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