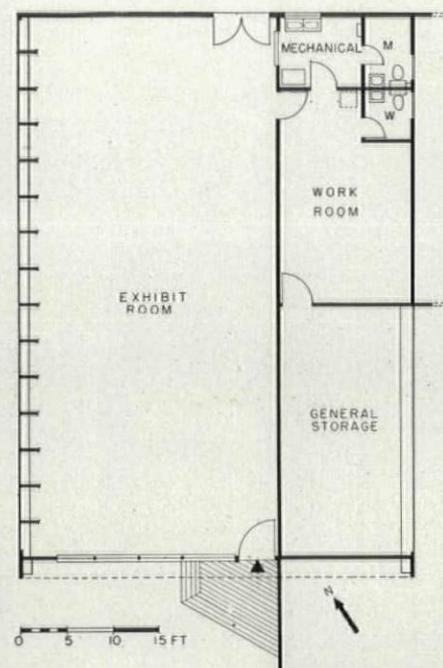
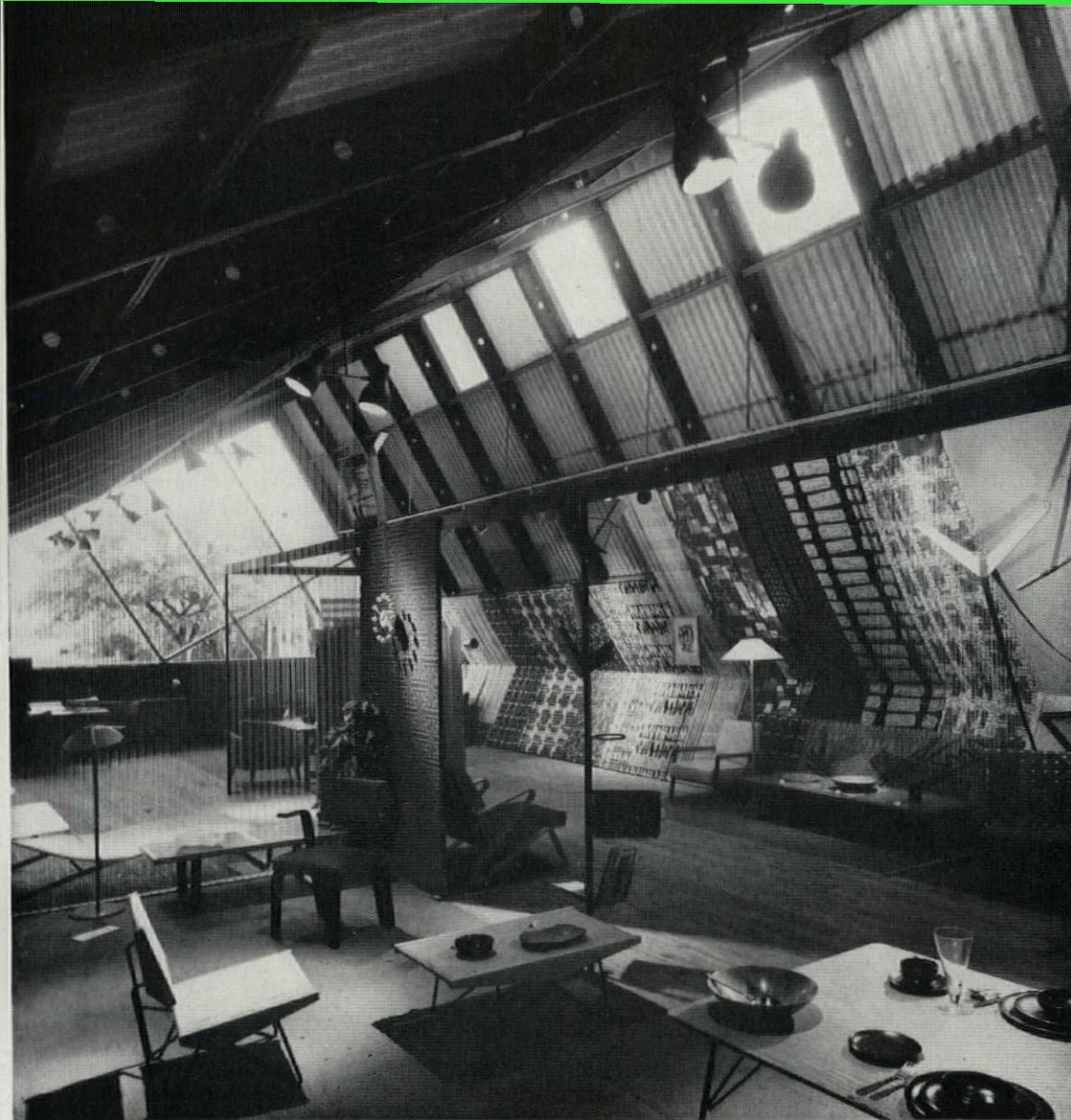
Photos: Ezra Stoller-Pictor

A quick look into this new upstairs showroom for Covington Fabrics Corp. impresses the visitor with its obviously effective display technique. A closer look upward impresses him with the effectiveness of its inexpensive ceiling. It is a plane of expanded aluminum mesh which the architects invented as a foil for the overhead light fixtures, wiring, air conditioning ducts and grilles, sprinkler system and other utilities. It cost only \$1,975 (excluding painting) or \$1.40 per sq. ft. —\$725 less than an acoustically treated hung plaster ceiling. It also saved \$2,070 more by eliminating the need for fancy light and air conditioning fixtures and the extension of existing sprinkler pendants. Standard 4 x 4 ft. panels of mesh with their adjoining edges crimped upward for rigidity are simply laid on the flanges of inverted T-sections. Crimping eliminates the need for transverse supports. Removable to permit easy maintenance of the overhead utilities, the aluminum panels are "transparent," but everything above them is painted black to disappear from view.

Flooded with general illumination from porcelain fixtures above the aluminum mesh "ceiling," and spotlighted with hanging accent lights, the merchandise is hung lightly on vertically slatted screens of birch. The showroom is otherwise decorated in six shades of gray which let the fabric colors speak for themselves. In addition to serving as display backdrops, these screens also obscure structural columns in the middle of the showroom.

CONSTRUCTION OUTLINE: Interior partitions—cinder block, cement plaster; dividing walls of wood, Sheetrock, U. S. Gypsum Co., canvas or wood and glass. Ceiling—hung, aluminum expanded metal mesh, U. S. Gypsum Co., on metal hangers. Glass partitions—Pittsburgh Plate Glass Co. DOORS—Protexol Corp. and Treitel-Gratz. ELECTRICAL FIXTURES—Century Lighting Co. and General Lighting Co. AIR CONDITIONING—General Electric Co. conditioning unit.





This small, one-room gallery demonstrates a new display technique—relying on lively backdrops comprised of angles, varied materials, transparent screens and suspension supports. While commenting favorably on the building's architecture and natural lighting, most display experts (who prefer calm, neutral backdrops with movable partitions and flexible ceiling lighting) will probably question its suitability. Outside, however, the fresh design is an effective eye-stopper (photo, below) with the display temptingly visible from the street.

TRIANGULAR STEEL FRAMEWORK

**for an art museum eliminates expense of walls,
serves as display backdrop**

LOCATION: Houston, Texas

MacKIE & KAMRATH, Architects

ROBERT BOUIFFLE, General Contractor

CONSTRUCTION OUTLINE: Exterior walls—corrugated asbestos, Asbestone Co., over Stran-Steel frame, Stran-Steel Corp. with sprayed asbestos over interior corrugated asbestos. Floors—yellow pine over Stran-Steel joists. **INSULATION**—Spraykote, Sprayed Insulation, Inc. **WINDOWS:** Sash—steel Fenestra, Detroit Steel Products Co. Glass—Pittsburgh Plate Glass Co. **ELECTRICAL INSTALLATION:** Wiring—steel tube conduit. Switches—Bryant Electric Co. Fixtures—General Lighting Co. Circuit breaker—Square D Co. **SKYLIGHT**—Corrulux plastic corrugated skylight, 4 x 4 ft. and 4 x 8 ft. sheets, Corrulux Corp.

The lowest cost museum ever built is probably this new gallery of Houston's Contemporary Arts Association. Actual cost, because most of the materials and labor was donated, was only about \$3,000; but even without this help the architects' design was so smart and thrifty that the bill would have been only about \$20,000, or \$8 per sq. ft. Sample economy features: 1) The building has no walls—only floor and roof forming a 30-60° triangle. 2) It has no foundation—the frame is bolted to 6 x 8 in. creosoted bridge timbers. 3) Corrugated cement asbestos panels, sprayed on the inside with limpet asbestos for thermal and sound insulation, do double duty as inside and outside finish. 4) The floor is one layer of wood planking. 5) This construction system went together quickly with a minimum of labor—the frame was erected and welded in six days, the asbestos enclosure went on in three, and the job was finished in 11 more—a total of only 20.

Photos: Chalmers-Marvin



CLIP-ON WALL STRIPS support furniture

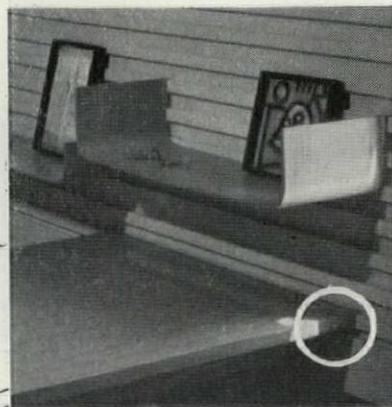
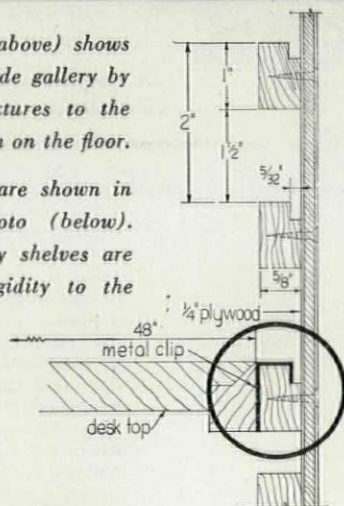
Confronted with the problem of converting an 8 ft. wide "corridor" into an art gallery for Raymond & Raymond, Architect McCarthy devised an ingenious and functional wood wall finish which serves a three-fold purpose: It permits picture frames to be clipped onto any part of the wall and thus offers complete flexibility of picture arrangement; its continuous horizontal pattern creates an interestingly textured backdrop for the display of pictures; moreover, it is strong enough to permit most of the furniture in the room to be hung on the wall, freeing the limited floor area for observers and adding a sense of spaciousness to the corridor-like gallery. Despite its versatility, this triple-threat wall finish proved economical—the entire installation cost only \$300 for labor and materials, or about 90 cents per sq. ft.

As shown in the sectional drawing (left, below) the clip-on device is a simple one. To a plywood backing is screwed a series of horizontal wood strips grooved to receive stiff metal clips, which are secured to the ends of table tops and to the back of picture frames, display shelves and cases. After the panel of strips has been assembled, the unit is then affixed to the wall. Thanks to this floor-freeing display device, the small gallery has been able to accommodate "several hundred people" at its monthly previews.

Photos: Roger Sturtevant

View toward front entry (above) shows spaciousness given 8 ft. wide gallery by clipping small display fixtures to the wall instead of setting them on the floor.

Details of clip-on device are shown in section (right) and photo (below). Up-turned ends of display shelves are clipped to wall, give rigidity to the attachment.



well as pictures, add space to an 8 ft. wide gallery

In addition to facilities for the showing of original paintings, the owner required space for the exhibition and selling of reproductions, custom framing, fabrics, wallpaper, pottery, leather goods and other craft work. These operations are accommodated at the rear of the gallery, visually distinguished from it by a change in ceiling height and by a panel of fabric at the otherwise imaginary line of demarcation. Again Architect McCarthy made the most of very limited floor space (8 x 21 ft.)—this time by means of cabinets, drawers and folding display cases, all of which disappear into the store room partition (photos, right), and by space-saving, pivoting fabric display racks which cover the entire end wall of the shop (photo, below).

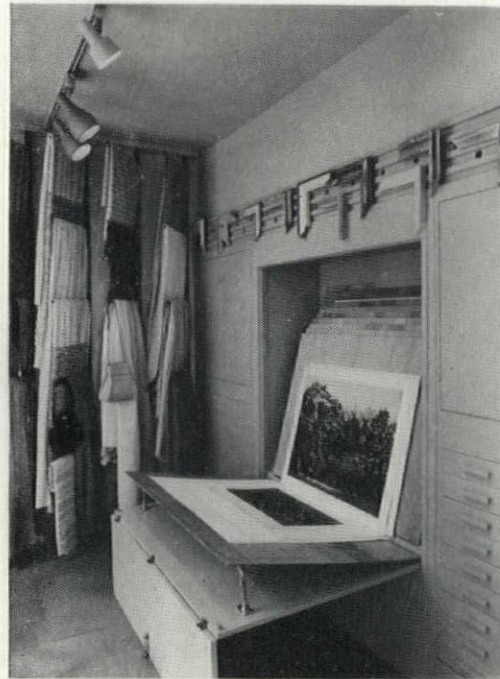
Lighting of both areas is accomplished by a trolley duct system with 16 movable fixtures which make it possible to spotlight any kind of an exhibit arrangement. This highly flexible lighting system cost about \$445 installed, including the fixtures. The trolley alone came to about \$1.50 per linear foot installed.

Except for the black painted plywood panels and the "champagne yellow" hook strips between the windows, colors are limited to a few variations of gray. The floor is cork; the furniture, natural oak.

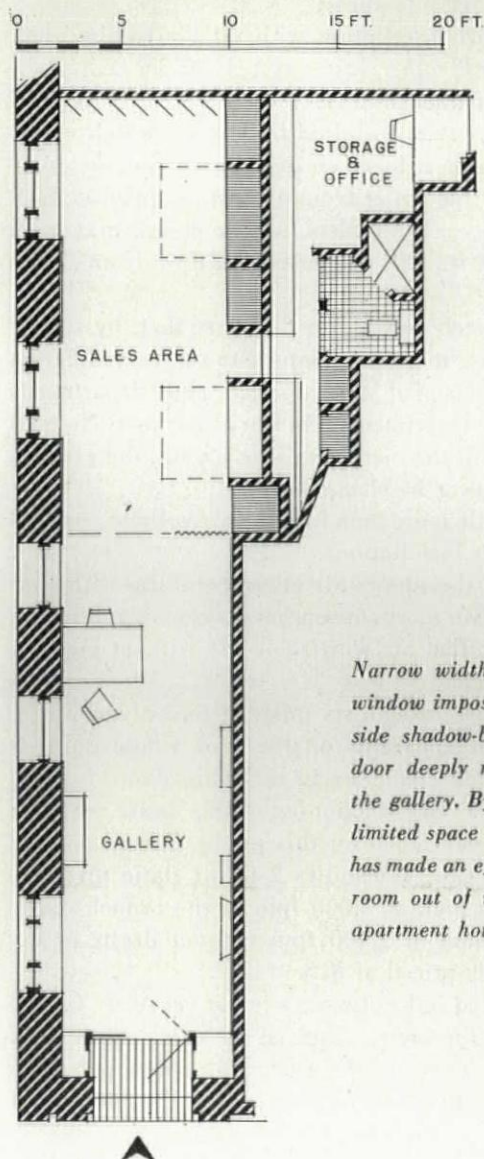
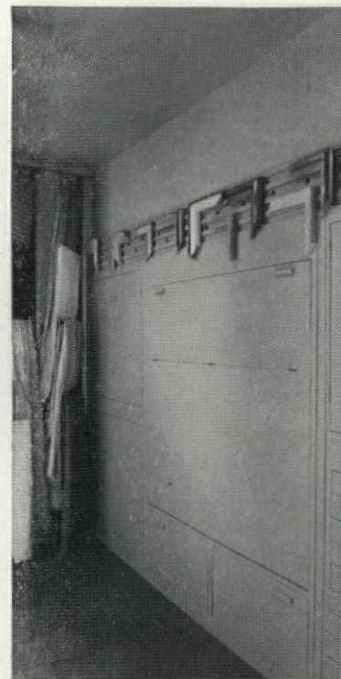
LOCATION: San Francisco, Calif.

FRANCIS JOSEPH McCARTHY, Architect

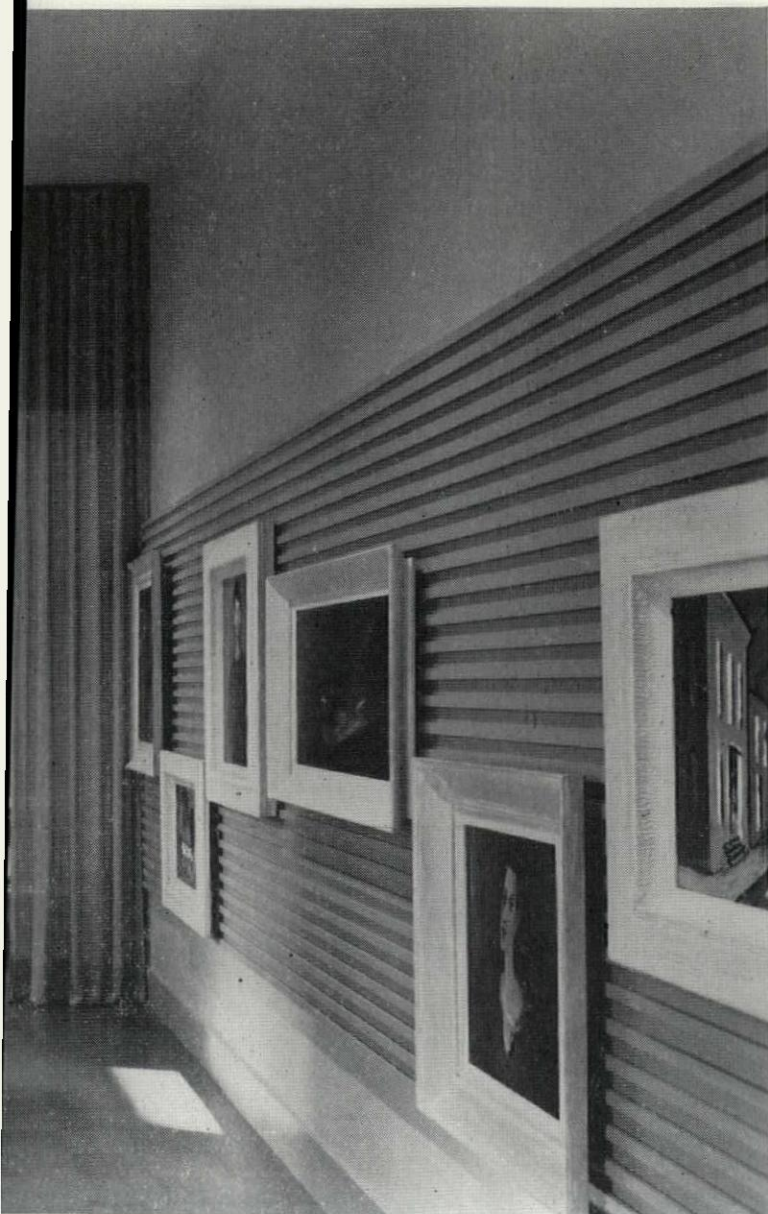
LUND BUILDING CO., General Contractor



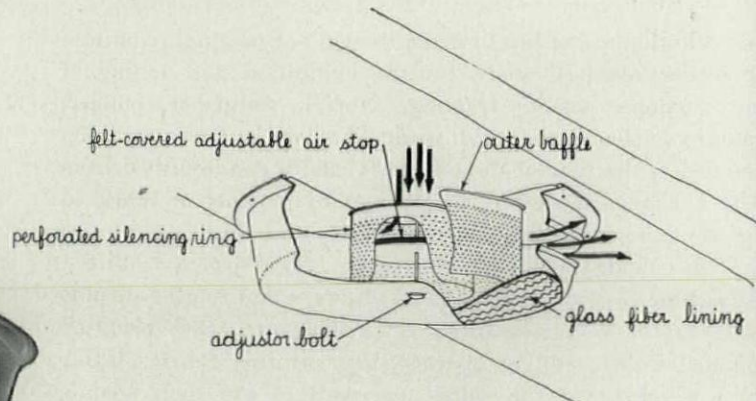
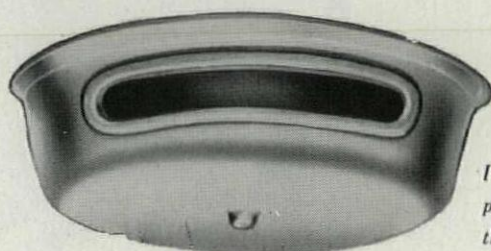
Display rack for reproductions disappears into storage room partition which also accommodates cabinets and drawers.



Narrow width of gallery made a show window impossible. In its place are outside shadow-boxes flanking an all-glass door deeply revealed into the front of the gallery. By making every inch of his limited space count, Architect McCarthy has made an efficient and attractive show-room out of what was once part of an apartment house lobby.



NEW HIGH VELOCITY AIR CONDITIONING SYSTEM uses only half the conventional quantity of air. The secret: lower temperature air, smaller ducts, new-type diffusers



In Connor diffuser air enters perforated damper sleeve in center, then passes through and around the perforated baffle which forms two-thirds a circle. Volume is adjusted by moving damper screw.

Carrier has successfully engineered and installed in Pittsburgh's big Kaufmann department store an air conditioning system which differs radically from anything Carrier has ever done before. It suggests a new space-saving solution to the air conditioning problems not alone of stores, but of new and old office buildings as well, for with various added controls and refinements Carrier believes the new system can be adapted to the more exacting requirements of office areas, especially in interior zones.

Among the system's newsworthy features:

- ▶ It is Carrier's first comfort installation with all the cooling done by high velocity air (in the *Weathermaster* system 80 per cent of the cooling is done locally by chilled water).
- ▶ It is the first multi-floor system installed by anyone which undertakes to handle varying local heat loads entirely by varying the quantity of supply air passed by the outlet from a constant quantity, constant temperature, air supply. The outlets, with a design maximum capacity of 1.35 cfm per sq. ft., will customarily diffuse from .5 cfm to .85 cfm.
- ▶ The system will be completely flexible in the sense that, by simply turning a screw in the outlet, it can be adapted to the very different cooling requirements of unoccupied storage space, quiet departments like furniture, and crowded departments like Christmas toys. No matter what changes are made in the merchandising layout, the air conditioning duct work need never be changed.
- ▶ The system will supply little more than half the air volume required for conventional low velocity installations.
- ▶ The system will introduce the supply air at temperatures as low as 55° F. — some 10° lower than most conventional systems, relying on high velocity to mix the chilled air with room air without creating cold spots close to the outlet.
- ▶ The entire air supply comes through six miles of ducts from an industrial type central station apparatus on the roof whose noise is attenuated in sound-absorbing chambers in the main duct.

An essential new element in the functioning of this entire sequence is a new diffuser especially developed for this job by Carrier and the W. B. Connor Engineering Co. It handles 2 in. of static pressure, slows the air down from as high as 3,000 fpm in the branch ducts, and delivers it at a maximum of 2,400 fpm without drafts or excessive noise. Each outlet is priced at \$18.

The new system as installed in Kaufmann's is not yet ready for the temperature and silence refinements required in office space. At Kaufmann's, where no zone controls are used, a 5° temperature tolerance was accepted as more than satisfactory, as was the addition of 3 db. to the store's 49 db. noise level.

But now Connor has developed for Carrier an improved quieter outlet for the lower noise levels required in offices. This will handle static pressures up to 6 in. and branch duct velocities of from 4,000 to 5,000 fpm, slowing the air down to speeds under 2,250 fpm. At 180 fpm, the outlet is rated at 44 db.; below 120 cfm it is silent.

Pulling out a rabbit

Carrier got started on this system only because nothing else seemed to meet Kaufmann's requirements, which included: no sales space sacrificed, no need of service men on the sales floors, no suspended ceiling units or conspicuous ducts on the sales floor, minimum interference with existing utilities, and easy overnight adaptability to all changes in merchandising layouts. There was no basement area available for machinery, and the roof could not carry, over and above a central cooling unit, all the fans and washers needed for the 600,000 cfm of air a conventional central system would require. The only breaks Kaufmann offered were these: 1) an 11° temperature tolerance; 2) the chance to run vertical ducts down four shafts which, because of moving stairs and elevator modernization, were no longer needed for elevators.



Two header ducts run the length of each floor carrying air to a dozen 14 x 7 in. run-out ducts that fit under beams. When ducts were painted to match ceilings they became much less conspicuous.

Carrier's engineers were thus forced to pull a rabbit out of the hat.

The project engineer's first inspiration was that he could get along with 400,000 cfm if he shot colder-than-usual air into the store at high speeds, relying on the velocity to get a quick and thorough mixture with the room air that would permit using the lower temperatures. A lesser amount of air at 55° would then do the cooling work of a much larger supply air at the more conventional 65°. In practice, the new system will at the outset supply an average of about .65 cfm per sq. ft., little more than half the conventional quantity. Later this will be stepped up 25 per cent to handle the heat load from brighter lighting which will soon be installed.

To meet Kaufmann's insistence on a system quickly adjustable to any change in the merchandising layout, (like putting Christmas toys in space previously used for a low-density rug department) the project engineer's solution was to put three outlets in each 20 ft. square bay. That was much more than he needed for some areas, but three outlets, full open, might be needed for high-density areas. This required the unprecedented total of some 3,500 diffusers and some 6 miles of horizontal duct work.

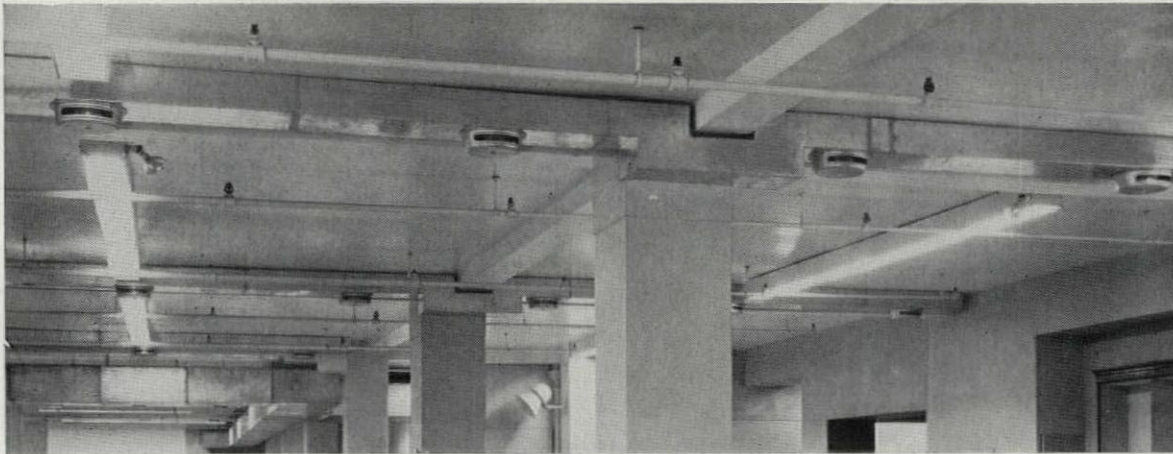
The pay-off: a new diffuser

This whole plan rested on finding a satisfactory diffuser. There was none on the market or even in the design stage that would do the job. Carrier put the problem up to five outlet manufacturers, selected the Connor design, which achieved the seemingly impossible task of getting good diffusion at both half-volume and wide open,

and performed well in both the laboratory and a sample setup in the store. Connor says that with the high velocities the new diffuser gets almost the same induction effect, after the supply air leaves the unit, as units in which supply air is blended with room air, and it quickly achieves a 9-to-1 mixture only 2° below room temperature. Nearly 80 per cent of this mixture is said to take place within 3 ft. of the outlet.

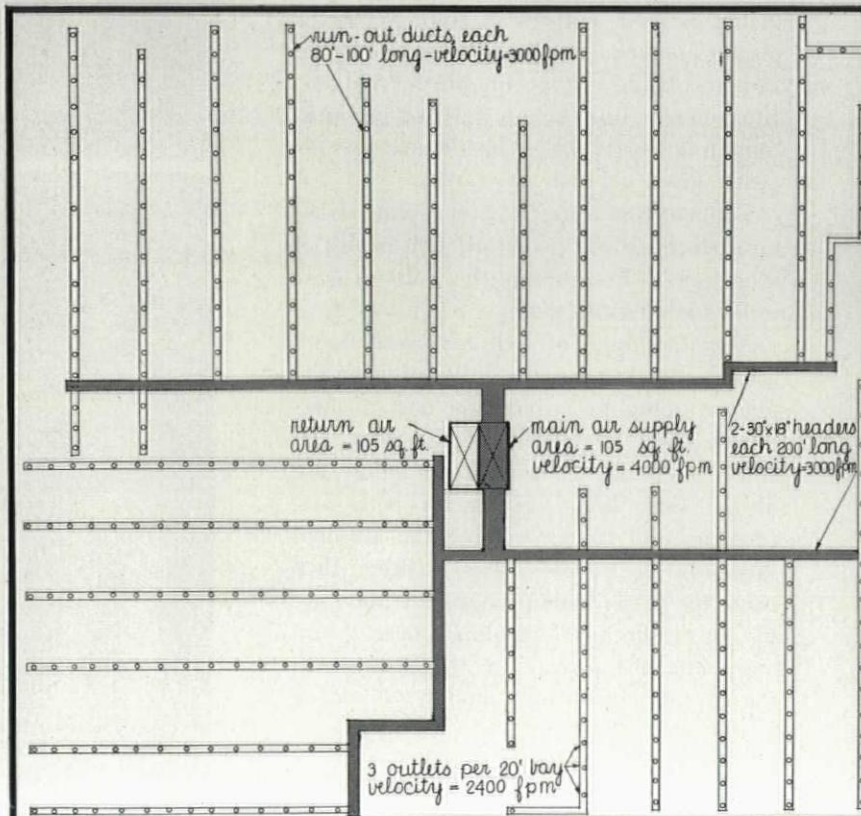
The cost of Kaufmann's installation has been variously reported as high as \$1,500,000. Actually Carrier says it cost less than \$1,000,000, even including nearly \$100,000 for patching and redecorating the ceiling. This is just over \$2 per sq. ft. for the 470,000 sq. ft. in the 13-story, block-large store, and Carrier believes it is less than either a conventional or a local unit system. Because the branch ducts are a uniform 7 x 14 in. for their entire length of up to 120 ft., they were relatively inexpensive to fabricate. Carrier estimates the annual operating cost at a fabulously low \$24,300 a year, or 5.2 cents per sq. ft. This estimate includes \$13,500 for electricity, \$5,200 for a single operator, \$550 for water, \$800 for water treatment, \$400 for painting, \$1,000 for filter solution, \$900 for oil filter cartridges, \$200 for refrigerant, \$250 for oil and grease, and \$1,500 for miscellaneous.

The central unit on the roof is the largest of its kind ever installed and required a great deal of special design. When the work was complete, the last diffuser in place, and the final balancing done, there was only a 5° temperature variation throughout the store, less than half Kaufmann's original tolerance allowance. For a one-control system with six miles of ducts that seemed amazingly good to everyone.



Left: a 14 x 7 in. run out duct, still unpainted, showing how Connor diffusers are secured to bottom of ducts. These ducts are same size throughout their length of up to 120 ft.

Below: in some sales areas with a suspended ceiling, supply air was carried to a diffuser through a short transition piece, so designed that if necessary diffusers could later be removed and fastened to ducts.



Left: typical floor plan shows general air pattern after it leaves supply duct. The entire installation uses about five miles of small ducts and one mile of header ducts.



THE PLASTER PUMP

—a new machine may rescue the disappearing wet wall

In Chicago plasterers have recently been viewing with surprise and some alarm the long delayed impact of the machine age on their ancient craft. This impact will almost certainly spread strongly over the entire building industry.

The cause for the excitement is a machine which pumps plaster through a 35 ft. hose from a hopper, and then applies it to the wall in rough coat through a spray nozzle.

With his hawk and trowel a plasterer can apply about 90 cu. ft. of plaster a day. With this machine, pumping a cubic foot per minute for 60 per cent of an eight hour day, he can apply 288 cu. ft. One of these machines has applied 1,100 sq. yds. scratch coat of plaster in a day, compared with the 400 yds. considered normal when manually applied. The finish coat of plaster still goes on by hand (see pictures), but the overall dollar saving this piece of technological progress can effect on large jobs is estimated at about 20 per cent.

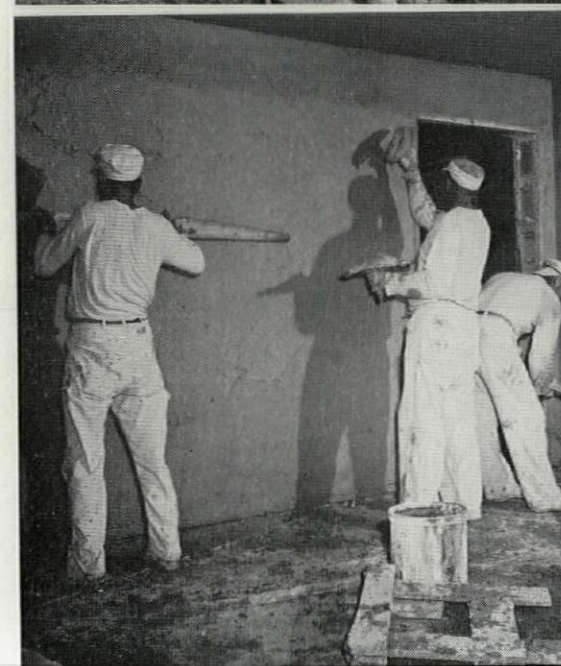
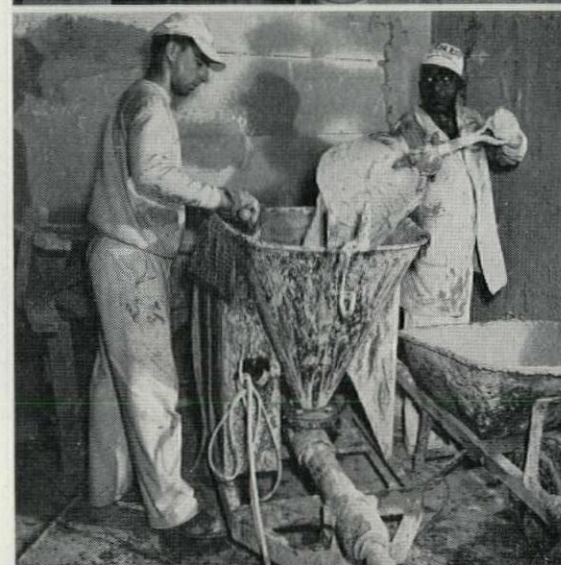
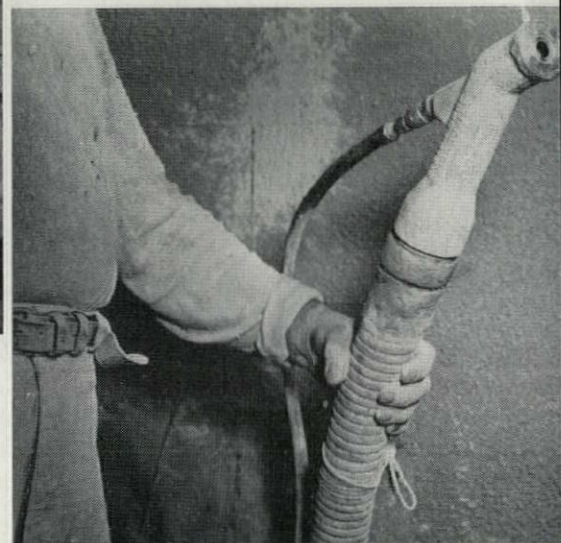
The machine (made by E-Z-On Corp.) can be used on ceilings as well as walls, and one of its biggest advantages is that it can pump plaster through a hose as long as 35 ft. from the hopper in any direction, including straight up. The machine is not powerful enough for sand plaster, but works easily on light aggregate plaster or

concrete. (Perlite is in use with good results.) After the mix has been pumped through the hose to the nozzle, a stream of compressed air blows it into place on the wall or ceiling.

But the impact of this machine will go beyond the ordinary plastering of walls and ceilings. It has already made possible new economies on curtain wall backup, in an exterior wall which, beyond its metal facing, is made entirely of light aggregate plaster and concrete blown on a steel frame in place. Made with perlite plaster and perlite concrete, this backup wall is 6 in. thick, including finish plaster inside, and was recently given a 4-hour fire rating.

The machine's use for fireproofing structural steel is a big potential, as it is also in such uses as fireproofing the walls of stair wells and elevator shafts.

Manufacturers of cellular steel floors are interested in the possibility of using the plaster pump to reduce the cost of fireproofing the underside of the floor. In cities where the code does not allow use of the same hung ceiling for both fireproofing and for concealing the air conditioning ducts and other utilities, they think the plaster pump might facilitate applying the fireproofing plaster over a wire mesh attached directly to the floor itself, thereby saving not only money but ceiling



eight, compared with the duplicate pair of
ung ceilings in some new office buildings.

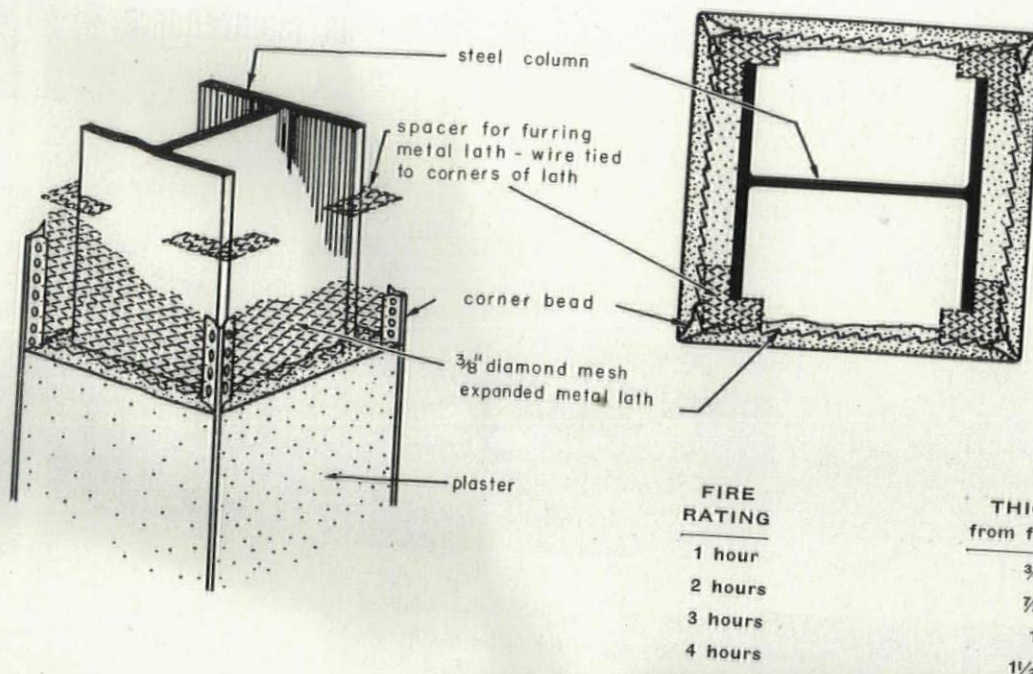
This kind of technological improvement
an be expected to meet hard resistance
om building unions, but the situation in
ne plasterers union is unique. The use of
laster is in so sharp a down trend, due
o competition from dry wall and smooth
concrete finishes, that such a machine may
well increase the overall employment of
plasterers. (It is estimated that 20 years
ago 95 per cent of houses were finished
with plaster. Last year, about 50 per cent
were, and the percentage is still declining.)

But innovations like this new curtain
wall would boom plasterers' employment,
since the plasterers would place the entire
exterior skin, except for the metal workers'
framing. The plastering machines are
currently being rented through a distrib-
utorship which is in the process of being
organized nationally. E-Z-On, a Chicago
company, rents the machines through dis-
tributors only to plastering contractors
who employ union plasterers. Present rate
for leasing one of the machines is \$160 per
month.

The new curtain wall construction (see
drawings) consists of an exterior layer of
perlite-Portland cement concrete 4 in. thick,
and an interior layer of perlite-gypsum
plaster 1 in. thick, separated by an air
space.

Advantages of this plaster pump over
other spray systems lie largely in the small
amount of bounce which results. Very little
of the material being sprayed deflects from
the target surface with this new machine,
because the force with which it is applied
is small. The machine which moves the
plaster mix from hopper to nozzle is not
geared up to a powerful performance, but
is intended only to move the material as
far as the nozzle, not force it on the wall.
The actual application is done by the com-
pressed air in the hose which accompanies
the main hose to the nozzle, then pushes the
plaster mix into place. This is unlike other
concrete and plaster sprays which keep the
whole mix under considerable pneumatic
pressure, and thus place it with greater
force—and more bounce.

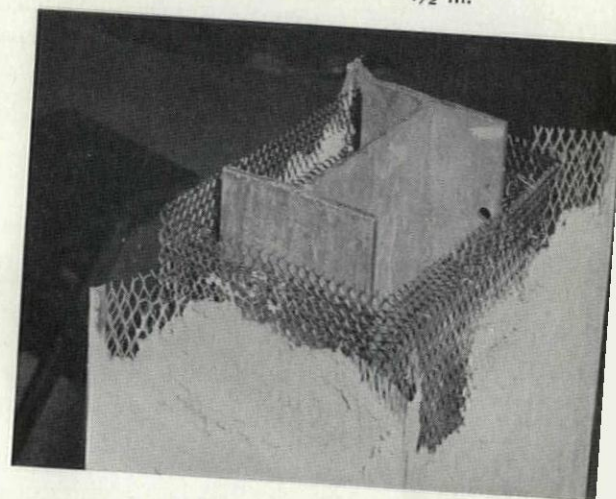
This new pump is also a batch opera-
tion, which gives it the advantages of econ-
omy. Only that amount of material actually
to be applied is premixed and dumped into
the hopper.



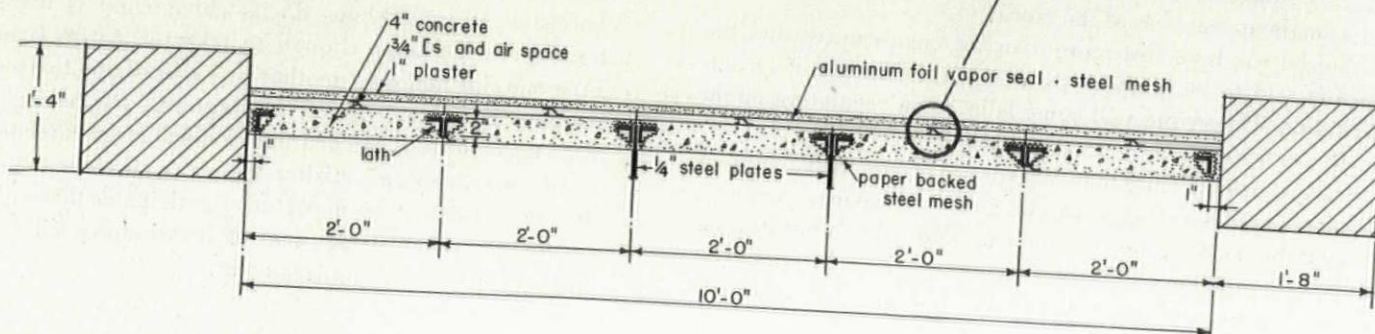
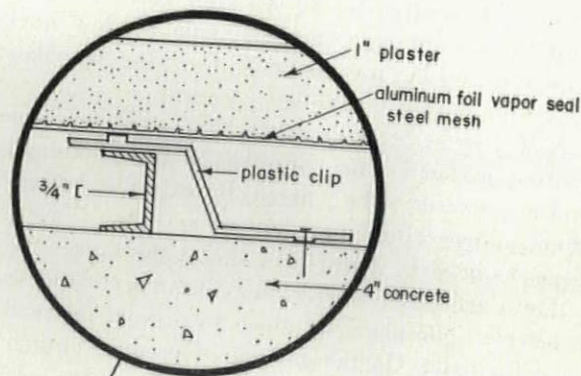
FIRE RATING
1 hour
2 hours
3 hours
4 hours

THICKNESS from face of lath
3/4 in.
7/8 in.
1 in.
1 1/2 in.

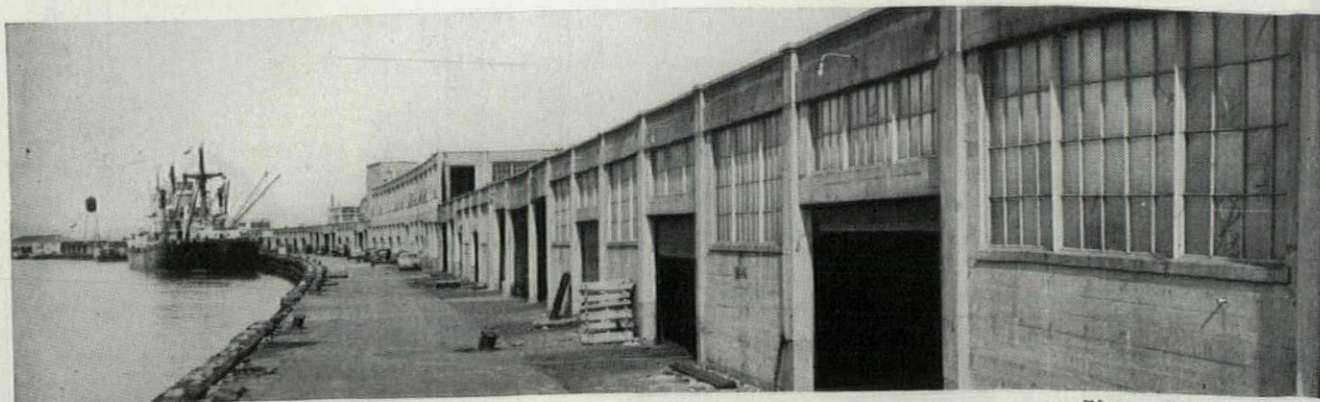
Illustrations above show the way this new machine
fireproofs a structural steel column. Even greater
advantages are seen in fireproofing horizontal steel,
where it is impossible to avoid formwork by using
concrete block. Table shows efficiency of various
thicknesses of fireproofing from face of lath (in
each case material between lath and steel is 1 1/4 in.
thick).



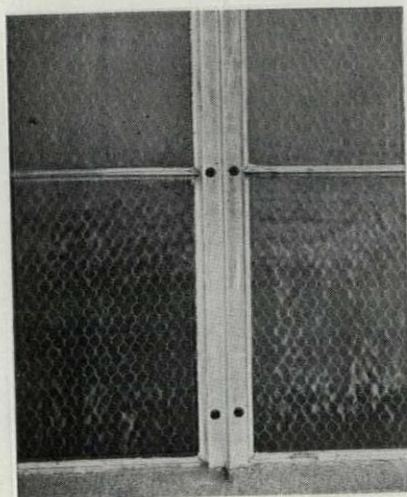
Curtain wall backup with 4-hour fire rating is
made entirely with new machine, except for plac-
ing of structural steel and final surfacing of plaster
inside. This wall complete with steel, 4 in. of
lightweight concrete, furring and lath and plas-
ter, finished, is estimated conservatively to cost
under \$1.70 per sq. ft. for straight runs of wall.



GALVANIZED STEEL WINDOWS need no paint—no maintenance



Photos: Chalmers-Marvin



Galvanized steel windows, installed 23 years ago at the Galveston Wharf Co., at Galveston, Texas, have never been painted.

Despite a damp climate and incessant salt spray from Gulf sea water, windows are still in excellent shape and will need no paint or maintenance for many more years.

The steel window makers think they have found the answer to the no-maintenance advantage of aluminum, which despite higher prices has now taken over one-sixth the total window market.

That answer is to galvanize before bonderizing, with the zinc coating extra thick to assure long life. Windows so treated have stood up without painting for 30 years or more (see cuts) but it was not until the aluminum promotion made window buyers maintenance-conscious in a big way that any steel window maker decided to fight back with galvanizing.

Now Detroit Steel Products (Fenestra) is claiming that its galvanized product has the advantage of greater strength and lower price and never needs to be painted. Its galvanized steel cannot match the shine of new aluminum, but after years of use in many climates Fenestra believes it will look almost the same.

For a generation steel windows have been bonderized (treated with a patented phosphate solution) to prevent rust and provide a better base for paint. On the galvanized product (which needs no paint) the bonderizing serves a different purpose—to mask the kitchen-pail gleam and spangle appearance of the zinc.

The galvanized windows cost more than the ungalvanized, but the higher price is said to be no more than the first painting of an ungalvanized frame. The saving will come later when repainting might cost up to \$3 per window every three to five years.

Fenestra has records of more than 300 special orders for galvanized windows going back as far as 1918 and is now checking every one of these installations to see how it stood up. Many have been found as good as new, though the old methods of galvanizing when the work had to be farmed out are not believed to be as good for window

purposes as the methods which will be used in a new plant Fenestra is now erecting to do its own galvanizing.

One 23-year-old galvanized installation Fenestra has investigated is the warehouse of the Galveston Wharf Co. in Texas. This was a rugged location for steel windows because the climate is damp and a destructive salt spray blows in steadily from the Gulf only a few yards away. Yet over all these years the windows have never needed painting on either side. They still show no rust or corrosion, as the accompanying photographs show, and should continue to be maintenance free for many more years.

Hot dip method is used

The improved coating process that Fenestra is now using is the traditional hot dip galvanizing but with far better quality control. Frames and ventilators are first thoroughly cleaned to take off grease, rust and other dirt and then put through a fluxing process that later improves the bond between steel and zinc. The frame is then dipped in molten zinc at a temperature between 845° and 865° F. until its temperature is the same as that of the zinc, which then unites with the surface iron to form an alloy that bonds the coating to the steel. This produces a coating as much as five or six times thicker than some of the electroplating processes used, but even more important than the thickness is that the zinc is neither porous nor rough.

All hardware used on galvanized frames must be of non-ferrous metal or be galvanized.

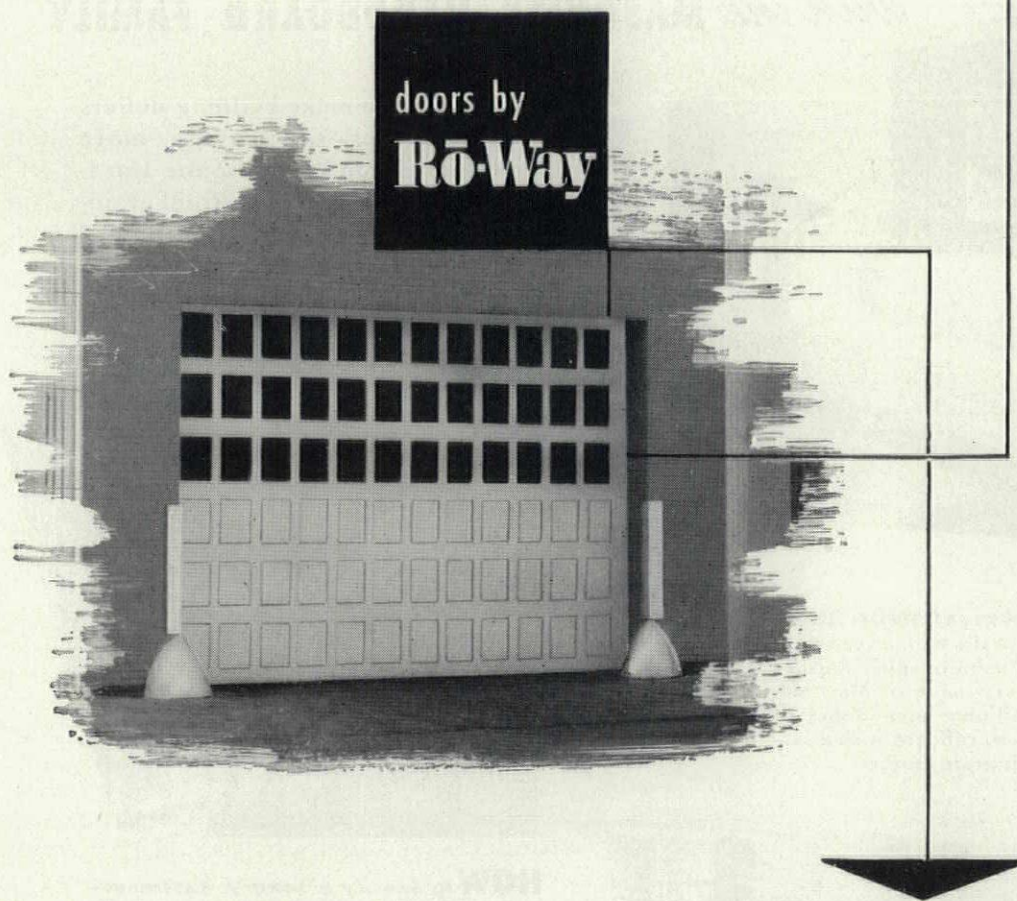
Fenestra points out that galvanized windows do not call for any special glazing treatment. Any glazing compound recommended for the exterior of steel windows is satisfactory and does not need to be painted, which is another maintenance saving.

Fenestra's new plant

The new galvanizing plant being built by Fenestra will be the first in this country designed exclusively for handling windows. Its large tanks will handle all of a 12 x 10 ft. frame. Chief disadvantage of letting commercial shops do its galvanizing is that the processing tanks were not large enough to take the entire frame at one time. First one side and then another was soaked and this sometimes caused warping and problems of overlapping. By having its own plant, Fenestra believes it can maintain a much more careful quality control.

Advantages of galvanizing appear so obvious to the manufacturer that the Fenestra sales department anticipates that within a short time as much as 25 or 30 per cent of its windows will be given the new galvanizing-bonderizing treatment.

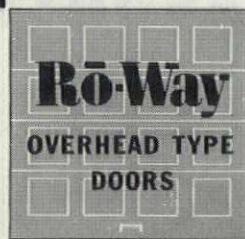
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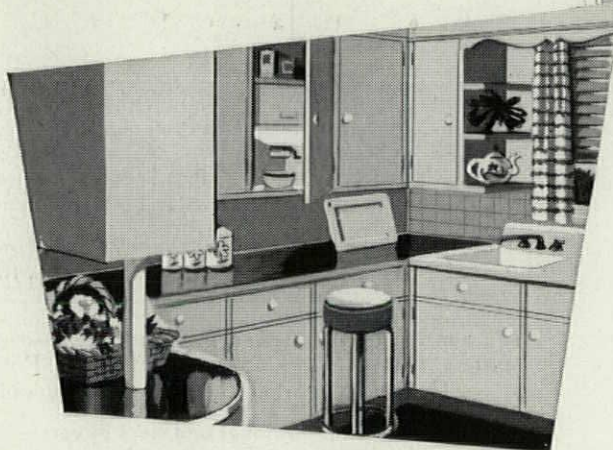
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can help you design
LONGER LASTING ROOFS
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When metal roofs and gutters expand and contract, due to temperature changes, this movement sets up stresses in the metal that correspond to the loading of a structural column. Unless the stiffness of the metal section is sufficient to transmit these stresses from the fixed end to an expansion joint, the metal will buckle; and where it repeatedly buckles, it will soon crack.

Thus, one basic factor in non-ferrous* sheet metal construction usually determines how long the installation can last . . . and this factor is the stiffness, or columnar rigidity, of each section.

WHAT GOVERNS COLUMNAR RIGIDITY?

The columnar rigidity of a sheet metal section is determined almost entirely by the shape of the section and the thickness of the metal. Studies have proved that such factors as tensile strength of the metal are either of no importance or of relatively minor importance in determining columnar rigidity of a sheet metal section.

The amount of stress which builds up in any section depends, of course, on the length of the section. Thus, when length and columnar rigidity are in balance, there will be no buckling of the metal and the installation will last indefinitely.

"COPPER AND COMMON SENSE"

Revere's manual of sheet copper construction, "Copper and Common Sense", describes in detail the research upon which the above statements are based. It is complete with charts, illustrations and detailed information so arranged that you can read and apply final figures that insure the finest sheet metal construction.

"Copper and Common Sense" has been widely distributed to architects and sheet metal contractors, and there is probably a copy in your files. In addition, a Revere Technical Advisor will always be glad to consult with you without obligation.

*Erosion and corrosion seldom cause premature failures in sheet copper construction. When failures do occur, 9 out of 10 of them are due to lack of balance between the length and columnar rigidity of the section.

REVERE

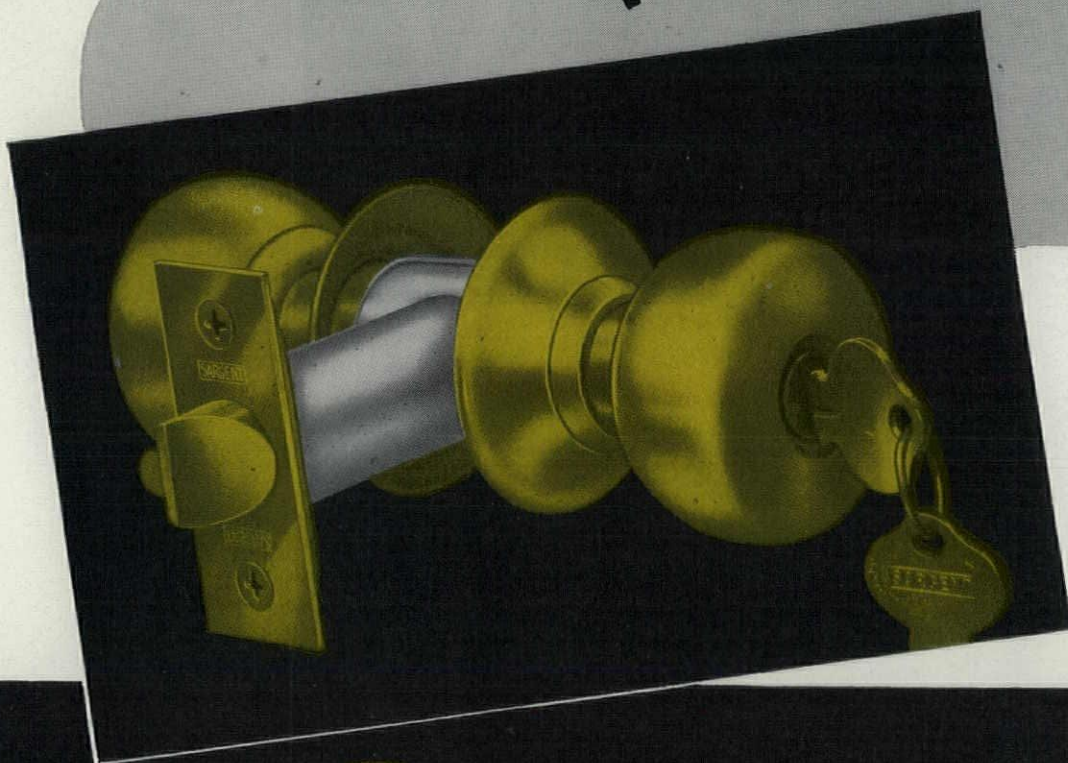
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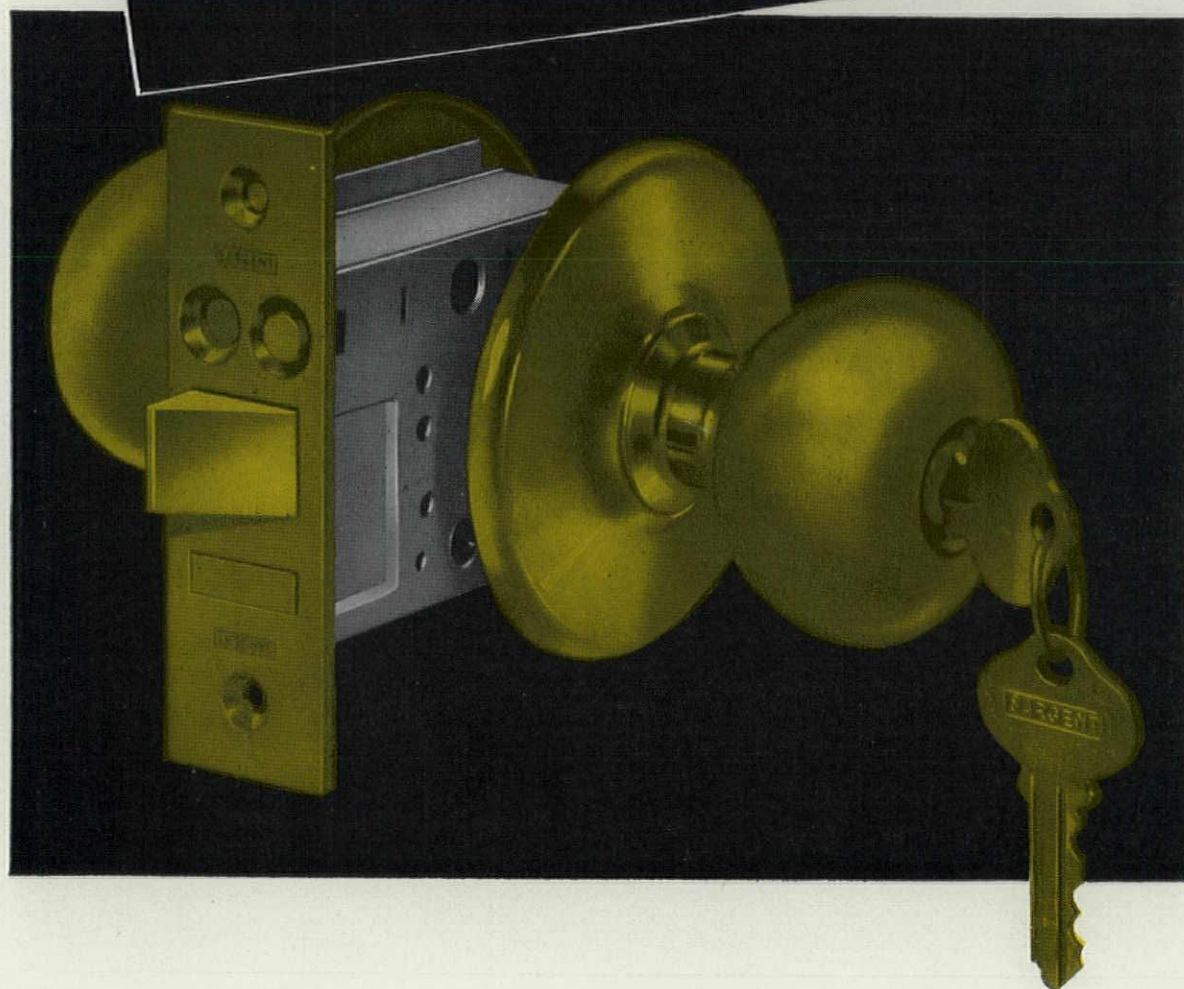
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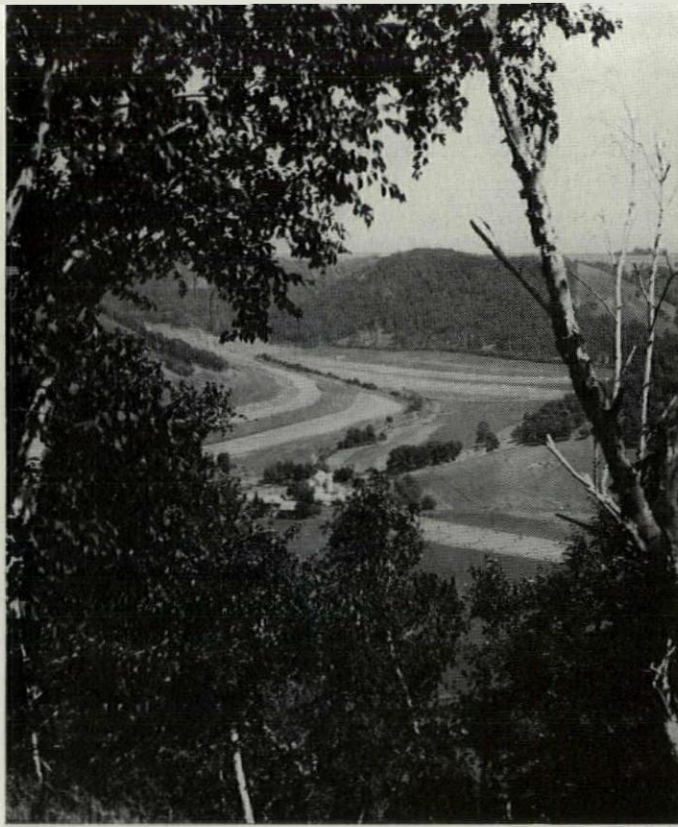
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REVIEWS

LANDSCAPE FOR LIVING. By Garrett Eckbo. Architectural Record with Duell, Sloan & Pearce, New York, N. Y. 262 pp. 9 x 12. Illus. \$10.

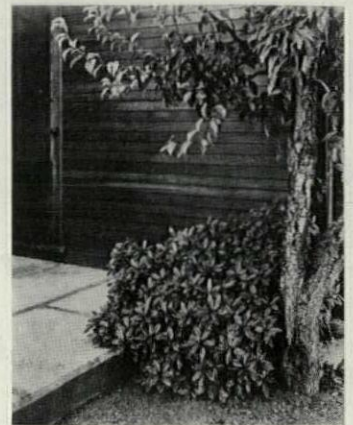
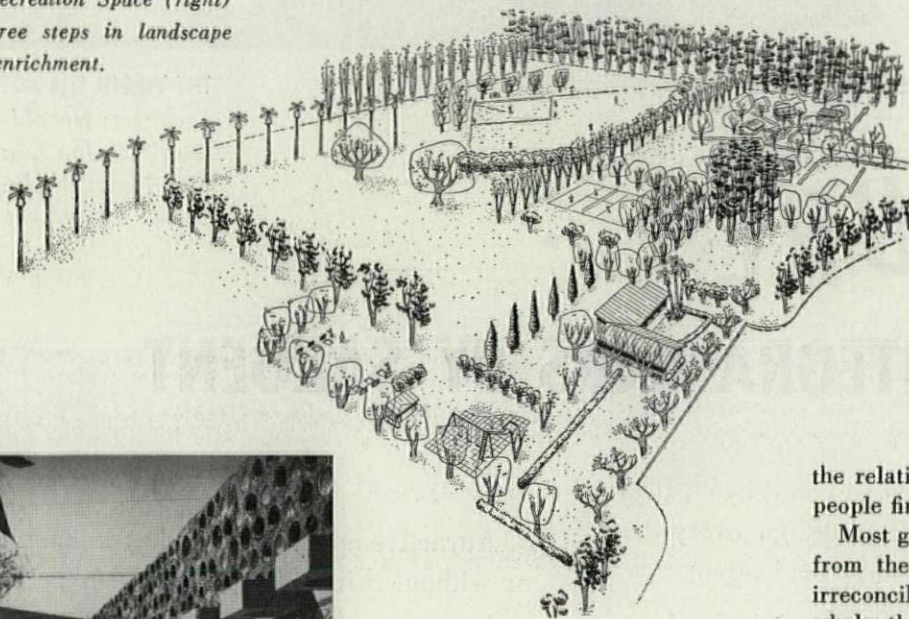
"Though we work always in backyards," says Landscape Designer Garrett Eckbo, "we must be aware of the world of which those backyards are a part." In this new and brilliant study of design outdoors, he demolishes once and for all "the old sham battle between formal axial and informal wiggly plan patterns." Such a deadlock can arise, he says, only because too many landscapers have concentrated entirely on "know-how," forgetting the more important "know-why." Landscape design is, for him, more than mere outdoor arrangement of any shape whatever. "In the large sense it is the continuous establishment of relations between man and the land . . . placing them so that the individual gets a maximum experience from

"The rural pattern is the real folk art of landscape design."—Eckbo



S. C. S.

The design for a Community Recreation Space (right) shows careful study of the three steps in landscape planning: surfacing, enclosure, enrichment.



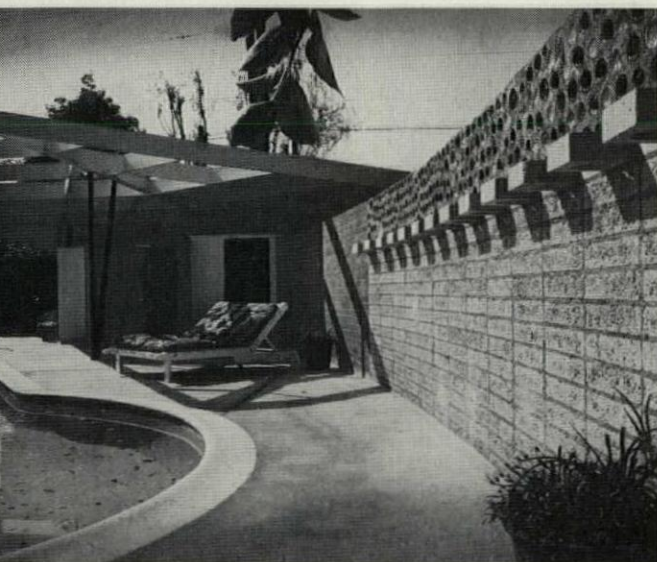
The corner of a dining terrace (above) is neighbored by a pear tree and a clump of *Daphne Odora Marginata*.

the relationship . . . Gardens and parks are for people first and for plants second."

Most gardening mistakes, Eckbo believes, come from the assumption that man and nature are irreconcilably opposed, and that one must overwhelm the other. Where extreme formalists force nature into artificial and often alien patterns and naturalists resent the least intrusion of everyday human needs, Eckbo insists on man's right to a place in the landscape—"nature includes man."

Landscape for Living breaks down its discussion into four parts (it really contains enough material for four books). Most original of these is the analysis of the aim and place of landscaping in today's world. Equally valuable is the profound yet practical study of its broad range of materials—space, soil, rock, water, plants and structure. In addition, there is a rather sketchy history of landscape gardening and an intensely interesting, but rather limited, pictorial study of well-planned modern gardens. The examples in this last section are almost exclusively from California. Even the work of Frank Lloyd Wright—one of the great originators in the field—goes unillustrated, although a number of his sayings are used to highlight the text. Eckbo covers these disparities by saying candidly—"This book would have been calmer if it had been written in calmer

(Continued on page 154)

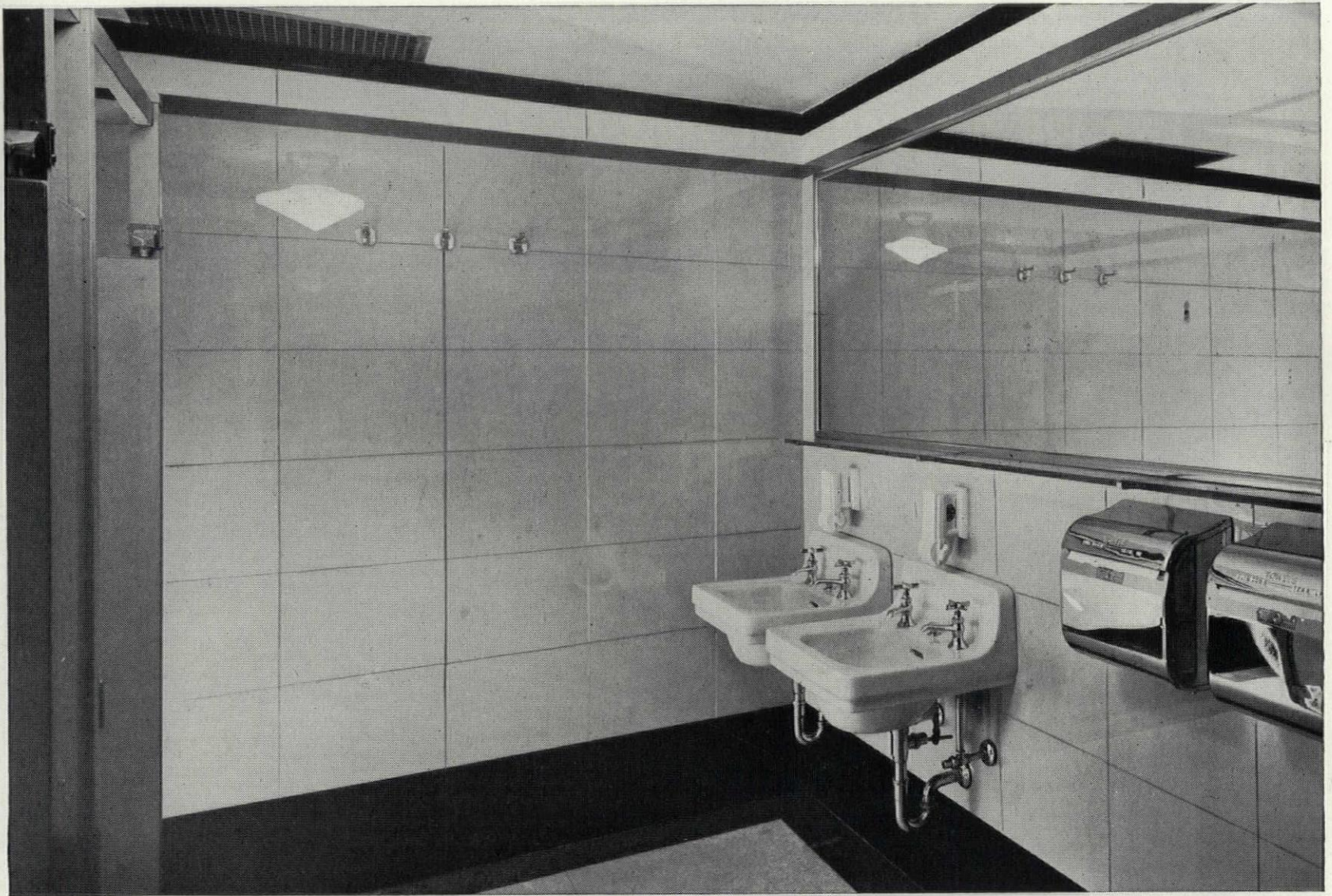


Julius Shulman

A pool and playhouse (above) integrate water and plants with wood, steel, brick and bottle-bottoms.

The lithe metal sculpture by Bernard Rosenthal (right) gives life to a screened garden court.





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"We have been using Vitrolite in our cafeterias since 1926 and are very well pleased with the results. We highly recommend it for eating places where there is a tendency for walls to cloud up easily and need redecorating often," says C. M. Hayman, President, Forum Cafeterias of America, Inc., Kansas City, Mo.

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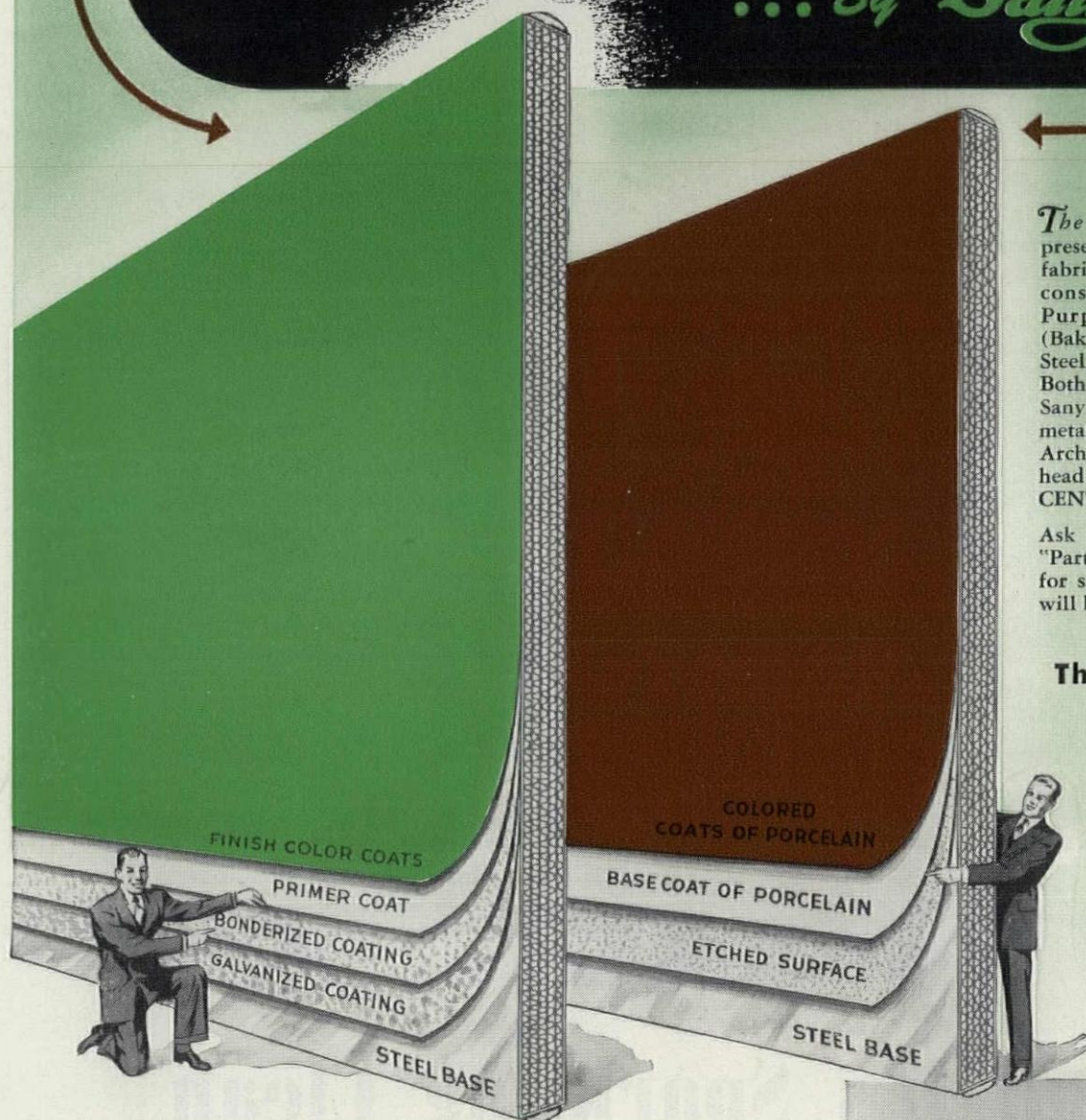


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This is Sanymetal "TENAC"

(Baked-On Paint Enamel over Galvanized, Bonderized* Steel)

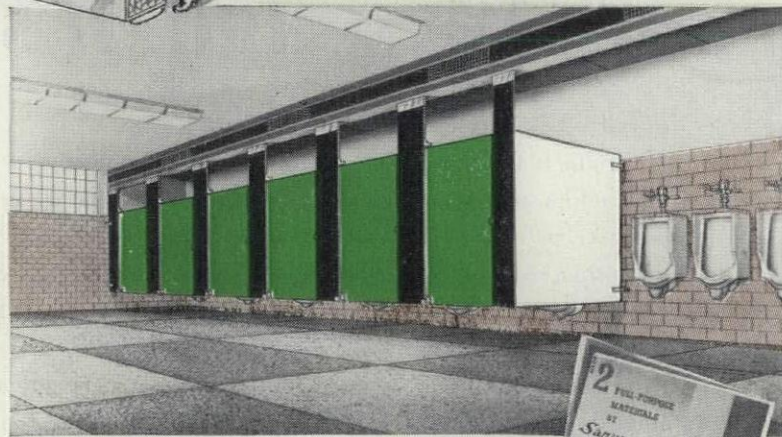
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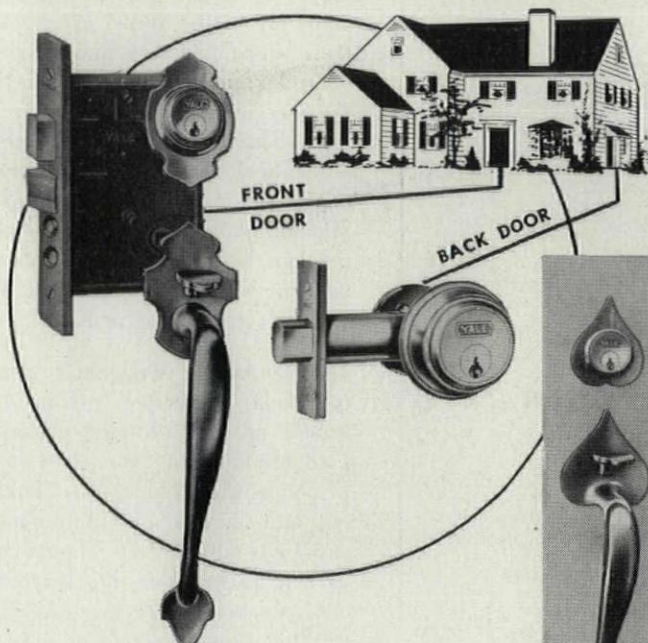
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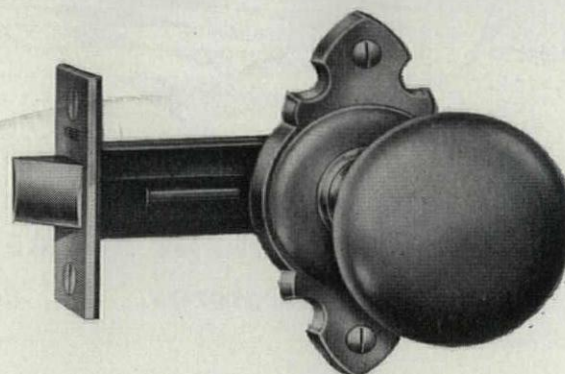
Hardware that stands up to "hard wear."



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Consists of XP74281 Handle Set for front door . . . 170KA Tubular Deadlock for back door. Latter has chromium-plated inside trim to *match* modern kitchen fixtures. Front and back door keyed alike.

No greater security . . .
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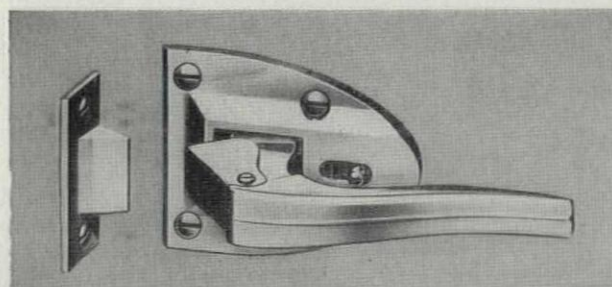
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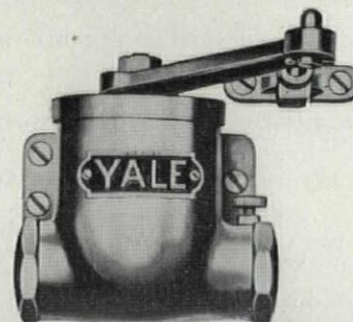
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Pneumatic-type. Adjustable spring is completely concealed against dirt and rust. Modern appearance, attractive finish. Easy to install on doors of either hand, inside or outside . . . requires only 2 in. between doors.



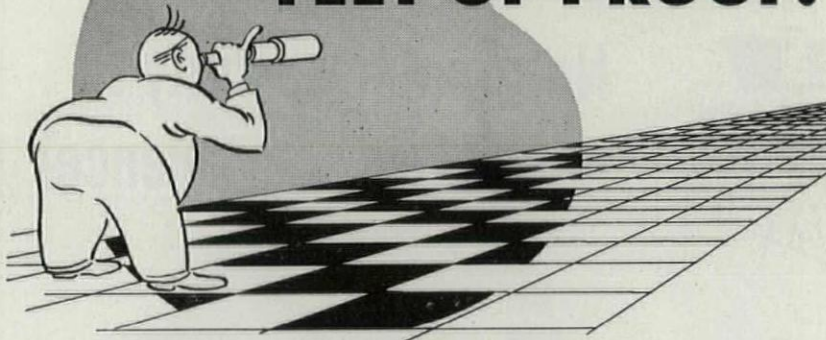
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Liquid-type. Quick, quiet, complete closing. Easy to install and adjust . . . no reversing . . . screw holes spotted by full-size marker.



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times." He concludes modestly: "It is meant to begin the discussion, not to end it."

Once the basic relationship between landscape and people has been accepted, all elements can be brought into focus. "All forms must relate definitely to the forms of people; to their size, their shape, the way in which they move about and relax, their requirements as to air, sun, shade, the way in which they perceive their surrounding." The problem of landscape designers today is identical with that "of architect, town planner, engineer and indeed all men of goodwill." It is "the development of ways and means for bridging the gap between . . . the masonry, the asphalt and the dingbat construction of the town and the quiet greenery of meadow, forest and shore."

The landscape designer's province takes in four fields of service: private gardens; gardens around public buildings; parks; and community land development. At each of these levels a single principle should operate: "The development of any site . . . is one continuous problem." On small lots site-integrity is particularly important: "When we break it into fragments (house, garden) we are apt to leave loose functional ends trailing: how to get in or out, by foot, by car; where do the doors go? what do the windows look at? where *do* clotheslines and garbage cans go?"

In creating landscapes for people, the designer has a wide range of materials at his command—"Anything which will stand outdoor exposure can be used in a garden." Natural materials are (of course) most important and Eckbo assays the part each can contribute:

The Soil, with its "very obvious subservience to gravity" and its "definite, often overlooked three-dimensional quality."

Rock, "a link between the structure and the land." Whether used sculpturally or for walls, it serves as an element of solidity and repose.

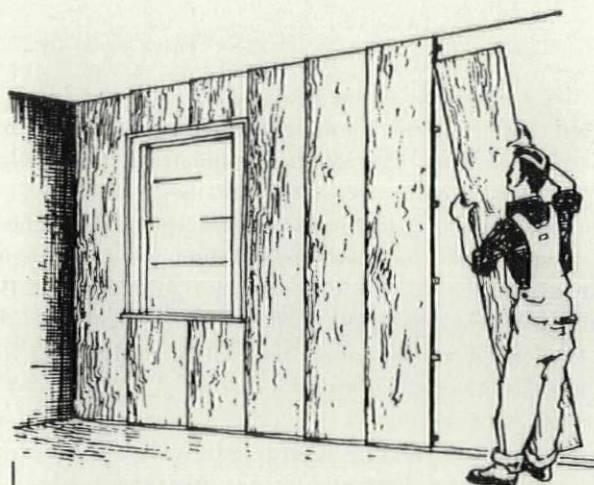
Water, "a physical though not a visual boundary." Plastic and receptive, it takes character from its container.

Plants, the most varied and vital of garden elements, demand careful selection: "Three badly selected plants can produce cacophony, 50 well selected plants a symphony, in the same space." They must be used and integrated at three levels: (1) ground cover pattern (grass, vines—or artificial surfacing); (2) eye-level pattern (bushes, flowers and trees up to 5 ft.); (3) the overhead pattern of foliage.

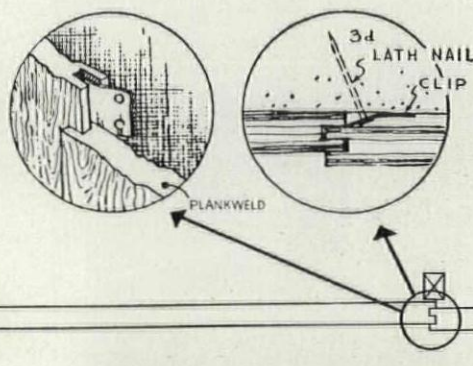
Structures, (dressing and game rooms, tool and work sheds, windbreaks and retaining banks) integrate the central building with its site.

Above all the techniques of landscape design Eckbo keeps his eye on the single goal which makes all the effort worthwhile—"The garden must do things to its possessor—amuse him, stimulate him, delight him, relax him—before its existence can be fully justified. . . . Maximum delight, minimum maintenance; every detail right, every plant a specimen, every feature a thing of beauty and a joy forever."—S. K.

(Continued on page 160)



Plankweld can be installed with the panels overlapping in either direction, left or right. After the first panel is installed by means of the special metal clips, the next is slipped into place, starting at the top as shown.



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Grooved on two long edges.

Wood species: Sliced Oak and Birch.

Size: $16\frac{1}{4}$ " wide by 8 ft. long.

Finish: Prefinished at mill; "pickled" lacquer
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FEATURES

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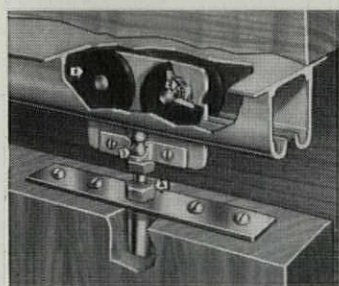
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NEW YORK REZONING

(Continued from page 127)

negative and restrictive, the new one is positive and permissive. Under the old resolution, certain desirable objectives were to be achieved by indirection. When the zoners wanted light, they talked about setbacks; when they wanted low density, they talked about courts; when they wanted open space for recreation, they talked about yards. The new proposal does not beat around the bush. Its language is direct, clear, and to the point. It contains no gobbleddegook like this fairly typical gem from the present code:

"The least dimension of an inner court at any given height shall be not less than that which would be required in inches for each one foot of height for a rear yard of the same height except that an inner court of equivalent area may be substituted for said court, provided that for such area its least dimension be not less than one-half of its greatest dimension. If an inner court is connected with a street by a side yard, for each one foot that such side yard is less than 65 ft. in depth. . . ."

A NEW LEASE ON LIFE

By the end of 1951, the new resolution may be the law

When the present Planning Commission Chairman, Jerry Finkelstein, Commissioner Larry Orton and the other Planning Commissioners are through with their presentation of H. B. & A's report, there will be extensive public hearings. Taxpayers will protest that properties once highly assessed will now lose value because of new zoning districts. Speculative builders will fight for higher FARs in midtown Manhattan (and may win a raise). Some manufacturers will balk at the tough, retroactive loading requirement. And reformers will state that the proposal does not go far enough (although they privately admit that the new draft is easily amended, highly flexible, wide open for future reforms—unlike the 1916 law which became unintelligible after being pockmarked with 1,500 separate amendments).

"Everyone will be heard," the Mayor said just before he went off to Mexico. He might have added that a great many people had already been heard and asked for advice. No doubt the proposal would undergo changes; no doubt there would be compromises. But it was realistic enough to win broad support from a Mayor's Committee headed by City Investing's President Robert Dowling. Other members: Henry Bruere of Bowery Savings Bank, Tax Commissioner William Boyland, Home Title's Henry Davenport, Columbia University Economist Robert M. Haig and Judge Jeremiah Mahoney. Said the Committee: "We have been impressed by the excellence of the study and analysis on which the proposals are based . . . We are strongly of the opinion that a general revision of the zoning resolution is desirable . . . We congratulate the City Planning Commission . . ." Principal objection: "If (certain proposals) are not changed after discussion, specifically those relating to the restriction of the bulk of buildings in the central commercial areas, (they) will likely adversely affect the value of land where more intensive use was intended than the new regulations would permit." The reference was, of course, to the proposed FAR of 15 in the Grand Central area of Manhattan, where recent construction has been closer to an FAR of 20. But, on the whole, the Committee liked the proposal: It was conservative enough to obtain support even from those whom it might hurt at first. It was progressive enough to command the respect of many a reformer. It was a good job—the kind of job the big city needed. It would be the starting point toward a new plan not only for New York but for many another American city too big to go on gambling with its future.

NOW! *Asbestos Movable Walls* WITH THE PANELS *"integrally colored"*



NOTE HOW THE COLOR GOES ALL THE WAY THROUGH!

No paint to wear off, chip, or peel . . .

A totally new and important feature has been combined with the basic advantage of *flexibility* in J-M Movable Wall construction.

Johns-Manville scientists have perfected a process for introducing inorganic pigments throughout the asbestos panels used in J-M Movable Walls.

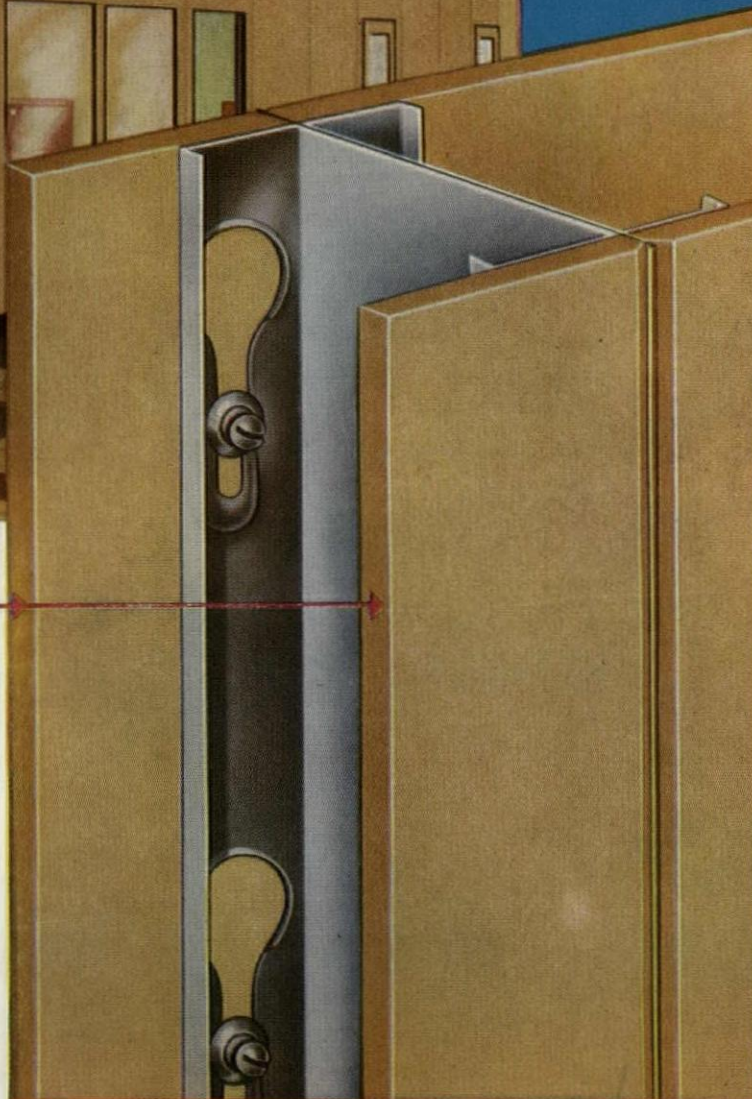
As a result, these beautifully-textured, fireproof panels are now "integrally colored" at the factory. That of course means the color is not a painted or baked-on surface coating; it is an *in-*

trinsic part of the structural material—goes *all the way through* each panel.

With no paint to wear off, chip, or peel, your walls will have that "first-day newness" *every day* for years and years to come!

By eliminating the cost of periodic painting and decorative treatment, the new Transitone Movable Walls will help you to meet your wall-and-partition requirements *economically*.

Transitone panels are hung on steel studs, forming a 4" double-faced partition. Also used as interior finish for the outside walls. Lighter than ever, they are readily installed or re-located. For details or an estimate, write Johns-Manville, Box 290, New York 16, N. Y.



Cutaway of J-M Movable Wall construction. The 7/16"-thick asbestos panels, on patented steel studding, are available in a light tan or light green. Note color is not a surface coating; it actually goes *all the way through* each panel.

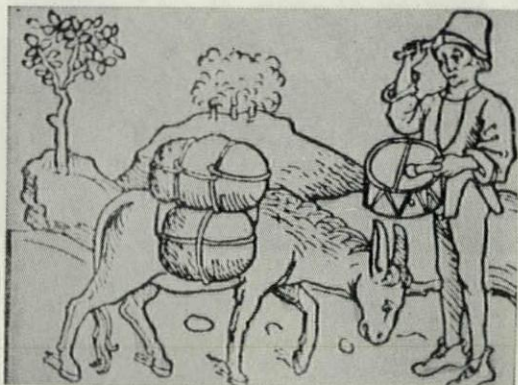
Johns-Manville



Transitone

MOVABLE WALLS with asbestos panels colored all the way through





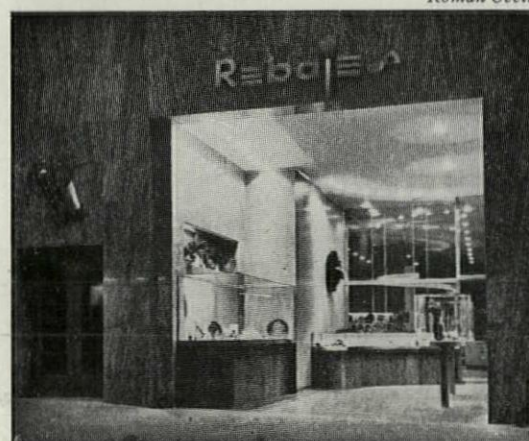
Bettman Archive

An interesting adjunct to the book is a section which traces pictorially the growth of small stores from Roman Pompeii, through the medieval mule-merchant and the 1890 emporium.

THE SPECIALTY SHOP—a Guide by Jose Fernandez. Architectural Book Publishing Co., Inc., 112 W. 46th St., New York 19, N. Y. 304 pp. 8 1/4 x 11. Illus. \$12.50.

Be there a storekeeper with soul so dead that he's never noticed the open front, cove lighting and the other enticements of modern architecture—this book will belatedly open his eyes. It is a picture book rather than a thorough analysis and is intended (as Dean Leopold Arnaud of Columbia says in his Introduction) "to show the prospective builder what the architect can do for him." The examples shown are limited to shops with one "specialty" of stock, but many of the solutions are applicable to individual departments of larger stores.

Roman Cecilia



Author Fernandez, a store architect with wide experience (See Jewelry Shop above), sets out a generous visual samplin of store elements and organizations: fronts, displays, signs, lighting and color. The last section is not effective since it does not include color illustrations. The technical sections, too, are disappointing—"concealed functions" and "air conditioning," for example, have their importance conceded without real demonstration. Most of the great names in this new field are represented through their work—highly competent and inventive designs, which have created a new concept in the past decade.—S. K.

HOSPITAL PLANNING, New England Regional Seminar. New England Chapters of the A.I.A. Mimeo. 90 pp. 8 1/2 x 11. \$2.00.

This seminar represented an important achievement in bringing together members of the medical professions and of the six New England A.I.A. chapters to stimulate interest in the problems of hospital design. The present record of its proceedings gives a general picture of the problem of planning a small hospital, in addition to several comprehensive and imaginative analyses of major hospital problems. Two hundred and fifty professionals attended the two-day seminar: consultants, engineers, hospital administrators, doctors, nurses, federal and state agency staff, students—and 137 architects!

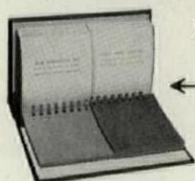
Participants agreed that the modern hospital had reached such a degree of complexity that a great responsibility rested upon the architect in
(Continued on page 166)



Northern Indiana Children's Hospital, South Bend, Ind. Pohlmeier & Pohlmeier, Architects; Skidmore, Owings & Merrill, Associates.

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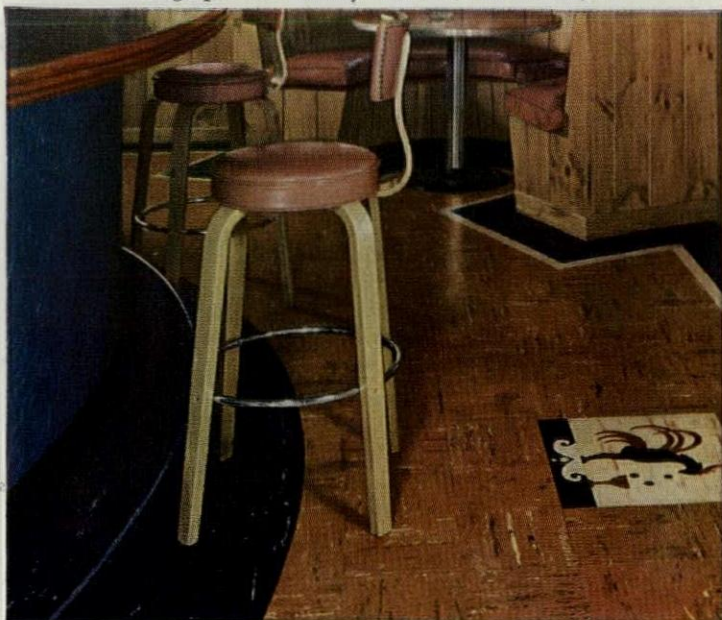
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Photographs taken at Sky Line Inn, Manchester, Vt.



MADE OF VINYLITE Brand Plastics, these inviting, colorful floors—the bar stool upholstery, too—will withstand years and years of hard service! This is because soaps, cleaners, grease, oil, alcohol, alkalis, and most strong acids have little or no effect on them.

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BAKELITE DIVISION, Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y.

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Cemesto Panels give you remarkably strong, durable, handsome partition walls. They save space, increase usable room area — because a single thickness of Cemesto replaces ordinary walls up to 6" thick.

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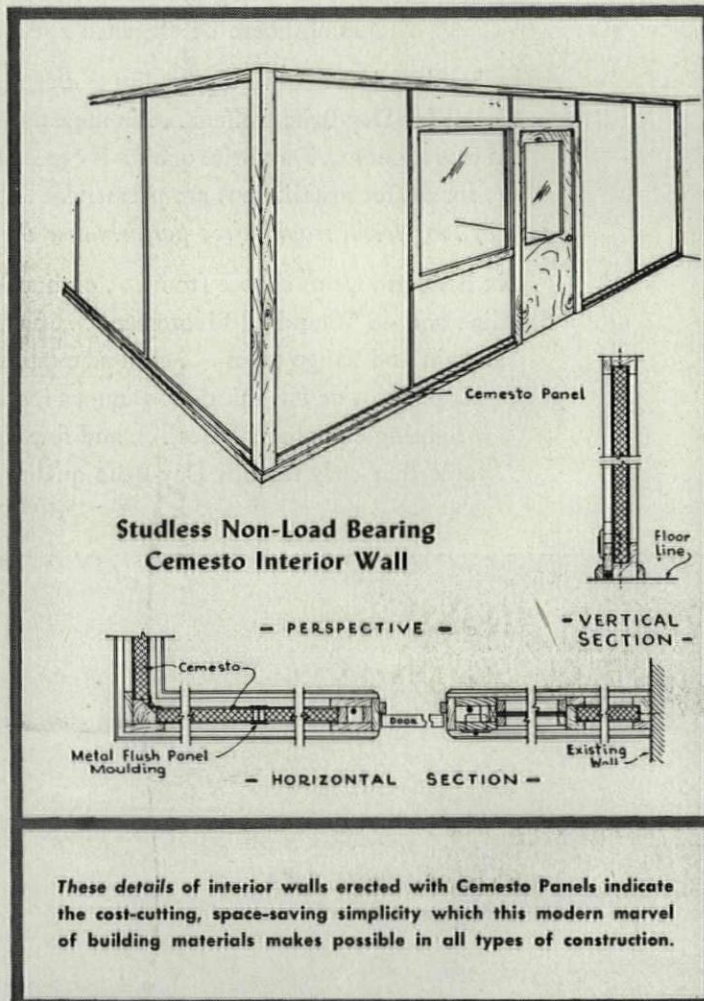
They are light and easy to handle, yet have amazing structural strength. And their insulating core is protected by the exclusive patented Ferox® Process against fungus, dry rot and termites.

Widely used for curtain walls and roof decks, as well as partition walls, Cemesto panels do more than speed erection and reduce costs. They also insulate efficiently for but little more than the cost of ordinary uninsulated construction!

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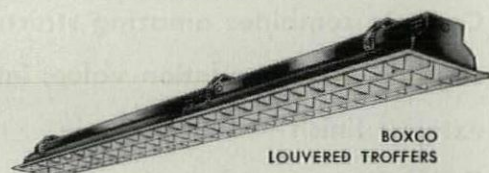
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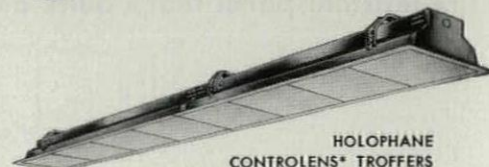
In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario

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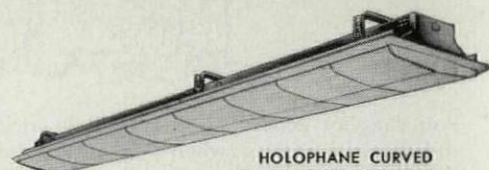
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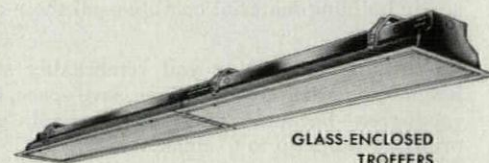
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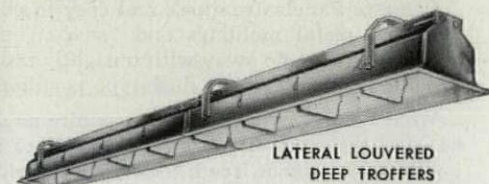
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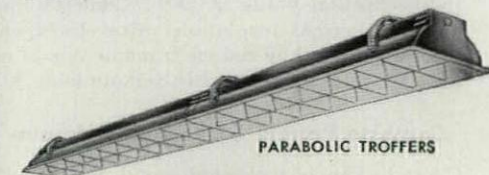
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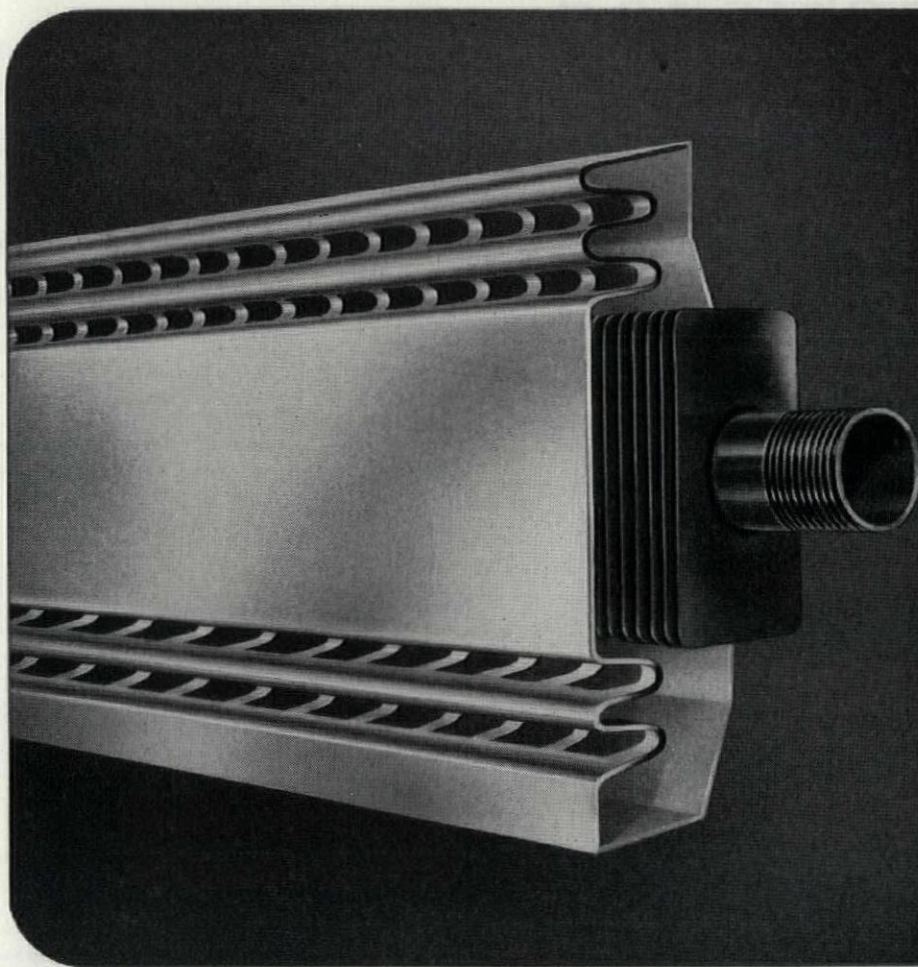
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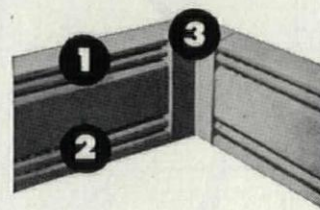
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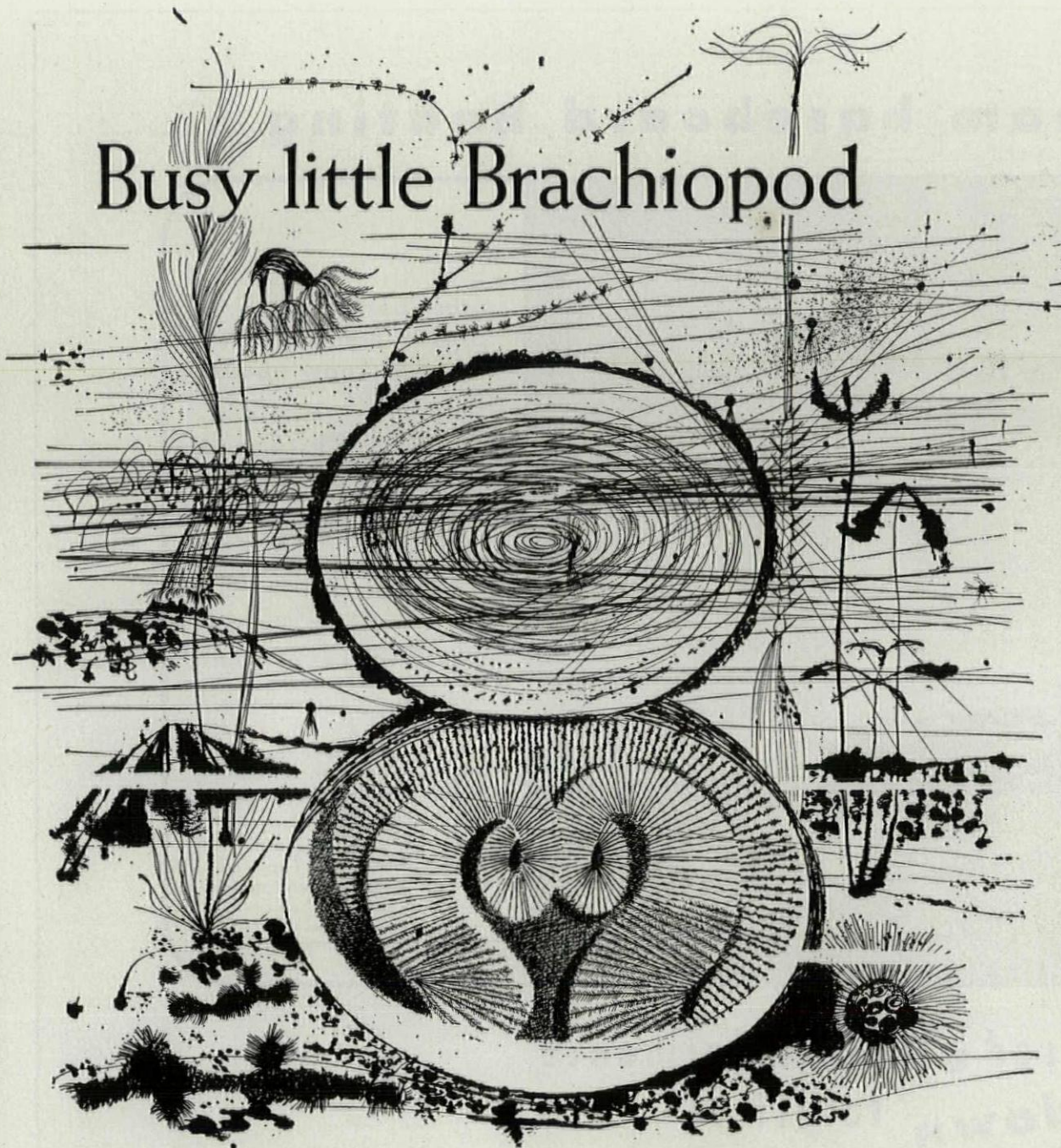
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Busy little Brachiopod



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To look at the little fellow with his foot-like arms and fore 'n' aft valves, you'd never guess what a wall builder he is. But science gives him credit. Yes, credits him and countless trillions of his fellows with producing the lion's share of the world's shells containing calcium.

Shells that long ago, under nature's sulphuric acid treatment, became gypsum, one of the finest materials for modern wall construction known to man.

With due credit to the busy little Brachiopod, U.S.G. takes up where nature left off.

SHEETROCK fireproof gypsum wallboard, for example. Here's an up-to-date application of gypsum for speedy dry-wall construction that makes possible beautifully smooth walls and ceilings — interiors extraordinary in fire protection, rigidity and strength... worthy of all America's "dream houses!"

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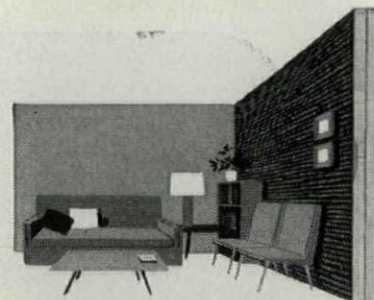
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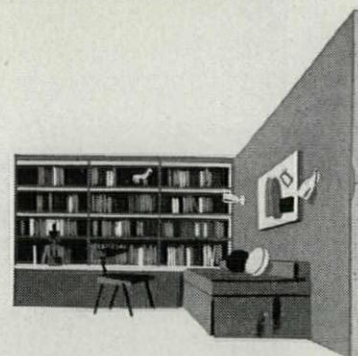
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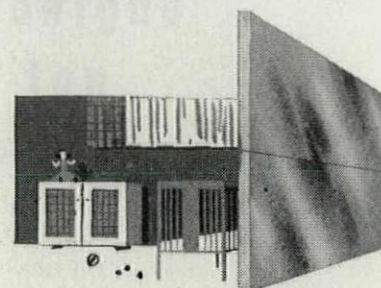
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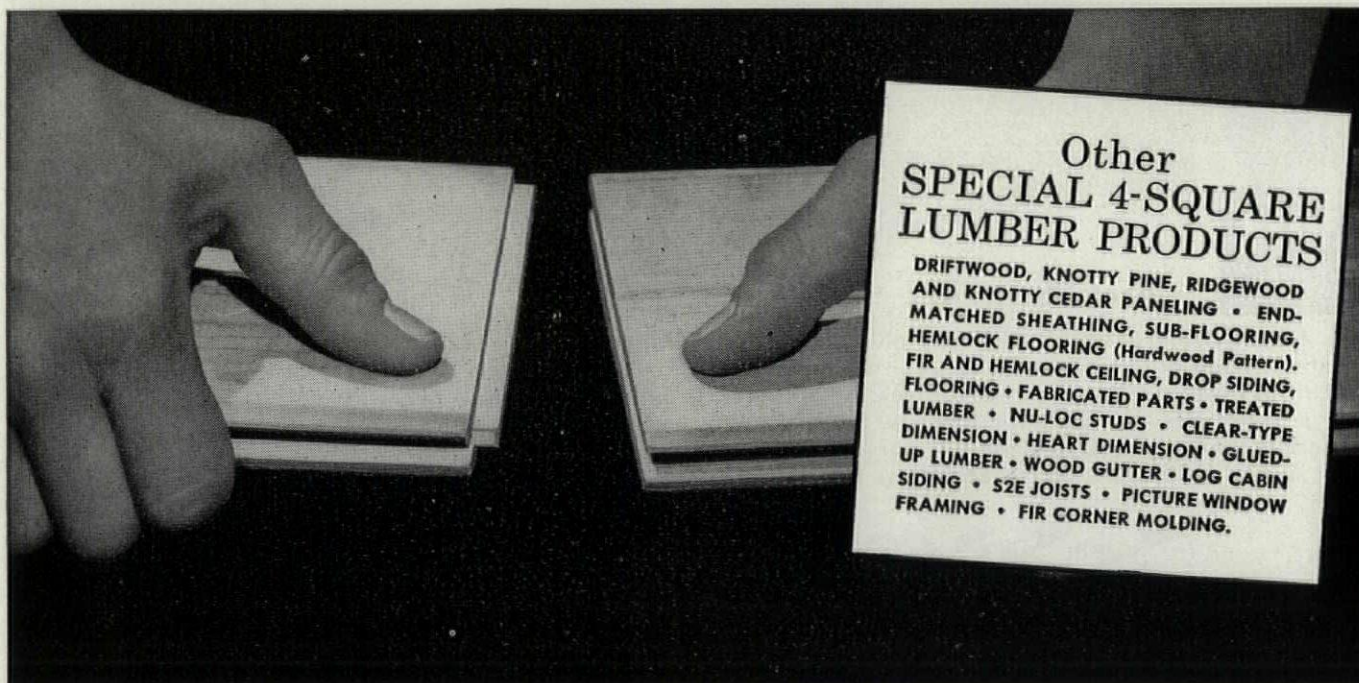
End-Matched Lumber promotes better construction . . . effects definite savings in application time . . . and practically eliminates material waste.

The variety of softwood species and grades from which Weyerhaeuser 4-Square End-Matched Lumber is manufactured makes it practical for a host of building jobs . . . sheathing, sub-flooring, siding, finish flooring, ceiling and form work.

Tongued and grooved at ends and edges, End-Matched locks together and builds up into any width or length, to form smooth, tight, rigid panels of any desired size.

Since the inter-locking tongue and groove permits secure joining anywhere in the course, it is not necessary to break joints over studs, joists or rafters. Trimming for length is unnecessary. Nailing time is reduced and end splitting avoided, since double nailing is not required.

When End-Matched is trimmed at the end of a run, the rest of the piece is used to start the next course. Material waste is practically eliminated. Architects who specify Weyerhaeuser 4-Square End-Matched find it a proved means of reducing building costs and promoting sound construction.



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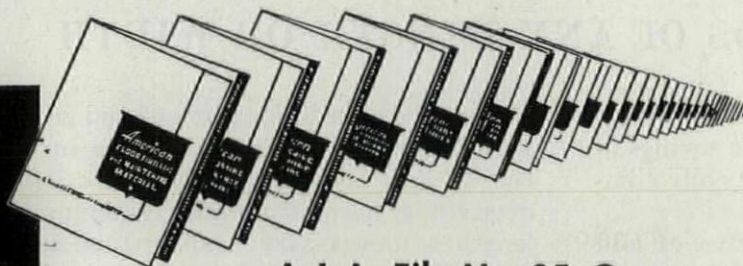
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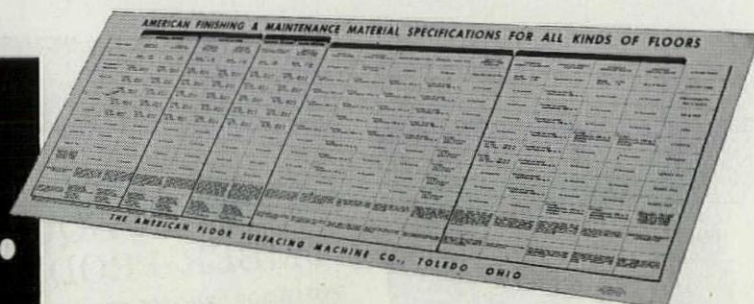
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REVIEWS

integrating the work of the many specialists whose services were essential to the hospital. They were concerned, too, with a stricter definition of the services of the medical consultant to avoid areas of conflict. While this controversy was not completely resolved, it was felt that a workable solution could be reached on the individual project. Many architects felt that they should participate earlier in the program in order to guide it along a realistic direction.

Integration—present and future. The Hospital Survey & Construction Act, Public Law 725, was commended as giving great impetus to hospital building and to the maintenance of high standards of operation. It was agreed that by emphasizing the integration of services between hospitals, progress has been made in developing a coordinated system with resulting avoidance of duplicating specialized facilities and in providing service in areas not previously covered. Continued government responsibility in the care of chronic patients was deemed necessary since the financial resources of the voluntary hospital are not adequate to cope with long term illness.

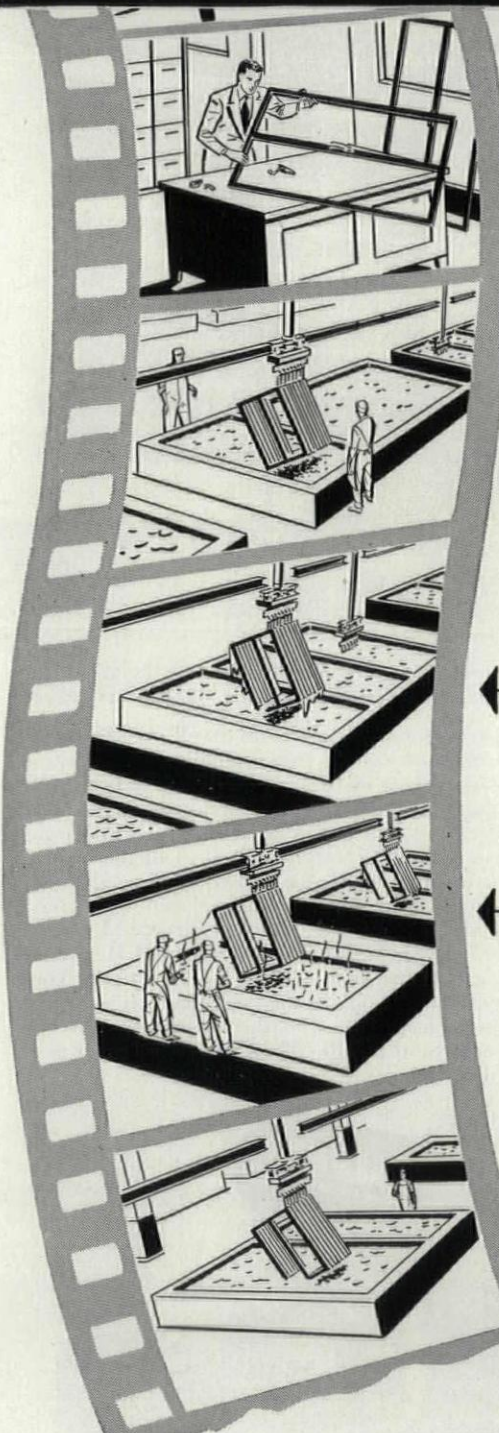
The hospital, it was believed, would play an increasing role in the community, assuming more of the preventive functions of the public health center. Emphasis was placed on the need for flexibility and expansibility to provide for changing procedures and the ever-broadening medical field. Expanded outpatient facilities were foreseen, permitting the possibility of use of laboratories, X-ray and other departments for the private patients of the medical staff as well as the charity patients.

A nurse's eye-view. Problems of the nursing unit were analyzed in an excellent paper by Alice C. MacKinnon, R.N. While emphasis in most of the discussions had been placed on the care of the patient, Miss MacKinnon offered a plea for the nurse who must administer this care and for avoiding the many details in planning that handicap good nursing procedure. She cites the too common complaints of "a nurses' station that is so drafty at night that the night nurse goes off duty in the morning with a kink in her neck from exposure to drafts. . . . A lavatory . . . without goose neck spouts so the nurse couldn't possibly fill a foot tub or hand basin with enough water to bathe a patient." She protests against a surprisingly frequent oversight—"Must we accept toilets without lavatories? Hand washing cannot be overemphasized." Doctors as well as nurses, she finds, "have wished for a helicopter on a stormy day when we have tried to ascend or descend some of the hills which afford our patients a panoramic view."

Nurse MacKinnon re-states the practical advantages of the T and Y-shaped room corridors over the in-line plans—the latter "is not as effective in curtailing noise or in saving the nurses' footsteps." She concurs in the movement for more individual care of infants—"Each nursery should be designed to house relatively few infants be-

(Continued on page 172)

How Fenestra's New Hot-Dip Galvanizing Process Gives You STEEL-STRONG MAINTENANCE-FREE WINDOWS



Window fabrication is especially planned

To insure proper galvanizing, the fabrication and assembly of window parts are especially engineered.

Window frames and ventilators are thoroughly cleaned

To provide the most receptive surfaces for galvanizing, all window assemblies are thoroughly cleaned.

Then carefully rinsed

To remove any acid or iron salts that might remain on the surfaces, they are carefully rinsed.

Then fluxed and hot-dip galvanized

To cover all surfaces with a protective zinc coating, sealing all joints, the assembled window frames and assembled ventilators are completely immersed in a zinc bath.

Galvanized windows are then Bonderized and rinsed

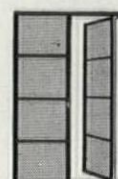
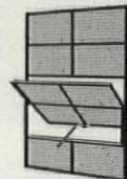
To provide a perfect finish the windows are Bonderized, then rinsed. (This also provides an excellent base for a decorative paint-finish when desired.)

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HOT-DIP GALVANIZED STEEL WINDOWS



Representative applications of Glass

in present-day design



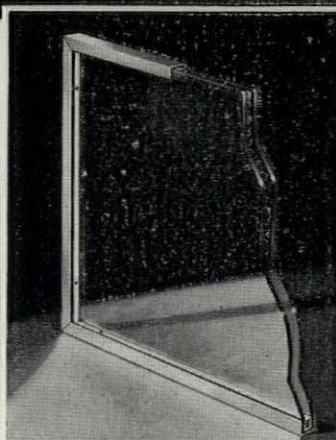
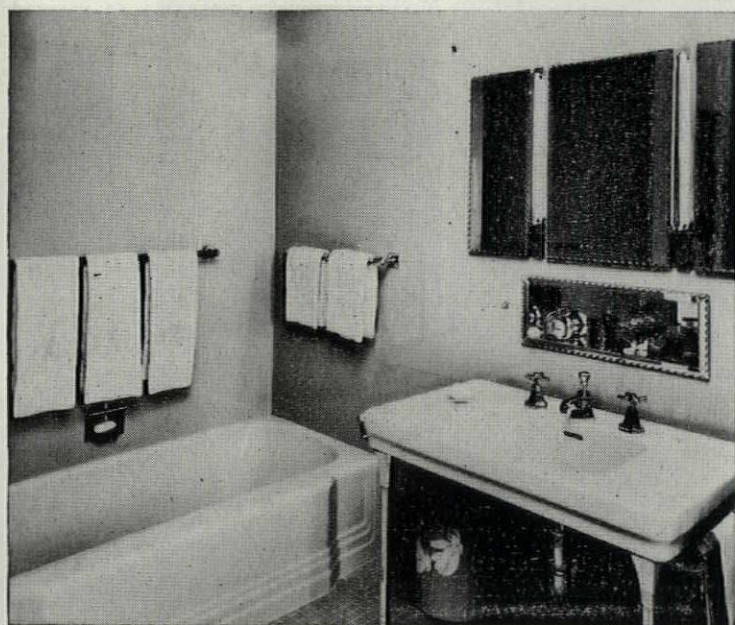
AN EXOTIC setting for an architectural jewel! At San Juan, Puerto Rico, the new Caribe-Hilton Hotel is ideally situated to take advantage of nature's bounties. A beautiful conception, this hotel includes the most advanced features for the comfort and satisfaction of its guests. Pittsburgh Products were a natural choice to complement the luxury and splendor of this magnificent structure. Among these glass applications is its unusual front, glazed with Herculite Tempered Plate Glass, Carrara Structural Glass, Polished Plate Glass, Copper-Back Mirrors and Herculite Doors are among the other Pittsburgh Products used. The show windows of the shops on the main floor utilize more than 4500 square feet of clear Polished Plate Glass. Architecture and Structural Design: Toro, Ferrer & Torregrosa, San Juan, Puerto Rico.

AN INGENUOUS design highlights this "open vision" automobile sales room in Charleston, West Virginia. Pittsburgh Polished Plate Glass, with the top row set at a 30° angle, and a Pittsburgh Free-Standing Doorway, combine to make the entire interior a giant, attention-compelling and sales-stimulating display. This front is further evidence of the ability of Pittsburgh Products to assist architects in the creation of original and outstanding designs. Architects: Martens & Son, Charleston, West Virginia.





THE TREND in many ranch-type houses is toward a fixed window wall, with louver type ventilator. That's a feature which your clients will appreciate. For this construction, offered by Solar Air-Flo, Inc., Elkhart, Indiana, permits an unobstructed view through the Pittsburgh Twindow panels, with adequate ventilation and insulation. The louvered sections may be placed at top, bottom or sides of the Twindow panels, according to your design requirements.



HERE'S the construction of a Twindow unit, using two panes of Pittsburgh Polished Plate Glass. The hermetically-sealed air space between the panes provides effective insulation which minimizes downdrafts, cuts heat loss through windows, reduces condensation. Insulation is even more efficient when three or more panes are used. Forty-seven standard Twindow sizes are available, adaptable either for wood or steel sash.

IN QUALITY, permanence, beauty, Carrara Structural Glass is unsurpassed. You'll find it ideal for walls and wainscots of bathrooms and kitchens as well as for window sills, fireplace surrounds, splash panels, built-in shelves. Carrara Glass is impervious to water, acids, chemicals, weather, pencil marks. It does not absorb odors, is easily cleaned with just a damp cloth. It is available in ten attractive colors. And it is readily decorated in various ways. Architect: Henry W. Johanson, Roslyn, N. Y.

DESIGN IT BETTER WITH— *Pittsburgh Glass*



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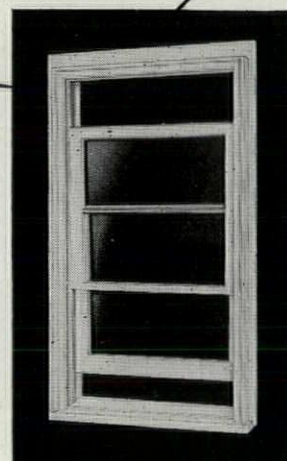
Every satisfied client is a booster for you. That is why it always pays to install Superior Windows. They satisfy because the flexible weatherstrip minimizes dust, soot and cold air infiltration; because the balances facilitate opening windows; because wood is a natural insulator; and because Superior Windows are made of kiln-dried Ponderosa Pine scientifically preserved with a toxic water-repellent solution to give lasting satisfactory service.

Join the Booster Club of Superior Users today. Write for the name of the nearest distributor.

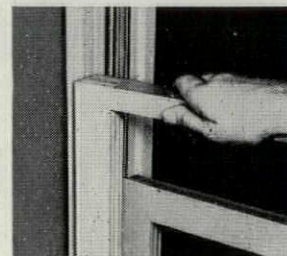
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Superior is equipped with a jamb-liner type weatherstrip that produces a slight pressure against the sash at all times.



Sash of Superior Units can be installed and removed before and after plastering; also during painting before inside stops are set.

THE THORO SYSTEM *Presents*



The above is a candid sectional view of 150-individual-apartment building project, Prospect Park, Pittsburgh, Pennsylvania.

All interior surfaces of exterior masonry walls sealed with VaBar Plaster Bond.

VaBar PLASTER BOND

SPECIFICATIONS

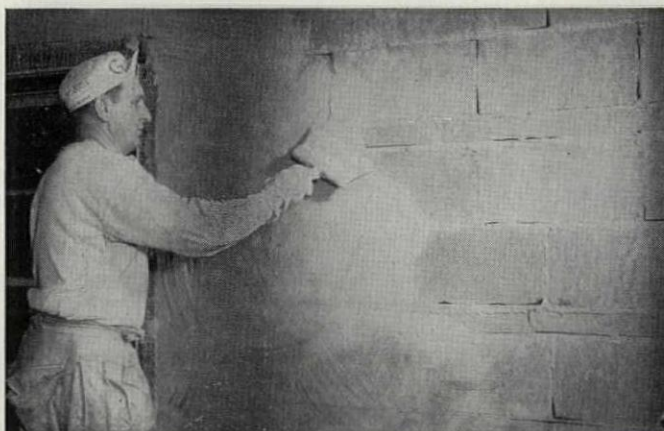
All interior surfaces of exterior walls, to be plastered, shall be thoroughly cleaned, making sure that all excess mortar, projecting from wall surface, has been removed and repointing done by mason contractor, where necessary.

After thorough preparation of surface, heavy brush coat of VaBar Plaster Bond shall be applied over all surfaces to be plastered, minimum of 3% VaBar Plaster Bond per square yard or sufficient material used to completely fill and seal the surface.

As application proceeds, surface shall be roughened by sweeping in vertical and horizontal sweeps, with regular house broom.

Curing period of several days is recommended.

Mixing and application of VaBar shall be in accordance with printed specifications, furnished by manufacturer.



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Write for our 20 page brochure, pictorially describing masonry problems, and specification writer's wall chart.



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Decorate with VARLAR

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and "redecorate" with soap and water year in, year out!



Even Stains Like These Wash Away!



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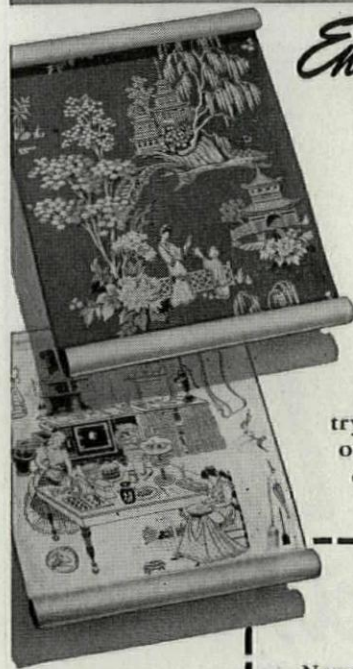


INK



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Patterns as beautiful as the most beautiful wall-papers—yet Varlar washes like tile—up to 25,000 times! And—Varlar resists every kind of stain—even hot grease washes off like magic!

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Varlar is truly amazing. Send for free sample and discover how stainproof Varlar is—try to stain it with steam, hair oil, mercurochrome, lipstick, crayon, India ink, oils, shoe polish or hot grease.

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REVIEWS

cause the smaller the nursery, the fewer infants exposed in the event of infection. Traffic through the nursery is also reduced."

Operating problems. An equally important problem was discussed by Dr. Carl Walter in his paper on the *Care of the Patient as a Basis for Operating Room Design*. Crucial points are the preservation of aseptic technique and control of airborne bacteria, safety measures to prevent dangerous explosions, and the working convenience and comfort of the staff. In the planning of operating rooms, he especially deplores the custom of handling less difficult operations casually: "As a bit of surgical philosophy" he remarks, "there's no such thing as a minor operation." Ventilation and cleaning facilities for operating rooms form a minor art which designers need study carefully.

The seminar was very successful in creating an atmosphere of mutual confidence from the participating states and in providing a background for architects who have not previously engaged in hospital work.

While an over-all picture was essential for an understanding of the hospital problem, it is hoped that future seminars may dwell on the many specific problems which confront the architect—a direction suggested by the papers of Miss MacKinnon and Dr. Walter.—*William A. Riley, A.I.A.*

BUILDINGS FOR SMALL PUBLIC LIBRARIES.

American Library Association, 50 E. Huron St., Chicago, Ill. 29 pp. 8½ x 11. Illus. \$1.25

These 15 new library buildings vary widely in size and purpose, but they combine to show that



modern architecture has achieved an acceptance in the library field which may soon rival that of Andrew Carnegie. Its main advantage is a flexibility which his four-square structures could not attain. The L-shaped plan, for instance, is especially handy—permitting adults' and children's wings to be separate yet supervised by one checking desk. The children's area, with a movable wall, can have story-telling sessions without interfering with adult quiet. It can serve the further use of an adult meeting room when the children's section closes at 8 o'clock.

Most attractive among the new library projects is the Uncle Remus branch (above) at Atlanta, Ga. which looks out on a tree-centered court (Stevens & Wilkinson, architects). Among small libraries already built, the TVA Burlington library designed by Mario Bianculli a decade ago still retains its distinction. The designs for remodeled libraries shown here are—on the contrary—so visually unsuccessful that they constitute a direct challenge to modern designers.

(Continued on page 178)

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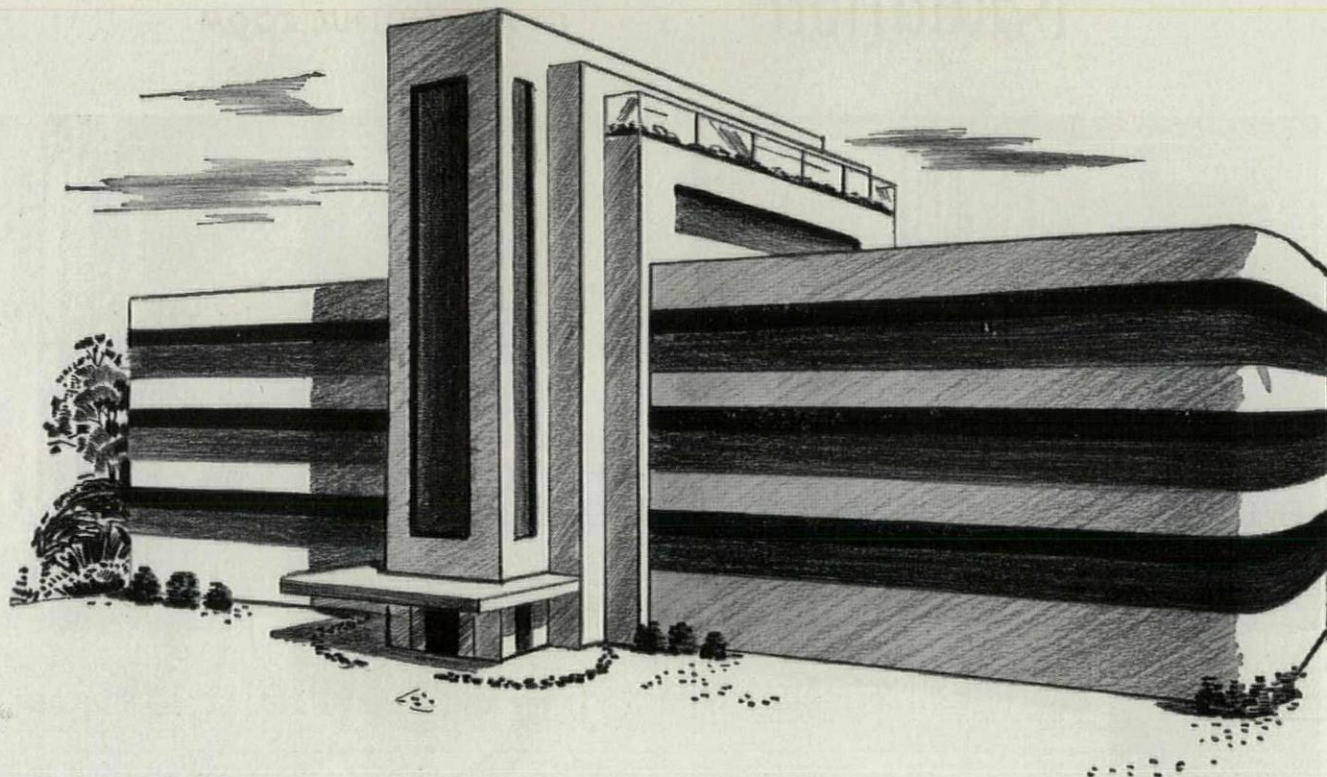


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Experience covering hundreds of installations where Silbraz joints were specified by leading architects and builders, proves that this type of pipe connection is permanent, leakproof, and

troublefree. Its use has avoided costly maintenance and repairs.

Walseal* Valves and Fittings for Making Silbraz Joints

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*Patented — Reg. U. S. Patent Office



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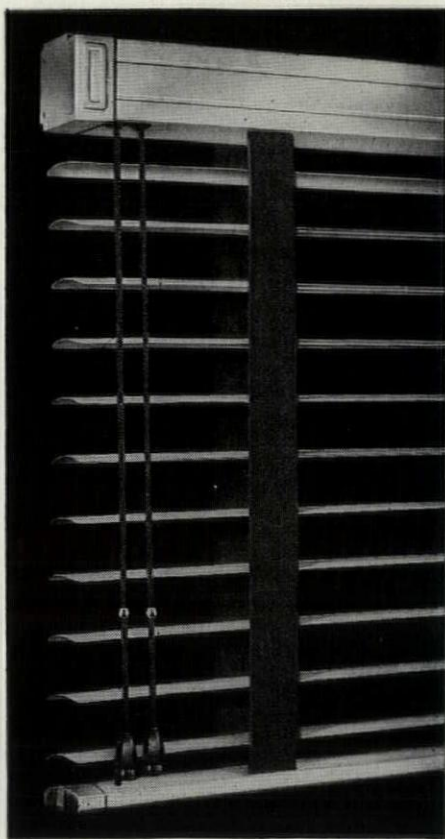


DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD



Shamrock Hotel, Houston, Texas—Wyatt C. Hedrick, Architect

the “eyes” of the SHAMROCK, in the heart of Texas, have smart, easy-to-clean Venetians —equipped with LEVOLOR metal heads and bottom bars



Yes, now you can have LEVOLOR-built Venetians that are *matched* in quality and color in all 3 vital parts: smart, enclosed Head; durable, springy aluminum Slats; slender enclosed Bottom Bar...all of which are chip- mar- and stain-resistant. Dust and dirt are easily wiped off the plastic, mirror-smooth surfaces. And if tilt cords are uneven, they are evened up again by simply pulling the short one.

See our catalog in Sweet's Architectural File, 19D-3A, and Sweet's File for Builders, 2E-5.

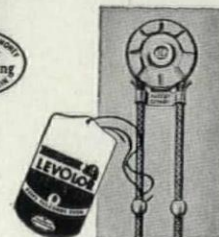
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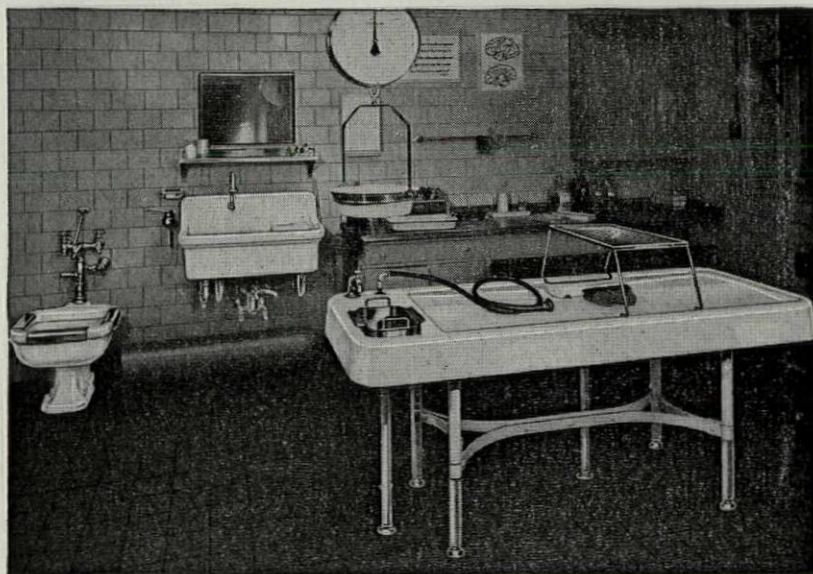
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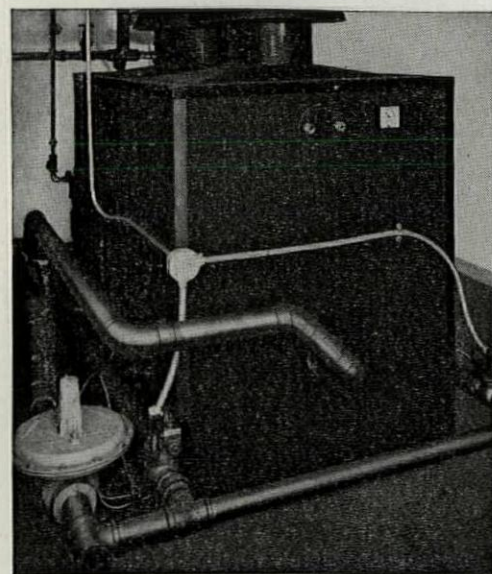


For the

THERE'S COMFORT, CONVENIENCE AND COLOR in this one room. There's cleverly concealed storage space and carefully contrived utility. Yet there's a provincial air that lends additional charm to an efficient bathroom plan. The unusual design of the **NEO-ANGLE** Bath permits a space-saving corner installation that is convenient and attractive. And the handsome **ROXBURY** Lavatory—with its gleaming non-tarnishing Chromard fittings—and the trim **MASTER ONE-PIECE** Water Closet are fitting complements to the modern decorative scheme. Whatever the color scheme, whatever the architectural plan of the bathroom, there are American-Standard Plumbing Fixtures that will enhance the beauty of the room while affording lasting, efficient service.



EVEN THE MOST SPECIALIZED NEEDS can be filled from the American-Standard line. This autopsy room in the Georgetown University Hospital includes genuine vitreous china **ALL-SERVICE SINK** with drain shelf and knee-action mixing valve. **AUTOPSY TABLE** is made of acid-resisting enameled cast iron and has two slab drains, integral sink basin. **CLINIC SERVICE SINK** of non-absorbent vitreous china features syphon jet flushing action. The **ARCO MULTIFIN CONVECTOR**, far right, heats air as it passes between the convector's light, non-ferrous fins. With an **AMERICAN ENCLOSURE** it makes an attractive, space-saving installation. Architects: Kaiser, Neal and Reid, Pittsburgh, Pa.



DEPENDABLE, AUTOMATIC HEATING is furnished the Montecito Elementary School in Martinez, California, by this **STANDARD** Gas Boiler. The heating surfaces, burners, controls and other essential features are coordinated to assure maximum output with lowest operating and maintenance cost. Sections are carefully machined for gas-tight joints. Architects: Bamberger & Reid, San Francisco.

widest latitude in design

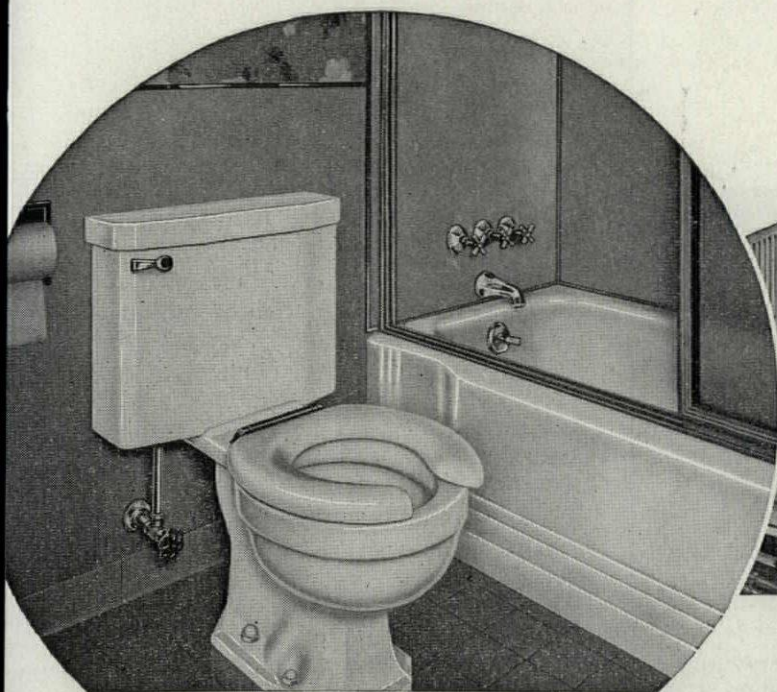
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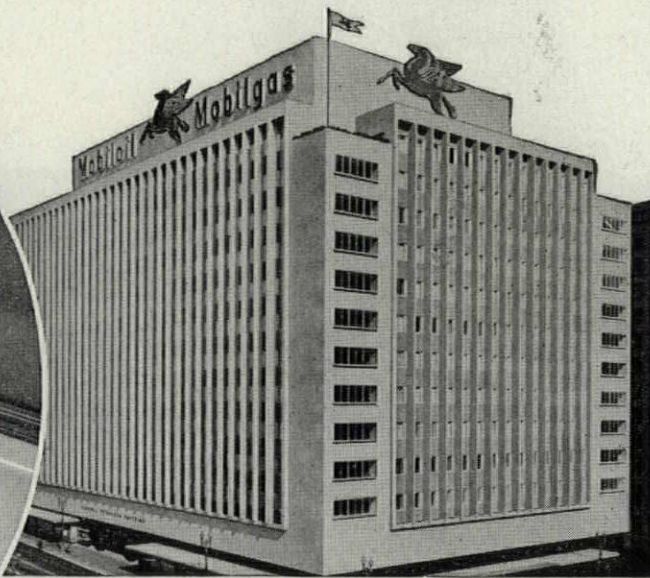
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Check with your Heating and Plumbing Contractor. He'll be glad to give you up-to-date information about the complete American-Standard line of heating equipment and plumbing fixtures. **American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pennsylvania.**



ALL THE CONVENIENCES OF A RESIDENTIAL BATHROOM are in this compact bathroom of Eaton's Santa Anita Hotel on U.S. Highway 66 near Pasadena, California. The **MASTER PEMBROKE** Bath is made of rigid cast iron for durability, and finished with a heavy coating of enamel for beauty and ease of cleaning. Lower sides, flatter bottom make bath and shower more convenient. The **CADET** Water Closet is a close-coupled closet combination made of permanently non-absorbent genuine vitreous china. Architect & Building Contractor: Harry Werner.



LARGEST OFFICE BUILDING in Southern California—the new \$11,000,000 home of General Petroleum Corporation in Los Angeles. The building is distinguished by its hundreds of wall-supported plumbing fixtures . . . all American-Standard. These quality products are in keeping with the scores of engineering and architectural features that make this one of the nation's most modern structures. The wall-supported plumbing fixtures—which include **FENWICK** and **LUCERNE** Lavatories, **GLENCO** Water Closets and **WASHAL** Urinals—make for neater, cleaner rooms. Architects: Wurdeman & Becket, Los Angeles.



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First in heating . . . first in plumbing

Serving home and industry

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

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Vitreous porcelain receptor, with exclusive Foot-Grip, No-Slip floor is safe, sanitary, easy to keep clean—requires no metal underpanning and no messy mastic for installation. In line with the trend to color in bathroom fixtures Weisways are now available in

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REVIEWS

YOUR SCHOOLS—an Approach to Long-range Planning of School Buildings by William W. Caudill, Texas Engineering Experiment Station, A. & M. College of Texas, College Station, Tex. 43 pp. 11 x 8 1/2. Illus. Single copy free in Texas; \$1.00 out of state.

William Caudill continues his good work of preaching the gospel of modern school design in terms the average layman can understand. His latest booklet poses three basic questions:

What sort of school program do you want?

What sort of school plant will this require?

How will you pay for such a school?

Charts, pictures and questionnaires help the civic-minded citizen to answer these questions as they apply to his community. Caudill does not prescribe unthinking application of dogma—"There is no standard procedure for developing a long range school building plan—there cannot be one." His straight-from-the-shoulder approach should be helpful for groups who are still on the fence—"To anticipate tomorrow's needs is somewhat of a gamble but . . . to disregard the future is a certain loss."—S.K.

HIGHWAYS IN OUR NATIONAL LIFE. Symposium edited by Jean Labatut & Wheaton J. Lane, Princeton University Press, Princeton, N. J. 506 pp. Illus. 6 1/4 x 9 1/2. \$7.50.

Numerous vistas of the long, if somewhat narrow, history of roads are presented in this symposium by 48 specialists of highway study—their history and design, their close connections with sociology and economics, their strategic importance in war, their structural problems of safety and maintenance. Since U. S. roads have multiplied their length about four times in the last 30 years (from 387,000 miles of surfaced roads in 1921 to 1,500,000 miles today) the subject has more than a scholarly interest for planners. Here are the facts and figures on a current phenomenon which is changing from a freeway of commerce and culture to a hangman's noose of the same.—S.K.

HOW TO PLAN, BUILD AND PAY FOR YOUR OWN HOME—a Primer for Home Builders. Popular Mechanics Co., 200 E. Ontario St., Chicago 11, Ill. 171 pp. Illus. 5 1/4 x 7 3/8. 60 cents.

This is one of the least assuming, least expensive and most common sense introductions to home-building that has yet reached the mass market. Its aim—"to make readers that know absolutely nothing about home building . . . feel perfectly at ease in dealing with realtors, finance companies, architects, contractors and the host of others . . ."—is a bit high-flown, but it does bring out clearly the contribution of each profession. The photographic illustrations are mostly "tired conventional" houses, but a plan-from-the-inside-out approach is presented by such knowing spokesmen as George Fred Keck, Lawrence Perkins and L. Morgan Yost.—S. K.

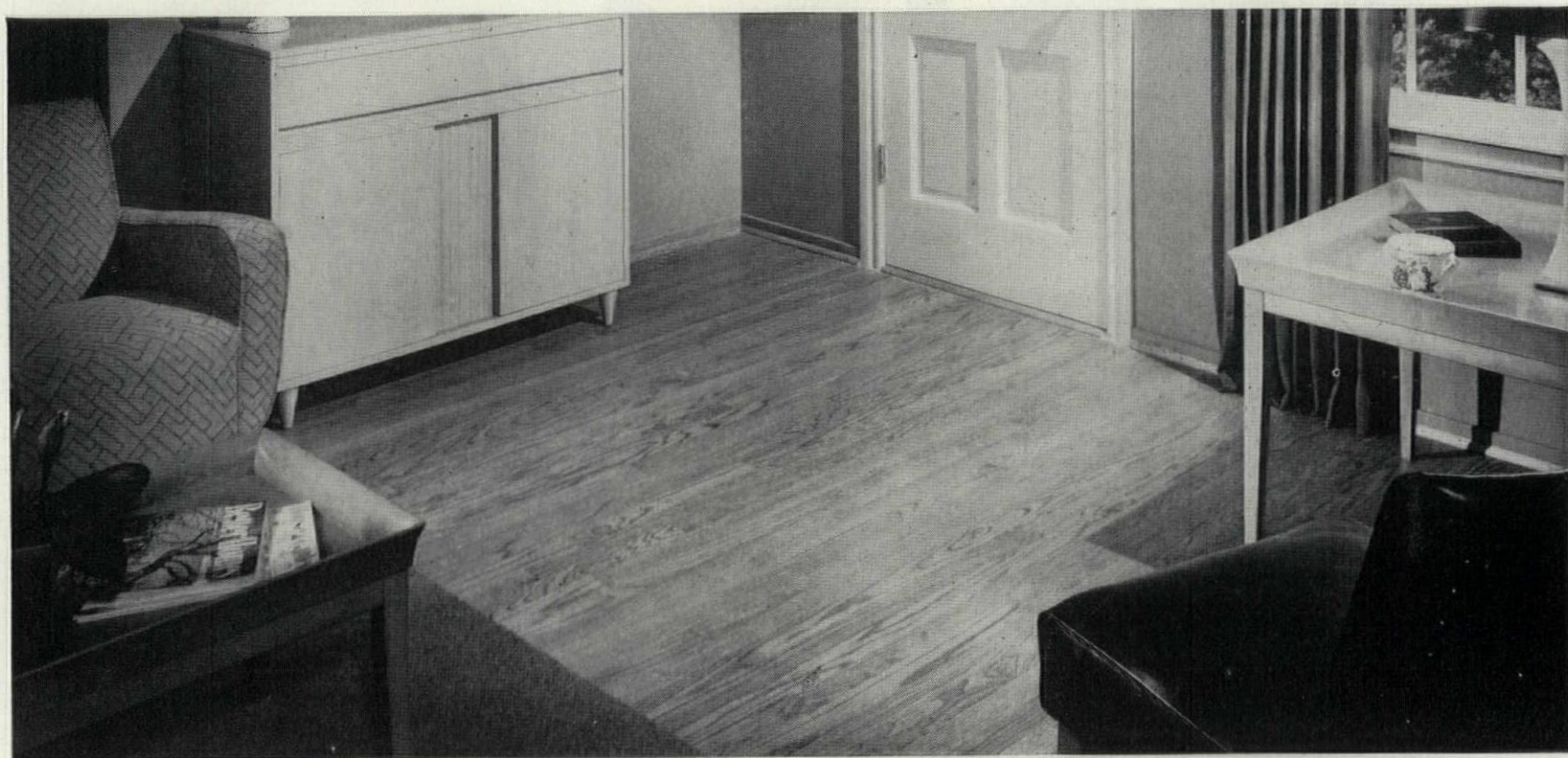
(Continued on page 184)

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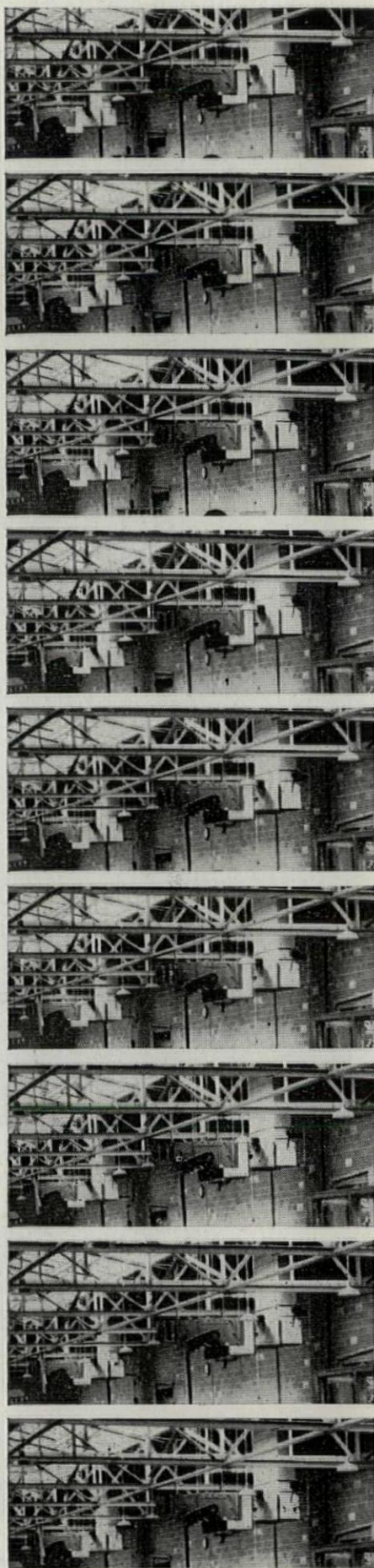


oak—for low-cost homes



oak—for medium-priced homes

NATIONAL OAK FLOORING MANUFACTURERS' ASSOCIATION • Dept. 7-9, Sterick Bldg. • Memphis 3, Tenn.



These Carrier 46R7 Heat Diffusers serve the enameling room in the Magnet Wire Department, Buckthorn Plant, John A. Roebling's Sons Co., Trenton, N.J.

These heaters have 9 lives

Yes, Carrier Heat Diffusers are versatile. And they have to be. Few factories stand still. They buy new machines . . . change production setups . . . need new heating arrangements. That's why it makes sense to specify a heat diffuser that can be easily adapted to new conditions.

Carrier Heat Diffusers are suitable for heating, ventilating or drying. They can be set on the floor or hung from the ceiling. They mount vertically and they mount horizontally.

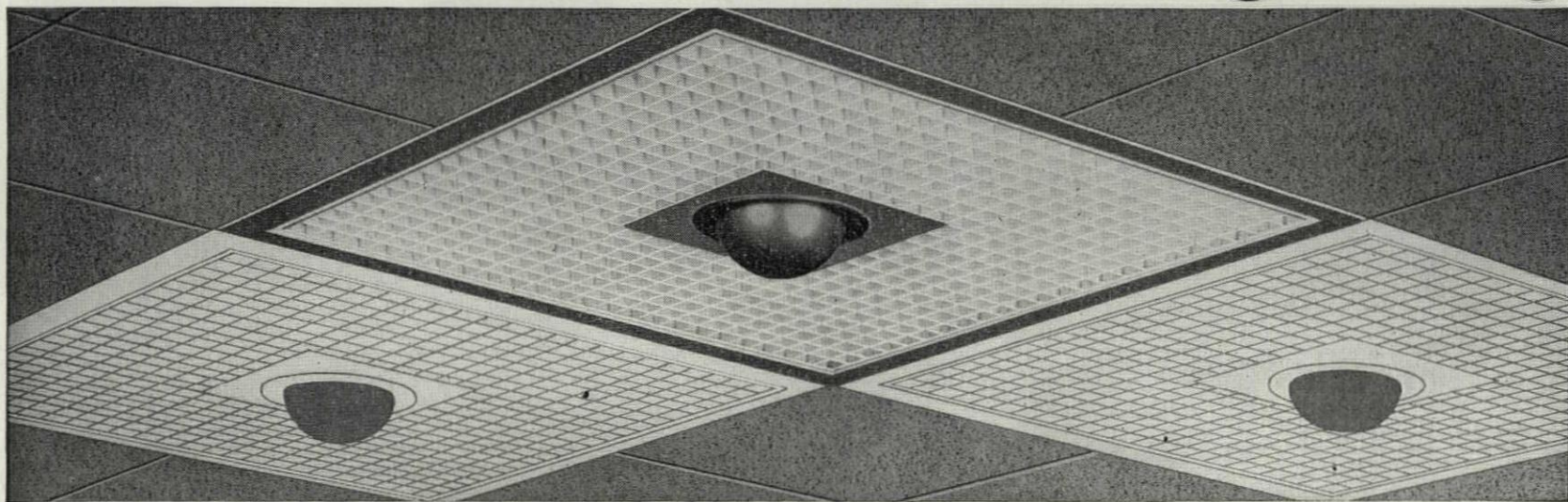
Because they are built in sections, they can be adapted after installation to new uses, new suspensions. Because several types of discharge outlets are available—each with adjustable louvers—air distribution can be tailored to the job.

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... with all the advantages of incandescent
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The SKYLIKE system brings you a new concept of lighting... makes it possible for you to offer your commercial clients something dramatically different, better — and lower-cost! For SKYLIKE combines the best features of silvered-bowl incandescent lighting with the architectural advantages of fluorescent-type troffers.

In fact, this new adaptation of silvered-bowl incandescent lighting provides a combination of important practical advantages not found in any other lighting system:

1. High initial and maintained light output.
2. Softly diffused shadows.
3. Low brightness and 90° shielding.
4. No flickering, blinking, or hum.
5. Warm color — most desired by merchandising experts.
6. Instant starting.
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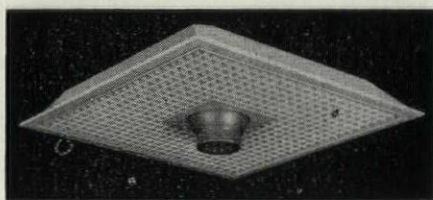
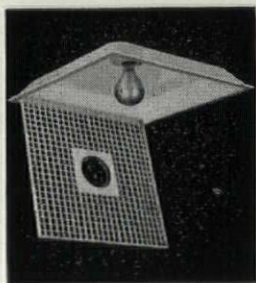
In addition to all its technical advantages, SKYLIKE is modern, handsome, and versatile in application. Units fit 24" x 24" ceiling tiles, fully or partially recessed, or may be surface-mounted — in rows or patterns. With a simple accessory and a semi-silvered-bowl lamp, SKYLINE is converted for directional or accent lighting.

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Because it is so simple—simple in construction; simple in wiring; free of ballasts, starters, and accessories—SKYLIKE is low in cost ($\frac{1}{2}$ to $\frac{1}{3}$ the cost of equipment delivering comparable results!). Its light weight makes for easy handling, fast installation, and lower-cost supporting construction. There's no transformer or starter maintenance. SKYLIKE can be relamped from the floor (no stepladder!) with a lamp changer.

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*Patent pending

Skylike*



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Residence of Harry L. Magee. Architects, Berninger, Haag & d'Entremont; builder, Percy Swank

56

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Write for our descriptive brochure F. It contains complete information on our three operators (internal gear, external gear, horizontal drive) and our specialty hardware for every type of wood and metal casement.

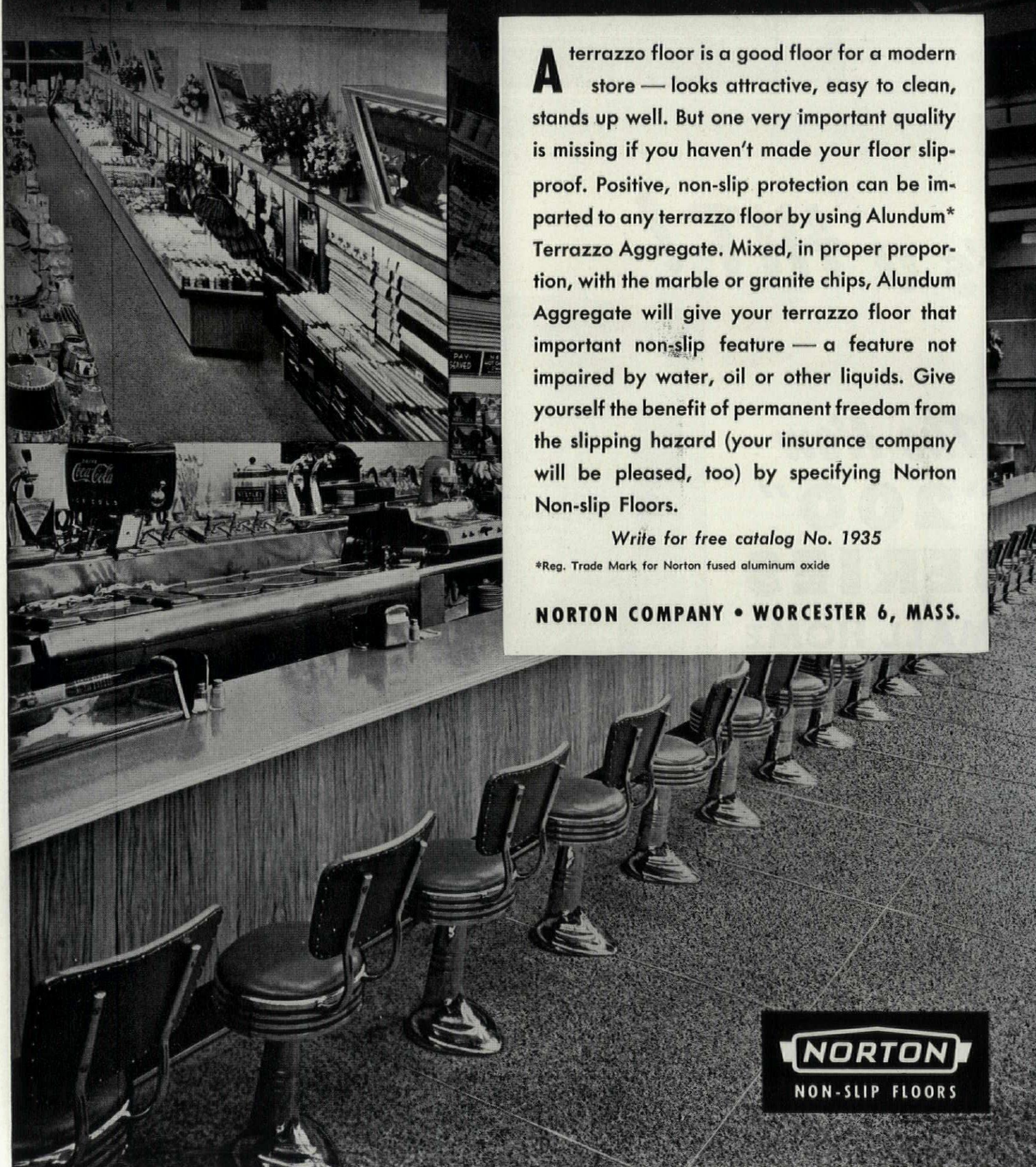


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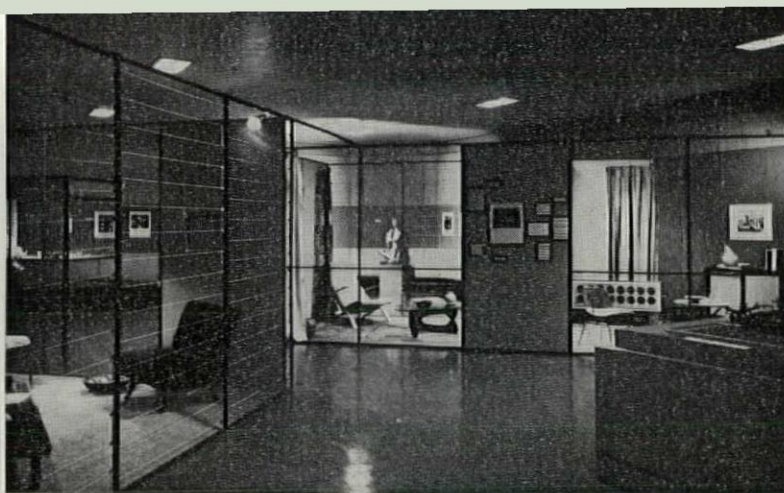
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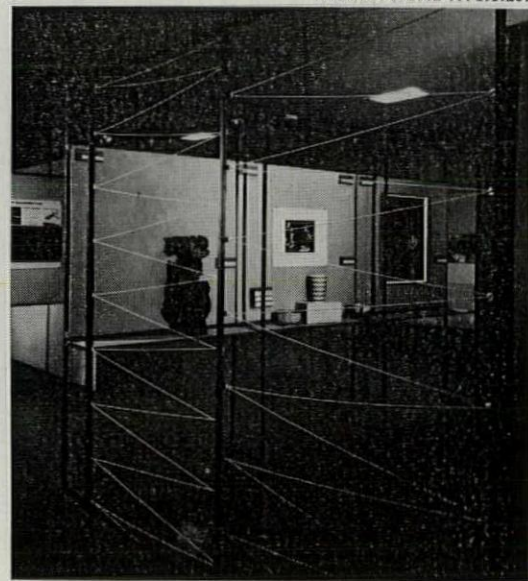
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REVIEWS

Photos: David H. Reider



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New use of a standard structural material has provided the University of Michigan with a handsome summer show of Contemporary Visual Arts. The panels and "room" displays which make up its exhibit are surrounded, framed and supported by the light prefabricated steel members of Unistrut. (See *Storage* p. 248.) So successful has the show been that it promises to become a standard

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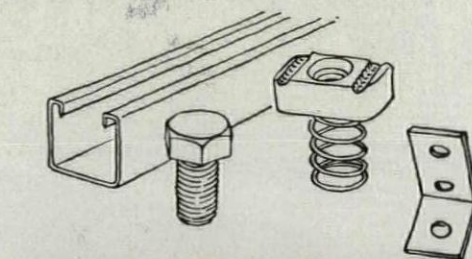


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MEMBER



Reg. U.S. Pat. Off.



technique not only for school and museum shows but for store interiors and window displays.

In its new use, Unistrut has many marks to its credit. As is shown so effectively above, it allows all attention to be focused on the exhibits themselves. The framing requires only a minimum of space, combines handsomely with a variety of materials. Its parts are 100 per cent salvageable and the light steel channels are easily cut to fit with a hacksaw. A patented spring locks the nut in place anywhere along the channel—making it infinitely adjustable. The members used here are of the lightest type (P-6000 and P-7000) designed to support 100 lbs. and 30 lbs., respectively. Their ease of assembly is shown by the fact that this whole exhibit was set up by two undergraduates, in two days.

The display was worked out by Emil Weddige and Theodore Larson of the University's Department of Architecture in connection with a long-range research project on the structural applications of Unistrut.

*Important
Specifics**

Better building materials...specified to order!
Plans that include luxurious "extras" that reflect the owner-builder's taste and individual preferences! All mean better houses and better business for *you*. So...tell your story to House & Garden's owner-builders today to assure future orders from *the people with means and taste who have the power to specify your product.*

House

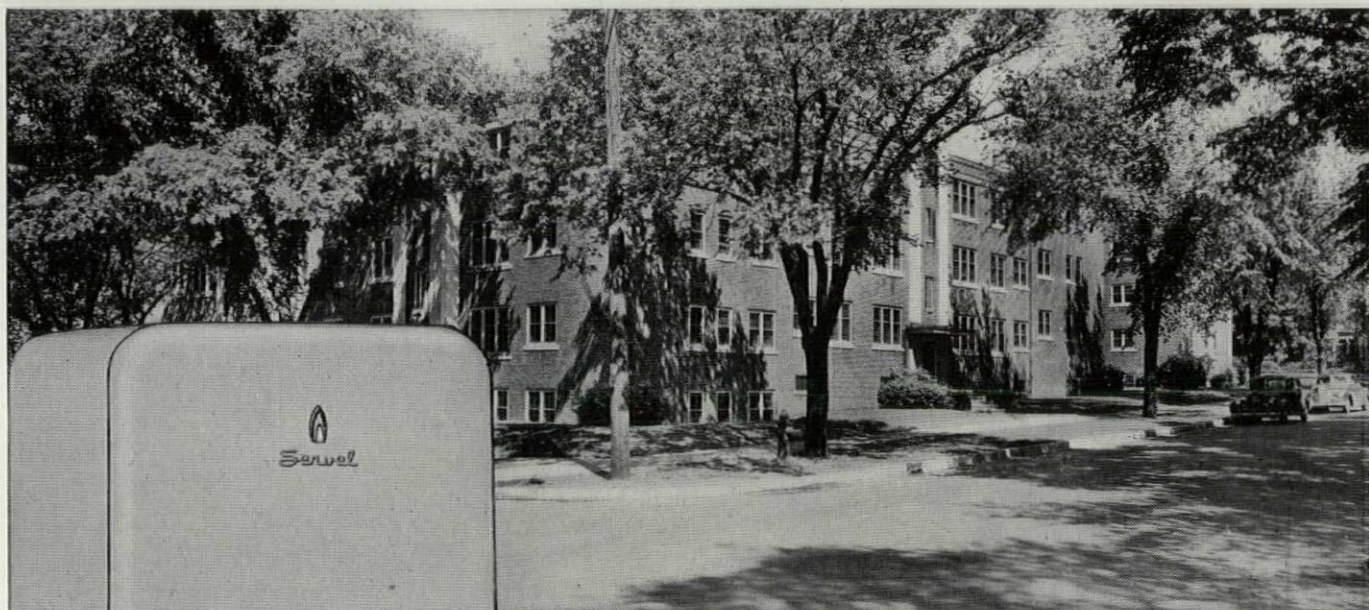
& Garden

...for the owner-builder market



COPYRIGHT 1950, THE CONDE NAST PUBLICATIONS INC.

"LESS THAN \$10 to maintain 44 Servels for 10 years"



This report comes from Mrs. W. J. Esch, owner of the Stanley Hall Court in Minneapolis, Minnesota

MAINTENANCE COST is a mighty important factor in determining the best-type refrigerator for multiple installations. That's why the Gas Refrigerator is the choice of experienced owners like Mrs. Esch, who has been "more than satisfied" for ten years. And her testimony is typical of that of owners in all parts of the country:

"After nine years, our 398 Servels cost only 1¢ a month per unit for upkeep." *Mobile, Ala.*

"Our 750 Gas Refrigerators are 4 years old and cost less than 50¢ a year per unit to maintain." *Corpus Christi, Tex.*

"In 12 years our Servels have cost us nothing for repairs." *Los Angeles, Calif.*

This extraordinary performance by Servel through the years is due to *basic* differences in the most important part of a refrigerator—the freezing system. Servel has a "no moving parts" system. There's no motor to fail; no machinery to wear or break down. A tiny gas flame does all the work. Such a system lasts *much* longer . . . requires *much* less expense for upkeep.

Be sure to compare the 1950 Servel. Designed for a long life by the renowned Walter Dorwin Teague, it offers tenants not only the pleasure of *silence* but also a handsome, spacious cabinet fitted with every modern worth-while convenience. Consult Sweet's "File for Builders" or write to Servel, Inc., Evansville 20, Ind.

STAYS SILENT . . . LASTS LONGER

Servel
The GAS Refrigerator

This SELF-insulating window Eliminates storm sash!



Window illustrated is made by Chicago and Riverdale Lumber Company, Chicago 27, Illinois.

Looks like an ordinary double-hung window, doesn't it? That's one of the good things about it—an *insulating* window that not only looks like, but *works* like regular sash.

But instead of having single panes, it is glazed with *Thermopane** insulating glass. With this kind of window, home owners can enjoy the extra comfort and fuel savings of double glazing without all the expense and bother of storm sash. Their window insulation job is done, once-and-for-all, when the house is built.

That's a real plus-value you can build into houses—a value that helps sell houses—a value that keeps home owners satisfied for years to come.

Provide this modern kind of glazing, *Thermopane* double glazing, for every window of your houses. Remember, with *Thermopane*, there are no storm sash to buy, no expense for fitting them, painting them, hanging them.

Thermopane is made in more than 80 standard sizes, as well as special sizes, for use in all types of sash—double-hung, casement, picture windows and other styles—made of either wood or metal. Within certain size limitations, you can use *Thermopane* made of 1/8" plate glass or double-strength window glass—the unit being only 1/2" thick. Your L·O·F Distributor can furnish full information. Or write to Libbey-Owens-Ford. ®

THESE THERMOPANE BENEFITS APPEAL TO HOME OWNERS:



Opens and Closes just like a regular window. Easy to operate. Screens can be full length for ventilation from both top and bottom.



Cuts Window Washing in Half. Just two surfaces to wash—not four, as with storm sash. Hermetic seal keeps dirt from getting between panes.

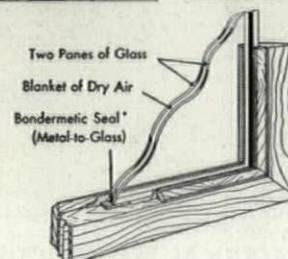


Year-round Insulation. *Thermopane* windows keep rooms more comfortable, save on fuel bills, reduce frost and fogging. In summer, they help keep rooms cooler.



Thermopane

Made only by LIBBEY-OWENS-FORD GLASS COMPANY
3795 Nicholas Building, Toledo 3, Ohio

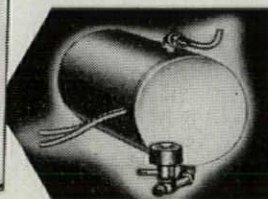




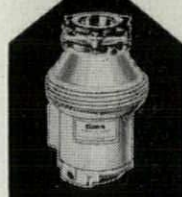
THERE'S A MODEL TO FIT EVERY PLAN

Apex DISH·A·MATIC

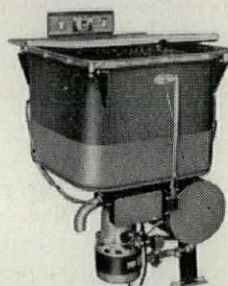
**The ONLY Automatic Dishwasher with
the Built-in Electric Hot Water Tank
that SUPER-HEATS and keeps its
water at Pasteurizing 180°**



Only Apex guarantees super-hot 180° germ-killing water *at all times*—heated separately in this built-in lifetime Monel metal tank. Household water supply does not have to be boosted to dangerous temperatures.

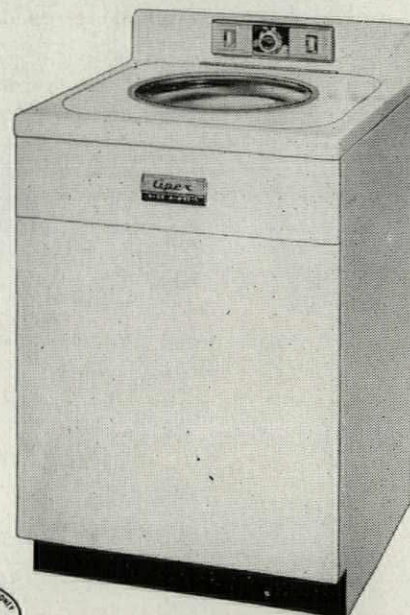


Apex WASTE·A·MATIC Electric Garbage Disposer with exclusive anti-jamming feature provides the finest in waste food disposal. Available with sink (above); can be installed in any sink with standard drain.



NO OTHER DISHWASHER can add greater appeal to your modern kitchen plans than the Apex DISH·A·MATIC. It not only lends a touch of modern beauty, it also provides automatic dishwashing with the outstanding advantage of germ-killing 180° water, super-heated in a built-in tank.

Apex DISH·A·MATIC silently, automatically washes, rinses, and dries everything sparkling clean. Service for six—pots and pans, too! Specify the beautiful electric sink (above); compact separate unit (right), or the "customized" Drop-In Unit (left)—for installation in present wood or metal kitchen counters. Send coupon below for detailed specifications and special discounts, or contact the Apex distributor near you.



Apex

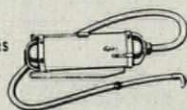


HOUR SAVING APPLIANCES

The Peak of Quality for 37 Years



CLEANERS



WASHERS



WASH·A·MATIC



AUTOMATIC DRYER



FOLD·A·MATIC IRONER

THE APEX ELECTRICAL MANUFACTURING CO. • CLEVELAND 10, OHIO

THE APEX ELECTRICAL MANUFACTURING CO.,
Cleveland 10, Ohio

Please send descriptive literature, detailed specifications, and information on special low prices on Apex DISH·A·MATIC Units.

Name

Address

City State

Hilton chooses Gold Bond for exotic new Caribe Hilton Hotel



Lobby of striking new Caribe Hilton Hotel, San Juan, Puerto Rico

Architect: Toro, Ferrer and Torregrosa... Gen'l. Contractor: George A. Fuller Co., New York City... Plastering Contractor: The Venzie Corp., Philadelphia, Pa.... Photo by Ezra Stoller.

GUESTS in San Juan marvel at the inspired contemporary design of the new Caribe Hilton Hotel. The lobby (above) is not only beautiful to look at but "easy on the ears" too. That's because the ceilings of the lobby as well as the main dining room, cocktail lounge, and all corridors are finished with new improved Gold Bond Acoustical Plaster to make the Caribe Hilton as restful as it is charming. Walls and ceilings of all guest rooms are beautifully finished with Gold Bond Plaster.

Builders and architects find it pays to standardize on Gold Bond. That way, they're sure that all the materials used are guaranteed by *one reliable manufacturer*—National Gypsum Company. The full Gold Bond line—more than 150 better building products—is fully described in Sweet's and available through local Gold Bond Lumber and Building Supply Dealers!

NATIONAL GYPSUM COMPANY • BUFFALO 2, N. Y.

Hilton  *Hotels*
International

**You'll build or
remodel better with
Gold Bond**

*Gypsum Lath, Plaster, Lime, Sheathing, Metal Lath,
Sound Control Products, Wall Paint, Rock Wool
Insulation, Fireproof Wallboards and Decorative
Insulation Boards.*

PRODUCT NEWS

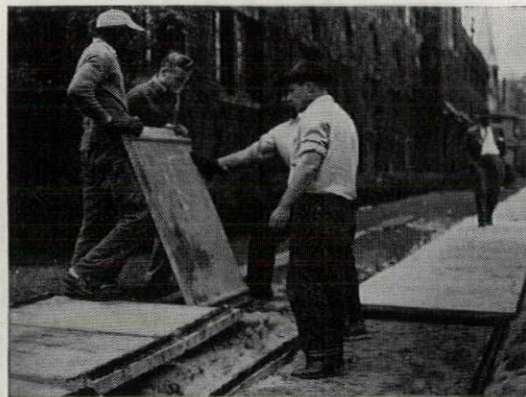
PRECAST SIDEWALK costs 25 per cent less than poured.

Pouring sidewalks on the job is an expensive time consumer, and bad weather is always a threat to proper setting. Contractor John Barnes wanted to lay precast sidewalks and lay them dry—weather-or-not. Why not prefabricate sections at a concrete block yard? After talks with Bethlehem, Pa., construction engineers and local concrete block men, Barnes took *Fabwalk* off the



John Ebstel

Fabwalk sections fit snugly into runners. Note man (right) strolling on five-minute-old sidewalk.



drawing board and introduced it to the biggest of all concrete industries. Slabs, precast in 3 and 4 ft. lengths (2, 3, and 4 ft. wide) with integral runners are set in 8 ft. grooved keyways to form this level airtight walk that can be laid at any time of the year—and walked on immediately. Fabwalk, reinforced with $\frac{1}{4}$ in. steel rods or 2.5 diamond wire mesh has the same strength as a concrete road. Its finish is smooth or textured; in either case, uniform. If desired, color is added. Two men can dig trenches for a 50 ft. walk, place the runners, apply asphalt mastic and lay the Fabwalk sections in less than two hours. If a tree root should push up a slab, the section can be lifted, the root cut and the same section put back in place. Terraces and flooring also can be laid with Fabwalk.



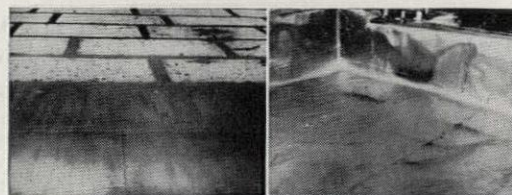
Already, city engineers in conservative East Orange and Morristown, N. J., have given Fabwalk their approval. A big convincer was cost. Poured sidewalks in these areas run about 80 cents per sq. ft. Fabwalk is about 60 cents, installed.

Licensing Agent: Fabwalk, 1749 Linden St., Bethlehem, Pa.

SPRAYED ROOF allows repair without stripping old coating.

Cocoon, the plastic war baby that played the main roll in *Operation Mothball*, is making its debut in the building industry as a roof that does not leak. This removable vinyl coating which was used to protect B-29s, tanks, radar, etc. against the elements is now being adapted as a continuous seal roof for industrial buildings. Expanding and contracting with temperature changes, Cocoon is said to provide excellent waterproofing. Because of the nonporous film and the absence of laps, seams or joints, water cannot enter at any point. The roofing consists of three light-

(Continued on page 194)



BETTER

Colors

WITH

Premium Quality

BETTER

Wear

BETTER

Floors

AZPHLEX

ASPHALT TILE

There are four good reasons why Azphlex grease-resistant asphalt tile offers such remarkable qualities:

- 1 **Tremolite Talc**, its mineral filler, is highly stable, and totally resistant to alkalis, acids and other chemicals. It is fine-grained and microscopically fibrous.
- 2 **Asbestos Fiber** used in Azphlex is of the Chrysotile variety, noted for its fine texture, flexibility, strength and resistance to fire.
- 3 **Thermoplastic Binder** is a polystyrene—a scientifically proportioned composition of low molecular weight—which is plasticized with aromatic, petroleum-derived oils and is unaffected by moisture, acids, alkalis, oxidation, etc. Uniformity and perfect blending are assured because the binder is cooked at high temperature in large batches.
- 4 **Color Pigments** used in Azphlex are permanent and alkali resistant.



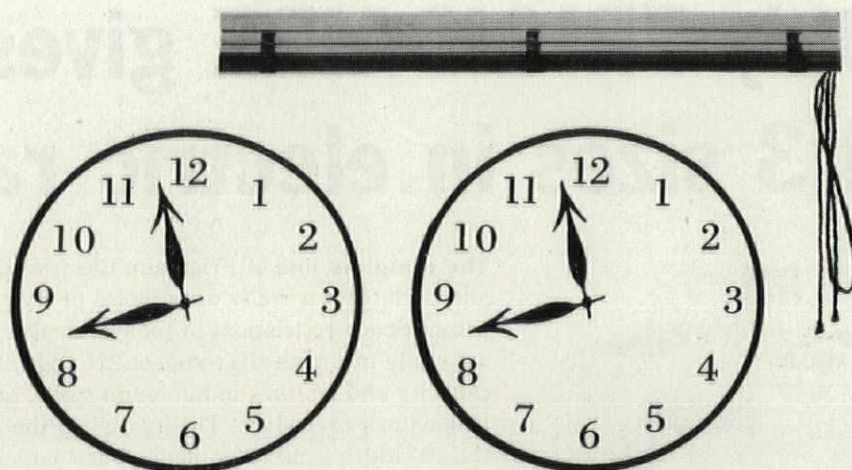
When you specify grease-resistant, premium-quality Azphlex Asphalt Tile—you can know that you're giving your clients better, longer-lasting floors at lower cost. Get full information and sample tiles from your AZROCK-AZPHLEX Dealer, or write to Dept. A.

UVALDE ROCK ASPHALT CO.

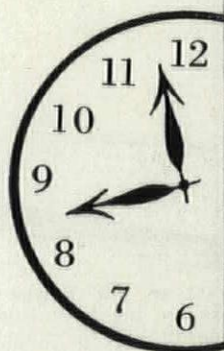
Makers of AZROCK and AZPHLEX Asphalt Tile

FROST BANK BLDG. • SAN ANTONIO, TEXAS

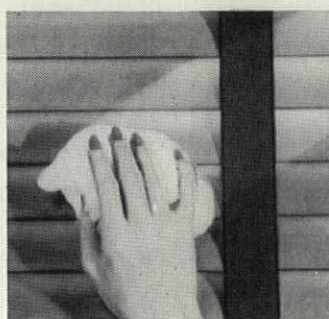
cleaning time
cut from hours



to minutes

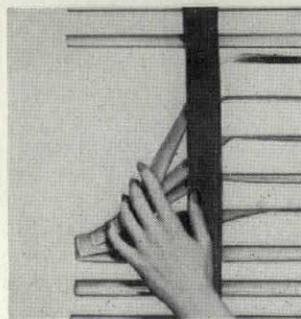


with
new. *Flexalum*® plastic tape
and spring-tempered aluminum slats



NEW PLASTIC TAPE WIPES CLEAN!

That's the maintenance secret! No hours wasted scrubbing: a damp cloth does the job perfectly in seconds! No money wasted replacing worn-out tapes, either: Flexalum tape keeps its looks in spite of weather and wear, won't fade, shrink, stretch, fray, or mildew. The one tape that belongs at business windows is Flexalum—the tape that's built to stand abuse!

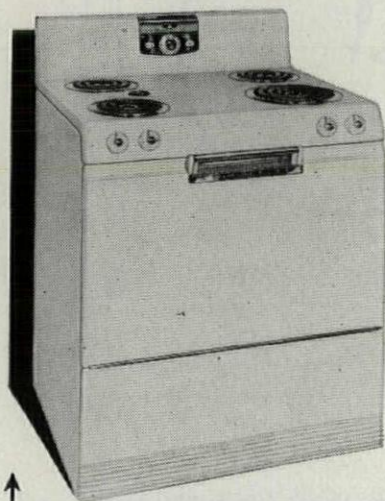


**SNAP-BACK SLATS—
ANOTHER FLEXALUM EXCLUSIVE!**

Supple aluminum slats spring-tempered by a process exclusive with Hunter Douglas—the only slats that snap back to perfect shape when bent to a 90° angle at the route hole! Baked-on finish won't chip, crack, peel, rust; sheds dirt quickly. Maintenance and repair costs slashed to minimum! Only Flexalum slats with the visible-invisible trademark can offer you all these features.

Write for maintenance booklet See Flexalum Specifications in Sweet's File Architectural Section $\frac{19e}{Hu}$ Builder's File $\frac{3g}{Hu}$
HUNTER DOUGLAS CORPORATION, RIVERSIDE, CALIF. AND 150 BROADWAY, NEW YORK 7, N. Y.

Only FRIGIDAIRE gives you all 3 sizes in electric ranges!



↑
The "Thrifty-30"—biggest little range in the world! This amazing new range is only 30" wide, is sensationally low-priced, yet it has the biggest oven of any household range and many features of much more costly ranges. Model RM-35 has a Cook-Master, utensil drawer, and Cooking-Top Lamp. Lower-priced model RM-30 is available without these features.



↑
Compact 21" Range with full-size oven! Frigidaire's Model RK-3 is perfectly sized for apartments and homes where space is at a premium, yet has all the features needed for good cooking. Can be equipped with Cooking-Top Lamp and the Cook-Master Oven Clock Control. Model RK-4 has same features—plus one additional Radiantube Unit.

The complete line of Frigidaire Electric Ranges offers builders and architects a *really* wide choice of styles, sizes, features and prices. Space restrictions of today's smaller apartment kitchens are easily met with the compact 21" wide models. For big-range capacity and features in minimum space, and at moderate cost, Frigidaire's exclusive "Thrifty-30" is the perfect choice. And the 40" width is ideal for medium and larger size homes. Whichever model you select—of the 9 models, 3 sizes—you are assured lasting beauty, long life and genuine Frigidaire quality that means the utmost in utility, convenience and economy.

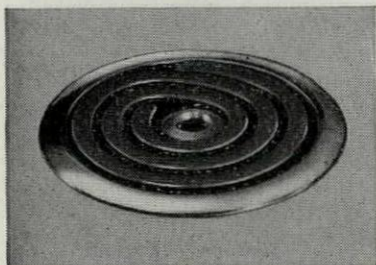


↑
DeLuxe, Double-Oven, 40" Range — Frigidaire's Finest! Model RM-75 has *two* big Even-Heat Ovens that make it possible to bake and broil at the same time, or prepare double quantities of food at once. Truly the finest electric range money can buy. Single-oven 40" models RM-10, RM-27, RM-45 and RM-65 are available at lower prices.

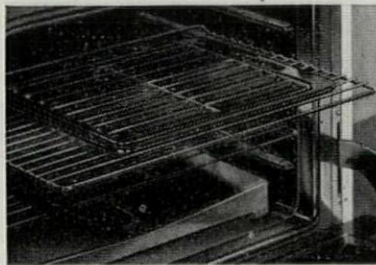
For complete, quick facts about these and other fine Frigidaire products for apartment kitchens and laundries, call your Frigidaire District Office or Dealer. Look for name in Yellow Pages of phone book. Or write Frigidaire Division of General Motors, Dayton 1, Ohio. In Canada, Leaside 12, Ontario.

FRIGIDAIRE

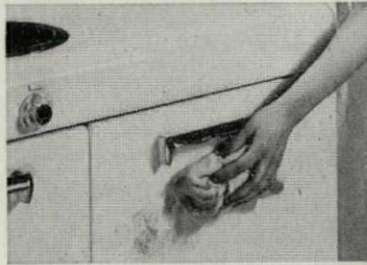
Makes a good building better!



New 5-Speed Radiantube Cooking Units on all models, cook faster—use less current. Fully enclosed—self-cleaning. Tip up for easy removal of porcelain drip trays.



New High-Speed, Waist-High Broiler on all models, gets steaks just right. Porcelain broiling pan—easy to clean. Non-tip, sliding shelves. Unit recessed in oven top.



Lifetime Porcelain finish on all models—inside and out. Cooking top is finished in special acid-resisting porcelain. Easy to clean with a whisk of a damp cloth.



Ask for facts on these other Apartment Products by Frigidaire

Complete quick facts about the compact, low-cost Frigidaire products shown below are yours for the asking. Get in touch with your Frigidaire Dealer, District Office, or Frigidaire Division, General Motors, Dayton, Ohio.

Model AM-43 Refrigerator

4.3 cu. ft. capacity—8 sq. ft. shelf area. Ideal for Pullman-type apartment kitchens.



Model AM-60 Refrigerator

is low-priced, compact. 6 cu. ft. capacity with 11.7 sq. ft. of shelf area.



Frigidaire Window Model Air Conditioner

cools, filters, circulates, dehumidifies and ventilates. Uses no water.



Frigidaire Water Heaters

30- to 80-gallon capacity. Round and table top models.



Frigidaire Kitchen Cabinets

Variety of sizes in wall and base types. Heavy steel baked finish, exclusive Vitalast tops.



Frigidaire Cabinet Sinks

Single and double bowl styles. Plenty of organized storage space.



Frigidaire Electric Dehumidifier

Removes moisture from air automatically. Dozens of uses. Powered by Meter-Miser.

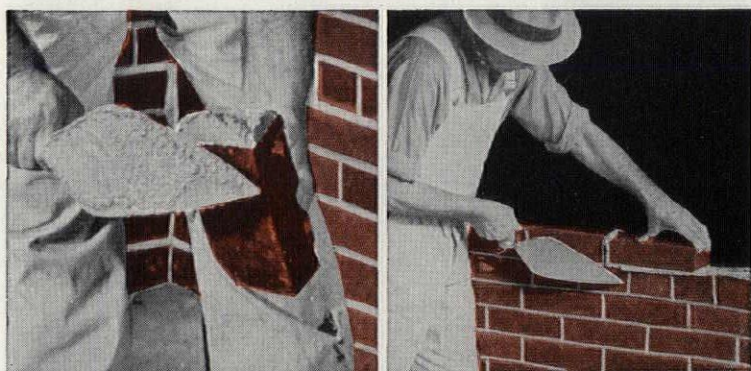


Frigidaire Automatic Washer

Has exclusive Live-Water Action. Frigidaire Ironer and Electric Clothes Dryer are also available.

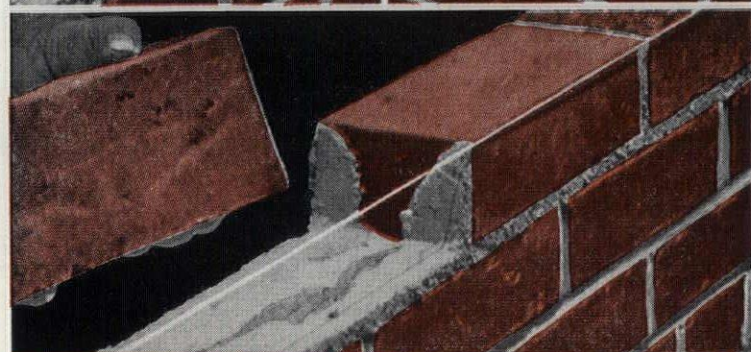
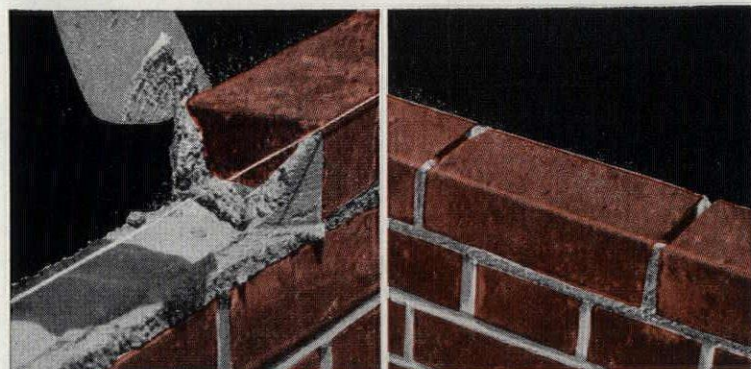


GOOD BRICKWORK = GOOD DESIGN + GOOD WORKMANSHIP + GOOD MATERIALS



GOOD WORKMANSHIP

Plenty of mortar should be thrown on the end of the brick to be placed. The brick should then be pushed into place, so that mortar oozes out of the head joint.



POOR WORKMANSHIP

When dabs of mortar are spotted on the corners of the brick, the mortar does not completely fill the head joint, and voids are still left.

FULL HEAD JOINTS, WITH BRIXMENT, HELP PREVENT LEAKY WALLS

WE SUGGEST THAT—

All head joints in both face brick and back-up work should be completely filled with mortar. If head joints are not completely filled, water may penetrate to the inside of the wall through openings in the joints. Dabs of mortar spotted on the corners of the brick are not nearly enough to fill the joints.

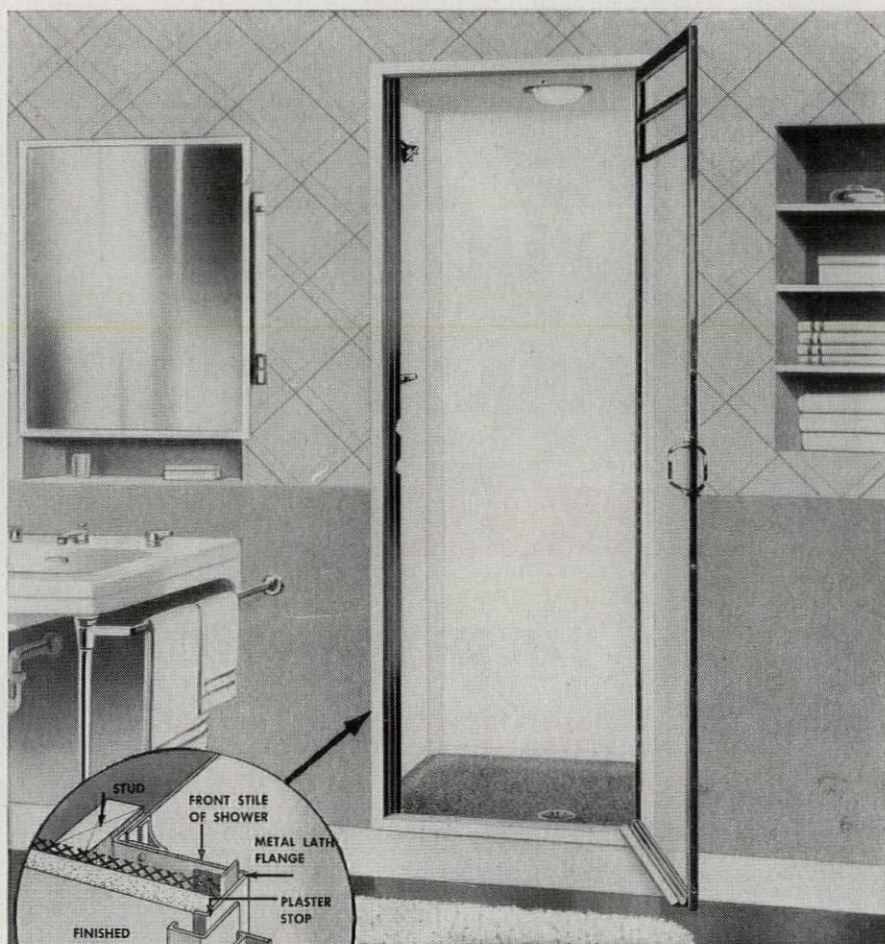
Take a look at the two examples shown at the left, and you'll instantly see why full head joints are an essential part of *good workmanship* in bricklaying.

No mortar material alone, not even Brixment, can make watertight masonry walls, so long as open crevices and pockets are left in the mortar joints.

Brixment mortar makes it far easier for the bricklayer to do good work. It is smooth and plastic—so soft and workable that the bricklayer can use enough mortar to fill the joint, and still “place” the brick easily and accurately to the line.

Brixment mortar has greater plasticity, higher water-retaining capacity and bonding quality, greater resistance to freezing and thawing, and freedom from efflorescence. Because of this combination of advantages, Brixment is the leading masonry cement on the market.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY



**Fiat Cadet Built-in Model 19B
shown with Dolphin Door**

View showing typical construction at door opening. Notice how metal lath and plaster are secured to front stile of shower. This construction prevents plaster cracks around door opening.

A shower unit designed for Built-in installation in bathrooms . . .

At last . . . a moderately priced shower unit expressly created for recessed installation . . . the only prefabricated metal shower cabinet that provides for continuity of the bathroom wall material. By the elimination of all apparent cracks or joints it becomes an integral part of the structure rather than merely a fixture.

The result is a rich, ultra-smart, custom-built appearance. Yet, the installed cost is considerably less than that of a built-up tile shower. It makes a permanently water-tight installation, will not crack and develop leaks with settling of the building, as often occurs when mortar joints are depended upon for water-tightness.

Reversible side panels, valves can be installed on either side without drilling on the job.

Size 36" x 36" x 80"—Bonderized galvanized steel walls with baked-on synthetic white enamel—will not rust. Precast terrazzo receptor. Clean interior, no screws or projecting fastenings to mar the bright white smooth enamel finish.



FIAT METAL MANUFACTURING COMPANY

Three complete plants

9301 Belmont Ave., Franklin Park, Ill.

Los Angeles 33, Calif.

Long Island City 1, N. Y.

In Canada—Fiat showers are made by Porcelain and Metal Products, Ltd., Orillia, Ontario

PRODUCT NEWS

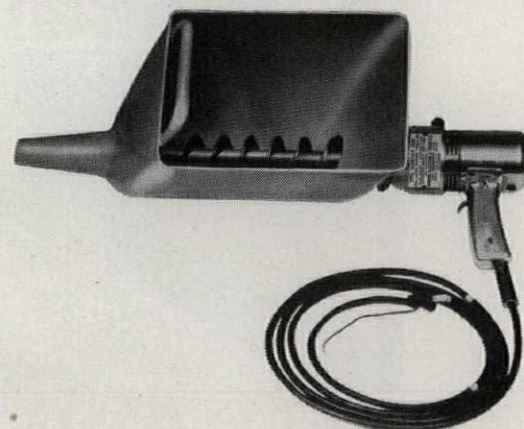
weight layers which are power sprayed directly over the old roofing—even gravel. One man can cover about 500 sq. ft. per hour with any of the three coatings. Where the roof has parapets, the coatings are continued up the sides and over the top. The first application is a prime, Flex Seal Clear. This seals the old roof in a thin wash coat (5 mils thick) and provides a good adhesive base for the next coat. Coverage is about 300 sq. ft. per gal. Next layer is the vinyl plastic, Cocoon itself. Drying time for both these coats is about ½ hr. A Gilsonite asphalt with aluminum paste for insulation forms the third, heavier (1/8 in.) spray. Total cost per square is about \$16 including labor at \$2 per hr. Cocoon is also being used as a plastic raincoat for exterior masonry walls.



Manufacturer: R. M. Hollingshead Corp., 840 Cooper St., Camden 2, N. J.

MORTAR GUN speeds up building block construction.

Squeezing strips of mortar along masonry block edges with the adroitness of a pastry tube, the Vita mortar gun is a real labor saver. It is said to permit three times as many building blocks to be laid as can be set with the conventional hand trowel. Electrically operated (as is Larry Vita's earlier invention, the automatic window, FORUM Jan. '50) the new tool may be used by inexperienced workmen to distribute mortar evenly on concrete block, cinder block or hollow tile. It also can be utilized to fill in the vertical joints while the blocks are in place. The gun operates on 110 v., a.c. or d.c. and is priced at \$89.50—an amount said to be amortized on one job. In fact, Vita estimates that



on a home built by his own Smithtown, N. Y. construction company, \$956 was saved in mason labor on 7,500 blocks.

Manufacturer: Vita Labor Saving Tools, Inc., Station Plaza, Smithtown Branch, N. Y.

(Continued on page 200)



One of a series of Dayton, Ohio, homes equipped with A. O. Smith gas-fired forced-circulation hot water boilers for radiant floor panel installations. Contractors: C. W. Sharp & Sons; installations: Radiant Co., Inc. (Below) Interior of Sharp home.



RADIANT HEAT IDEA BOOMING

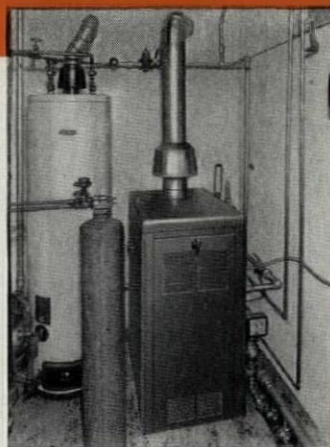
Dayton Firm Installs Over 400 A. O. Smith Gas-Fired Boilers

Pictured here are just a few of the over-400 homes in the Dayton, Ohio, area in which A. O. Smith Hot Water Boilers have been installed by Radiant Co., Inc., 743 Kiser St., Dayton . . . pioneers in radiant heating.

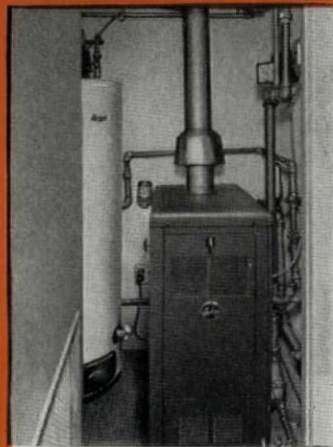
Average fuel cost per month for these homes, according to Radiant Co., has been under \$8.00. Which is one of many reasons why the A. O. Smith Boiler is ideal for all types of forced-circulation hot water heating.

Even in ranch-type homes, it speeds hot water to all points *in seconds!* No heavy cast-iron sections. "Water-wall" combustion chamber is copper tubing—plus a finned heat exchanger. Rust-free design permits water to touch nothing but copper, brass, bronze.

For one home or one hundred, the A. O. Smith Boiler is easier to install . . . easier to sell.



Boiler installation for Sharp home pictured above. The A. O. Smith boiler is available for all kinds of gas, including LP. AGA-approved.



Typical utility closet installation for homes shown below, incorporating the compact, efficient A. O. Smith-Burkay hot water boiler.



Part of another plat of homes in Dayton, equipped with A. O. Smith gas-fired boilers and radiant floor panel heating. Built by Zeiger Construction Co., installations by Radiant Co., Inc. Average fuel cost for these homes has been under \$8.00 per month.

A.O. Smith

FORCED-CIRCULATION GAS-FIRED

HOT WATER BOILERS

Boston 16 • Chicago 4 • Houston 2 • Los Angeles 14
Milwaukee 2 • New York 17 • Pittsburgh 19 • Salt Lake City 1
Seattle 1 • Washington 6, D.C. • International Division: Milwaukee 1



SEND THE COUPON FOR ALL THE FACTS...TODAY!

A. O. Smith Corporation

Dept. AF-950, Toledo 7, Ohio

Please send us complete information on A. O. Smith Gas-fired Hot Water Boilers. No obligation.

Name

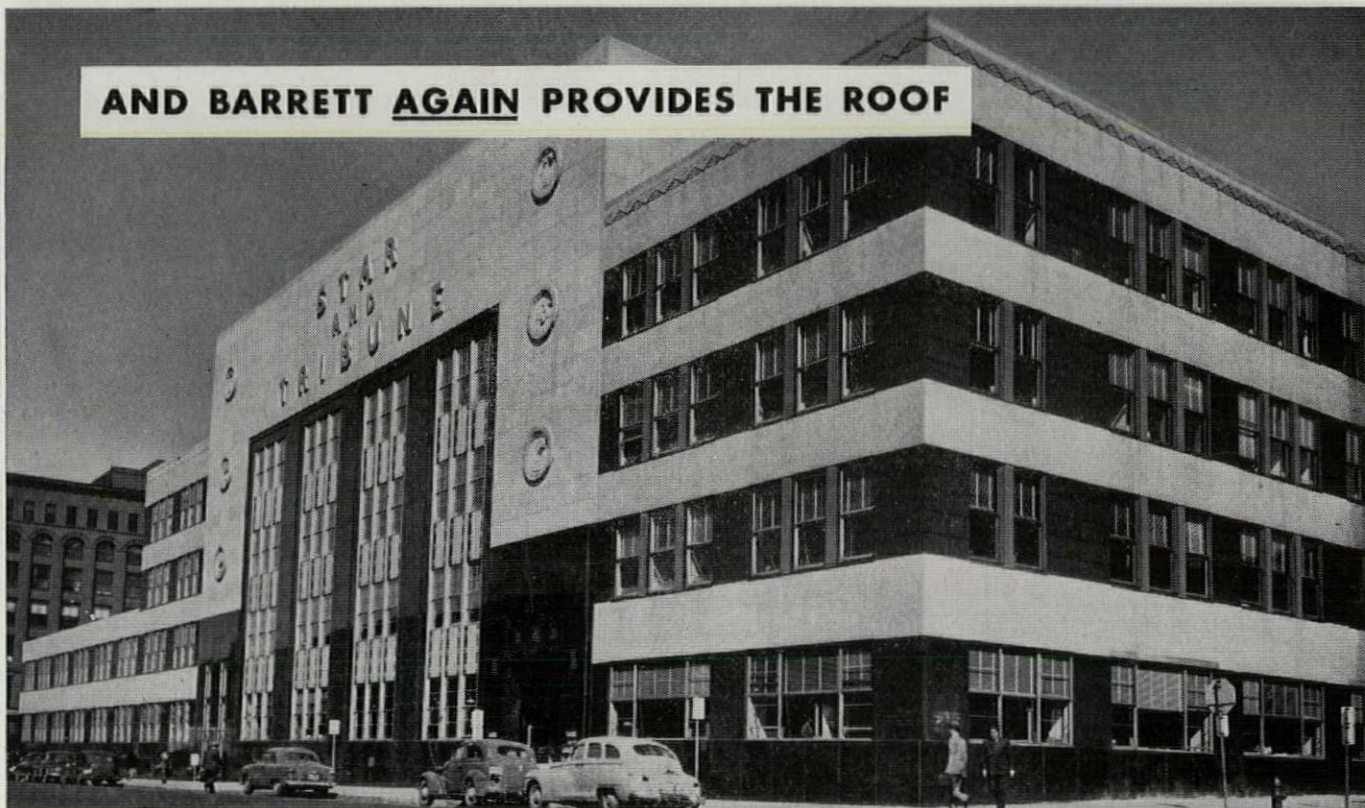
Firm

Street

City State

MINNEAPOLIS STAR & TRIBUNE BUILDS A NEW ADDITION...

AND BARRETT AGAIN PROVIDES THE ROOF



Arch.: Larson & McLaren, Gen. Cont.: C. F. Haglin & Sons Co., Roof. Cont.: John A. Dalsin & Son. All of Minneapolis.

With its new addition now in full operation, the Minneapolis Star & Tribune now has one of the finest and most modern newspaper plants in this country. Like the main building and press room, previously constructed, the new addition is protected by a Barrett* roof of coal-tar pitch and felt. Barrett Specification* roofs carry Fire Underwriters' Class "A" rating, and are the longest-lasting, best-value roofs that can be built—usually outlasting their 20-year bond by many years.

SEE BARRETT'S CATALOG IN "SWEET'S"



THE BARRETT DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

36th St. & Gray's Ferry Ave., Philadelphia 46, Pa.

205 W. Wacker Drive, Chicago 6, Ill.

1327 Erie Street, Birmingham 8, Alabama

In Canada: The Barrett Company, Ltd., 5551 St. Hubert St., Montreal, P. Q.

1 Barrett Specification* roofs are applied by Barrett Approved Roofers according to rigid Barrett specifications developed through years of successful roofing experience.

2 They are built up of alternate layers of finest grade coal-tar pitch and felt. Pitch, the *life-blood* of the roof, is impervious to water and unexcelled as a waterproofing agent.

3 Top-quality felt of Barrett's own manufacture holds the pitch in place and permits the use of greater quantities of this waterproofing than would otherwise be possible.

4 Final steps are a triple-thick coating of pitch—*poured*, not mopped—plus an armored surface of gravel or slag. Result is a roof that takes Fire Underwriters' Class "A" rating.



*Trade-mark Reg. U. S. Pat. Off.



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means QUALITY
in Hollow-Core
FLUSH DOORS

- 1** Balanced seven-ply construction to provide controlled reaction in changing weather conditions.
- 2** Hardwood construction throughout—stronger, more durable, free from grain-raising, more easily and economically finished.
- 3** Exclusive Insulok grid core material has inherent resiliency, cannot cause warping, nor transfer grid pattern to faces.
- 4** Greater strength. Adequate core stock surface area provides maximum gluing surface and resistance to warpage.
- 5** Precision key-locked dove-tail joinings of stiles and rails add strength and stability.
- 6** Ready to finish. Door faces are smoothly belt-sanded. Stiles are machine-planed at factory—prefit to standard book sizes.
- 7** Fully guaranteed. Each door must meet rigid quality control standards and constant inspection throughout manufacture.
- 8** Mengel Flush Doors are economical—no mouldings to paint—no corners to collect dirt. Smooth hardwood surfaces are less absorbent and less costly to finish—easier to clean and longer-lived.

Write for complete specifications. Use the coupon.

Also see—
MENGEL STABILIZED SOLID-CORE DOORS
the finest products of their type on the market.

The Mengel Co., Plywood Division
2313 South Fourth Street, Louisville, Ky.

Gentlemen: Please send me, without obligation,
full specifications on ☐ Mengel Hollow-Core Flush
Doors; ☐ Mengel Stabilized Solid-Core Doors.

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Street _____

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From **Higgins** WORLD-FAMOUS
BOAT BUILDERS

HARDWOOD FLOORING

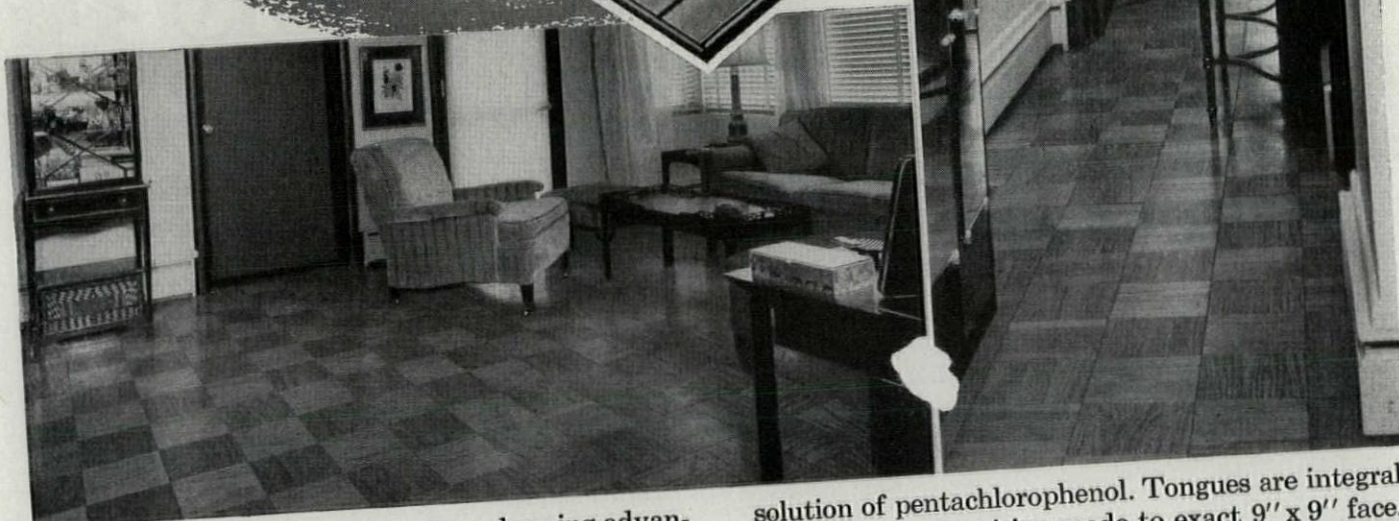
With Features No Other Flooring Gives You

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- Money Saving • Resists Soiling

SELECTED OAK FACE

MULTIPLE-PLY BONDED CONSTRUCTION

GROOVED BACK



Home owners enjoy the many housekeeping advantages that go with the luxurious beauty of Higgins Bonded Hardwood Block Flooring. Higgins Floors keep their fine finish indefinitely with only dry mopping and an occasional waxing—are quiet and comfortable to walk on.

Higgins blocks are bonded under terrific heat and pressure with marine-type waterproof glue — impregnated with penetrating varnish sealer of 100% phenolic resin base, and treated with a powerful

solution of pentachlorophenol. Tongues are integral part of block. Precision made to exact 9' x 9' face. Blocks come with final finish.

Ideal for radiant heating. Grooves on back of blocks act as heat conductors, assuring uniform heat with practically no increase in water temperature. Easy to install direct on any type subflooring. Can be blind-nailed or laid in adhesive. You can specify Higgins Flooring with confidence, wherever a flooring of rich beauty and permanence is desired.

Write for
Literature
and Sample
Block



Higgins INCORPORATED
NEW ORLEANS

**BONDED HARDWOOD
BLOCK FLOORING**

THESE LONG ISLAND HOME BUYERS

WILL ALWAYS THANK THEIR BUILDER
FOR SELECTING **TITE-ON** SHINGLES*

* proved on half-a-million applications



These "Commonwealth Homes", in a development of over 50 in East Hempstead, Long Island, N. Y. C. The houses sold for \$9,500 to \$10,500. Ruberoid Dubl-Coverage Tite-On Shingles were specified, in a variety of four color blends. Tite-Ons were applied by the Ruxton Roofing Co., Garden City, Long Island.

Ruberoid Dubl-Coverage Tite-On Shingles give a house sales-appeal. The builder's salesman can talk about Tite-Ons in terms of long-range economy that appeals to budget-minded home-buyers.

Because Tite-On, the *original* interlocking shingle is still the best . . . famous for its wind-resistant, fire-resistant, long-lasting qualities. And that's important for these houses built on Long Island, where the winter winds get pretty stiff.

Then, from a "looks" standpoint you just can't beat Tite-Ons for beauty. These roofs are substantial, and the attractive blend of colors used in these "Commonwealth Homes" enhances the value of the whole neighborhood.

Cutler Construction Corp., the builder, chose Ruberoid Tite-On Shingles for their plus benefits in closing sales . . . but they didn't overlook the long-range good will that Tite-Ons create for the builder.



The "Good American Homes" Program, sponsored by the NRLDA and USLL, is bringing thousands of enthusiastic prospects to the building industry. Five basic modern home designs have been adopted. Ruberoid Asphalt Shingles and Asbestos Siding are featured exclusively. For more information about how the program works, write Ruberoid.

The **RUBEROID** Co.

BUILDING MATERIALS FOR HOME, FARM AND INDUSTRY

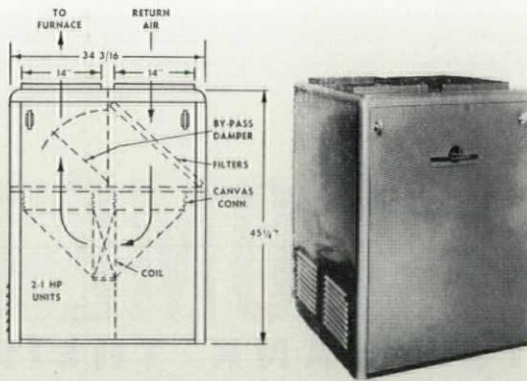
Executive Offices: 500 Fifth Ave., New York 18, N. Y.

Sales Offices: BALTIMORE, MD. • BOUND BROOK, N. J. • CHICAGO, ILL. • DALLAS, TEXAS • ERIE, PENN. • MINNEAPOLIS, MINN. • MILLIS, MASS. • MOBILE, ALA.

PRODUCT NEWS

HOME AIR CONDITIONER using warm air duct-work costs less than \$1,000.

Unveiling their six new residential air conditioners last month, York Corp.'s Vice Pres. Hertzler was frank: Home cooling was a great potential market. Working in air conditioned offices, riding in air conditioned trains and eating in air conditioned restaurants, people soon would want comfort at home, too. Room conditioner sales were proving it. Did cooling a whole house have



Top panel on York residential cooler is provided with flanges for convenient connection to ducts.



to be expensive? Millions of forced warm air systems are heating homes in this country—750,000 installed this year alone—and York had designed these coolers literally to latch on to some of those systems. If the ductwork is there, an air cooler for a 5 room house (model HAC-200) can be installed for about \$1,000. For new construction a complete cooling and heating system will run less than \$1,700.

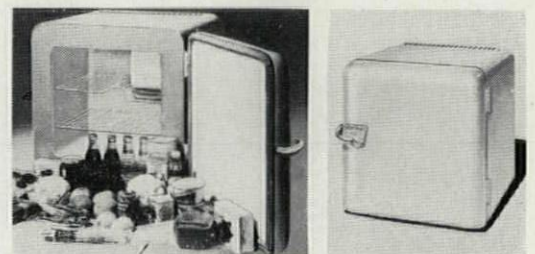
Operating on the same principle as York's room conditioners, the new coolers require no more maintenance than kitchen refrigerators. The units are hermetically sealed, have no bolts or gaskets to cause leaks. Once a switch is flipped they work automatically to maintain a house temperature of about 80° and humidity of 50 per cent. The smaller units are air cooled and the larger, water cooled. In the latter, the hermetic water cooled condenser is fitted with a regulating valve to conserve water. For water-short areas, this condenser can be used with a cooling tower to recirculate the water.

Model HAC-200 pictured above has two separate 1 h.p. refrigerating circuits. A two-step control saves power cost by operating only one of the circuits when less cooling is required. Two accessible filters clean the air. Damper is easily positioned to by-pass the cooling coil when furnace is on.

Manufacturer: York Corp., York, Pa.

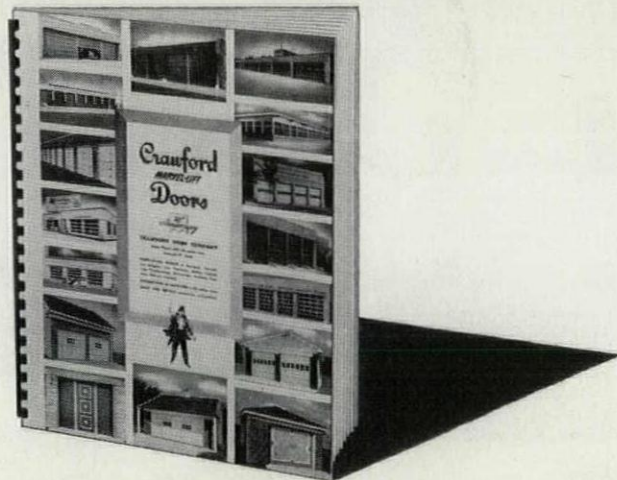
MOTORLESS REFRIGERATOR stores up to 50 lb. of food.

Operating on the principle of heat-absorption, the British-designed Astral refrigerator has no motor, compressor or moving part of any kind. It forms two trays of ice cubes and keeps 1.83 cu. ft of food cold by means of a small cylindrical 95 w. electrical heating device. It will work on 110, 220, 32 or even 6 v. currents. Its com-



compact size and noiseless operation make it suitable for such applications as small homes and apartments, summer cabins, motels and doctors' offices.

(Continued on page 206)



Crawford

*announces the publication of a new tool for
Architects and Engineers*

THE CRAWFORD 60-Second DOOR SELECTOR

This new type of reference book is dedicated to the idea that you should be able to find any door you want in 60 seconds, together with all the information you need for specifications. Covers doors for warehouses, loading docks, factories, service stations, boat wells, residence garages, etc., and all auxiliary equipment such as operators, controls, etc. This book should save you much time and effort. A copy is yours for the asking.

Call your local Crawford Door Sales Company, listed in your Yellow Pages, or write us on your letterhead.

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Owner, Keller-Block Corporation

Contractor, Harfst-Henson Co.

Schlage Novo Design with Riviera Escutcheon

To accent individual apartment entrances,
the Schlage lock illustrated was used with 5"
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MINNEAPOLIS STAR & TRIBUNE BLDG.
MINNEAPOLIS, MINN.

Here are some of the famous buildings for which prominent architects have specified PC Foamglas Insulation.

IN countless big office buildings, department stores, schools, hospitals, textile mills and industrial plants, this cellular glass material has proved its insulating efficiency in walls and floors, roofs and ceilings, for years on end.

The very nature of its structure makes Foamglas practically immune to many elements that impair other insulating materials, insures your clients of long-lasting satisfaction. Continued freedom from excessive maintenance, repair and replacement costs makes PC Foamglas a truly economical insulating material.

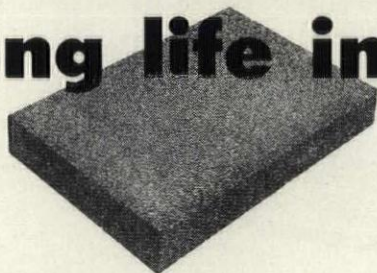
These are the main reasons why so many architects have specified PC Foamglas insulation on so many and varied jobs, for their most exacting clients. Keep them in mind whenever you specify structural insulation.



FOAMGLAS INSULATION

PC FOAMGLAS

the long life insulation



Before you specify insulation — check these advantages of Foamglas

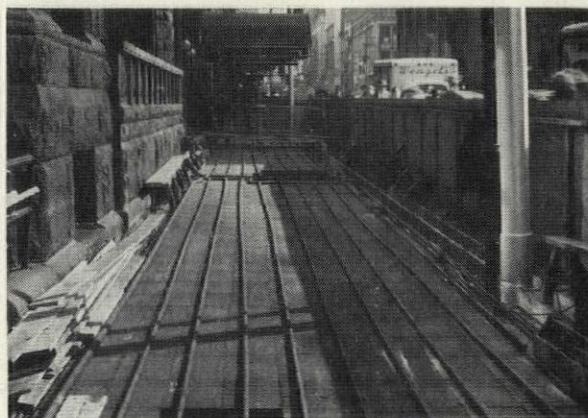
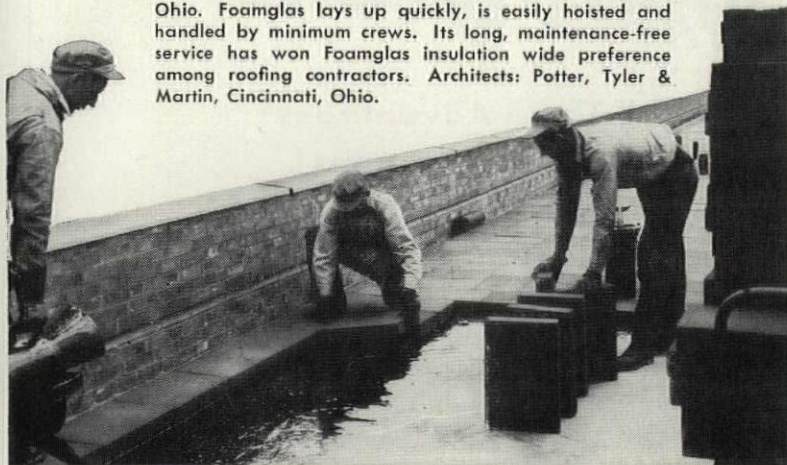
FOAMGLAS is entirely inorganic. It is composed of cellular glass, hence constitutes an effective retardant of heat travel, which is the main function of any insulating material.

Foamglas comes in strong, rigid blocks, is light in weight, easy to handle and stays in place. On large areas of flat and pitched roofs, Foamglas forms a firm, level base for roofing felts, requires no additional structural reinforcement to support its weight. In exterior core walls and interior partitions Foamglas supports its own weight, becomes an integral part of the structure. Under cover-floors Foamglas supports far greater than customary loads without fear of crushing or cracking.

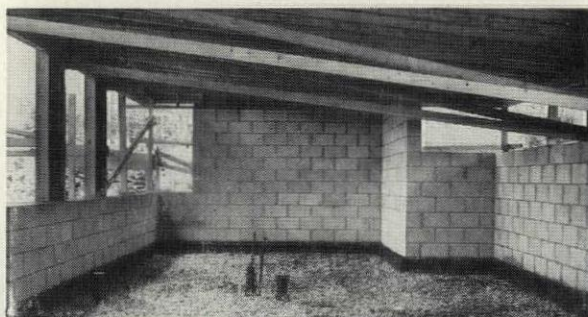
Foamglas is true glass, hence has extremely high resistance to the deteriorating effects of moisture, vapor, acid atmospheres and other destructive elements. It is noncombustible, verminproof and odorless. In fact, when properly installed, PC Foamglas retains its original insulating effectiveness.

When you are selecting an insulating material, remember that your clients will get an exceptionally high degree of insulating satisfaction from the long-lasting effectiveness and the continued economy of PC Foamglas.

Here you see strong, rigid blocks of PC Foamglas Insulation being laid on the flat concrete roof deck of the South Avondale School, Cincinnati, Ohio. Foamglas lays up quickly, is easily hoisted and handled by minimum crews. Its long, maintenance-free service has won Foamglas insulation wide preference among roofing contractors. Architects: Potter, Tyler & Martin, Cincinnati, Ohio.



More and more architects are including radiant heating in new sidewalks—and in replacement jobs—in northern latitudes. The resultant freedom from accumulations of snow and ice promotes public safety, removes a maintenance problem. In the sidewalk pictured here—in front of the famed Duquesne Club in Pittsburgh—slabs of PC Foamglas, two inches thick, were laid beneath the pipes to retard heat loss into the supporting structure. The Foamglas was laid dry and heating pipes were installed, with a finish concrete slab. Circulating hot water maintains a surface temperature well above the melting point.



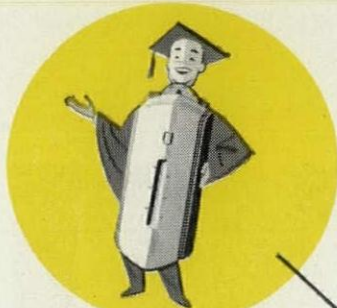
In this basementless house, PC Foamglas is applied to the inside surface of the foundation wall. Later, a concrete floor slab will be poured. This type of construction has proved an effective preventative of heat losses. Insulation makes the home more comfortable to live in summer and winter, saves fuel cost during the heating season and lightens the burden of air-conditioning equipment. Architects: Willis & Lillian Leenhouts, Milwaukee, Wisconsin.

GET COMPLETE INFORMATION . . . To provide your clients long-lasting satisfaction with every insulating job, make sure that you have the fullest information on the physical properties of PC Foamglas and on the latest installation procedure for each application. The wide and varied field experience of our insulating specialists is at your disposal. Just drop us a line and they will be glad to consult with you, without obligation.

PITTSBURGH CORNING CORPORATION • DEPT. B-90, 307 FOURTH AVENUE • PITTSBURGH 22, PA.

When you insulate with Foamglas ... the insulation lasts!

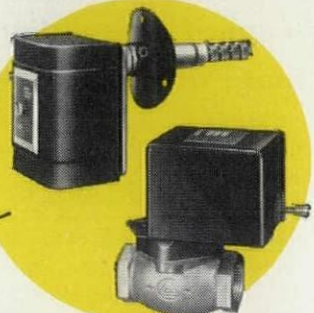
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CONSUMER APPEAL—*Timed Cycling*—"The Thermostat With a Brain"—is a natural for your specifications because it virtually eliminates the many heating discomforts your clients had accepted as inevitable—and *Timed Cycling* is available at no extra cost, in **DETROIT** thermostats for every type of heating system!



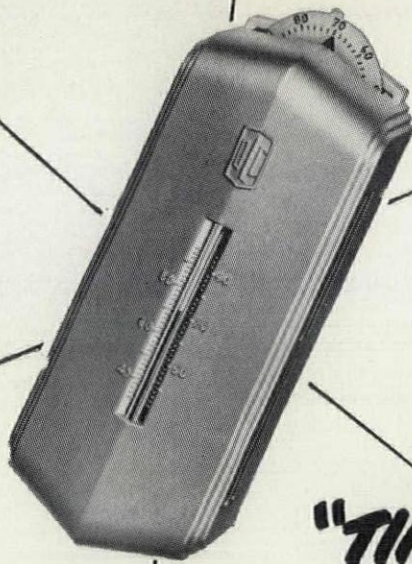
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**Puts All These Advantages
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All of the advantages listed above—and more! For when you specify **DETROIT**, your client's assurance of complete heating satisfaction is backed by a trained nation-wide sales and service organization. So specify the complete line of superior **DETROIT** certified controls on all your jobs—it's a sure way to give your clients the ultimate in heating control performance. For further information on **DETROIT'S** *Timed Cycling* Room Thermostat—"The Thermostat With a Brain"—and complete line of **DETROIT** heating controls, write for Form No. 1545 and Bulletin No. 227.

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Flexachrome is greaseproof. Use it in machining areas, compounding departments, in-plant kitchens and dining rooms... anywhere grease abuse is a problem.

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Service life is extraordinary. The exceptional built-in wear resistance of Flexachrome floors brings cost-per-square-foot-per-year down to a figure that makes plant operating executives smile.

And appearance is superb! Here is a real aristocrat among flooring materials.

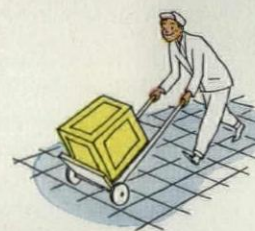
Because Flexachrome is laid in individual tiles, you get unmatched versatility. Use it as a single color floor (above)... or in any of almost unlimited variety of patterns. Your floor design can be merely decorative, or it can be used functionally... to identify departments and bays, or direct traffic.

Now consider color. 33 sharp, brilliant colors from white to black... primary to pastel... give you a veritable rainbow to meet any decorative requirements. *And color is taking on increasing importance in industrial design especially where light reflectance is important.*

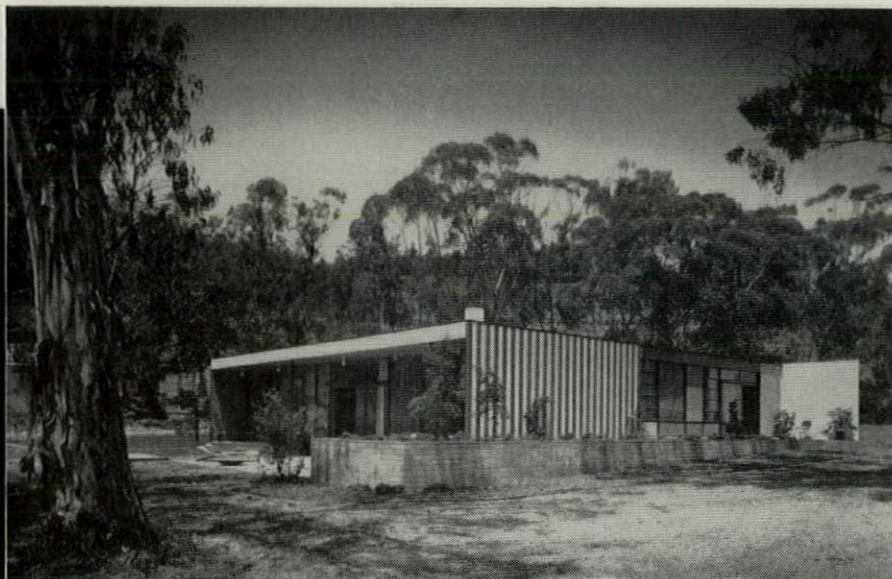
Write us for detailed information.
THE TILE-TEX DIVISION, The Flintkote Company, Dept. F, 1234 McKinley Street, Chicago Heights, Illinois.

Other Tile-Tex Flooring Products include: Mura-Tex Plastic-Asbestos Wall Tile; Tuff-Tex* Heavy Duty Greaseproof Industrial Tile; Tile-Tex*... the Quality Asphalt Tile.*

*REGISTERED TRADEMARK, THE FLINTKOTE COMPANY



In the words of
Charles Eames regarding
the use of Truscon
Steel Products
in Case Study Houses
8 and 9:

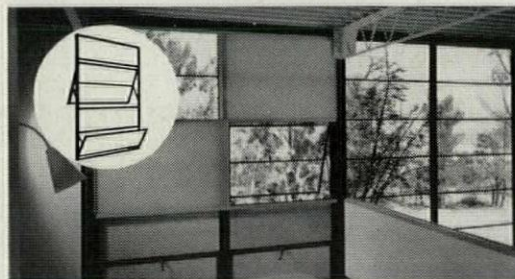


"The best proof of the aesthetic and architectural value in the use of these products probably lies in the fact that in the C. S. House for 1949, which was designed after No. 9 was started, we chose to leave exposed the Truscon 'O-T' Joists and the underside of the 'Ferrobord' steel decking. When the buildings are finished and these parts are painted, I anticipate their adding greatly to the crisp freshness of the building.

"The joists used were those with square ends and angle connections which were framed directly into four-inch H columns. These 7'6" on center. This became an extremely convenient module, because it could be spanned by the 'Ferrobord' with no intermediate support and the space in between the columns could be taken up by two standard architectural-projected sash 8' high.

"This, too, became a very handy dimension, because it corresponded to the first and second floor heights. The two lower lights of the architectural-projected sash were glazed in opaque material, thus forming a good height for the transparent glass areas to start. The convenient dimension and clean detail made it an economical and very pleasing system.

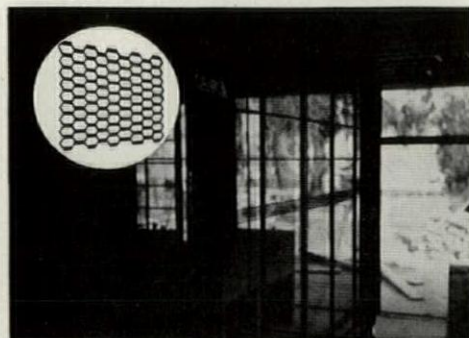
"The Ferrobord made a most satisfactory roof decking and allowed the ceiling to remain uncluttered though its structural members were exposed."



Truscon Architectural Projected Steel Window



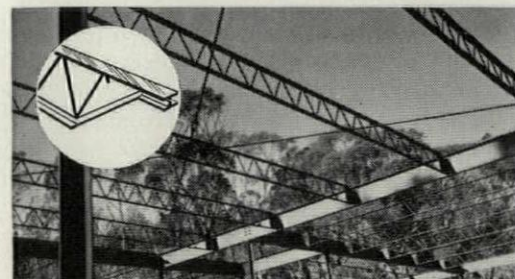
Truscon "Ferrobord" Steeldeck Roofing



Truscon Diamond Mesh Steel Lath

In addition to the "O-T" Open Truss Steel Joists, "Ferrobord" Steel Roof-deck and Architectural Projected Windows, another Truscon product used in Case Study Houses 8 and 9 was Diamond Mesh Steel Lath.

Ask for complete catalog of Truscon Steel Building Products.



Truscon "O-T" Open Truss Steel Joist



FREE Book on Truscon "Ferrobord" Steeldeck Roofing. The Truscon Steel Company Manufactures a Complete Line of Steel Windows and Mechanical Operators . . . Steel Joists . . . Steeldeck Roofs . . . Reinforcing Steel . . . Industrial and Hangar Steel Doors . . . Complete Hangars for Small Planes.

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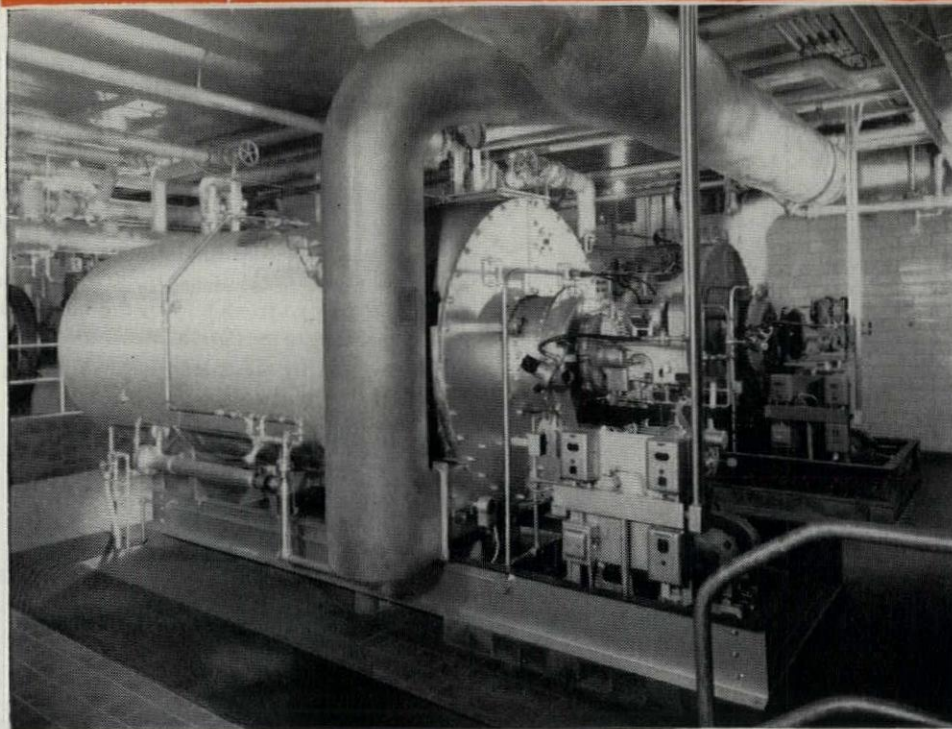
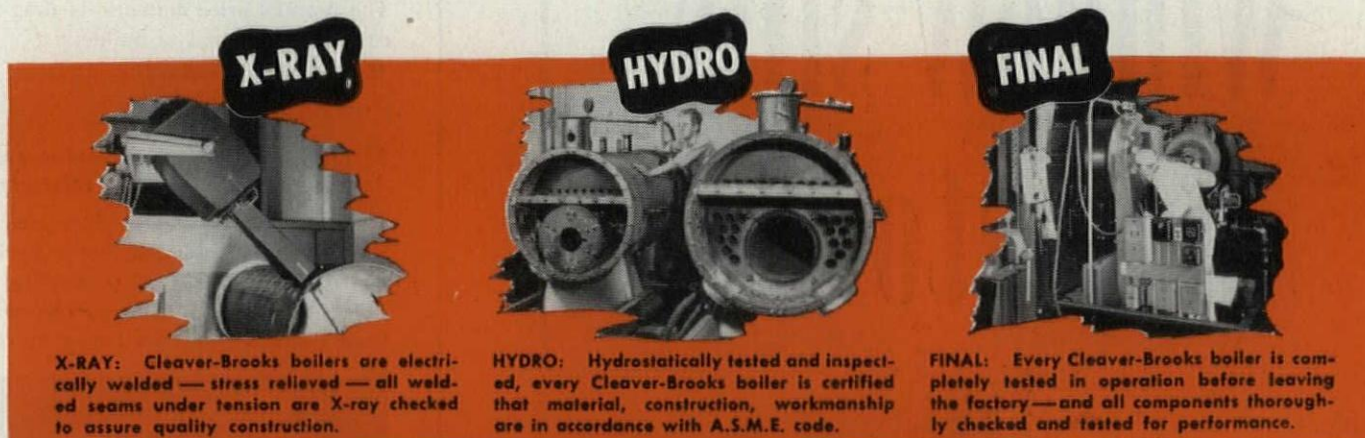
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teed efficiency of 80% from full load down to 30% of rating.

In addition, Cleaver-Brooks boilers give you clean, smokeless operation—eliminate fuel—ash handling—require no high or costly stacks—no special foundations — fit under low headroom—provide quick steaming, flexible operation to meet fluctuating loads—fully meet all codes.

Available in sizes 15 to 500 H.P., 15 to 200 P.S.I. — write for new Cleaver-Brooks steam boiler catalog.

Cleaver-Brooks

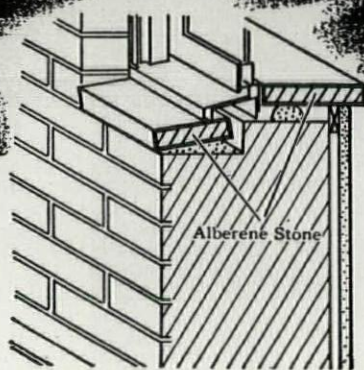
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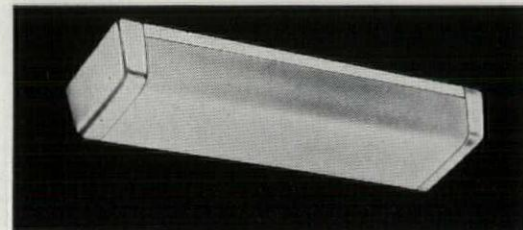
PRODUCT NEWS

Weighing only 64 lb., the Astral can be moved by one person and, powered from a car battery, transported with food inside. The cabinet is of porcelain enamel steel. Glass fiber insulation, 3 in. thick, maintains the 50° temperature differential between room and storage compartment. The Astral's price matches its size: \$129.50. Discounts are allowed to builders.

Manufacturer: Astral Industries, Inc., Rockleigh, N. J.

CEILING FIXTURE with plastic shield diffuses light evenly, has simple relamping device.

The Sightron is a neat fluorescent fixture designed for flush-to-ceiling mounting. Its chromium plated ends slide out, permitting the diffuser shield to swing down from one side and hang from the other so that lamps may be replaced



without removing any fixture parts. The plastic shield will not warp, chip or discolor. It is ribbed so that virtually no dark spots appear in the fixture. Light is distributed evenly and efficiently over a wide area from the bottom and sides. The Sightron is 4 1/8 in. deep and 7 1/2 in. wide and comes in three lengths, 26 1/2, 35 1/2 and 50 1/2 in. to accommodate two 20, 25 or 40 w. lamps. It retails for about \$14 for the smallest to \$24 for the 50 1/2 in. model.

Manufacturer: Lightolier, Inc., 11 E. 36 St., New York 16, N. Y.

SMALL LAMP BULB masks unpleasant odors, has mild germicidal effect.

The fresh clean smell of an electrical storm can be duplicated on a small scale indoors by means of a tiny lamp bulb. Giving off barely noticeable concentrations of ozone, a form of oxygen which has the effect of neutralizing objectionable odors, the 4 w. bulb operates on household current.

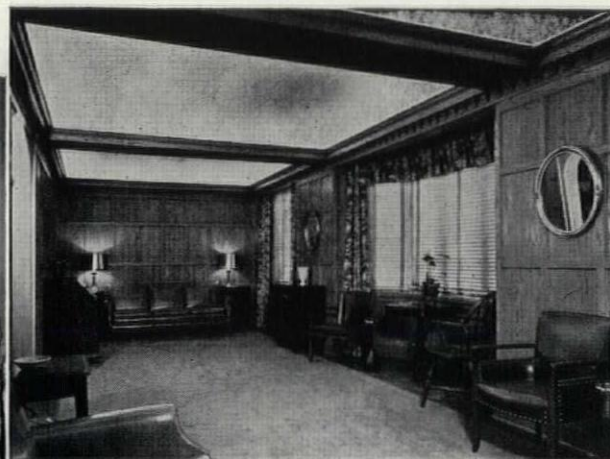


It is used with a ballast in a simple fixture which allows the free escape of ozone but shields the eyes from ultraviolet rays generated by the lamp. The ozone produced by a single bulb, according to the manufacturer, will mask odors in areas up to 1,000 cu. ft. The new lamp may be utilized as a room deodorizer in kitchens, closets, baths, cellars; in public rest rooms, offices and reception rooms. Cost of the bulb alone is \$1.30; fixture with ballast is about \$8.70.

Manufacturer: General Electric, Nela Park, Cleveland 12, Ohio

(Continued on page 212)

Photos, Ken Spain, Nashville



COLE HALL, VANDERBILT UNIVERSITY,
NASHVILLE, TENNESSEE
FRANCIS B. WARFIELD AND ASSOCIATES,
Architects and Engineers, Nashville
FOSTER & CREIGHTON CO., General Contractor,
Nashville
CRAFT DECORATORS, Painting Contractor,
Nashville



COLE Hall—men's dormitory—is the new addition to Vanderbilt University. Colonial sand-faced brick, backed with light-weight aggregate concrete, compose the outside walls. Light-weight concrete blocks form the interior partitions. Reinforced concrete was used for floors and attic slabs, with ceilings unplastered. Interior walls are sand-finished plaster; acoustical ceiling in corridors. Floors are asphalt tile.

Built-in units provide single occupancy rooms with desk, dresser, clothes closet and bookshelves. The attic is used as a

plenum chamber from which air is exhausted by six Sirocco fans. Air ducts lead to the attic from each room. Pratt & Lambert Paint and Varnish adorn the walls and woodwork.

Prompt, practical assistance in planning authoritative decoration is available on request to the nearest Pratt & Lambert Architectural Service Department.

PRATT & LAMBERT-INC.
Paint & Varnish Makers
NEW YORK • BUFFALO • CHICAGO
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Save the surface and you save all!

PRATT & LAMBERT PAINT AND VARNISH

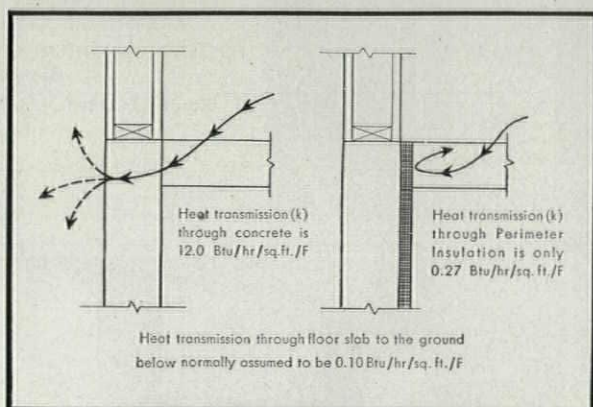


**assure more
comfortable floors
in basementless houses
with permanent...**

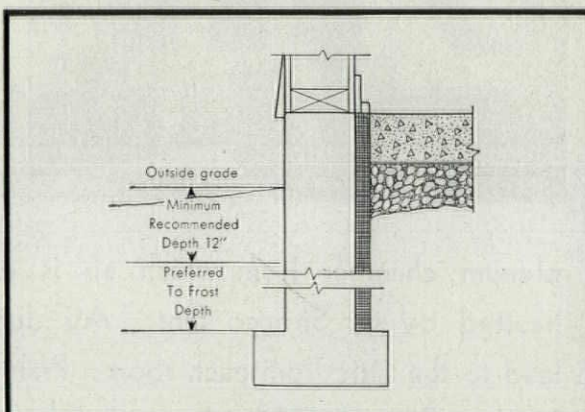


PERIMETER INSULATIONS

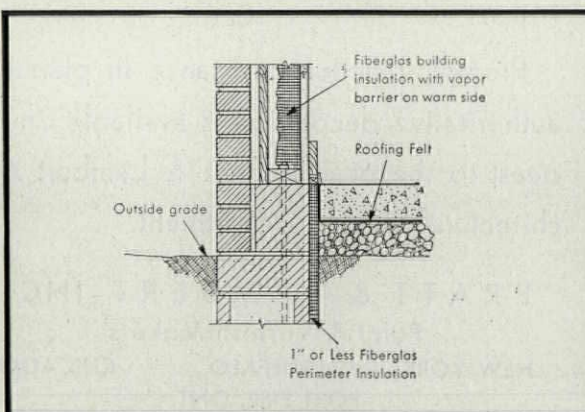
Fiberglas Perimeter Insulation prevents heat flow to cold outside air.



Carried down from level of slab to 12" or more below outside finished grade.



Finished off to top of floor and hidden by base or carpet nailer



**PROVIDE WARMER FLOORS...
CUT HEATING PLANT COSTS...
REDUCE FUEL BILLS**

Efficient design for all concrete floor slabs laid on the ground calls for a barrier against heat loss through the edges of the slab frequently exposed to air temperatures much colder than the ground. Masonry carries away heat from the inside rapidly—much faster than the ground below. When the slab edges are left uninsulated, heat losses are considerable. The floor feels cold and damp.

Fiberglas* Perimeter Insulations (formerly Floor Slab Edge Insulations) placed between the foundation and the slab block this path of heat loss. Of course, heating coils or perimeter heating (warm air) in the slab increases the need for insulating the slab edges. Add value and assure your client of maximum efficiency at low cost. No skilled labor is required. Easy to install.

Architects and builders prefer Fiberglas Perimeter Insulations for the job because they are made of ageless glass fibers and are permanent in contact with the earth. Resistant to soil acids. No wick action to pick up moisture. They have high insulating value and are equal in resiliency to Fiberglas Expansion Joints used in concrete highways. Won't rot, decay, swell or shrink. Provide no sustenance for termites or vermin.

For complete information on other approved applications write us today for our A.I.A. File No. 37-B-3, "Fiberglas Perimeter Insulations", or refer to Sweet's Architectural Files.

OWENS-CORNING FIBERGLAS CORPORATION, DEPT. 67-1 TOLEDO 1, OHIO

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

BUILDING INSULATION • FORM BOARD • ACOUSTICAL TILE • ROOF INSULATION • MEMBRANE FABRIC

STOP RUST!



YOU can STOP RUST... PREVENT RUST... on any rustable metal surface with RUST-OLEUM. Every day, rust eats away on your metal tanks, buildings, fences, stairs... everything metal inside and outside your plant. Yet, rust can be stopped and protection given economically with RUST-OLEUM.

For more than a quarter of a century RUST-OLEUM has been proved under severe conditions of weather, fumes, salt air, salt spray, and other rust producing conditions. Railroads, shipyards, builders, refiners... nationally known users* in almost every field of industry... have found RUST-OLEUM the economical way to stop rust and prevent further rust. Architects, builders, engineers, maintenance men now specify RUST-OLEUM for primer, "shop coat", and finish coats.

RUST-OLEUM adds extra life to metal buildings, equipment and other metal surfaces and can be applied over already rusted surfaces without

extensive surface preparation. Yet, RUST-OLEUM costs no more than most quality materials.

RUST-OLEUM not only protects — it beautifies as well! RUST-OLEUM is available in a large selection of colors including aluminum and white. It spreads evenly... and dries free of brushmarks in 4 to 12 hours, depending on conditions, to a tough, pliable film that protects against rust.

Be sure you get only genuine RUST-OLEUM for positive protection against rust! Specify RUST-OLEUM to your contractor or architect on any new construction, remodeling or maintenance work.

RUST-OLEUM is stocked and sold by leading industrial distributors in all principal cities of the United States and Canada. See Sweets for complete catalog and nearest source of supply, or write us direct for complete information.

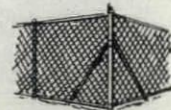
**Names on request*



RUST-OLEUM CORPORATION

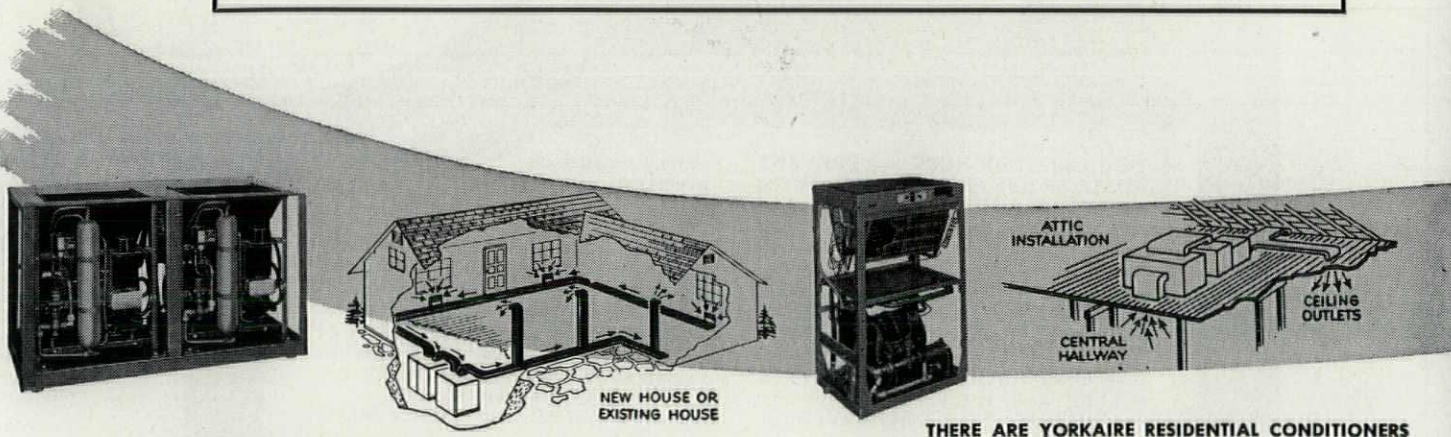
2504 OAKTON STREET

EVANSTON, ILLINOIS

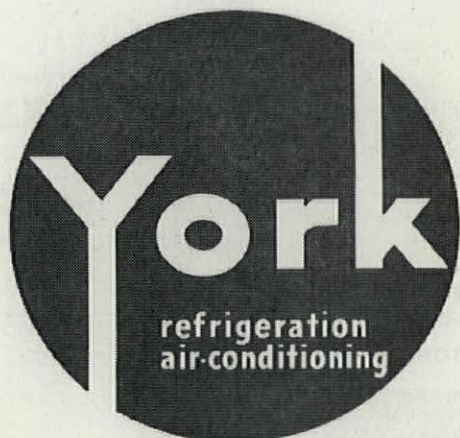


THE NEWEST in Air

ANNOUNCING—the sensational Yorkaire completely Hermetically Sealed Circuit Conditioner that makes possible air conditioning for the entire home that is as Trouble-Free and Simple as the modern home refrigerator, *and at a cost most everybody can afford!*



THERE ARE YORKAIRE RESIDENTIAL CONDITIONERS



Another big
Headquarters for— **Refrigeration**

FOR YOUR NEAREST YORK REPRESENTATIVE

Conditioning for the Home

Here it is! The big air conditioning news of the year! Luxurious, comfortable, mechanically cooled and dehumidified air for the entire residence with the same dependability, the same freedom from trouble your clients have learned to demand from the most modern home refrigerator.

And here's what made it possible:

The Yorkaire Sealed Circuit Conditioner has a trouble-free, completely hermetically sealed cooling system—tested and heat-sealed at the factory. Dirt can't work its way in. The refrigerant can't leak out.

It is the most positive assurance of dependable residential air conditioning ever offered home owners! Assures simplicity of installation! Assures simplicity of operation! Assures the lowest possible costs: less than \$1,000 to cool an average size 5 room home heated by forced warm air!

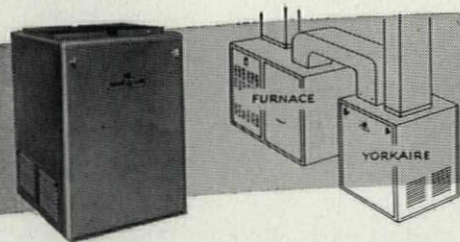
The "hermetic seal" principle of the Yorkaire Residential Conditioner cooling circuit has proved itself season after

season to thousands of enthusiastic users of York's famous single-room air conditioners and multiroom and commercial size "package" units. And it has proved itself as well in York's Automatic Ice Maker, developed to provide the food and beverage industry with a convenient, economical, point-of-use source of pure, clear, uniformly crushed ice and the famous "ice cube with the hole."

You'll be amazed at the speed and ease with which Yorkaire Sealed Circuit Conditioners can be installed—using the ducts of present heating plants or, at additional cost, as an independent central system, or series of remote units—tucked away wherever there's waste space.

And whatever the type or size of the home—dream stage or existing construction—there are Yorkaire Sealed Circuit Conditioners, sizes and models, to dovetail perfectly with your cooling and dehumidifying specifications.

By all means, call your York Representative now to arrange for your future installations. York Corporation, York, Penna.



Your York Representative is an air conditioning specialist, able and qualified to provide maximum efficiency and tight-fisted economy whether you're interested in room, residential, office, store or commercial air conditioning.

FOR ALL TYPES OF HOUSES—ALL APPLICATIONS

**advance from
and Air Conditioning** **YORK**

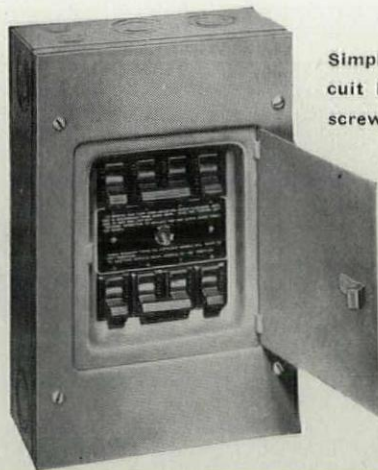
SEE YOUR CLASSIFIED TELEPHONE DIRECTORY

PRODUCT NEWS

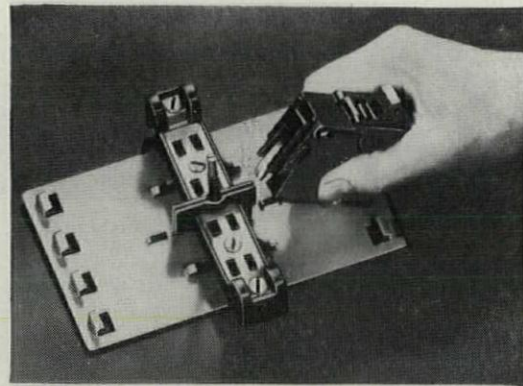
CIRCUIT BREAKER SYSTEM carries fuse box price tag.

By standardizing a number of small parts and engineering an air circuit breaker that could be mass produced, installed safely and easily, and sell for half the usual price, Federal Noark stands a fair chance of making a heretofore luxury item a small home requirement.

Until this summer the advantages a zinc link fuse had over a circuit breaker were its price



Simple plug-in method of inserting these air circuit breakers locks them in place without use of screws, assures positive contact with main busses.



and easy installation. In operation, however, the circuit breaker introduced 13 years ago was a tamperproof overcurrent protective device and did not have to be replaced. Although it was a complicated little gadget and more expensive, industries soon found it indispensable. But in most homes, whenever there were severe overloads on wiring, fuses would melt or "blow" as they have been doing since 1882 in the first house wired for electricity. Most often, the wiring was corrected and the fuses replaced with others of the same capacity. Sometimes, larger ones naively were substituted to "carry the heavier load" and, even more dangerous, a few copper coins found their way into fuse boxes.

Now, out of the industrial necessity class into the home building market comes Stab-Lok, a simple air circuit breaker system for under \$10. It actually takes less time to snap in one of these breakers than it does to screw in a fuse. Stabs make instant contact with the main busses and lock the breaker in place without additional fasteners. To assure alignment and positive action, parts are completely assembled and calibrated before they go into the molded plastic casing. Slots in the enclosure box are spaced to take either single or double pole breakers. Underwriters' approved for 10,000 operations, the Stab-Lok breakers afford protection for various loads. On light momentary overloads a bimetal action trips the breaker. On heavier overloads, as the magnet gap closes, a stronger pull is exerted, and on severe overloads the magnetic pull trips the breaker immediately. A tripped breaker is readily recognized by its handle in the off position. A flush surface enclosure with two breakers costs only \$6.55. It has capacity for four single pole Stab-Loks or one double pole and two single. The flush surface model with space for eight single pole or two double and two single is priced at \$8.25, including two 15 amp. breakers. Additional circuits are simply brought to the box, a new breaker snapped in place and the circuit connected.

Manufacturer: Federal Noark Electric Products Co., 50 Paris St., Newark 5, N. J.

THERMOSTATIC VALVE simplifies large radiant panel installations.

Zone control and individual room temperatures for radiant panel systems usually take involved and expensive engineering—especially in concrete slab construction. As a simple solution to

(Continued on page 218)

Follansbee Seamless Terne Metal Roofing



for harmony in modern design



- In modern housing the versatility of Follansbee Seamless Terne Metal Roofing permits harmonious design detail to conform to architectural styling. That's one of the advantages of Follansbee Terne Metal Roofing—it belongs in any period and any specialized roof construction.

- Color harmony is another important feature of a Follansbee Terne Metal Roof. Your client can select any trim color and the roof can be finished in contrasting shade, or in the same shade. This permits change of color scheme, anytime—just the sort of flexibility you like to suggest to a client.



- Then, when you point out that terne metal roofs are lifetime roofs, in addition to being harmonious in color and design, you can specify Follansbee Terne Metal Roofing with assurance of satisfaction.

- If you haven't received your file of architectural details be sure to write Terne Metal Dept. A., Follansbee Steel Corporation.

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.

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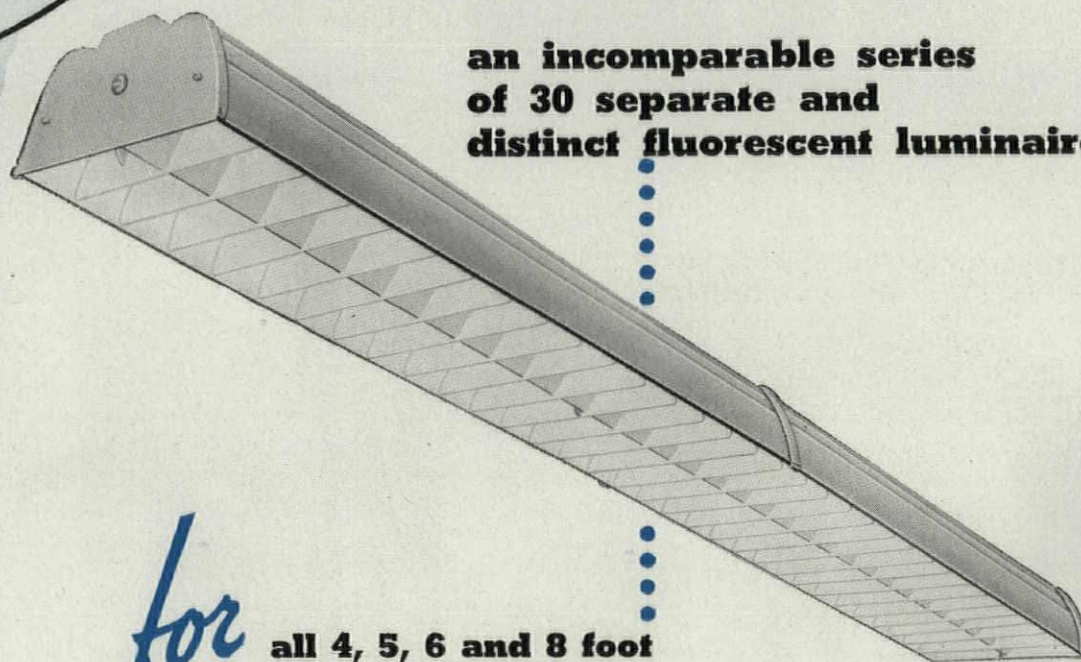


NEW CURTIS



CORONET

**an incomparable series
of 30 separate and
distinct fluorescent luminaires.**



for **all 4, 5, 6 and 8 foot
lamps . . . slimline, low-
brightness or starter type.**

The new Curtis Coronet Series is designed to provide unexcelled general illumination for all commercial interiors. Eye-comfort, traditional in Curtis lighting units is even more characteristic of this skillfully engineered line. Yes, now Curtis offers not only Quality . . . but "Quality with Features".

Shielded 40° crosswise with either 40° or 25° lengthwise shielding . . . offering the optimum in eye-comfort.

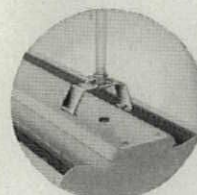
Alzak Aluminum or Baked White "Fluracite" steel reflectors . . . highest lighting efficiency.

Newly designed "Tong Hangers" speed and simplify installation . . . Lower installation cost.

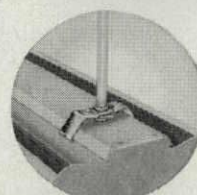
Fingertip control louver catches permit relamping 32 feet of lamps from one ladder position . . . lower maintenance cost.

Bears Electrical Testing Laboratories and Fleur-O-Lier labels . . . guaranteed performance.

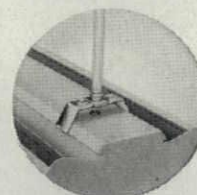
Curtis Tong Hanger already mounted, ready to receive wedge-top of luminaire wireway.



Tongs expand when luminaire is pushed upward in one simple motion. Edges of tongs catch under continuous ridge. Luminaire is released, weight pulls tongs together and assures a strong grip.



Simple lock nut above tong hanger is tightened and mounting is complete in a fraction of the time required by conventional methods.



Full technical details and specifications on the Coronet series are illustrated and described in Bulletin A-1. Write today for your copy. Address Dept. C-91.

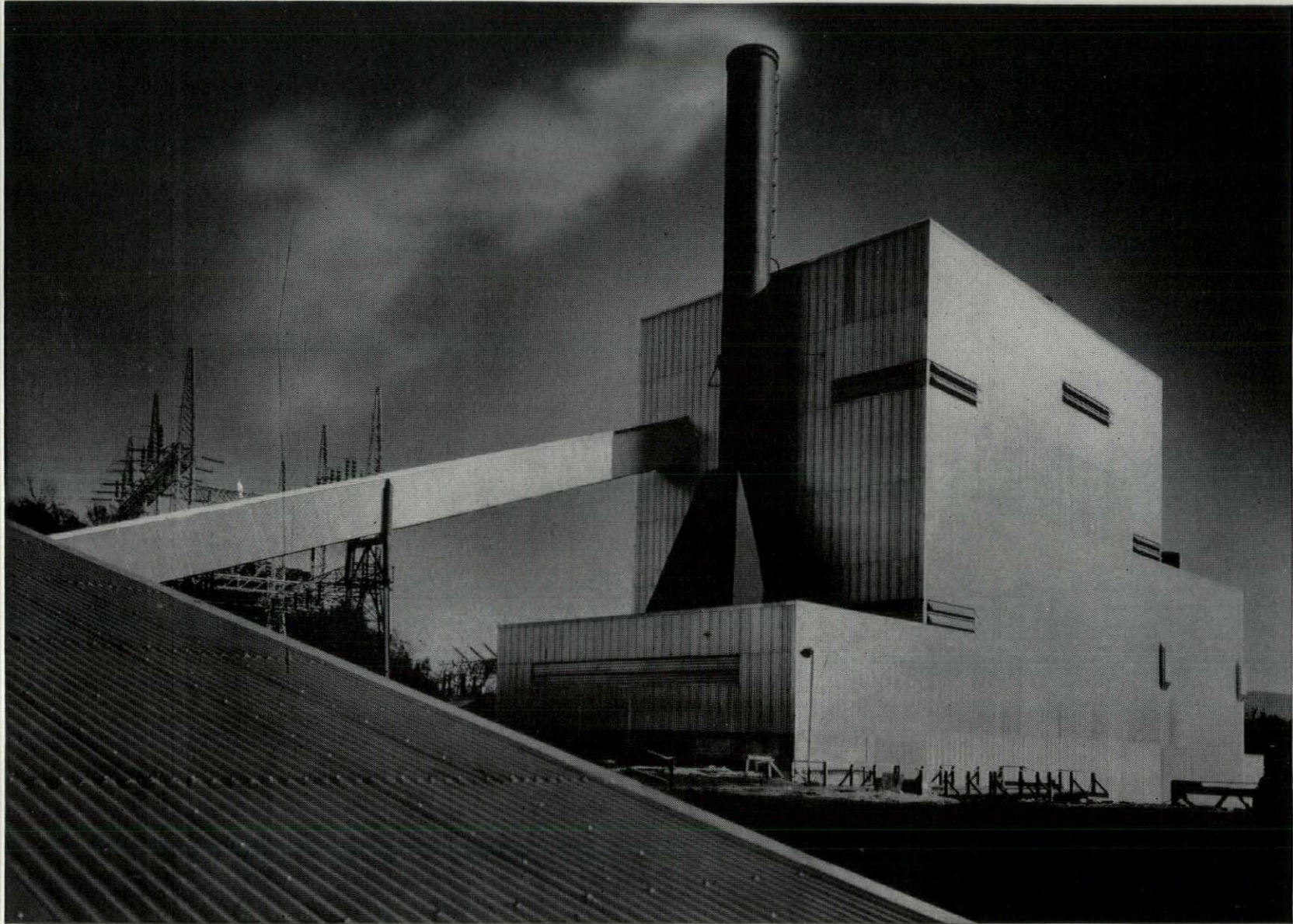


CURTIS
LIGHTING, INC.

6135 W. 65th ST., CHICAGO 38, ILLINOIS

QUALITY WITH FEATURES

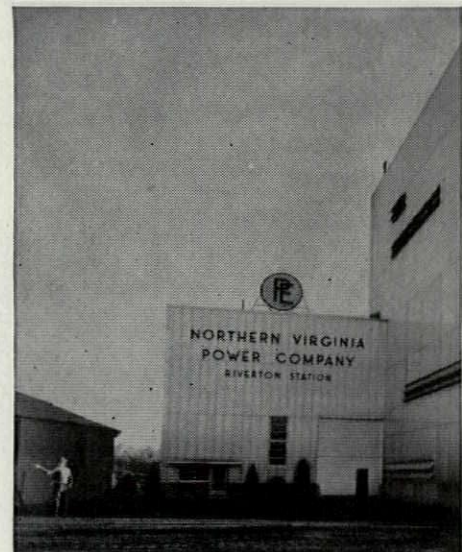
ALUMINUM LOOKS GOOD



Riverton Station, Northern Virginia Power Company, Front Royal, Virginia. Sanderson and Porter, Engineers and Constructors; Chapman, Evans and Delehanty, Consulting Architects. Aluminum-faced wall panel fabricated and erected by H. H. Robertson Co.

Wall panels, surfaced with Alcoa Aluminum, have fluted steel backs and 1.5 inches of glass fiber insulation. Conveyors covered with Alcoa Industrial Building Sheet. ➡

Big, metal wall panels went up fast, required no painting or caulking. Good appearance makes for better public relations in any community. ➡➡



TO TREASURERS, TOO

Behind the gleaming surface of this aluminum-clad power plant are shining facts to gladden the heart of a cost-conscious treasurer.

The owners estimate that building with big, easy-to-erect, aluminum-faced panels saved more than \$50,000 over masonry wall construction. Big, 18-foot-high panels were erected quickly by five-man crews. Speed in construction means that plants start producing income sooner. This pleases not only treasurers, but presidents and directors, too. The many aluminum-faced plants now in operation have proved that the savings go on year after year. Aluminum surfaces need no painting, pointing or upkeep. Wall panels with glass fiber, or similar insulation, equal foot-thick masonry in insulating value. And they remain a thing of beauty for years to come, for aluminum can't rust-streak, rot or warp.

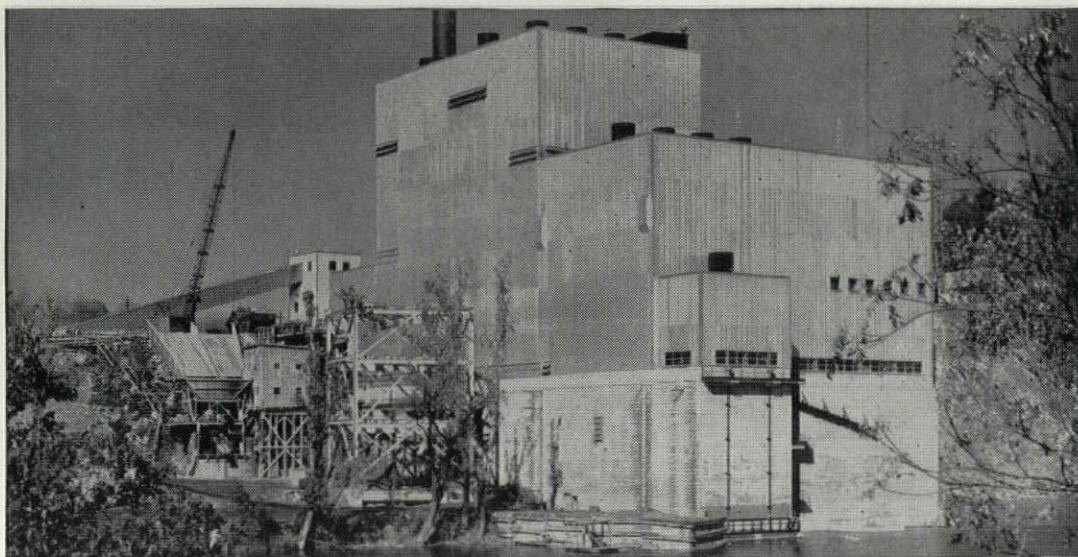
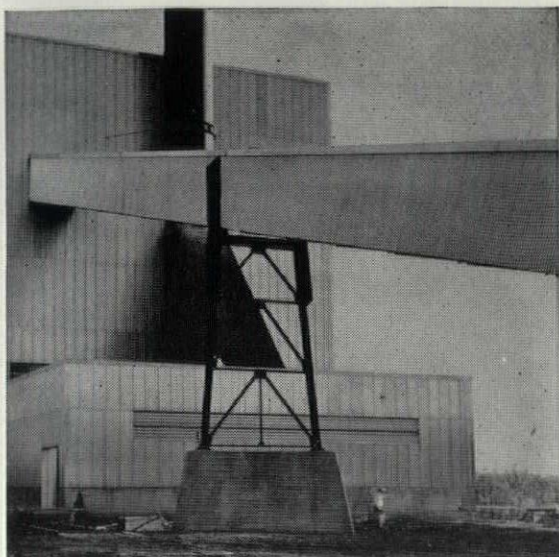
Aluminum building panels and Alcoa Industrial Building Sheet are available in standard and special types and sizes with complete engineering data. For information on these and other building applications of aluminum, call your nearby Alcoa Sales Office or write ALUMINUM COMPANY OF AMERICA, 1887J Gulf Bldg., Pittsburgh 19, Penna.

ALCOA

FIRST IN



ALUMINUM



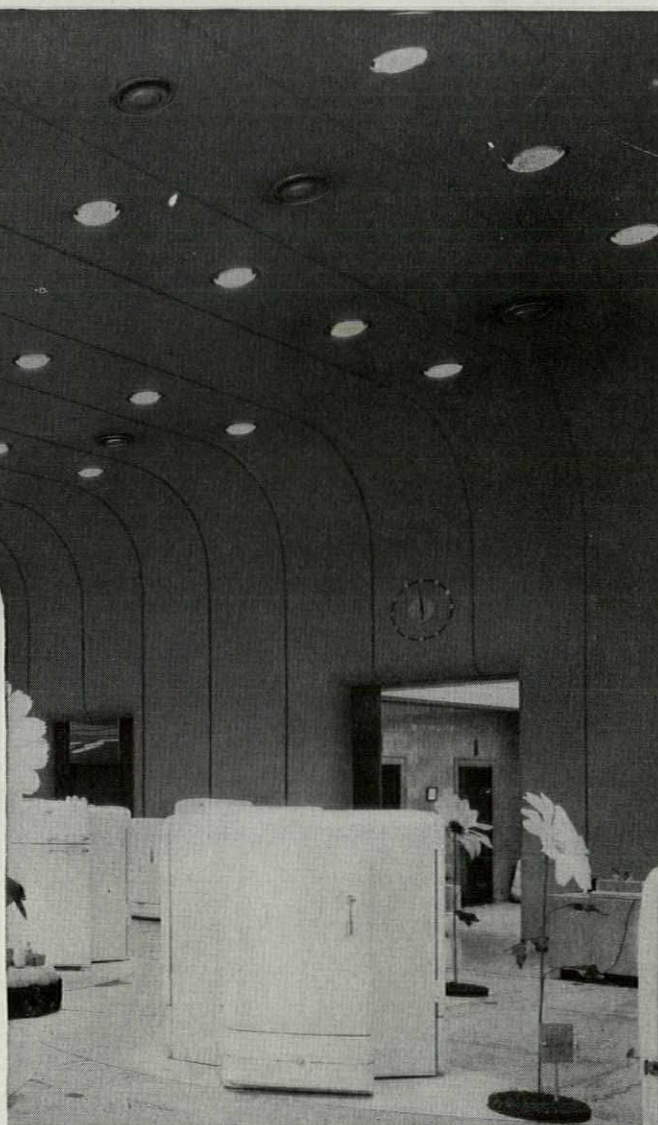
good lookers
...good workers

...these kno-draft adjustable air diffusers

You have to look sharp to spot the Kno-Draft *Adjustable* Air Diffusers in the ceiling of this handsome public utility showroom ... so well do they blend in with the architect's design for lighting.

Yet these good lookers are good workers, too. None better, in fact. Kno-Draft *Adjustable* Air Diffusers circulate the air gently and evenly ... without drafts to bother persons on the floor ... without differences in temperature between one spot and another.

This pattern of air flow—both its volume and direction—can be adjusted *after* installation. A few turns of a screw driver thus replace lengthy slide rule calculations.



Showroom: Cincinnati Gas & Electric Co. • Consulting Engineers: Wm. E. Bodenstein and W. W. Shuster • Contractor: The Cincinnati Air Conditioning Company

You can paint Kno-Draft *Adjustable* Air Diffusers or leave them in their natural aluminum ... whichever goes best with the established decorative theme. You can get them in suitable types and sizes for every job.

KNO-DRAFT DATA BOOK: Complete specifications, engineering and installation data on Kno-Draft *Adjustable* Air Diffusers. To get your copy, simply fill in and mail the coupon. No obligation, of course.



TRADE MARK "KNO-DRAFT" REG. U. S. PAT. OFF.

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114 East 32nd Street, New York 16, N. Y.

Air Diffusion • Air Purification • Air Recovery

In Canada: Douglas Engineering Co., Ltd.,
190 Murray Street, Montreal 3, P. Q.

W. B. CONNOR ENGINEERING CORP.
Dept. D-90, 114 East 42nd Street, New York 16, N. Y.

Please send me without obligation, my copy
of the Kno-Draft Air Diffuser Data Book.

Name.....

Position.....

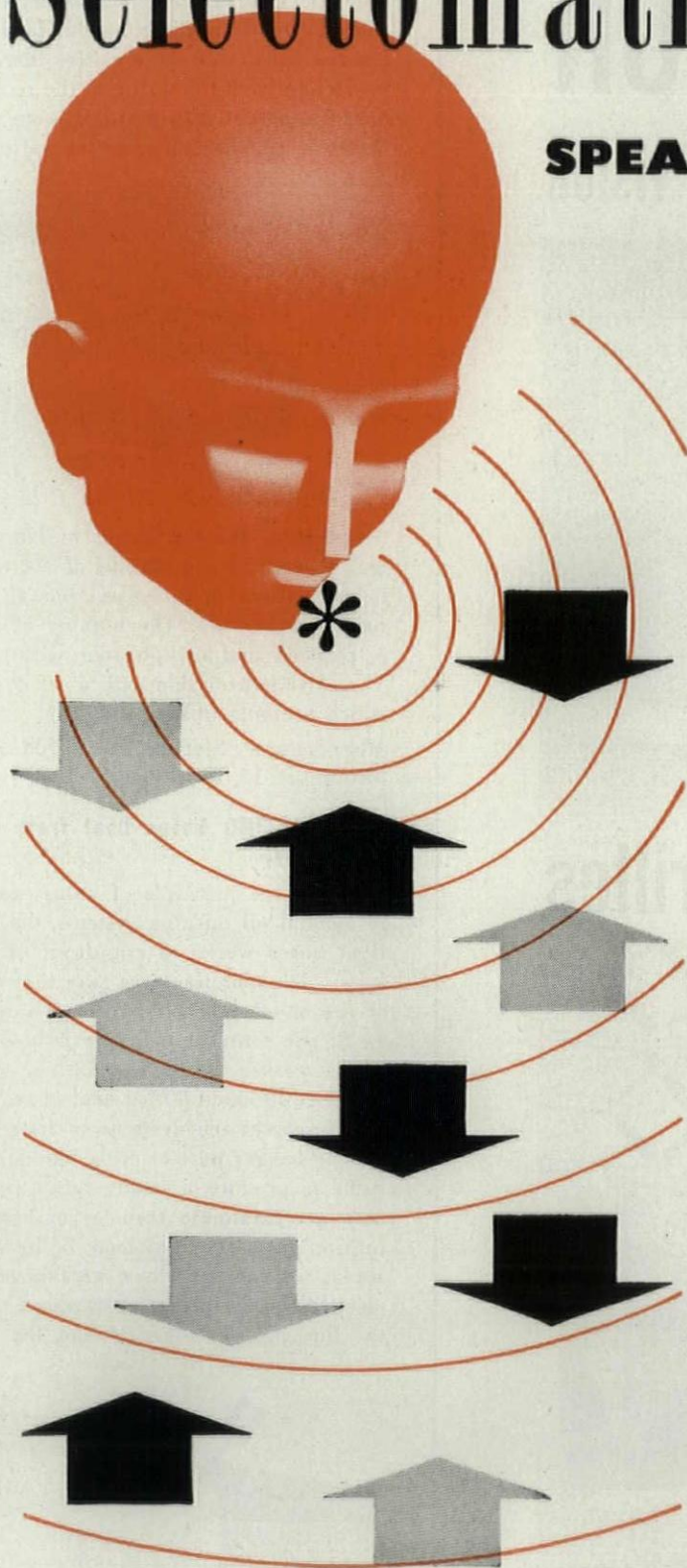
Company.....

Street.....

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

Selectomatic Elevators

SPEAK WHEN SPOKEN TO...



Selectomatic has a pleasing reply for every request for service. That reply is a car going in the desired direction within a minimum of waiting time.

Take a typical office building during the "off peak" period. Tenants voices change from loud demands for down and gentle whispers for up... to a clamor for up and a polite inquiry for down... to a steady babble for equal service in both directions. Selectomatic has an instant and automatic answer for each request.

That's because Selectomatic is never confused by the number or type of calls. Its unique electrical brain calmly separates the "ups" from the "downs" and regulates the entire elevator bank to give the most efficient service possible—and it does it all instantly and automatically.

Unlike other systems, Selectomatic doesn't depend on a starter's hunch for when to send which cars where. With Westinghouse Selectomatic automatically matching service to demand, the starter can concentrate on his most important job... directing traffic.

***Selectomatic, an exclusive Westinghouse development, completely supersedes the previous accepted elevator standard... signal control.**

See and hear the complete story of Westinghouse Selectomatic. Write on your letterhead and we'll gladly arrange a showing, at no cost, of our sound motion picture "Speeding Vertical Transportation With Selectomatic Elevators." Elevator Division, Dept. F-1, Westinghouse Electric Corporation, Jersey City, New Jersey.

YOU CAN BE SURE...IF IT'S

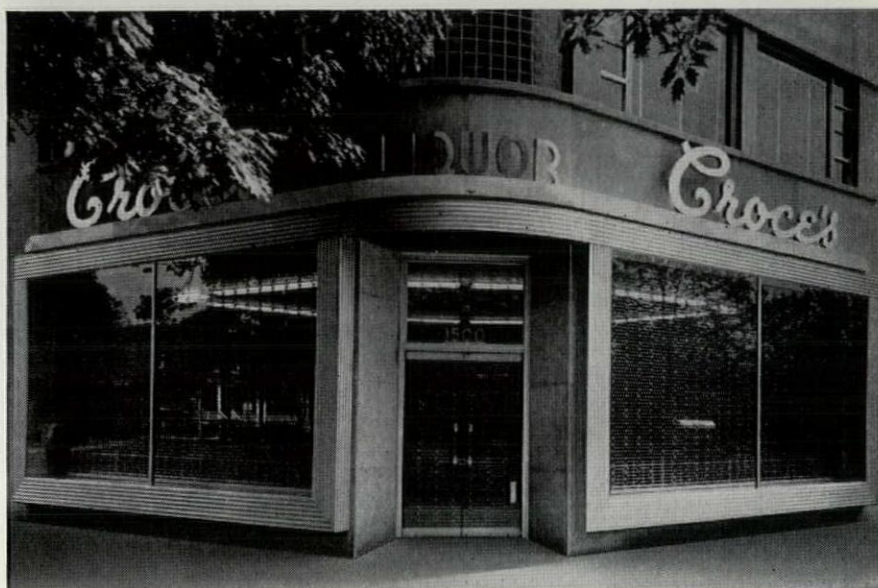
Westinghouse

J-98572

CONVENIENT
ATTRACTIVE
ALL-STEEL

Protection

that doesn't cut off light, air or vision



Kinnear Steel Rolling Grilles

For Windows, Doorways, Corridors

This all-metal barricade guards any opening with a curtain of rugged steel rounds and links. Yet it doesn't cut off light, doesn't block vision, doesn't impede ventilation. It can be lowered into place or raised out of the way in a matter of seconds! It offers convenient protection without loss of architectural beauty. As the pictures here testify, it's the ideal way to prevent trespassing in areas where the public assembles, or wherever it is desirable to block off certain sections of a building.

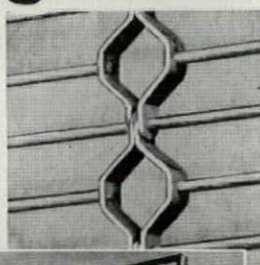
Kinnear Rolling Grilles open straight upward and coil into a small, out-of-the-way space above the opening. No usable floor or wall space is wasted. In many installations, the mechanism on which the Grilles coil when opened can be concealed within the lintel construction.

Kinnear Rolling Grilles are made to fit any size window, doorway, corridor, stair-well, elevator shaft or other opening. They can be equipped to operate manually, mechanically (by chain or crank) or electrically. Easily installed in old or new buildings. Write for complete details.

The KINNEAR Manufacturing Co.

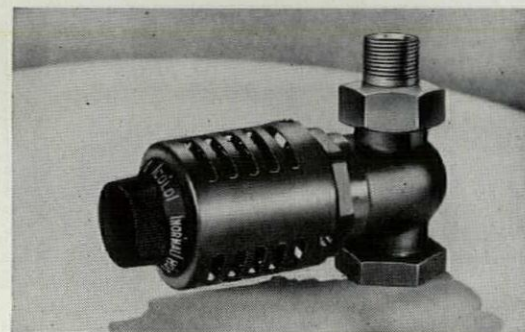
FACTORIES: 1640-60 Fields Ave.—Columbus 16, Ohio
1742 Yosemite Avenue—San Francisco 24, California
Offices and Agents in All Principal Cities

KINNEAR
ROLLING GRILLES



PRODUCT NEWS

the comfort problem, Sterling offers its Thermo-trol valve. This compact self-contained unit regulates the flow of hot water to the radiant coils. Placed directly in the hot water feed line supplying the coils, with its sensitive thermal element projecting from the wall into the room, the Thermo-trol is actuated by ambient room temperature. While a standard thermostat varies the water

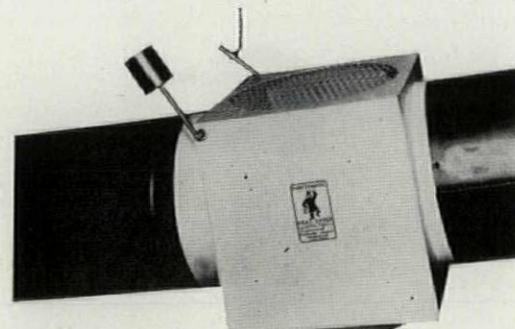


temperature for the entire building, the Thermo-trol controls the amount of hot water flowing to each room in direct relation to the desired room temperature. The number of return pipes is reduced and complicated wiring eliminated. The valve is available with a set key adjustment which prevents tinkering.

Manufacturer: Sterling, Inc., 3738 N. Holton St., Milwaukee 12, Wis.

FLUE FITTING keeps heat from escaping up chimney.

Adapting the principle of industrial dampers to residential oil burning systems, the Thrifty-matic Heat Saver works to cut down excessive stack losses. The manufacturer says that the efficiency of the on-off type oil burner is upped as much as 20 per cent. Here briefly is how the Thrifty-matic works: After the burner operation, it closes down about 80 per cent of the flue passage and by-passes the draft away from the furnace. During burner part of cycle, the device acts as a baffle to produce a steady furnace pressure and help get maximum transfer of heat from combustion gases. The unit may be installed in horizontal, vertical or elbow arrangements with its electric control mounted overhead. A section of the flue pipe is removed and the Thrifty-matic



set in its place. Made in sizes to fit stacks 8 to 30 in. in diameter, the Thrifty-matic ranges from \$50 to \$150.

Manufacturer: Engineered Products Co., 6121 Morton St., Philadelphia 44, Pa.

(Continued on page 224)



HE'S COMFORTABLE . . . TILL FRY-DAY

This little fellow and millions like him posed a large-scale problem to a giant midwest hatchery: their good health—from egg to exit—depended upon unvarying temperature where they hatch and grow.

Trane heating and air conditioning equipment provided the solution. Chickens are now kept incubator-healthy, and costly, unplanned mortality is practically eliminated thanks to the unvarying temperatures provided by Trane equipment.

Thus another air conditioning problem was solved by the same equipment which makes air more usable, comfortable, efficient, in thousands of offices, stores, plants, homes.

Are air-conditioning or heating problems hatching in your business? If so, remember that TRANE

KNOWS AIR . . . how to warm it, cool it, dry it, humidify it, clean it or move it. Your local Trane office will be glad to work with you on any of your projects.

Multi-room air-conditioning with UniTrane: Ask about this wonderful new unit system for office buildings, hotels, other multi-room structures. Under-window UniTrane units heat, cool, dehumidify, filter and circulate air, while providing individual room control.

Free: "Choose Your Own Weather": Your own heating or cooling problem may be illustrated in this 16-page picture story of an amazing variety of buildings where stubborn heating and air-conditioning problems have been corrected by Trane equipment.

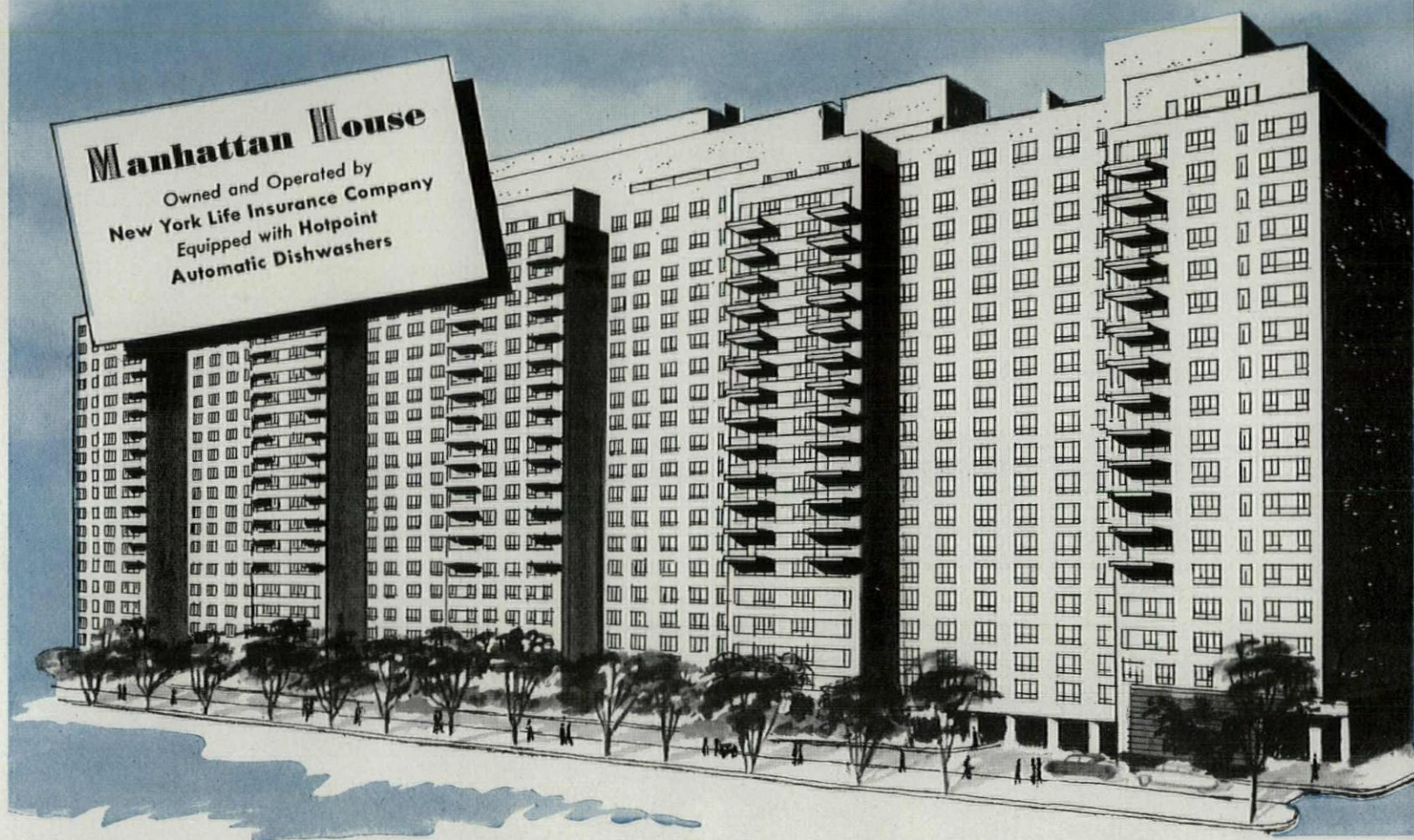
TRANE

THE HOUSE OF WEATHER MAGIC

THE TRANE COMPANY, LA CROSSE, WISCONSIN
EASTERN MFG. DIVISION • SCRANTON, PA.
TRANE COMPANY OF CANADA, LTD., TORONTO

MANUFACTURING ENGINEERS OF HEATING AND AIR CONDITIONING EQUIPMENT • OFFICES IN 80 CITIES

"Manhattan House" chooses



In the introduction of their many amazing innovations in planned comfort and convenience, Manhattan House, now nearing completion by the New York Life Insurance Company, is establishing new peaks in truly modern living. Because of Hotpoint's reputation of being first with the finest, it is only natural that the revolutionary new Hotpoint Automatic Dishwasher would be selected as standard equipment in this magnificent new apartment project.

This is doubly important news to builders. It is overwhelming proof of the nation-wide popular demand

for automatic dishwashers and their importance in modern home planning. Also, it is positive proof that far-sighted home-equipment experts make Hotpoint Dishwashers their choice.

Today, Hotpoint All Electric Kitchens and Home Laundry equipment sets the standard for beauty, efficiency, practicability and low installation costs. Whether you are remodeling or building a single dwelling, an apartment house or an entire subdivision, the use of Hotpoint home appliances means a faster sale or rental . . . and a big increase in the property value.

Hotpoint dishwashers

***Hotpoint Automatic Electric Dishwashers
were selected as standard equipment in
New York's unique new Manhattan House!***

The automatic dishwasher is rapidly becoming required equipment—just like the electric refrigerator and electric range—in today's new homes and apartments.

The builders of Manhattan House specified Hotpoint Automatic Electric Dishwashers for the same reasons Hotpoint is specified by more buyers of automatic dishwashers than any other kind. Hotpoint offers features not found in other makes. Home equipment experts consider Hotpoint the best buy.



Write now for free literature on Hotpoint Home Appliances. Hotpoint will gladly give you helpful counsel in kitchen and laundry planning for your particular project.

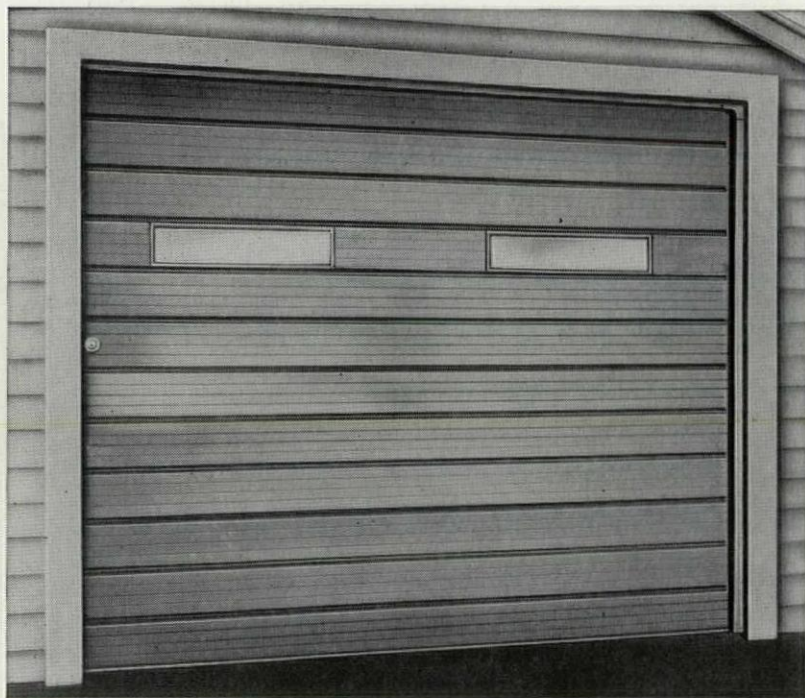
Look to Hotpoint for the Finest...FIRST!

Hotpoint Inc.

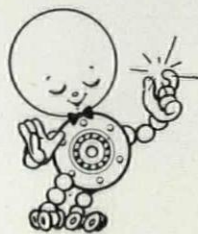
(A General Electric Affiliate)

5600 West Taylor Street, Chicago 44, Illinois

WASHERS • CLOTHES DRYERS • ROTARY IRONERS • CABINETS



ROLY NEVER SOLD A HOUSE ... BUT HE SURE HELPS!



Original Cost and Installation Cost, Operation and Beauty of World's Only All-Steel Four-Sectional Overhead Garage Door... the MORRISON Roly-Door... Solves Problem of Architects and Builders!

BECAUSE IT COST LESS TO BUY...



Because new design principles are applied by mass-precision production in one of the nation's top steel stamping plants, the MORRISON Roly-Door costs *you* less—costs *the homeowner* less! It's complete—no extras to buy!

BECAUSE IT COSTS LESS TO INSTALL...



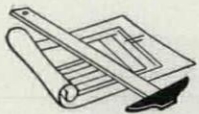
Because everything that can be predetermined is fixed to the Roly-Door at the factory (including welding or riveting of brackets and hinging)... because it is only necessary to install the tracks, drop the four sections in place, snap the pivot points, connect the springs... because there are no holes to drill, no hinges to apply, no skilled workmen or special tools are necessary... the MORRISON Roly-Door is easily installed in a *fraction* of the time required for other doors!

BECAUSE IT'S INDIVIDUALLY PACKED...



Because every MORRISON Roly-Door is individually packed in a single, compact sturdy shipping carton—with *all* necessary parts—it takes less storage space, less shipping space, and less time to handle.

BECAUSE IT CONFORMS TO ALL ARCHITECTURE AND ALL BUILDING CODES...



Because it's streamlined with 4 horizontally ribbed sections... because it operates completely within the garage... because it does not require air rights... the MORRISON Roly-Door is just what the architect, builder and home owner ordered!

Want more details? Write us for the story of Roly-Door and the name of your nearest distributor.

MORRISON STEEL PRODUCTS, INC.
645 AMHERST ST. • Roly-Door Division • BUFFALO 7, N. Y.

In Euclid's New High School

OF COURSE, HALSEY TAYLORS WERE CHOSEN



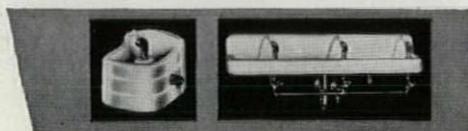
In Euclid, Ohio, there is, as described by the architects and school board, a "High School that has everything!" Yes, nothing has been left out of the plans for the pupils' comfort, convenience and welfare—and it goes without saying Halsey Taylor Drinking Fountains were included.

The Halsey W. Taylor Co., Warren, O.

HALSEY TAYLOR Fountains

Euclid Senior High School, Euclid,
Harry Fulton, R. B. Dole Mott,
Sam Krinsky, Associate Architects,
Cleveland.

AS-6



AMIGOS!

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NOVEMBER 6-10

Robert K. Christenberry, *Chairman*

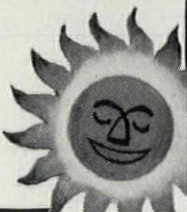
GRAND CENTRAL PALACE

Lexington Ave. between 46th and 47th Streets
NEW YORK

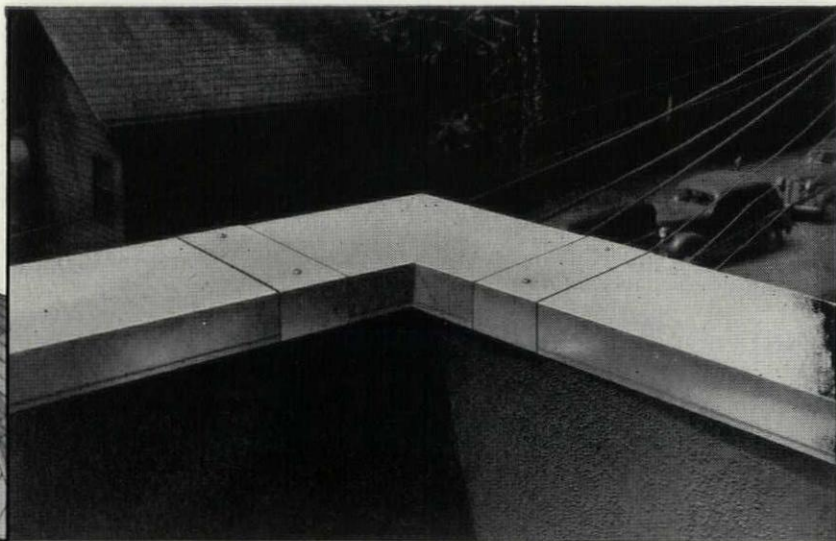
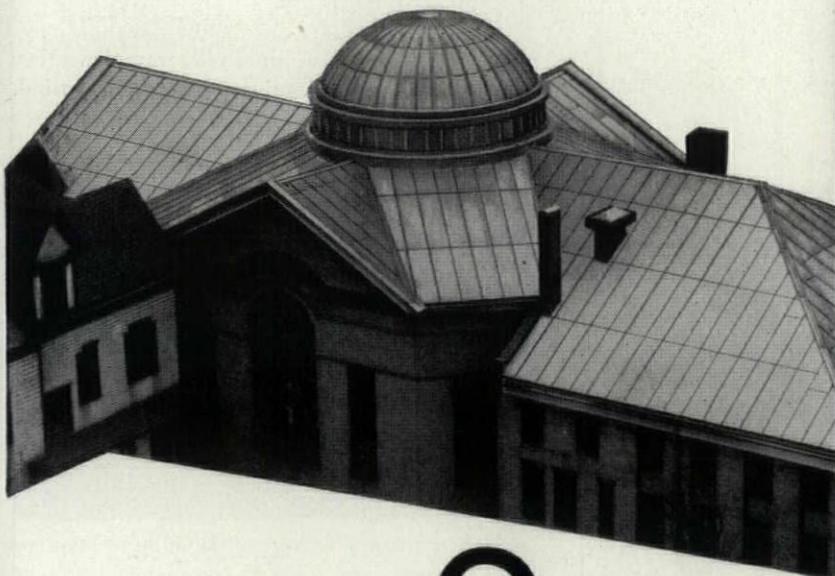
Si, señor and señoras, we're going Latin in Manhattan for our 35th Annual Exposition... the world's largest exposition dedicated to the merchandising and service needs of hotels, restaurants, hospitals, institutions, clubs and transportation lines. The decorative motif will be Pan American but the appeal will be universal... so if you want to be up on the latest developments in the industry for your "casa" it will pay to be good neighborly and attend this colorful, comprehensive Show.

REGISTER NOW! Be sure to include position and business connection. An invitation will be mailed to you. No registration fee.

ADDRESS: Arthur L. Lee, General Manager,
National Hotel Exposition, 141 West 51st St.,
New York 19, N. Y.



BATTEN ROOFING



METAL COPING

3 products by **Overly**

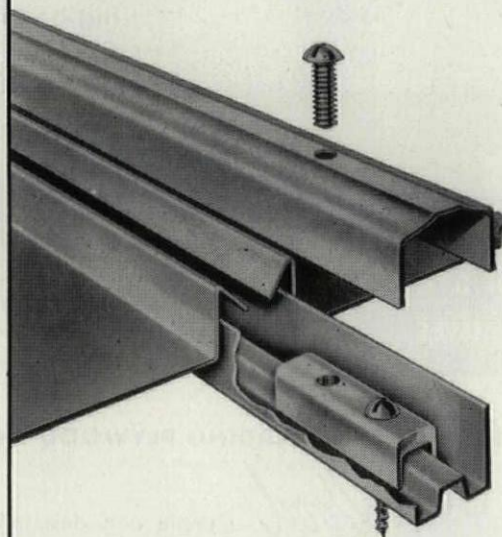
one purpose:

Lifetime **WEATHER PROTECTION**

one principle

**INTERLOCKING
MECHANICAL JOINTS**

WRITE US today for descriptive literature on the above three products. Send us your drawings and building specifications so we may make design suggestions.

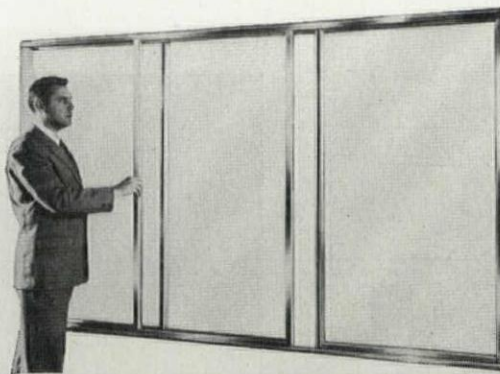


OVERLY MANUFACTURING COMPANY, Dept. AF, GREENSBURG, PENNSYLVANIA
SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

PRODUCT NEWS

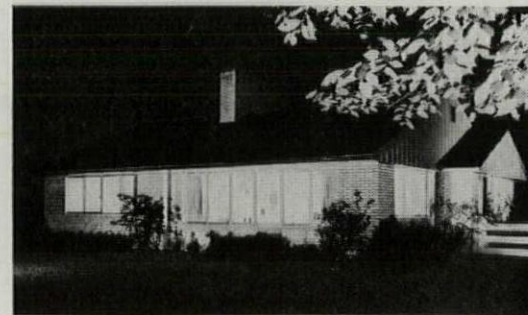
HORIZONTAL SLIDING WINDOW. Panels lift out for easy washing.

The Peterson double glazed window has clean lines, unbroken by operating cranks, projecting hinges or sash balance. It opens by sliding horizontally on stainless steel rollers and shafts. Made of extruded aluminum alloy, the window may be used in a continuous span without danger of buckling because of unequal expansion of metal and masonry. No putty is used; instead,



Meeting rail joints and corners of frame and sash are assembled with two screws per joint. Sliding panel rolls open in front of fixed sash.

glazing strips and a high pile woven weather seal form a barrier against moisture and wind. The window is made in a wide range of sizes from 2 ft. 2½ in. high, 3 ft. wide to 4 ft. 10½ in. high, 8 ft. wide, and is furnished with anchors



and all necessary hardware including a stainless steel plunger type lock. For economical freighting, the units are shipped knocked down. Assembly on the job takes about 15 min. Screens of aluminum colored plastic cloth are installed from inside the room and cover the ventilating portion of the window. Sliding panels lift out easily for washing or reglazing.

Manufacturer: Peterson Window Corp., 20500 Mound Rd., Detroit 34, Mich.

ALUMINUM SLIDING WINDOWS allow complete ventilation.

The Alwintite window used by the Levitts in their 1950 houses—both the \$7,990 and \$18,000—is now available to builders throughout the country. Trimly designed with narrow aluminum frame this horizontal sliding unit is suited to contemporary residences in style and to budget building in price. It may be used as a single opening set high for light with privacy, used in multiple strips or in combination with fixed double glazed windows. The type 11117 sells to the trade for \$12 glazed, and is sized for easy installation in the popular 2 x 6 ft. wood frame. Three other sizes are also being manufactured; the largest is 4 ft. 6 in. x 3 ft. 8 in. For masonry and brick construction. Alwintites are available with exterior fins. The units are shipped glazed or un-



glazed with the frame assembled and the sash in knockdown form. Stainless steel weatherstripping and plastic glazing beads are included. Screens and storm sash are made to fit each size window. *Manufacturer:* General Bronze Corp., Alwintite Div., Stewart Ave., Garden City, N. Y.

(Continued on page 230)

NEW WOOD PANELING THAT IS DIFFERENT!

ETCH Wood

suggests treating one or more walls with wood paneling.

And once you've seen this amazing plywood, with its hard satiny-smooth surfaces, its highlights and shadows, you'll agree that it will change a room into a thing of exciting beauty, and at a fraction of the cost you would expect.

DOZENS
OF OTHER
USES

Easy to finish—easy to install—Easy to care for—but hard to scratch or mar. Use it for paneling in dens, play rooms, offices or anywhere beauty in wood is desired.

STANDARD 4 FT. X 8 FT. PANELS

SOLD NATIONALLY THRU LEADING PLYWOOD WHOLESALERS

ETCH Wood

For your sample and descriptive folder, write to manufacturer, Davidson Plywood and Lumber Co., 3136 E. Washington Boulevard, Los Angeles 23, California

Engineered to Meet Every Heating Need!

93 MODELS

OF FURNACE-BURNER UNITS,
BOILER-BURNER UNITS and
CONVERSION BURNERS from which
to SELECT the RIGHT MODELS
for the HOMES YOU BUILD

No matter which style or size of home you design or build, there's a Timken Silent Automatic designed to fit *your* specifications—priced to fit *your* construction budget! Twenty-five years of heating experience—and a nation-wide reputation—stand behind these quality-built units. Whether your plans call for oil, gas or coal heating equipment, specify *Timken Silent Automatic!*—for your satisfaction and for the owner's satisfaction.

WRITE FOR FULL DETAILS AND PERFORMANCE DATA!

QUIET
COMPACT
EFFICIENT
COMPETITIVE
PRE-ASSEMBLED

The exceptional quietness of the famous Wall-Flame Burner has proved its value in thousands of next-to-living-quarters installations.

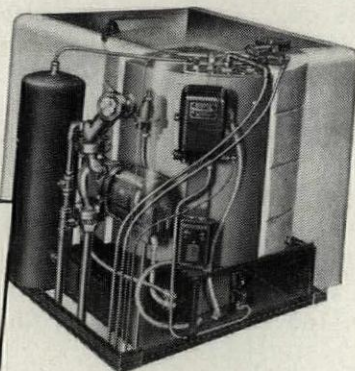
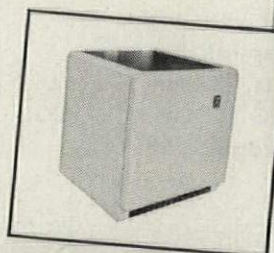
Close attention to every detail of design engineering has held required floor area to a minimum—saving space, saving cost.

For many years Timken Silent Automatic heating equipment has been "The Accepted Standard" for economy of operation.

Timken Silent Automatic heating equipment is priced to compete with other makes of comparable quality—or lesser quality in many instances.

Every feasible assembly operation, including all essential interior wiring and plumbing, is completed on most models before shipment is made from the factory.

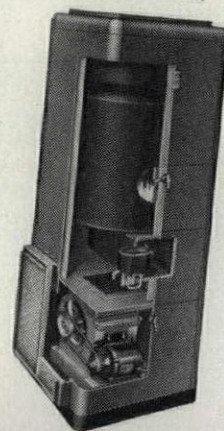
KITCHEN-TYPE OIL BOILERS
—the most revolutionary development in modern home heating—automatically heat the home, also supply ample domestic hot water.



COMPACT OIL AND GAS HI-FURNACES, specifically designed for small homes, bring to every owner the full benefits of winter air conditioning without a cost premium. Oil model shown.



OIL AND GAS LO-BOILERS, "Duty-Designed" for radiant and radiator systems in all sizes of homes, have unusually high heat output for unit size. Gas model shown.



TIMKEN
Silent Automatic
HEAT

OIL • GAS • COAL

TIMKEN SILENT AUTOMATIC DIVISION
The Timken-Detroit Axle Company • Jackson, Michigan
The Timken-Detroit Axle Company of Canada, Ltd., Toronto, Ont.



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PLANTS AT: DETROIT AND JACKSON, MICH. • OSHKOSH, WIS. • UTICA, N. Y. • ASHTABULA AND KENTON, OHIO • NEW CASTLE, PA.

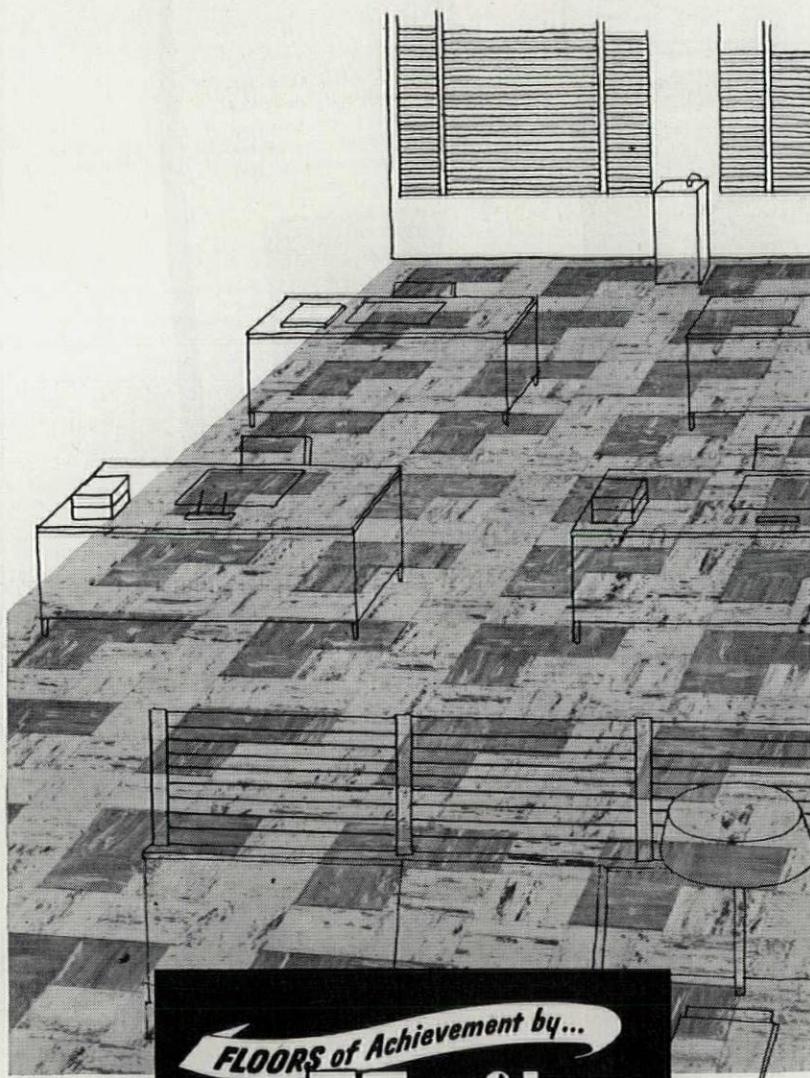
An inspiration to work with...

A pleasure to work on...

Thos. Moulding **Moultile** Floors!

With its deep tones, lustrous colors and crisp, clear veining, Thos. Moulding MOULTILE has inspired leading architects to create many interesting new patterns. In a business-office installation such effective floor treatment, combined with MOULTILE's high light-reflectivity and resilience reduces boredom, fatigue, eye-strain . . . helps keep employees "A.M. fresh" throughout the day. Employers are also impressed with MOULTILE's remarkably easy maintenance and its ability to "wear like iron" though it costs far less.

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— interlocking wood mesh core provides dimensional stability

Look Outside

— plywood faces are matched for figure and color

Look Onside

— 1 3/4" standard thickness for unsurpassed rigidity and strength

and
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at the Unconditional Guarantee
of Satisfaction

a product warranty backed by more than four million installations and the world's largest exclusive producer of cell-type flush doors.

Is it any wonder that Paine Rezo is the door most specified, most demanded and most insisted upon by architects and contractors everywhere. See Sweet's File or write directly for data bulletin.

Manufactured by the

PAINE LUMBER CO., LTD. *Oshkosh Wisconsin*

ESTABLISHED 1853



GEORGE PAUL, Architect

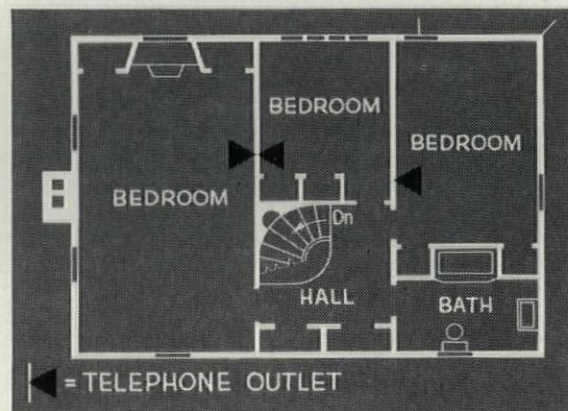
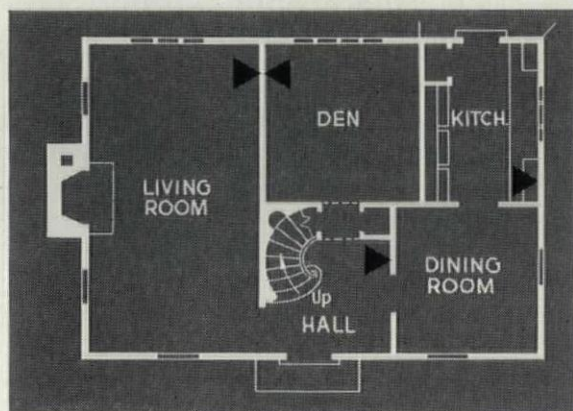
PLAN A HOME WITHIN A HOME— FOR TELEPHONE WIRES

Give telephone wires a place of their own and they'll never interfere with attractive walls and woodwork. Built-in raceways conceal telephone wires. And they provide for telephone outlets at the right places—a real convenience for home owners.

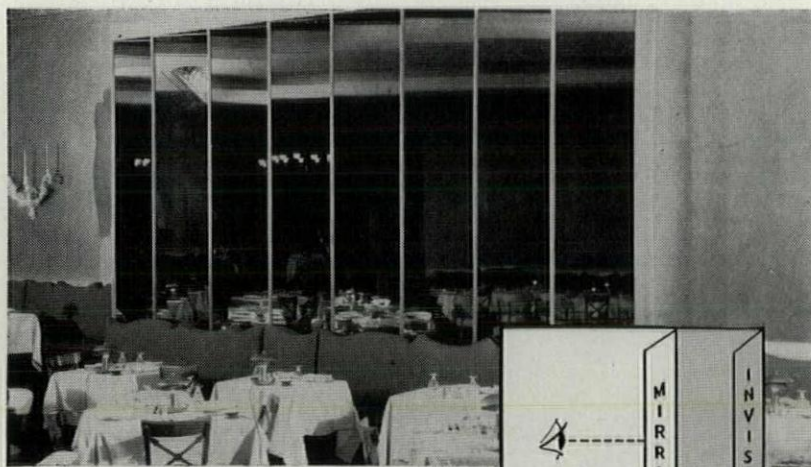
Simple wiring channels can be installed easily *while a home is under construction*. A few lengths of

pipe or tubing, placed inside the walls, will carry telephone wires to the planned outlets. The slight additional cost is more than offset by customer satisfaction.

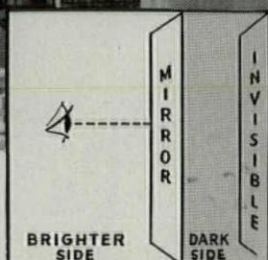
For homes large or small, your Bell Telephone Company will be glad to help you plan modern telephone arrangements. For free telephone planning service, call your Telephone Business Office.



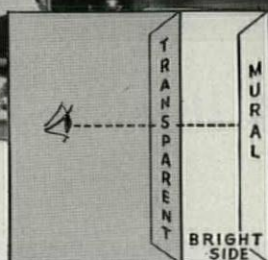
BELL TELEPHONE SYSTEM



Now you see it . .
A MIRROR



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IT'S A MURAL!



Where can you use this **MAGICAL MIRROR?**

In this hotel dining room, *Mirropane** is used for purely decorative purposes. It's a lovely mirrored wall when the room is lighted for dining; a colorful mural when lights are low for dancing.

Remember this transparent mirror idea for your hotel, restaurant and club jobs. And there are other places where you may be able to use *Mirropane* in this way if you keep this principle in mind: It looks like a mirror when the room is brighter than the space behind the glass; it is transparent when more brightly lighted from behind.

Mirropane has been used effectively in salesrooms and exhibits to display merchandise. Used, also, instead of a curtain for theatrical performances with live models or actors on a small stage.

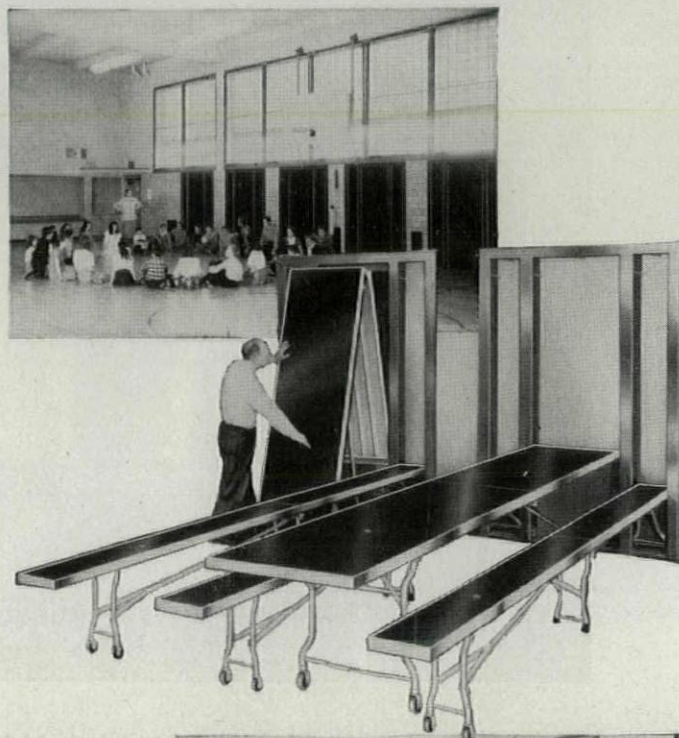
Coated metallically, not chemically, *Mirropane's* durability, permanence and color fidelity are fully assured. Write for full information. *®

MIRROPANE

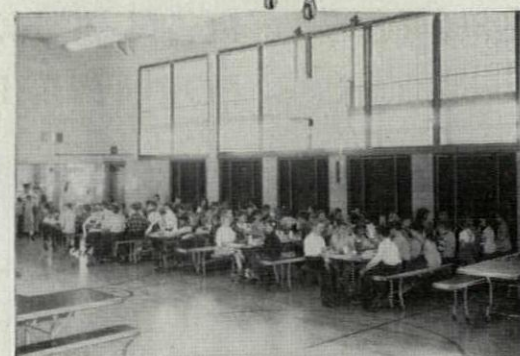


TRANSPARENT MIRROR • PRODUCT OF LIBERTY MIRROR DIVISION
LIBBEY • OWENS • FORD GLASS CO. 9895 NICHOLAS BLDG., TOLEDO 3, O.

a lot can happen in 8 minutes!



Tables and benches for 200 can be rolled down from the wall in 8 minutes.



Complete conversion activities room to lunchroom without interrupting schedule

Modern thinking in school design dictates multiple use of space. IN-WALL units eliminate the need of separate lunchrooms, seat more students in less space, contribute to better lunch hour discipline.

Already 85% of all leading school architects specify IN-WALL equipment.

In-wall

Against-the-wall units for existing structures, with pockets that protrude only 7" from the wall, can be installed without building alteration.

Schieber Manufacturing Co.
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Detroit 23, Michigan

Gentlemen:
Please forward your new catalog 50-A.
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City and State

Modern Low-Cost Low-Maintenance Floor Construction with J&L JUNIOR BEAMS

J&L STEEL



**JUNIOR BEAMS SAVE TIME
AND MONEY AT CORTLAND
STATE TEACHERS COLLEGE**



Workmen installing Junior Beam floor joists. Their lightness make faster, easier construction possible.

Left—Sketch of the new buildings now under construction by Carl W. Clark, A.I.A.

Tomorrow's teachers preparing at Cortland State Teachers College, Cortland, New York, will occupy three Georgian style buildings now being constructed of the most modern materials to insure permanence as well as architectural beauty.

An important example of this up-to-date building technique is the installation of 130 tons of J&L Junior Beam floor joists. Architect Carl W. Clark, selected Junior beams as the result of a continuous study which he conducts on the cost of materials and the relative economy of design.

Cortland State Teachers College clearly demonstrates the practical advantages of Junior Beam construction. Syracuse Engineering Company

cuts Junior Beams to length—delivers them to the job with clip angles welded to the ends: Workmen are able to speedily position the lightweight Junior Beams by hand, enabling brick laying and wall construction to proceed without delay.

To quote one of the foremen, "This job works together better than any job I've been on." The result—lower costs through faster, easier construction.

Junior Beams, produced exclusively by J&L, require less maintenance—are vibration and shrink proof—rigid—termite and fire proof—adaptable to any finished floor—assure lower fire insurance rates. These advantages add up to dollars saved now and in the future.

ARCHITECTS • BUILDERS • CONTRACTORS

If you are planning or building schools, dormitories, apartments, warehouses, or any other structure where economical, permanent construction is important, let us send you the booklet "Skyscraper Construction for Every Building." It gives information and engineering data on J&L Junior Beams—the modern, versatile, lightweight structural member.

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Pittsburgh 30, Pa.

Please send me a free copy of your Junior Beam booklet, "Skyscraper Construction for Every Building."

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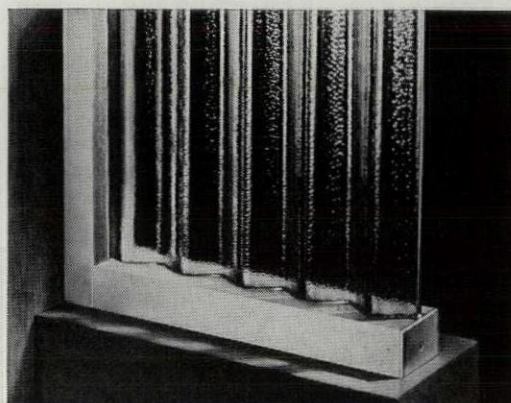
City Zone State

© Norma Pencil Corp. 1950

PRODUCT NEWS

BRUSHED ALUMINUM MOLDING is handsome trim for corrugated structural glass.

The contractor's complaint against corrugated glass, "sure it looks nice but what a headache cutting the trim," is solved in large measure by this factory-made fitting. Both the snap-on mold-

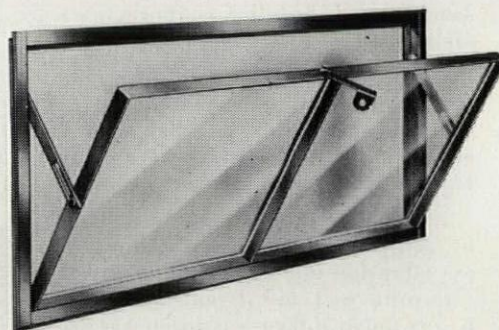


ing for exterior sash and the screw-on type for partitions are of extruded aluminum and are scalloped on the inside on 2½ in. centers. They cushion the glass between sponge rubber gaskets. Price for 2½ in. wide snap-on sill molding is \$2.80 per ft., f.o.b., South Bend, Ind. Jamb edge is \$1.20 per ft. and end caps are \$1 each. The 1½ in. width for interior applications cost \$1.60 per ft., \$1 for jamb and 80 cents each for end caps. The latter is also adaptable for plastics corrugated on 2½ in. centers.

Manufacturer: O. E. Stelzer, Box 715, South Bend, Ind.

ALUMINUM BASEMENT WINDOW is priced competitively with wood and steel.

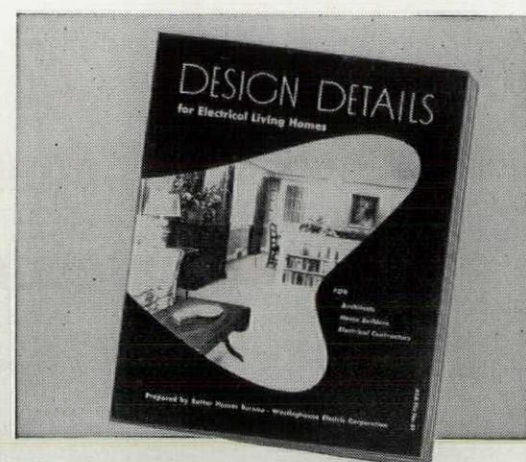
Because the elements hit building materials hardest near the ground level this aluminum alloy basement and utility window should be a welcome construction item. It needs no painting, will not rust, warp or rot and so is especially



desirable for basements that are part of the living area—recreation rooms, laundry rooms, etc. Furthermore, it costs no more than a good wood or steel window. A two-light size 15 x 12 in. sells for about \$3. The window is bottom hinged for tilt-in ventilation and the ventilator arms may be removed easily for glazing or to provide package delivery. The windows are designed to receive screens and storm windows.

Manufacturer: Valley Metal Products Co., Plainwell, Mich.

(Continued on page 236)



A New Book for Architects

The increasing use of electricity throughout the home emphasizes the importance of electrical planning.

To help with your planning, those electrical features that have won wide public approval have been incorporated in this "Design Details" book.

It fills a real need for construction details on valance, cornice, cove, soffit, pinhole spot, under-cabinet and other unusual lighting effects. Kitchen and laundry plans are also shown, as well as essentials of modern wiring. Photographs of actual installations illustrate these planning ideas. Architectural details are accurate and complete. A copy of this book will be sent to you on request to the Better Homes Bureau, Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Penna.

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Better Homes Bureau
Westinghouse Electric Corporation
P. O. Box 868 Dept. AF-9
Pittsburgh 30, Pa.

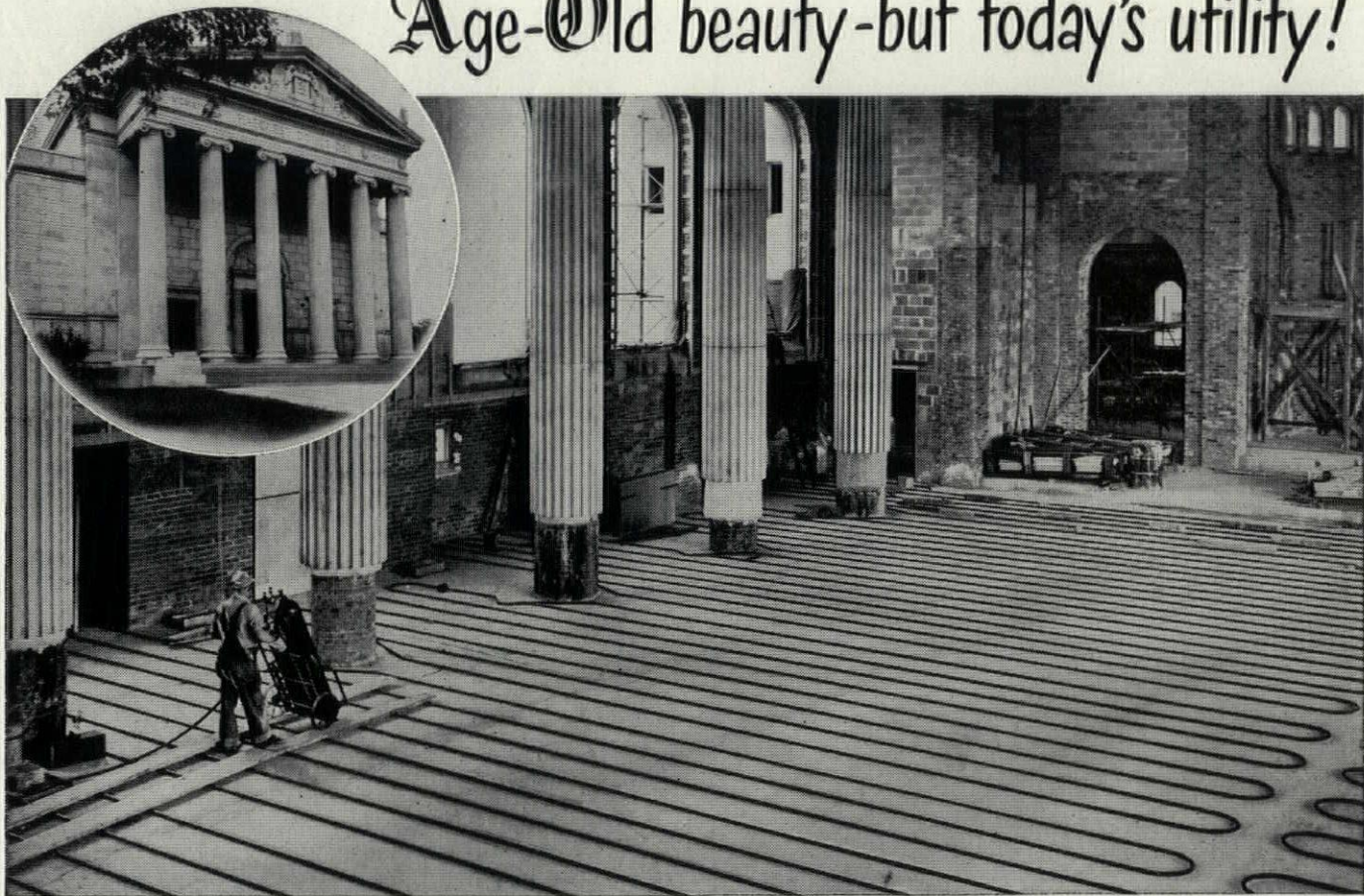
Please send me a copy of your new book, Design Details for Electrical Living Homes, B-4671.

Name

Street

City State G-10113-A

Age-Old beauty-but today's utility!

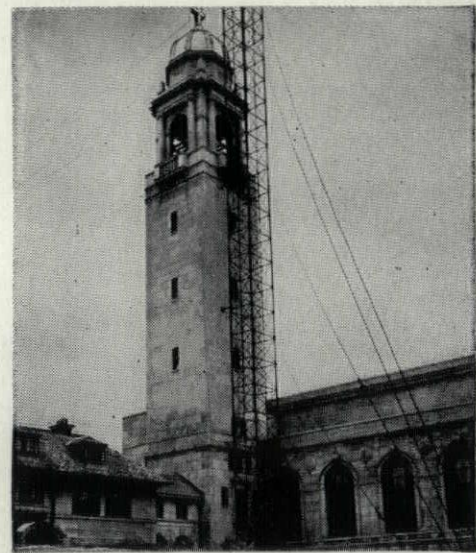


For radiant heated churches, steel pipe is first choice

The inspiration of religion upon the lives of men has been reflected down the centuries, in the beauty and perfection of our houses of worship. Be it a cathedral or a "little brown church in the vale" the traditions of architectural purity have been carried on by succeeding generations.

In the preservation of this age-old beauty, even concessions to the use of modern conveniences and facilities can be harmoniously achieved. Among heating systems, for example, none is more adaptable for this purpose than modern *radiant* heating. Comfortable warmth from concealed sources helps to maintain the simple, dignified atmosphere. Large areas can be heated uniformly. Decorating and cleaning costs are minimized.

Just as radiant heating blends comfort with beauty, so steel pipe blends durability with economy. That's why steel pipe is first choice for radiant systems in churches, public buildings, plants and warehouses as well as homes. It is natural that it should be so. For more than 60 years steel pipe has a record of proved performance in conventional steam and hot water heating systems.

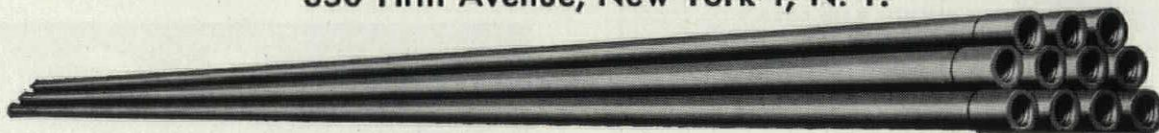


Partial view of side and bell tower, while under construction, of St. Ann's Church, Cleveland, O. Radiant heating, with steel pipe will provide complete comfort without marring interior beauty.

COMMITTEE ON STEEL PIPE RESEARCH

AMERICAN IRON AND STEEL INSTITUTE

350 Fifth Avenue, New York 1, N. Y.





4 BEAUTIFUL SHADES PLUS WHITE

Now it's color in cabinets—these Kitchen Maid Cabinets proved and approved so many years by architects and builders. Color that gives them more buyer appeal—gives you more latitude in planning and selection. Four beautiful shades plus white will spearhead the Kitchen Maid parade of features in 1950. Plan now to choose and use these outstanding cabinets at every opportunity. Capitalize upon the durability, the flexibility, the warmth and friendliness of wood. Write for valuable planning booklet sent free to architects and builders.

COMPARE THESE FEATURES AND YOU'LL AGREE KITCHEN MAID IS TOPS

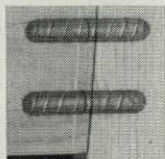
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Exclusive Flo-Line Cabinet Styling



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Look for this sign in your dealer's window. It signifies his skill as a member of the nation's oldest kitchen planning organization.



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Ready-to-Use Packaged SLIDING CLOSET DOOR

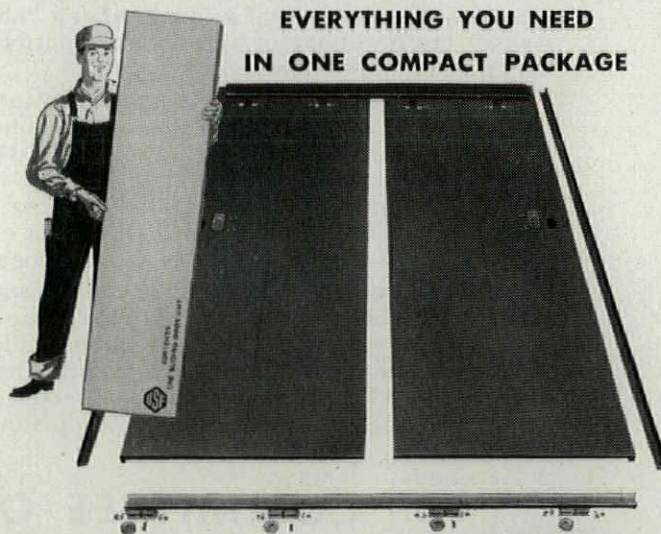


Easier to Use—Easier to Stock

Here's a packaged steel sliding closet door that's ready for installation in any wood and plaster partition. It's complete in one package including two door panels, top and bottom guide rail with silent rollers, stop rails and all hardware. It is standardized for 3, 4 and 5 foot openings.

Installation couldn't be much more simple or inexpensive for the builder, yet there has been no sacrifice in quality. For the building supply distributor or dealer, his sliding closet door stock is reduced to three standard packaged sizes that fit everywhere. Write for engineering details and prices.

EVERYTHING YOU NEED IN ONE COMPACT PACKAGE



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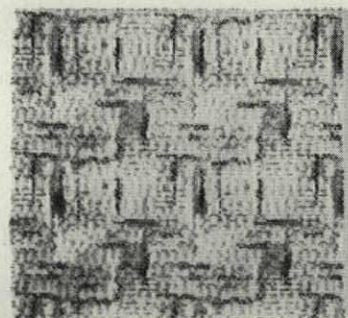
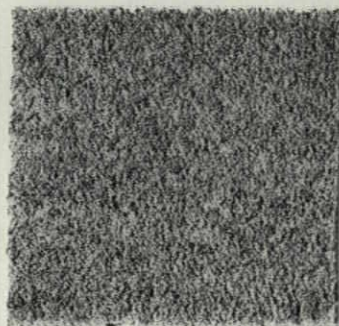
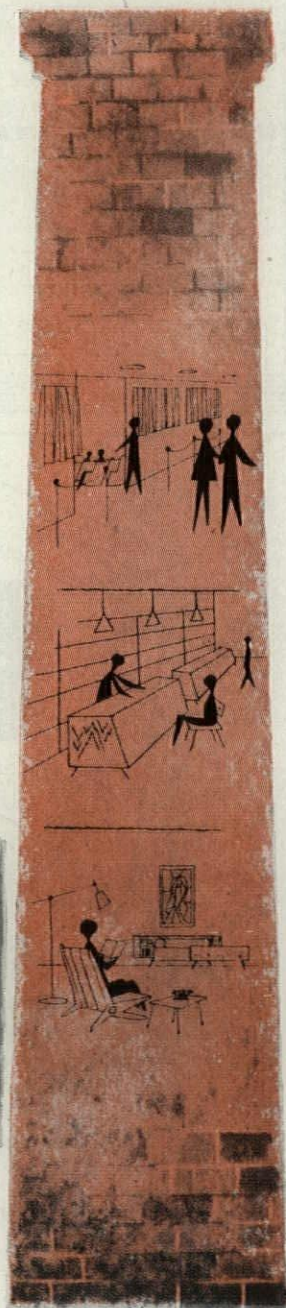
Manufacturers of HOLLOW STEEL DOORS, PORTABLE STEEL BUILDINGS, AND OTHER BUILDING SPECIALTIES...

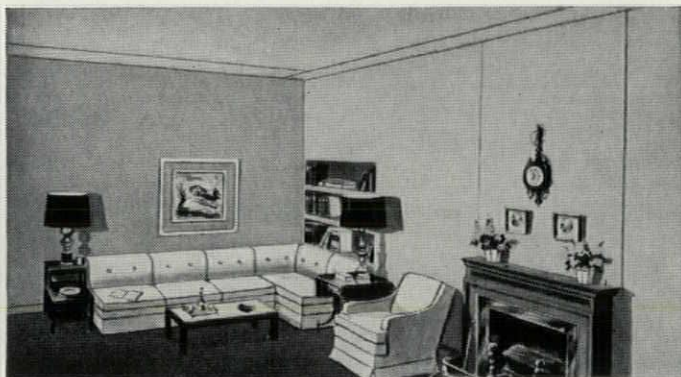
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There is nothing like carpet for creating a luxury atmosphere. But it has to be the *right* carpet. Right, not only in quality, but right in weave, right in color and pattern and right in price for the particular job. Here is where your Alexander Smith-Masland carpet contractor can be of inestimable assistance. With his expert knowledge he can guide you in your selection, effect real installation economies and assure your client lasting satisfaction. Call him today.

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Home Owners Voted... 54% FOR DRY WALL CONSTRUCTION

What features do buyers like best? Mark C. Bane, builder and developer of Richmond, Va., decided to find out—before starting a new real estate development. He invited former purchasers of his houses to advise him on some twenty points. For wall construction 54% voted for dry wall construction over plaster walls.

This is a new high figure, but it reflects a trend that is mounting higher every year—as home owners come to realize and then demand the sensible, sound advantages of Dry Wall Construction.

For 32 years Homasote has been used for Dry Wall Construction—in millions of dollars of private homes. Since 1936 its use has been supported by intensive research costing more than \$500,000.

Dry Wall Construction—with Homasote Big Sheets—offers many major advantages... The average wall is covered with a single sheet; batten strips and unsightly wall joints are eliminated. In a single material you provide lasting insulation value and great structural strength.

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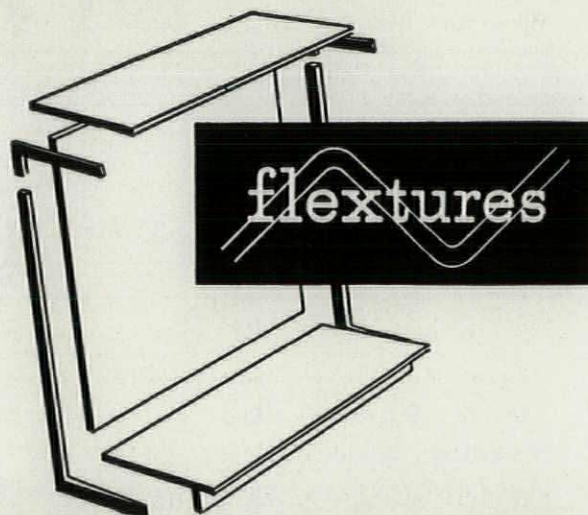
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When the terminal building for the Seattle-Tacoma International Airport was being planned, three fundamental goals were set. The structure had to: (1) be attractive and functional, (2) have low first cost and (3) have low maintenance cost.

These goals were realized by using architectural concrete walls and reinforced concrete frame and floors. Beauty was achieved by the simple lines and arrangement of masses of the building and the use of decorative features such as fluting, grillwork and cantilevered canopies. To assure best results special attention was given to formwork.

Besides combining beauty and **low annual cost**, architectural concrete meets every other essential structural requirement. It has great strength and durability and is firesafe. It also can be molded economically into ornamentation for any style or period. All these factors result in structures which please clients and investors alike.

Architectural concrete is adaptable to structures of any size or purpose—apartments, schools, hospitals, stores, factories and office buildings. Architects find architectural concrete a versatile material for creating beautiful, functional, economical edifices.

For more information about architectural concrete write for free, illustrated literature. Distributed only in United States and Canada.



Upper photo shows the terminal building of the Seattle-Tacoma Airport from the ground approach side. Central section is five stories high surmounted by the control tower. In plan the structure is a blunted V, 800 ft. long from end to end of passenger concourses. Total floor area, 243,000 sq. ft. Lower photo shows entrance tower. Grillwork is cast stone. Designed by the staff of the Port of Seattle. Lease and Leigland, Seattle, were the general contractors.

PORTLAND CEMENT ASSOCIATION
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A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

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that couldn't happen!*

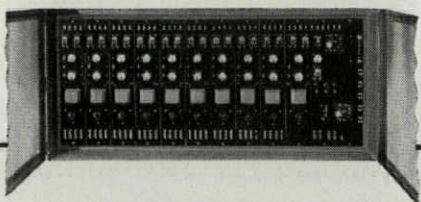


THE CONSTRUCTION: FIREPROOF . . .
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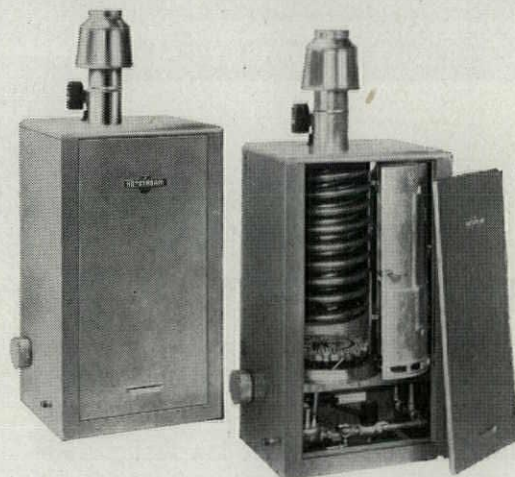
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PRODUCT NEWS

COMPACT GAS FIRED BOILER is adaptable to various heating needs.

Although designed primarily for use in small homes, Hotstream's new automatic boiler, Model H-193, is suitable as an individual heating unit for apartments, for zoned systems in large installations and also as a large volume water heater. It carries the approval of the American Gas Assn., and is said to function efficiently with all types of gravity or forced circulation—one or two pipe systems, convectors, or panel heating. In fact it may be used wherever up to 346 sq. ft. of radiation is required. The Hotstream's 3 ft. high welded steel cabinet is finished either in baked gray or white enamel. All inside surfaces are lined with metal shielded asbestos insulation. The heating section includes a raised port burner with twin air mixer, a heating element of three nested spiral copper coils, an automatic pilot, gas pressure regulator and automatic gas con-



trol valve. A unique feature of the H-193 is its Limitee control. If the water in the system should exceed the maximum temperature setting on an internal thermostat, the Limitee shuts off the burner but allows the circulating pump to continue operating until the room thermostat is satisfied. Then the control shuts off both the main burner and pump. Retail price is \$240.

Manufacturer: The Hotstream Heater Co., 2363 E. 69 St., Cleveland 4, Ohio.

MOISTURE METER is easy to carry, easy to read.

Builders can determine the moisture content of lumber and plaster quickly with the Tag Model



8009 portable meter. To check wood, the user inserts the needle electrodes in the sample, presses a button and reads the moisture content directly from a large scale calibrated from 7 to

(Continued on page 242)



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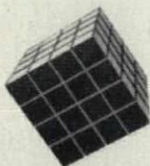
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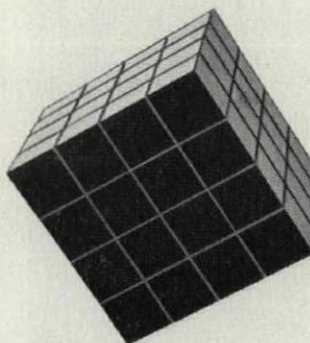
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The little cube 

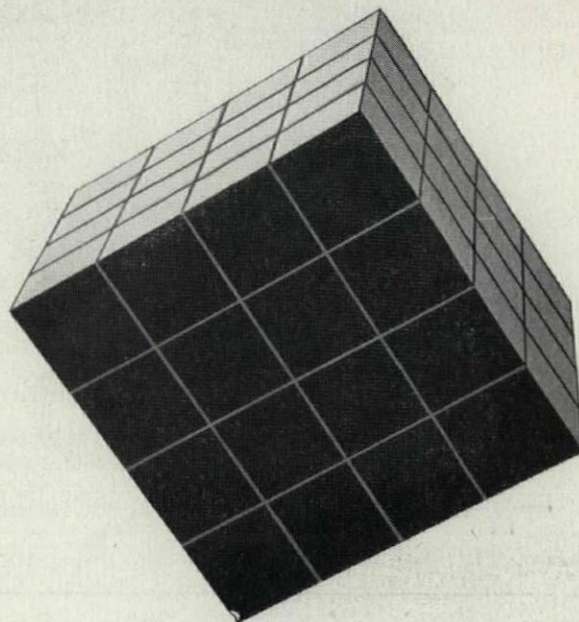
that grew



and grew



and grew



Measure a full scale model of this little cube and your answer will be a mere four inches.

Measure it for its impact and you'll see that it's one of the biggest ideas ever to hit the building industry. An idea that has grown fast, is growing, will continue to grow.

We're talking about the modular system of construction, of course. It's one of our favorite subjects, because we believe in it—have believed in it and supported it *from the very first*.

That's why the members of the Facing Tile Institute, the "10 good names," are especially good to know when it comes to modular. They enable you to combine "Structural Clay Facing Tile at its best" with the many advantages of modular—faster construction, less material waste, lower labor costs.

In helping this little cube to grow, the Institute has merely followed out its original purpose: to lead the industry in giving you fine quality, easy-to-use products.

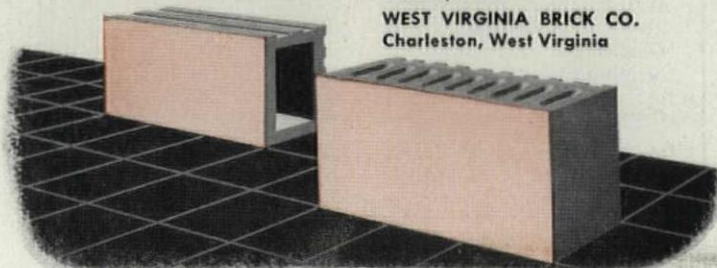
Our catalogs 50-C and 50-S give detailed information about these products—our policy of inspection and guarantee, research, standardization of shapes and sizes, and our wide range of colors in glazed and unglazed finish. For your free copies of these books, just write the Institute, Desk AF-9.

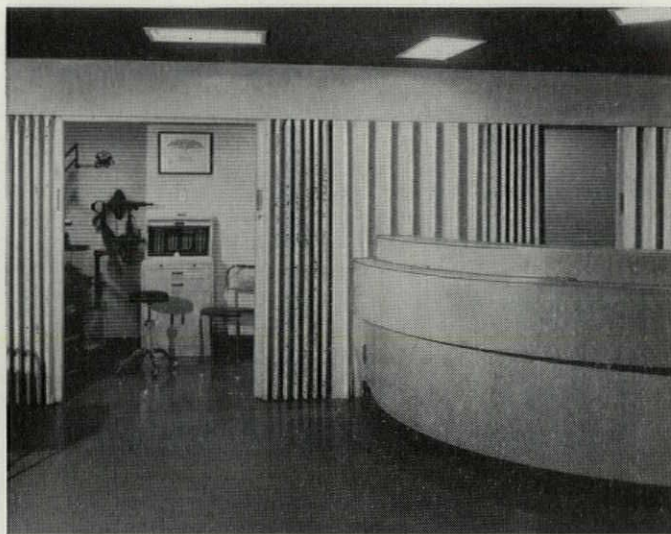
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10 GOOD NAMES TO KNOW

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Here's how an optometrist's office should look—and function! "Modernfold" accordion-type doors do the trick. They separate the examination room from the salesroom with a *movable wall* to give customers complete privacy. That's efficiency plus!

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*For the full "Modernfold" story
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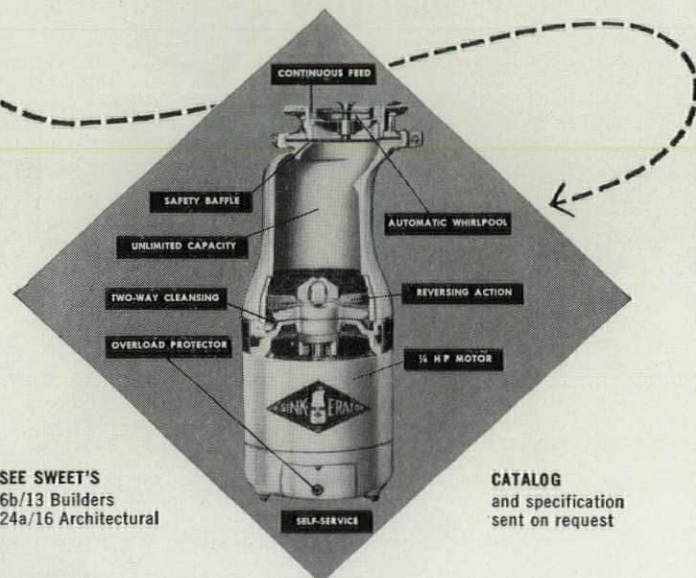
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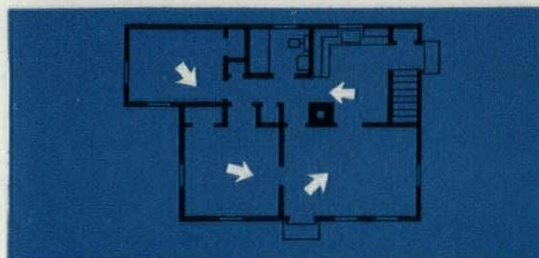
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Philadelphia 8, Pa.



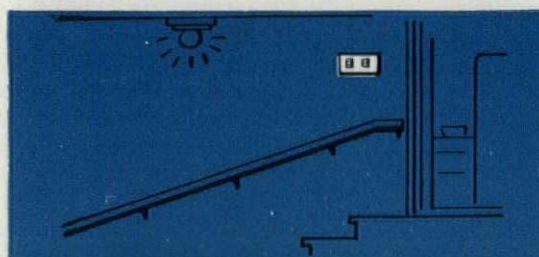
1 Master selector switch in front entrance hall can provide over-all control of lights and outlets.



2 Master selector switch in master bedroom can be wired to control fans, coffee makers, and lights right from bedside.



3 The pathway-of-light idea lets the home owner light his way through his house with G-E remote-control switches.



4 Remote control permits practical extension of the usual two-point control of cellar or attic light by providing a switch at the bedside for these often forgotten lights.



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5 practical suggestions

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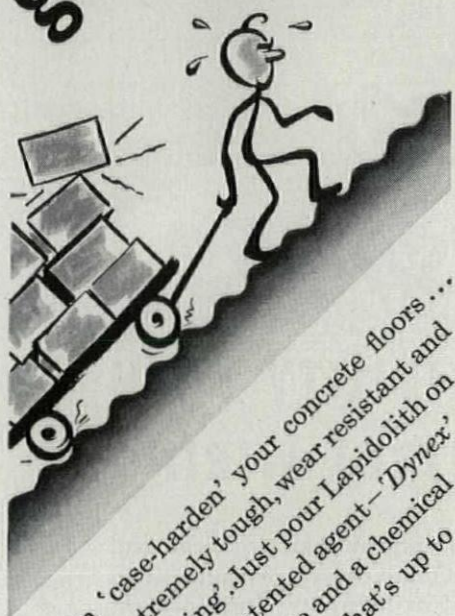
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PRODUCT NEWS

30 per cent moisture. No charts or conversion tables are needed. To check plaster, the needles are removed and the electrodes pressed directly against the surface being tested. The meter indicates whether the moisture in the plaster is above or below that considered maximum for painting. Operating on self contained batteries, the Tag measures only 4½ in. x 4½ in. x 3⅛ in., and weighs less than 4 lbs. Slung from the shoulder, it is as easy to handle as a camera. Price is about \$70.

Manufacturer: Weston Electrical Instrument Corp., 614 Frelinghuysen Ave., Newark 5, N. J.

FLASHLIGHT SIZE SOUND LEVEL METER is accurate, simple to operate.

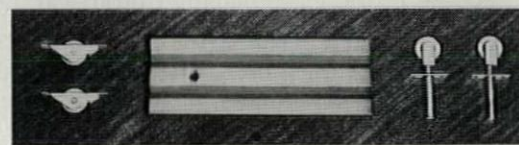
Indoor and outdoor acoustics, hearing requirements—even machinery noise are quickly measured with this sound level instrument. Miniature tubes, a humidity-sealed crystal microphone and hearing aid batteries are utilized in its construction which meets specifications of the American Standards Association for sound level meters. Its size is convenient and controls simple. The instrument weighs a little more than 2 lb., sells for \$269. Optional accessories for the 410-A include carrying case, extension cable and mounting tripod.

Manufacturer: Hermon Hosmer Scott, Inc., 385 Putnam Ave., Cambridge 39, Mass.



SLIDING DOOR HARDWARE is self-adjusting.

Tension springs built into the top rollers of this new sliding door hardware compensate for slight



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Manufacturer: Roll-A-Door Hardware Div., Standard Keil Hardware Mfg. Co., Inc., 639 Broadway, New York 12, N. Y.

(Technical Literature page)

"I use the Norman Southerner in homes I build because I can give additional closet space normally occupied by a furnace. This is one of the most salable features of my home."

The Southerner's ease of installation over the conventional furnace, along with its long term warranty, assure me the most lasting heating system at the lowest cost available. When everything is said, the NORMAN SOUTHERNER is the best for my money."

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by every yardstick

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measures up to
THE QUALITY
HORIZONTAL GAS FURNACE



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in Basementless Home,
suspended from floor joists.

Every way you measure the Norman Southerner, it adds up to the quality horizontal gas furnace! **ENGINEERING** is tops—assuring you quality merchandise reasonably priced. **PERFORMANCE** is proved—in thousands of installations from coast to coast by many leading builders and architects. **FACTORY-TESTING** is rigid—every Southerner is gas-fired under actual operating conditions before shipment to reduce installation and service cost. **GUARANTEE**—the Southerner is the horizontal gas furnace with the 10 year factory guarantee.

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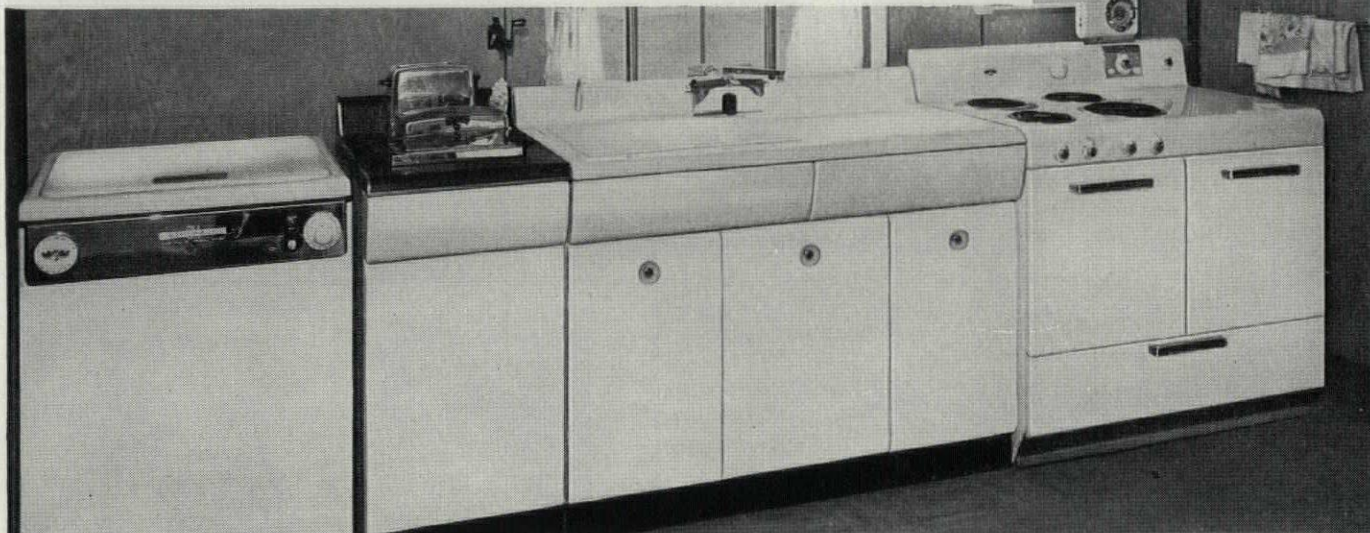
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▶ Walker Homes, Inc., Samuel H. Walker III, General Manager, have erected and sold more than 100 of these manufactured Gunnison Homes. All have been equipped with modern, automatic Electric Ranges. "Our experience proves very definitely the sales appeal of the all-electric kitchen," says Mr. Walker.

▶ "More often than not, the kitchen equipment is among the most important features considered when the contract is signed," says Mr. Walker. The attractive, efficient kitchen of a Walker home is shown below. Speaking of the range—of course, it's **ELECTRIC!**



"Homes with Electric Ranges have Sales Appeal,"

says builder Samuel H. Walker III, of Kensington, Md.

"Most prospects are particularly impressed with the Electric Range, and the greater convenience and cleanliness that it promises," says Mr. Walker. "We find it to our advantage to give customers what they want in the way of kitchen equipment, as well as in the other features of our houses." From coast to coast, successful builders are having the same experience!

ELECTRIC RANGE SECTION, National Electrical Manufacturers Association, 155 E. 44 St., New York 17, N. Y.

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ELECTRIC
RANGES



Build better! Sell faster!
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DURALL SCREENS



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Durall Aluminum Tension Screens can be installed quickly, easily. No ladder climbing, no side frames to cut.



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Durall is a hard-wearing all-weather screen that *keeps* its good looks! Will not rust or stain light surfaces.



Light, flexible, easy to store!

Turn a thumbscrew for a snug fit! Screen swings free for window washing...makes a compact roll for storing!

Only \$3.75 for average size!

New York Wire Cloth Company, Dept.
445 Park Avenue, New York 22, N. Y.

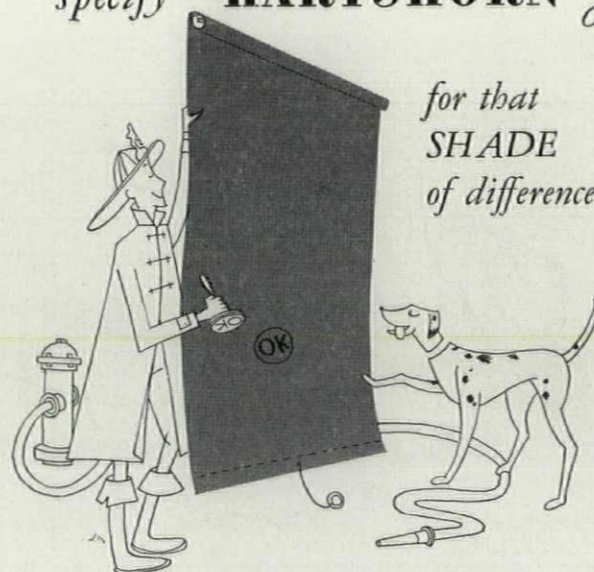
Please send me complete specifications and catalog on DURALL SCREENS.
Also the name of your distributor nearest me.

Name.....

Address.....

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

specify **HARTSHORN** *Fyrban*

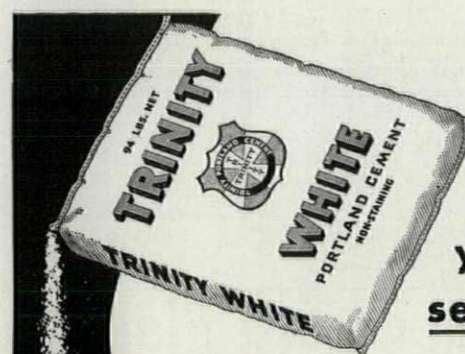


for that
SHADE
of difference

Hartshorn Fyrban shades cannot burn, even when exposed to a steady flame. Approved by two national testing laboratories... the American Hotel Association... Federal, state and city housing authorities... Fyrban shades are sturdy muslin or canvas impregnated with tough vinyl plastic that's washable, waterproof and sun-resistant. Where safety counts, specify Hartshorn Diana Fyrban cloth on Hartshorn metal rollers. And Hartshorn can fill *all* your shade needs, including all types of brackets, light shields, rollers and shade cloths. Folder on request.

STEWART HARTSHORN CO.

250 FIFTH AVE., NEW YORK 1, N. Y. • STEWART HARTSHORN LTD., TORONTO, CANADA



**you can
see that**

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**is the whitest
white cement!**

You'll get fine results with this extra white cement. It's true Portland Cement made to ASTM and Federal Specifications. If your dealer does not have it, write the office nearest you: Trinity Portland Cement Division, General Portland Cement Co., 111 West Monroe St., Chicago; Republic Bank Bldg., Dallas; 816 W. 5th St., Los Angeles.

as white  as snow

NOTHING CAN MATCH

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for any closure problem where

Space·Cost·Beauty

ARE IMPORTANT CONSIDERATIONS

When open, AlumaROLL-door gives easy access to closet or kitchenette. When closed it's a beauty! And the unit cost is lower than LOW!

- ★ ROLLS UP TO LESS THAN 6"
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- ★ NEEDS NO SWING-OUT OR FOLD SPACE
- ★ NO BOTTOM RAILS
- ★ SUPPLIED TO SIZE, READY TO INSTALL
- ★ BAKED-ON ENAMEL COLORS
- ★ JUST WIPE TO CLEAN



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Please send full information about AlumaROLLdoors.

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MODERN? Certainly—it's equipped with "The Hinge That Hides Itself"

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The sentiments expressed by Mr. Maiman on SOSS Invisible HINGES quite adequately portray how home owners everywhere feel about these amazing, modern SOSS HINGES. You'll please all your clients if you give them the SOSS Invisible HINGE—"The Hinge That Hides Itself." Write for FREE BLUE PRINT CATALOGUE that gives complete details and the many uses of this beautifying SOSS HINGE.

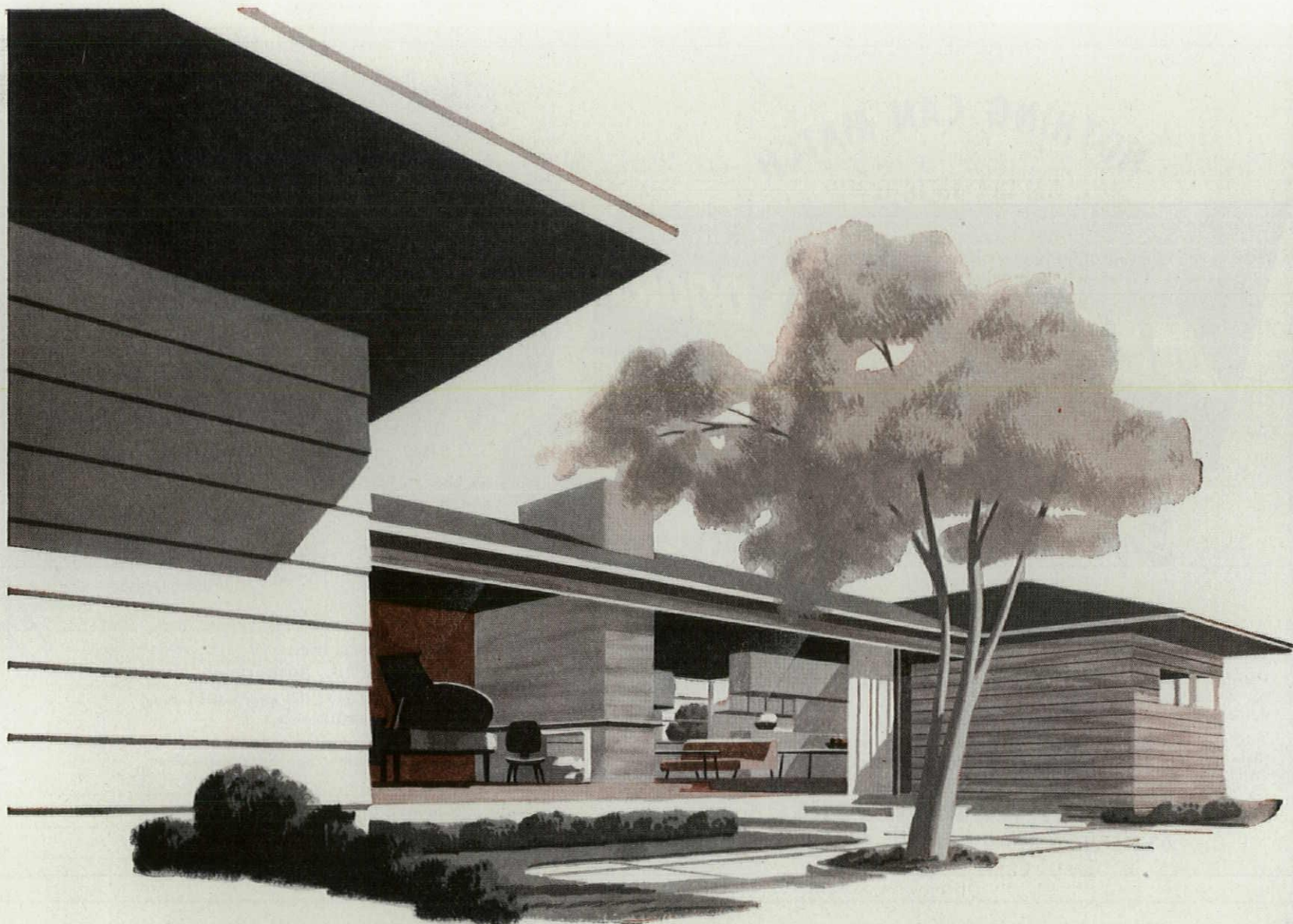
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MAX M. MAIMAN
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Stockwell & Marcuse
1407 Industrial Bank Building
Detroit 26, Michigan

Gentlemen:

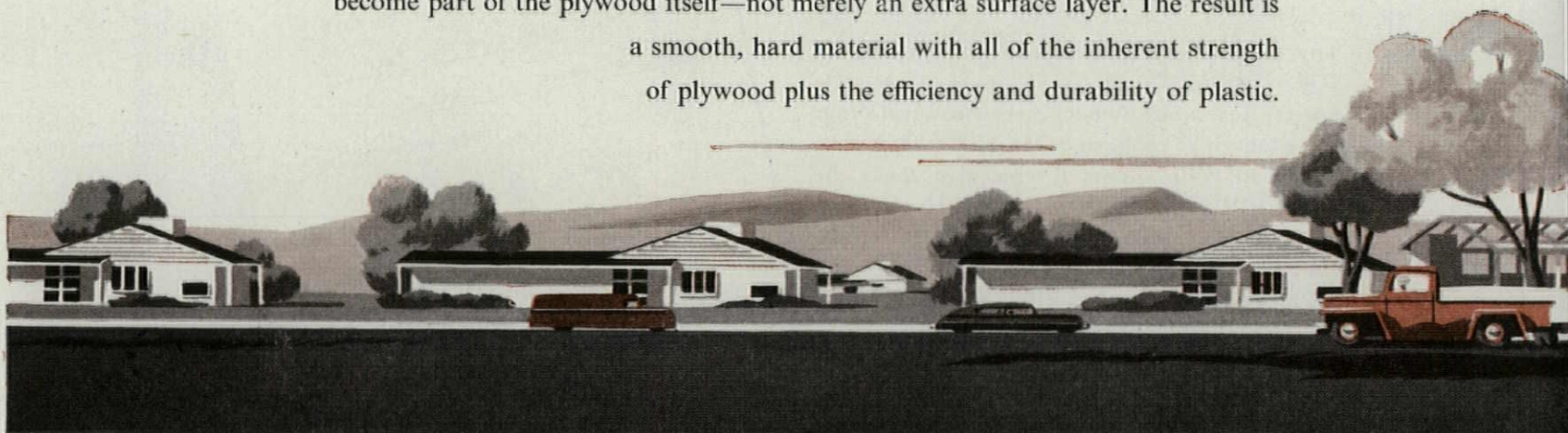
You certainly may have permission to use my new home in your advertising of Soss Hinges. All kitchen (Birch) cabinets and two doors in guest-study have your Soss Hinges. From what I know now, I wish that all interior hinges on doors were Soss.

Yours very truly,
Max M. Maiman
Max M. Maiman



INSIDE AND OUT . . .
it costs less to build better
WITH GPX PLASTIC-FACED PLYWOOD

You may have heard about the savings being made by contractors who use Georgia-Pacific's miracle plywood, GPX, for Concrete Forms, but did you know that GPX is also made in two painting grades plus a beautiful wood grain surface? GPX's plastic coating is applied under heat and pressure at the time the plywood is being bonded. The plastic flows, condenses and sets to become part of the plywood itself—not merely an extra surface layer. The result is a smooth, hard material with all of the inherent strength of plywood plus the efficiency and durability of plastic.



USE **GPX** FOR SMART INTERIORS

Painted Surfaces—for interior surfaces that are to be painted, specify the white paint-grade of GPX. It won't check or crack and, if enamel is used, one coat is enough to provide a perfect cover. Smooth, hard and long lasting, the white paint-grade is ideal for shelves, table tops, counters, closets, kitchen, laundry and work room cabinets.

Natural Wood Surfaces—for the natural wood surfaces that are so much in demand for today's interiors, specify the natural grade of GPX. Use it for sliding doors, panels, all interior surfaces. Economical and efficient, long lasting GPX saves the expense of painting, keeps refinishing and upkeep costs to a minimum.

USE **GPX** FOR ATTRACTIVE EXTERIORS

Painted Siding—for exterior siding that is to get a painted finish, specify the brown paint-grade of GPX. This grade is engineered especially for use where the surface will be painted and it covers smoothly and evenly with less paint. And the paint lasts longer.

Natural Wood Siding—if you want attractive wood-grained siding, specify the natural-grade of GPX. With an armor-hard surface that never needs painting, natural GPX is economical, amazingly durable and attractive.

All grades of GPX combine the moistureproof, waterproof and weatherproof surface properties of plastic with the strength and stability of plywood.



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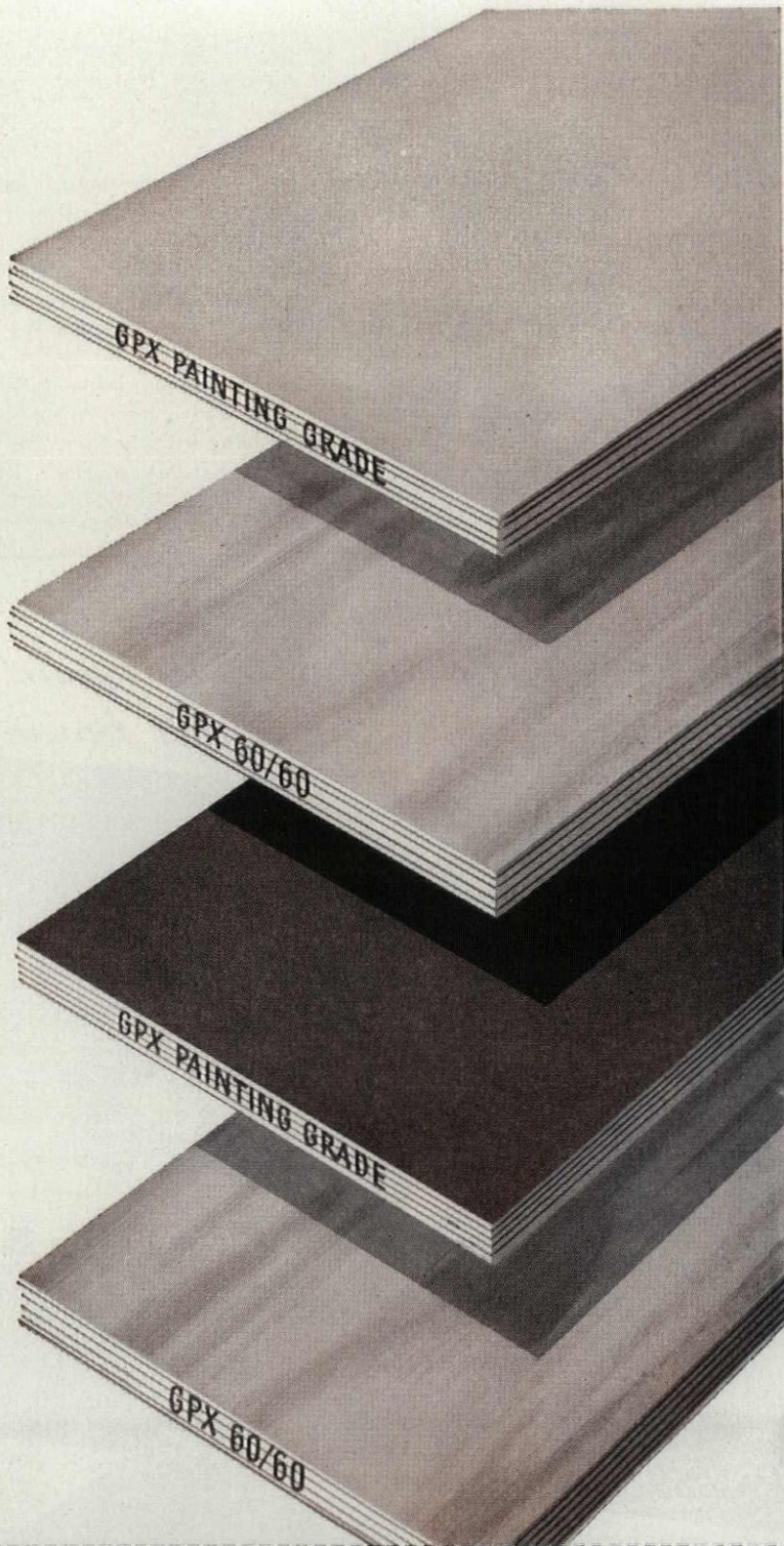
HOME OFFICE: SOUTHERN FINANCE BUILDING • AUGUSTA, GEORGIA

INVESTIGATE **GPX** TODAY!

It is a quality product of Georgia-Pacific Plywood & Lumber Co. with practically unlimited application in the home, on the farm and for industry. For further information, write today on your letterhead or fill in, tear out and mail the attached coupon:

OTHER **GEORGIA—PACIFIC** PRODUCTS:

*Douglas Fir plywood
Hardwood plywood and veneers
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Residential and factory flooring
Poles and pilings*



GEORGIA-PACIFIC PLYWOOD & LUMBER CO.

1251 Southern Finance Building

Augusta, Georgia

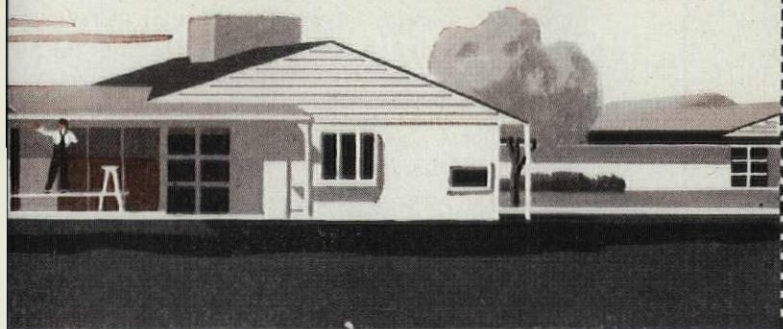
Please send me information on Georgia-Pacific's miracle plywood, GPX.

NAME.....

FIRM NAME.....

FIRM ADDRESS.....

YOUR POSITION.....



TECHNICAL LITERATURE

SCHOOL CONSTRUCTION. School Buildings Your Tax Dollars Can Afford. Timber Engineering Co., 1319 18th St., N. W., Washington 6, D. C. 22 pp. 8½ x 11 in.

Progressive educators and architects long have been plugging for one-story schools, where indoor and outdoor instruction are literally on the same level. From the town planners' view, better community facilities are provided by several small schools scattered throughout the city than

by a centrally located monumental structure; furthermore, good sites in outlying areas are easier to find and cheaper. As an answer to the \$10 billion problem of housing 34 million school children safely and adequately in the next 10 years, Timber Engineering offers some convincing arguments for one-story wood frame construction—and backs them up with tables of comparative costs. As for the overall economy of building with the taxpayers' money a school that might not last "forever," the brochure points out

that permanence in school buildings is mostly a matter of obsolescence and population changes. Another comment worth noting is that there is probably no safer place for school children in case of fire than a one-story classroom building having direct exits to outdoors.

WALL PANELS AND DOORS. Kaylo Laminated Panels, Kaylo Firedoor. Kaylo Division, Owens-Illinois Glass Co., Toledo 1, Ohio. 12 pp. 4 pp. 8½ x 11 in.

A laminated panel designed to provide efficient permanent curtain walls or interior partitions is featured in the first of these brochures. The building panel comprises Kaylo insulation (calcium silicate) sandwiched between faces of cement asbestos board, wood veneer or metal. The 2 in. incombustible core is described as having better insulating value than 16 in. of concrete. Each standard 4 x 8 ft. panel provides a complete wall section weighing about 200 lb. The booklet also pictures actual installations, construction details and gives technical data.

The second informative brochure is about a unique wood faced fireproof door which also utilizes a Kaylo core. The door has an Underwriters' fire rating for Class B and C openings. Its inorganic core does not burn, is rotproof and verminproof, and has excellent dimensional stability even in extreme climates. Combining the warm appearance of a wood door with fire protection, Kaylo doors boast many advantages for schools, hospitals, apartment houses, office buildings and residences.

STORAGE RACKS. Racks You Can Build with Unistrut. Catalogue No. 600. Unistrut Products Co., 1013 W. Washington Blvd., Chicago 7, Ill. 23 pp. 8½ x 11 in.

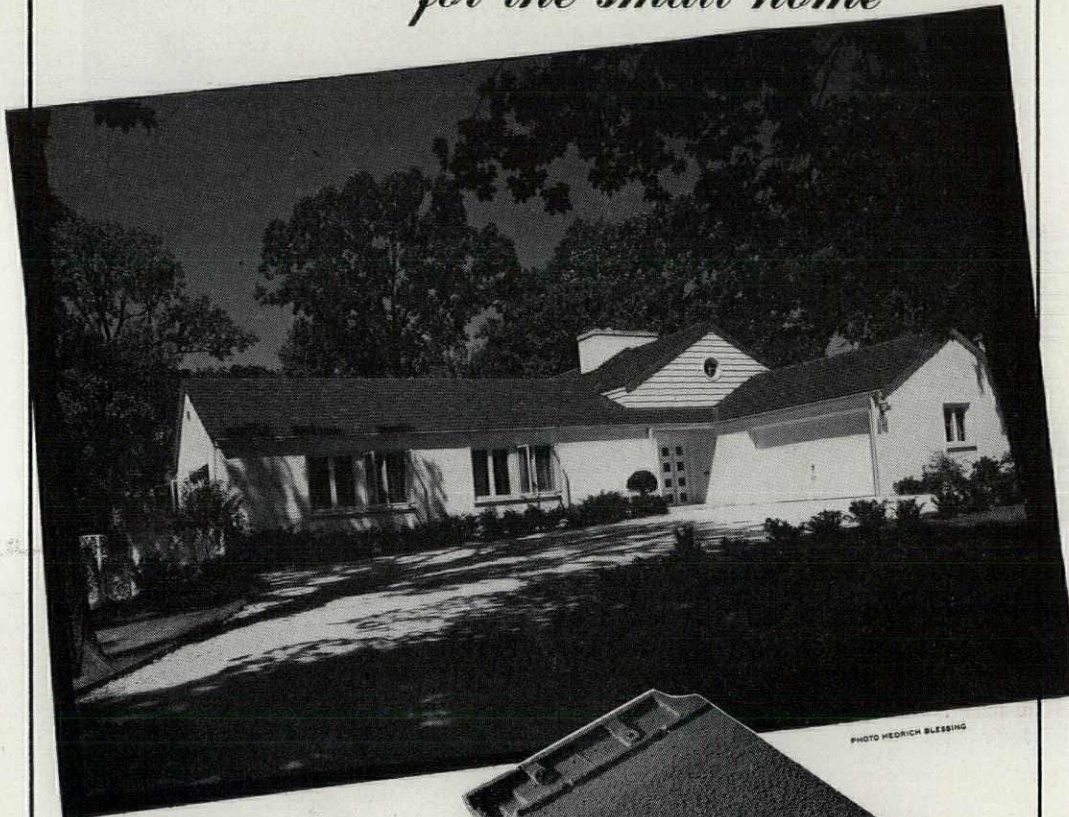
This comprehensive presentation of the Unistrut metal channel line contains many photographs of typical rack applications and detailed ordering information. Complete drawings of the various sizes of the channel and basic fittings for rack construction are also given. These adjustable racks are said to provide strength without bulk. Bolted frame construction eliminates need for drilling or welding and the material may be dismantled and reused.

FIRE PROTECTION. When Fire Strikes. Grinnell Co., Inc., 260 W. Exchange St., Providence 1, R. I. 32 pp. 8½ x 11 in.

This survey of the manufacturer's approved fire protection systems for buildings is well written, clearly presented. A special section describes the Multitrol, a "rate of rise" system. After detecting the first rapid rise in heat, the Multitrol sounds local alarms, then readies the sprinkler system, discharges water and operates other safeguards such as fire doors and damper controls. All the equipment and devices shown in the booklet are Underwriters' approved.

(Continued on page 254)

Ludowici Roofing Tiles... Beautiful and Permanent for the small home



This contemporary home, designed as a two or three bedroom house by architects Travelletti and Suter of Chicago, is beautifully roofed with Ludowici Light-Weight interlocking shingle tiles. Illustration shows the interesting texture of several patterns available in a range of red, black, brown, gray, and green colors.

Roofs of tile are practical for any small house and these features make the wide variety of authentically styled Ludowici Tile really economical:

- (a) availability
- (b) ease of application
- (c) durability

See our catalog in Sweet's, or write today for complete information.

LUDOWICI-CELADON CO.

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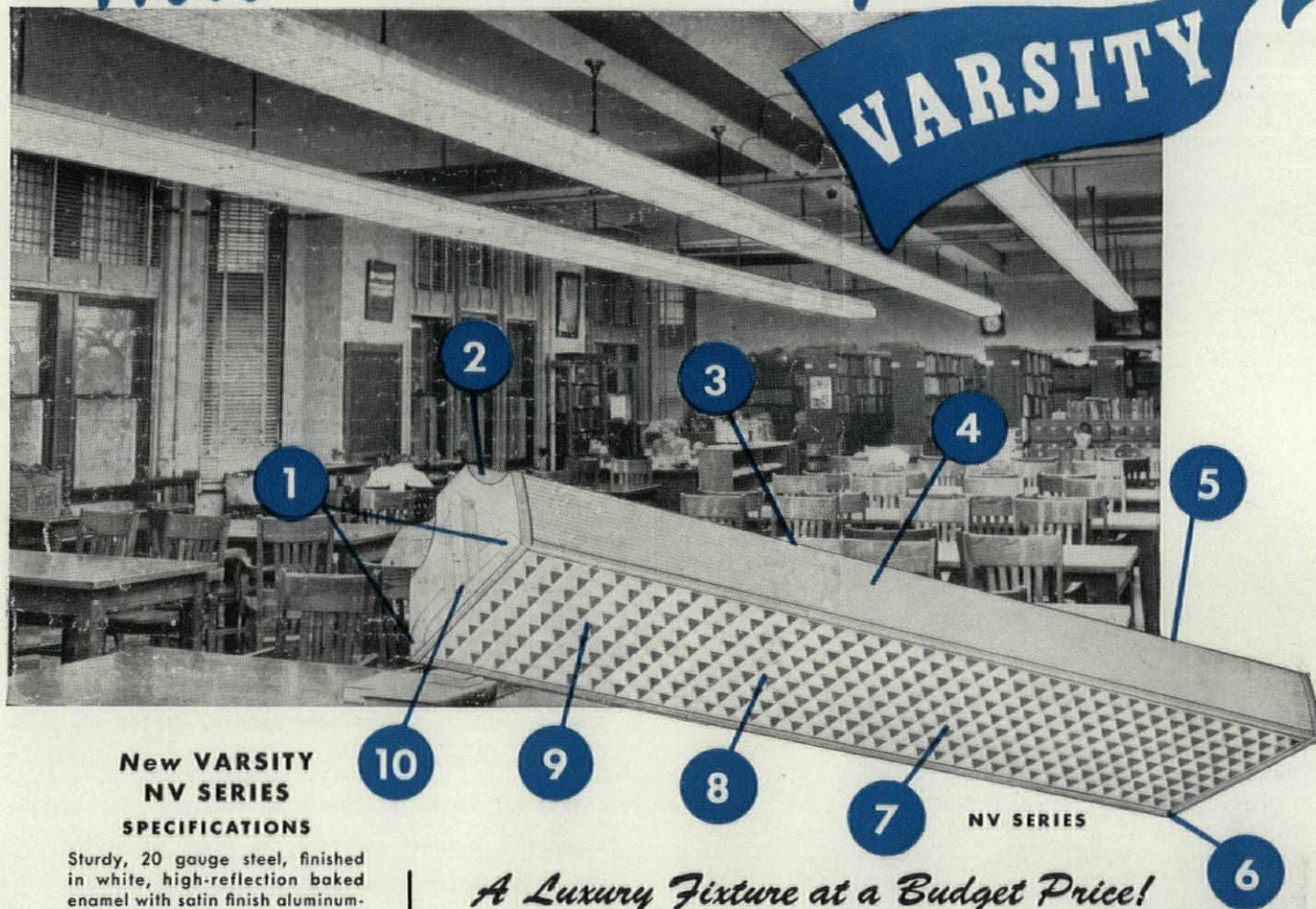
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Varsity



New VARSITY NV SERIES SPECIFICATIONS

Sturdy, 20 gauge steel, finished in white, high-reflection baked enamel with satin finish aluminum-grey trim. Side panels of extruded plastic. Moulded one-piece plastic "egg-crate" louver gives 40° x 40° shielding . . . louver hinged to swing from either side for easy relamping. Can be installed singly or in continuous runs. No couplers needed! . . . Slimline models feature instant-start 120, 200, 300 or 425 milli-ampere operation. Conventional 110-125 volts, 60 cycle A.C., with other voltages available.

CONSULT OUR CUSTOM-SERVICE DEPARTMENT

if you have special requirements. We will design and build lighting fixtures to your order.

A Luxury Fixture at a Budget Price!

Now the VARSITY edges into the luxury group. Yet it still is in the popular-price class. Using tubes from 48" to 96" long, this fluorescent fixture illuminates large areas at low fixture-cost and low operating cost!

LOOK AT ALL ITS FEATURES

- | | |
|---|---|
| 1 Aligned coupling-holes | 6 Hinged louver to swing from either side for easy relamping and servicing. |
| 2 Optional reflector for increased downlight | 7 2, 3 or 4 40-watt tubes or Slimline tubes 48" to 96" |
| 3 Knockouts provided for completely flexible mounting arrangements. | 8 Injection-moulded plastic louver with 40° x 40° shielding angle |
| 4 Ribbed translucent curved-plastic side panels. | 9 High reflection baked-enamel reflector |
| 5 Upward light spill gives 40% indirect illumination | 10 No couplers required for continuous row installation |

Sold and installed only by the better electrical wholesalers and contractors



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and interest to spend more
on building and furnishing
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Hauserman Movable Steel Interiors —
The Van Buren Township Junior High School, Van Buren, Ohio

HAUSERMAN MOVABLE STEEL INTERIORS ...for Many Years of

YES, Hauserman *Movable* Steel Interiors will last for many years of school days. And they'll cost you less to maintain than any other type of interior construction.

Hauserman *Movable* Steel Interiors have a baked-on finish that won't chip, crack, warp or scale. This eliminates frequent patching and repainting. It means that a janitor can easily perform all the normal maintenance required, occasional soap-and-water washing.

There are many reasons why Hauserman *Movable* Steel Interiors are used in schools and colleges all over America. Among these advantages are: 60 Beautiful Colors and Authentic Wood Grain Finishes • Rigid Construction • Excellent Sound

Control • Earlier Occupancy • Incombustible Materials • Ease of Servicing Utilities • Ease of Adding Wires and Outlets • Rock-bottom Maintenance Costs • Easy to Move • Lifetime Service.

Why not write for your free copy of Hauserman Catalog 49. It's fully illustrated and describes in detail all the many Hauserman advantages. Just write or call the Hauserman office or representative nearby or contact *The E. F. Hauserman Company*, 6768 Grant Avenue • Cleveland 5, Ohio.



Organized for
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Partitions • Wainscot
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THE *Swing* TO CROSLEY INCREASES **EVERY DAY**

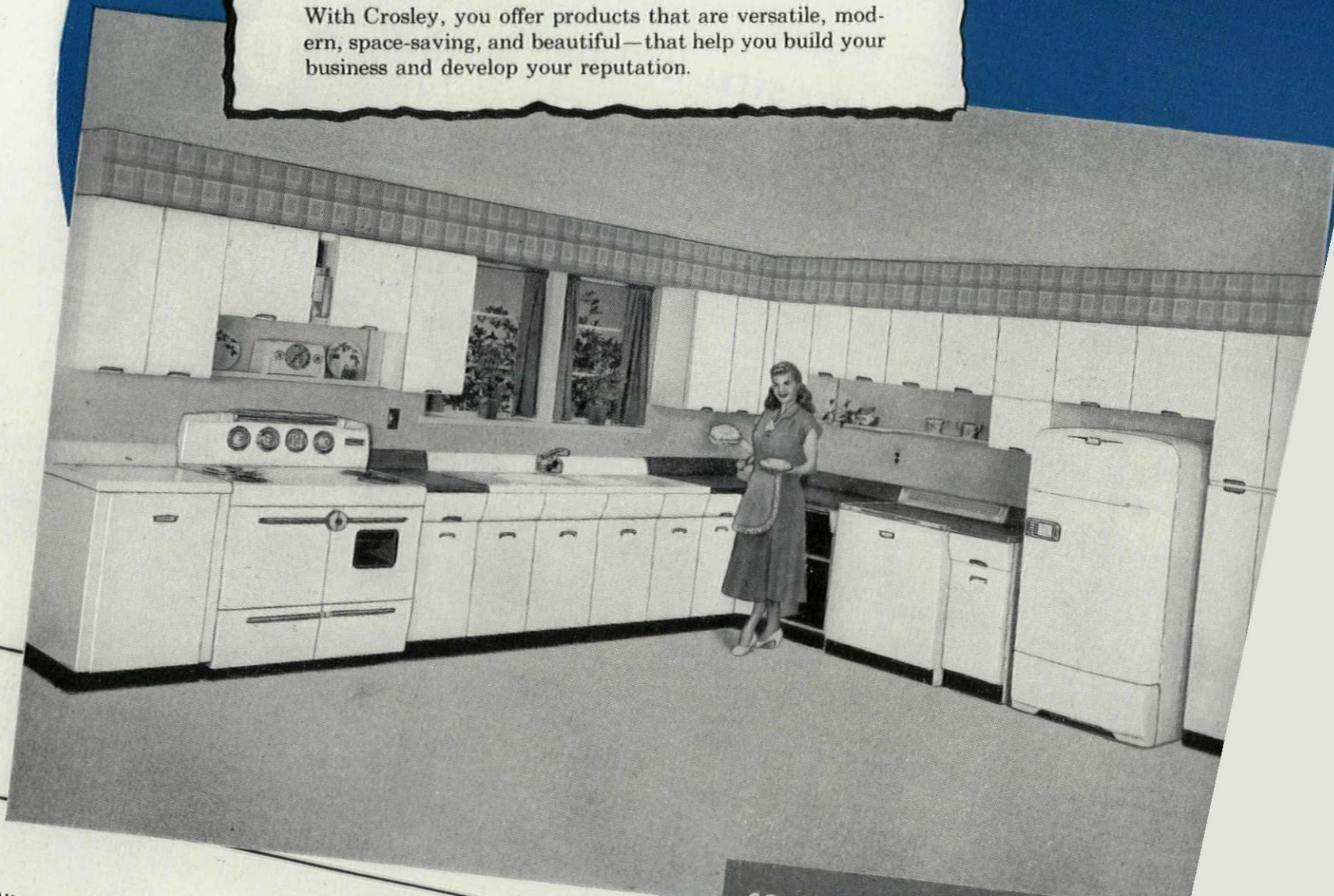
Here's what precision-engineered Crosley products offer you:

- **Beautifully styled products** that enhance your plans and please your clients
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- **The Crosley Builders' Plan**—whereby a single qualified specialist contacts you to discuss *all* the Crosley products at the same time

With Crosley, you offer products that are versatile, modern, space-saving, and beautiful—that help you build your business and develop your reputation.

FREE DATA AND SERVICE! The special Crosley Builders' Plan offers free assistance to all builders and architects. For information, write:

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1329 Arlington Street
Cincinnati 25, Ohio



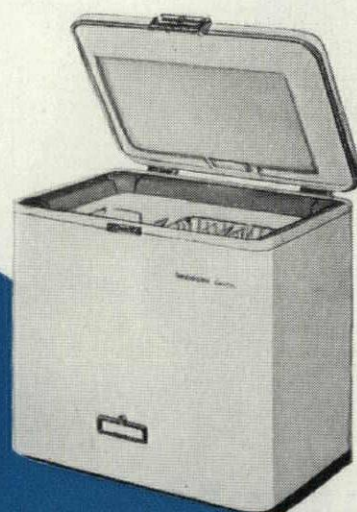
COMPLETE CROSLEY KITCHENS can easily be planned to fit whatever specifications you lay out.



10 SHELVADOR REFRIGERATORS—all designed to save floor space outside, and double front-row* space inside.



10 ELECTRIC RANGES—in sizes and styles to meet all requirements.



8 HOME AND FARM FREEZERS—in capacities from 4.1 to 20 cubic feet.

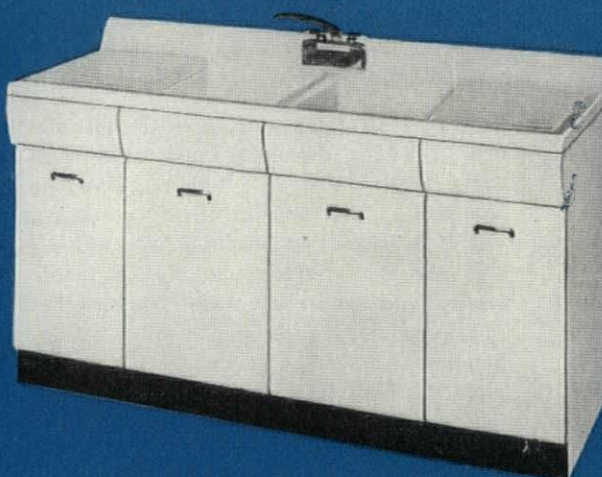


CUSTOM TABLE-TOP MODEL



STOM ROUND MODEL

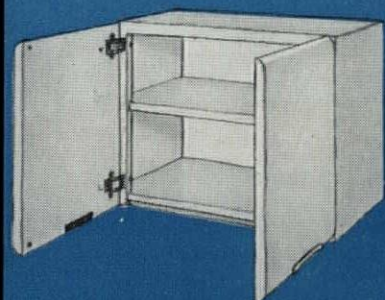
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7 CABINET SINKS—of rugged, all-steel welded construction.



GARBAGE DISPOSER—unit fits most any standard sink with 3½" to 4" drain.



STEEL WALL CABINETS—with baked enamel finish to match Crosley appliances.



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FREEZERS



ELECTRIC RANGES



SINKS, GARBAGE DISPOSERS



STEEL KITCHEN CABINETS



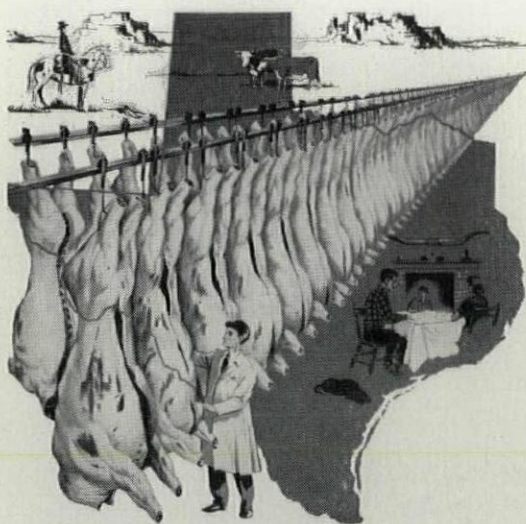
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200 YEARS OF BEEF for Texans to eat Refrigerated by BAKER

Texas is our largest producer of beef cattle and her citizens consume their share . . . more than 63 pounds — of beef alone — per person each year! So refrigerating the four hundred million-odd pounds required annually by the Lone Star State is a large order, yet the total output of BAKER compressors since 1905 could more than handle the job for over 200 years.

Because BAKER compressors operate quietly in delivering their rated capacities, are virtually maintenance-free and often run years beyond their life expectancy, Engineers recognize BAKER Refrigeration as the quality line. This is true not only in meat packing and other food processing industries, but wherever precision-built air conditioning and refrigeration equipment is an important factor in a first-rate project.

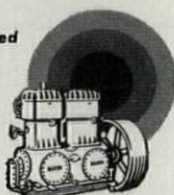
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since 1905



Air Conditioning and Refrigeration

TECHNICAL LITERATURE

PAINTS. Rustrem Anti-rust Paint. Speco, Inc. 7308 Associate Ave., Cleveland 9, Ohio. 6 pp. 3 x 8 in.

Instructions for using Rustrem, a rust preventive paint, are given in the bulletin. According to the manufacturer the coating can be applied directly over rust already formed without wire brushing or scraping. Rustrem is said to penetrate the rust layer, rendering it inactive and sealing the surface against further disintegration. It is described as being suitable for spray or hand application on any metal surface and is available in clear, black and aluminum. The latter two, finish coats in themselves, cannot be painted over. Other products mentioned are Heat-Rem, a heat resisting aluminum paint, Chem-Rem, a chemical resistant black paint and Wood-Rem, a wood preservative paint.

HEATING. Patterson Convertors for Hot Water Heating Systems. Catalogue No. 303. Patterson-Kelley Co., Inc. 38 Wilson Ave., East Stroudsburg, Pa. 12 pp. 8½ x 11 in.

This recent catalogue features the manufacturer's "D" line of convertors for use with hot water heating systems. Both the DV type for standard systems and the DR for radiant panel applications are detailed fully. According to the text, the steam enters the shell in these convertors and condenses, transferring its heat to the water flowing through U-tubes. The tube bundle is engineered so that each tube can expand and contract independently, thus eliminating expansion strains in the unit.

GYMSTANDS. Wayne Rolling Gymstands. Wayne Iron Works, Wayne, Pa. 12 pp. 8½ x 11.

Rolling gymstands for indoor use are described in this new catalogue. Numerous photographs and drawings illustrate construction details of the fixed and movable models and show several possible setups. Complete specifications and dimensions are given for both types.

WIRING. Underfloor Electrical Distribution Systems. Catalogue No. 606 National Electric Products Corp., Pittsburgh 30, Pa. 34 pp. 8½ x 11 in.

The subject of this publication is Nepcoduct, a steel underfloor electrical raceway system for new construction or modernization of office buildings and other commercial structures. A complete specification outline is suggested for a floor electrical distribution system. Roughing-in dimensions and a typical Nepcoduct floor plan layout are provided as well as progress photos of several applications. Cutaway diagrams are simplified through intelligent handling of three colors to represent telephone, signal and high potential circuit wiring. The publication also illustrates and gives catalogue numbers for the components of the Nepcoduct system: steel duct, hand-hole and junction boxes, duct saddle supports, elbows, outlets and service fittings.

(Continued on page 260)

SUSPENDED OR FLOOR TYPE



New AUTOMATIC
REZNOR
GAS UNIT HEATER



*No Furnaces
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• Control cozy warmth automatically with your fingertip. No firing up, no shoveling grimy ashes with a gas-fired Reznor unit heater. Perfect for homes, offices, stores, industrial plants; adaptable to any situation. More Reznors are bought than any other fan type unit heater. Write for our 20-page, 4-color Catalog or call your heating equipment dealer.

Gas Unit Heaters Since 1888

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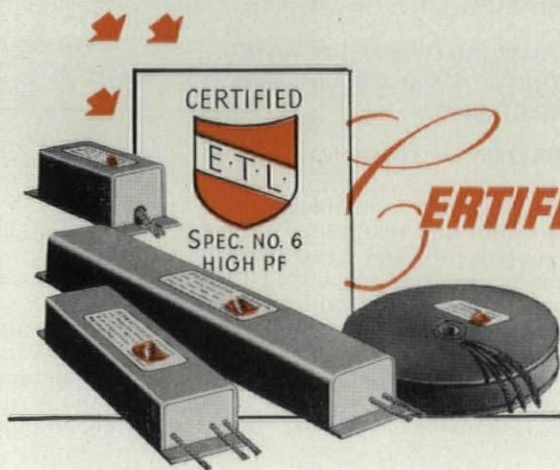
HOW TO GET 1,000 HOURS MORE LIFE FROM A

Fluorescent lamp!

THE life of 40-watt fluorescent lamps can be shortened as much as 1,000 hours by improperly designed ballasts.

You can avoid this costly loss . . . save on lamp replacement and maintenance . . . by specifying the ballasts that assure you full rated lamp life . . . **CERTIFIED BALLASTS!**

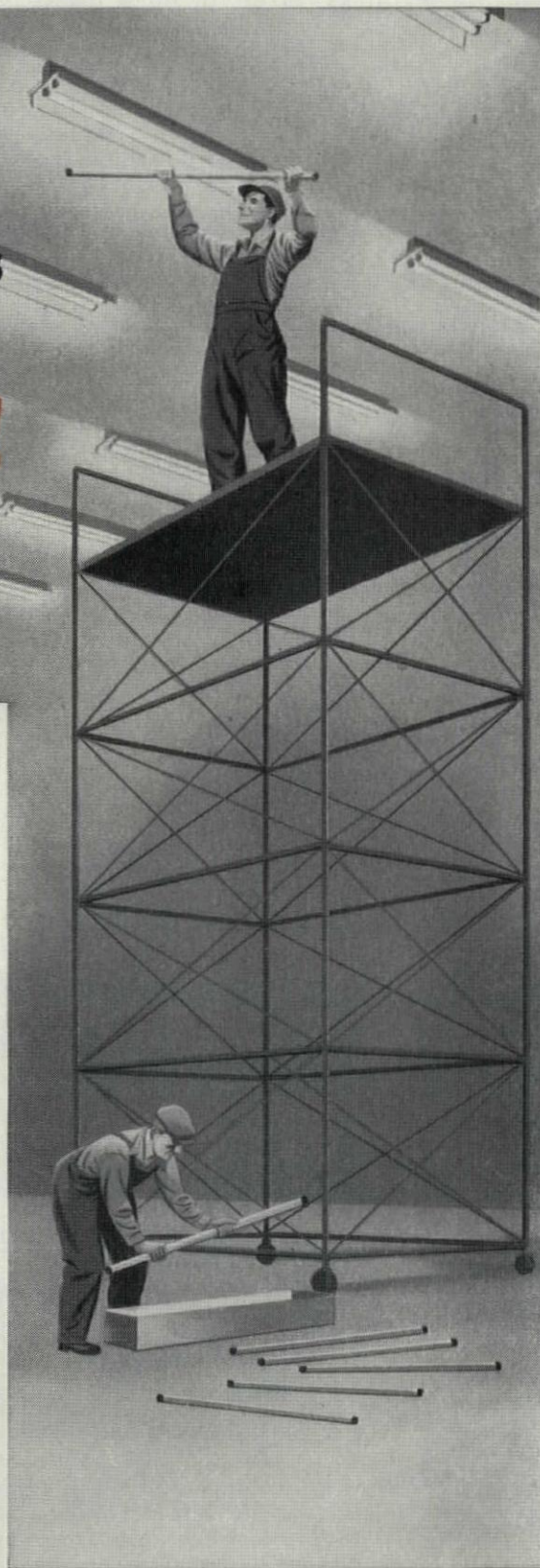
CERTIFIED BALLASTS are made to exacting specifications, then tested, checked and certified by an impartial authority, Electrical Testing Laboratories, Inc. Up to the minute information on the types of **CERTIFIED BALLASTS** available from each participating manufacturer may be obtained from Electrical Testing Laboratories, Inc., 79th St. and East End Ave., New York, New York.



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Makers of Certified Ballasts for Fluorescent Lighting

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8 GOOD REASONS Why

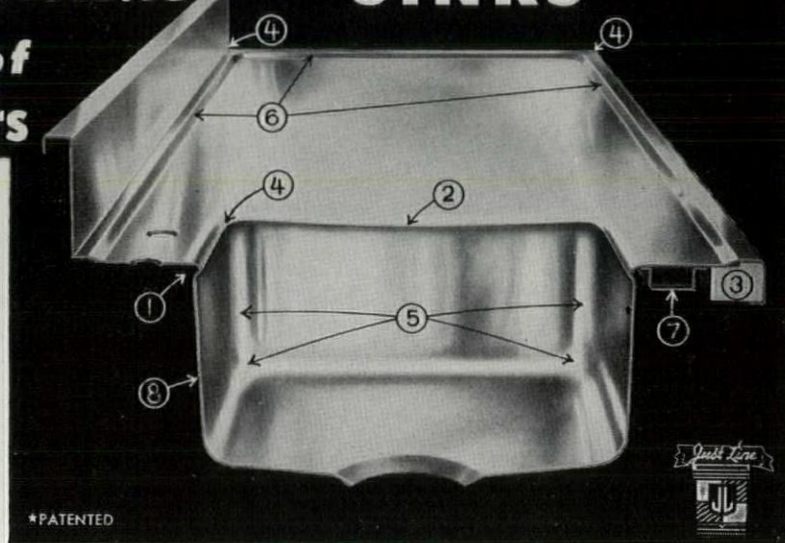
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STAINLESS STEEL SINKS

are **FIRST CHOICE** of
Architects and Builders

- 1 *Patented Anti-splash Rim around entire perimeter of the bowl at point where bowl joins the drainboards, seamless welded and polished.
- 2 *Patented Double Pitched Drainboards, gradually sloping lengthwise to the bowl and sidewise to center of drainboard.
- 3 Wood Frame around front and ends, facilitates fastening to the cabinets.
- 4 Seamless Construction, all joints welded and polished.
- 5 Radius corners in bowl—vertical radius $1\frac{1}{2}$ " at top tapering to $15/16$ " at bottom, all bottom horizontal radii are $15/16$ ".
- 6 All corners of raised edge are die drawn.
- 7 U-type structural channel extending the full length of the drainboard.
- 8 Sound Deadened on the underside to prevent undesirable metallic sound.

Radiiluxe Sinks can be supplied in any size and shape and with either one, two, or more sink bowls—to meet individual requirements.



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Here's the amazing Calcinator disposal unit . . . AT NEW LOW COST!

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Gets rid of ALL GARBAGE
—ALL BURNABLE TRASH!

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- ★ COMPLETELY AUTOMATIC!

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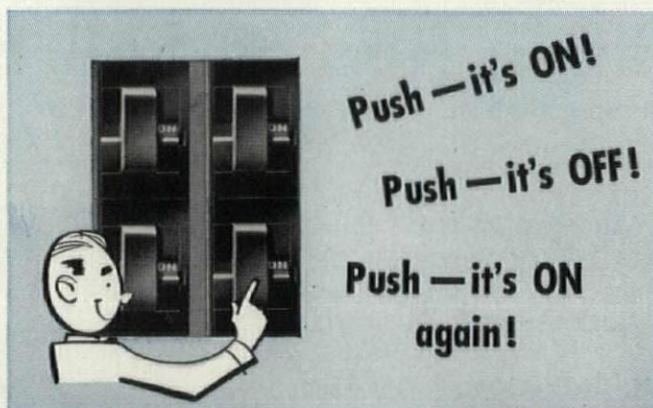


Write or wire Calcinator today for complete information, specifications and new low price on the amazing Calcinator at no cost or obligation.

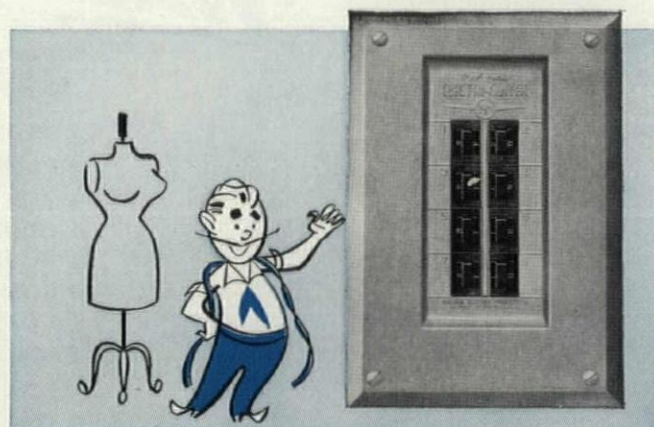
basement or utility room, means just one unit—Calcinator is a necessity with automatic heat! It will pay you to investigate this completely new idea, today!

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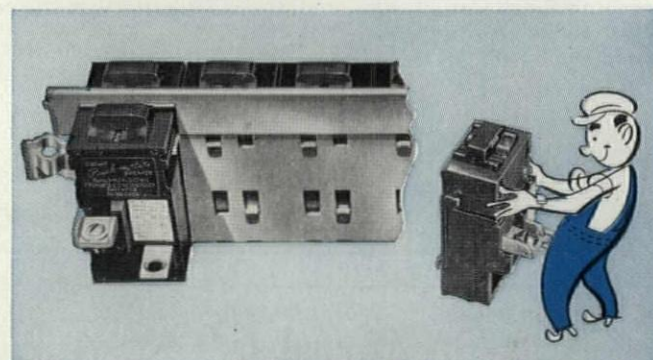
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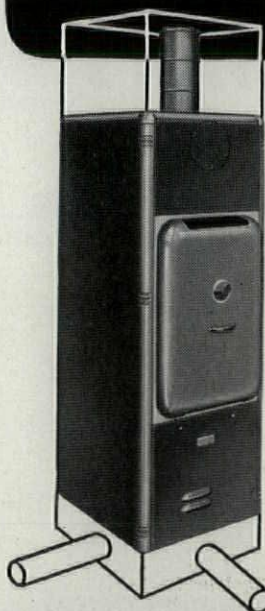
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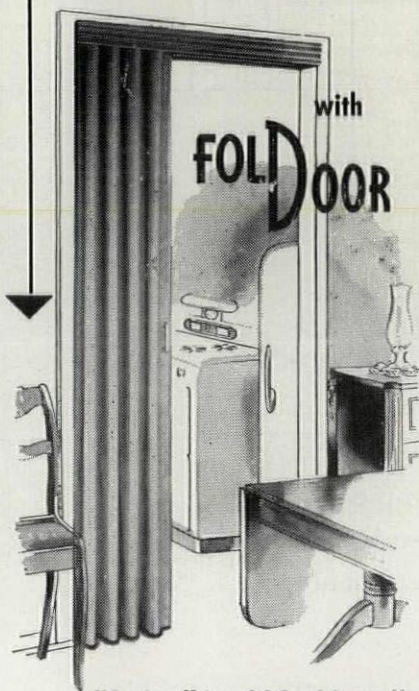
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TECHNICAL LITERATURE

AIR CIRCULATION. Independent Registers and Grilles. Catalogue No. 50. The Independent Register Co., 3747 E. 93 St., Cleveland 5, Ohio. 36 pp. 8½ x 11 in.

This recent catalogue contains data on the manufacturer's grilles, cold air faces and registers. Weights, open areas, sizes and prices are presented in table form and each product is illustrated with a photograph and diagram.

PLUMBING. The Use of General Electric Disposals on Private Septic Tank Systems, General Electric Co., Bridgeport 2, Conn. 8 pp. 5 x 7 in.

From field experience, laboratory research, and recommendations of health authorities, G. E. engineers have compiled this booklet on how garbage disposers can be used with septic tanks. First explaining the use of a private sewage system for both household sewage and fresh food wastes from the disposer, the publication then takes up the functions of a septic tank and soil absorption system. Design requirements are outlined for new or existing septic tanks which are to serve a disposer. The booklet also gives recommendations on capacity and location of the tank, and supplies useful data on soil absorption systems. Included is a reference list of sources for further information.

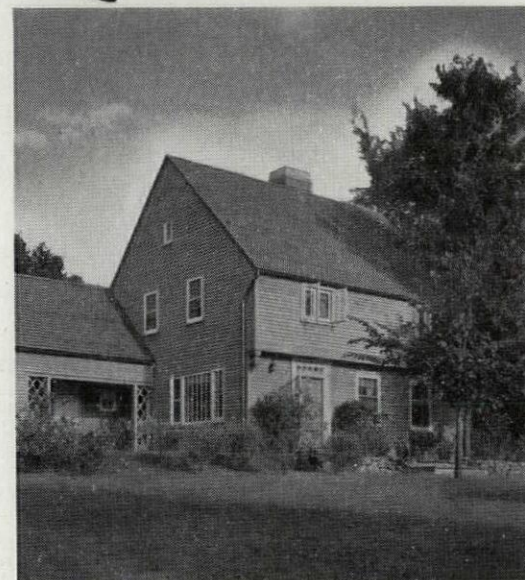
PLUMBING. Delany Flush Valve Catalogue No. 49. Coyne & Delany Co., 834 Kent Ave., Brooklyn 5, N. Y. 36 pp. 8½ x 11 in.

After brief descriptions of the manufacturer's flush valves this catalogue devotes the bulk of its pages to installation details, piping design, parts identification and a manual of charts and instructions. Excellent diagrams cover every current type of exposed and concealed installation for bowls and urinals; hand, push button foot pedal and lever controlled valves. Showers, laboratory sinks and many other special items are also presented. Applications recommended for hospitals, prisons, schools, laboratories and public buildings as well as office buildings, apartments and private homes are all clearly illustrated.

PLUMBING. Youngstown Food Waste Disposer Installation with Septic Tank. Mullins Manufacturing Corp., Warren, Ohio. 9 pp. 8½ x 11 in.

Pointing out the common mistakes made in septic tank installations, the booklet thoroughly explores the use of a Youngstown garbage disposer in a septic tank system. Tables show how to determine the size of tank required for families and houses of different sizes. Where a food disposer is installed, a tank with at least 500 gal. capacity is recommended. Suggestions are given for increasing the efficiency of the septic tank system when a disposer is plumbed into it. Well illustrated with line drawings, the booklet is a valuable reference on operation of septic tanks, what to look for in selecting a drainage field, use of leaching pools and use of tanks in series.

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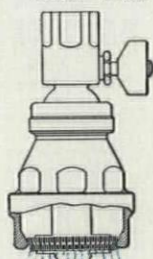
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AUTOMATICALLY
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each time it's used

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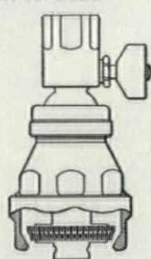
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**OFF position opens large, free waterway
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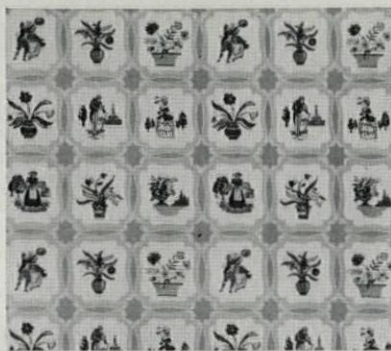
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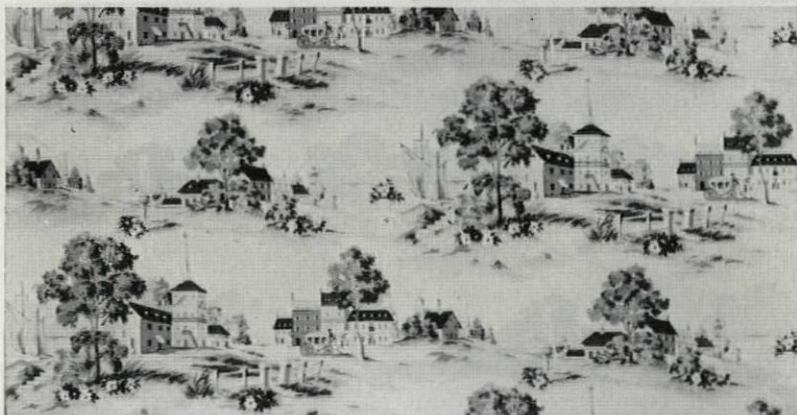
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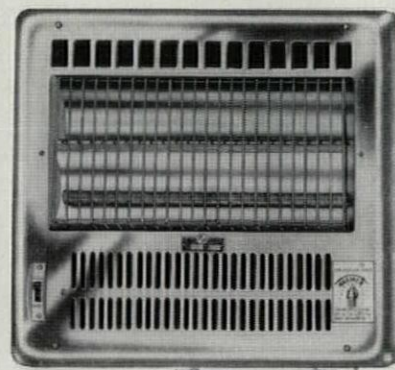
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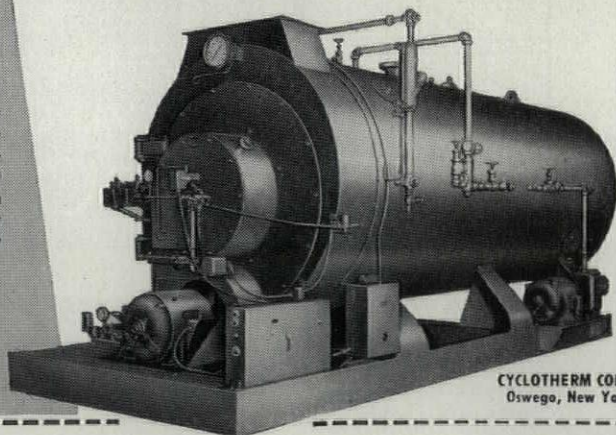
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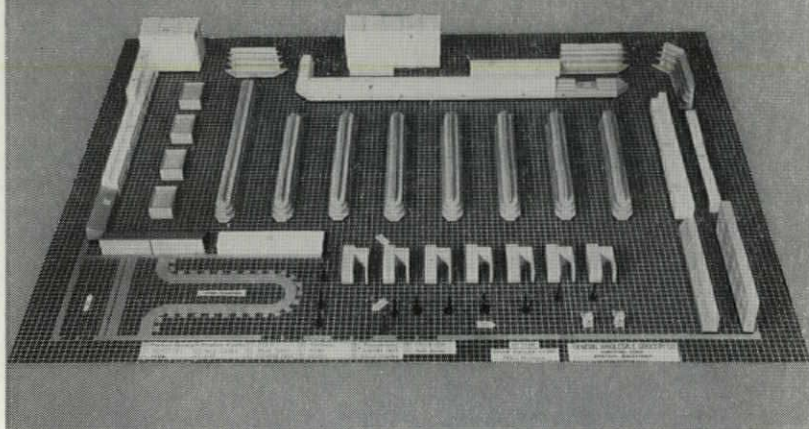
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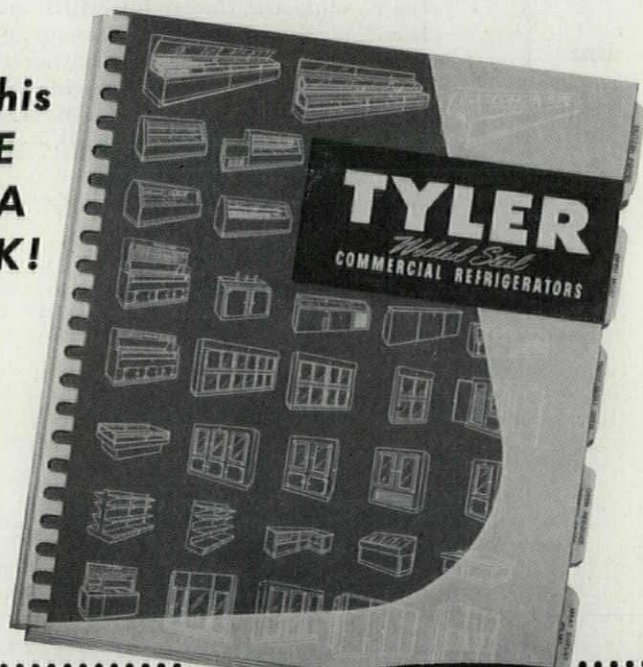


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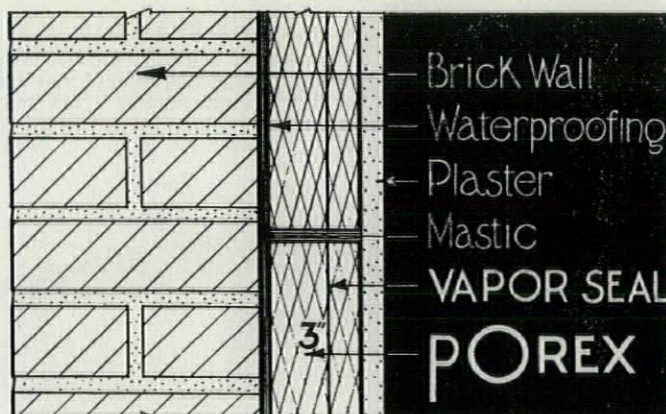
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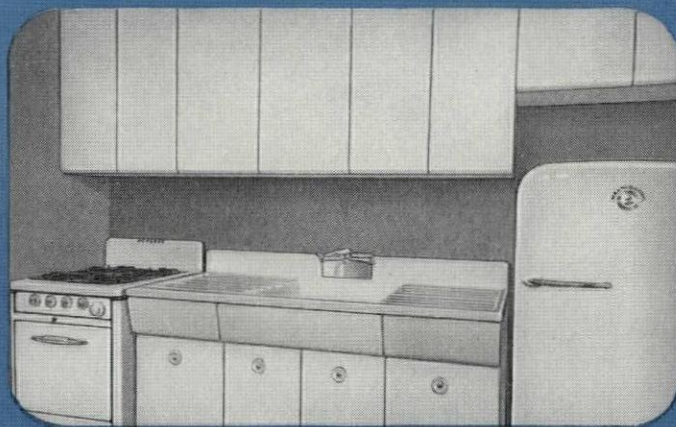
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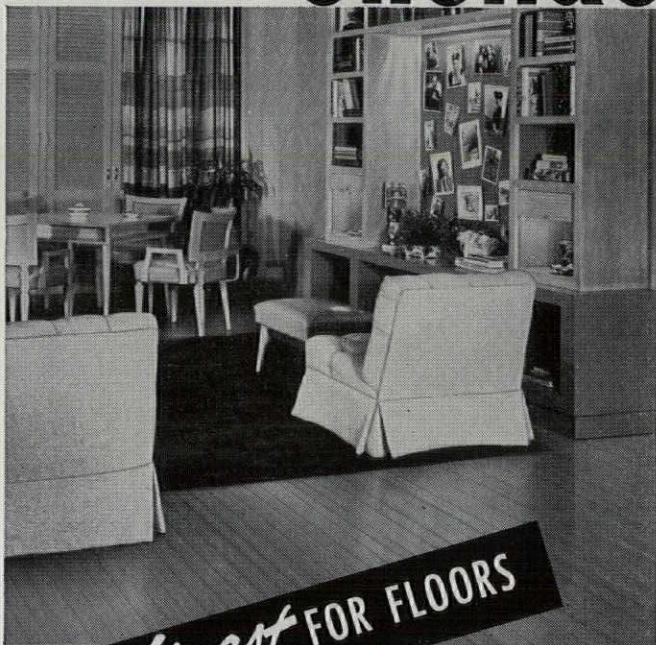
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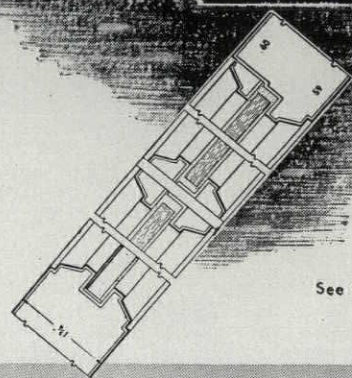
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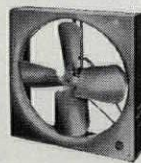
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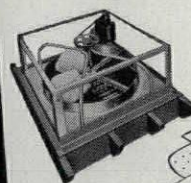
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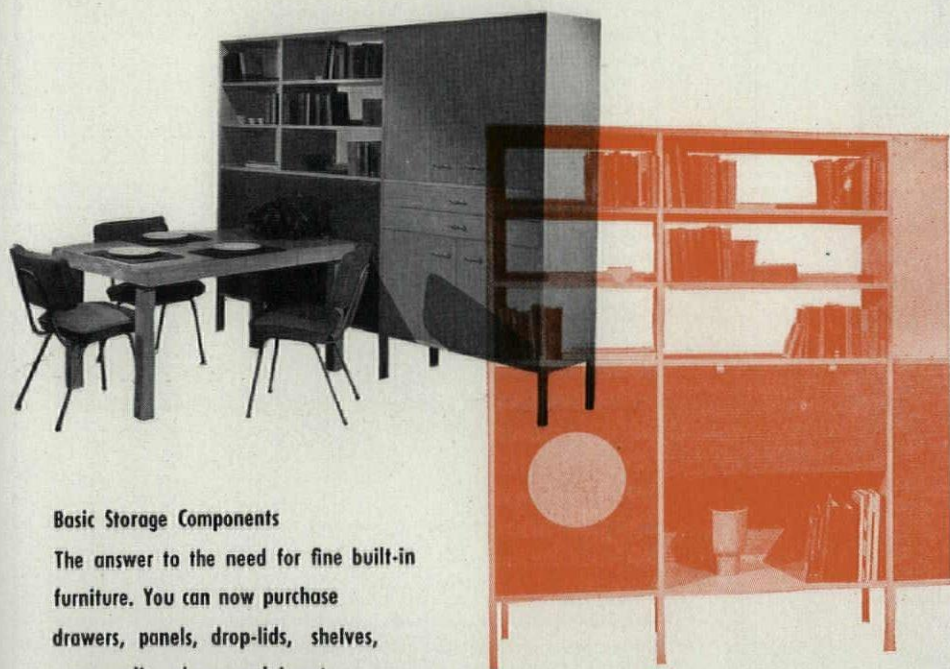
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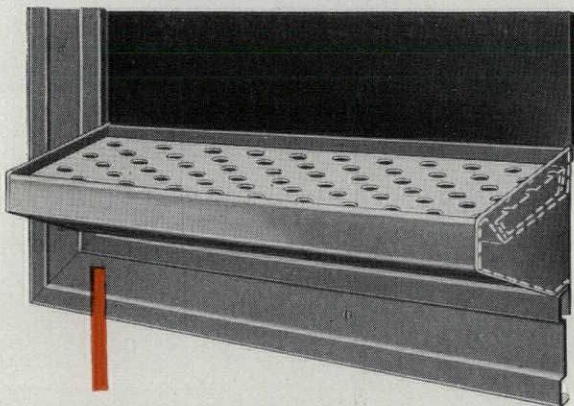
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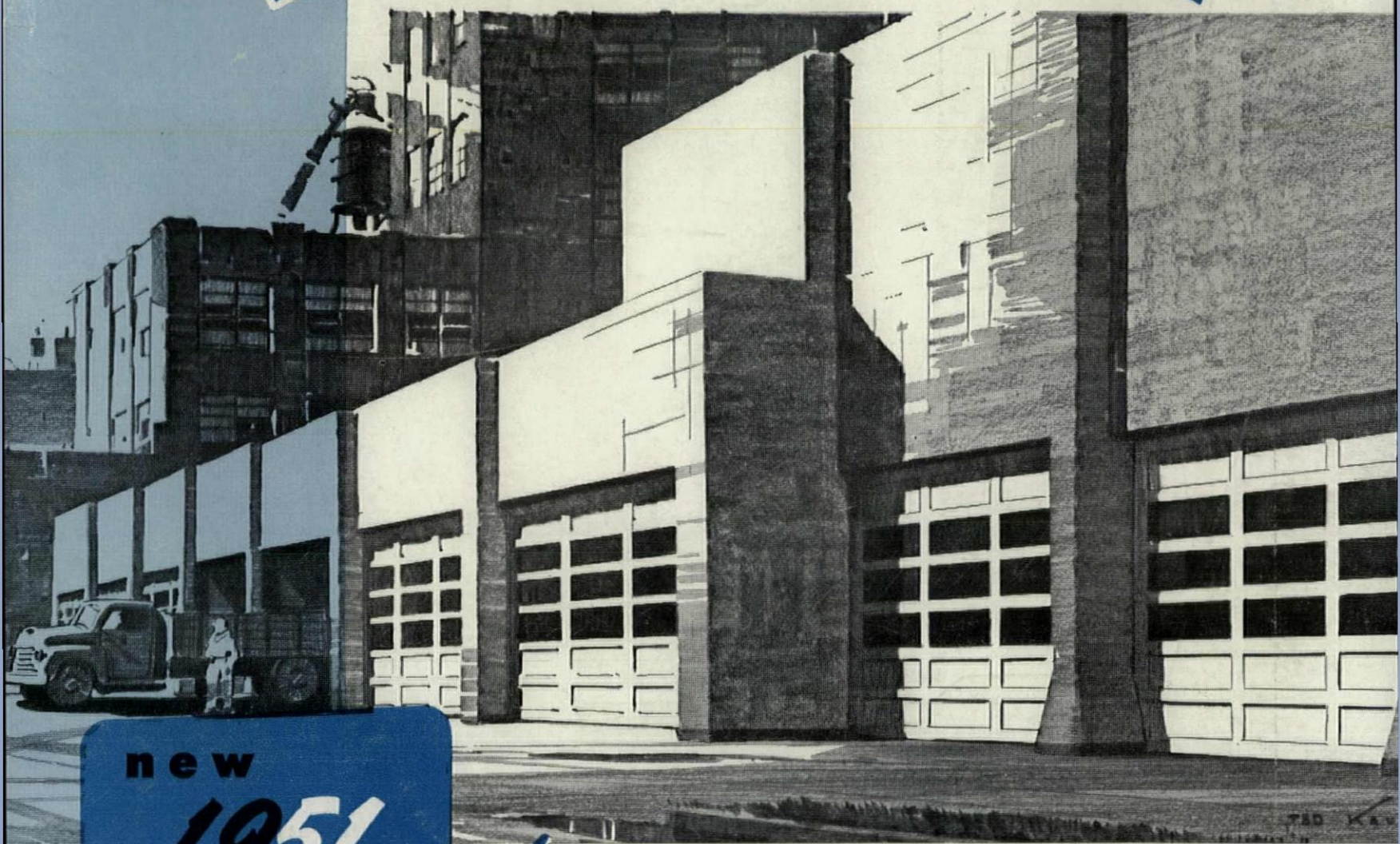
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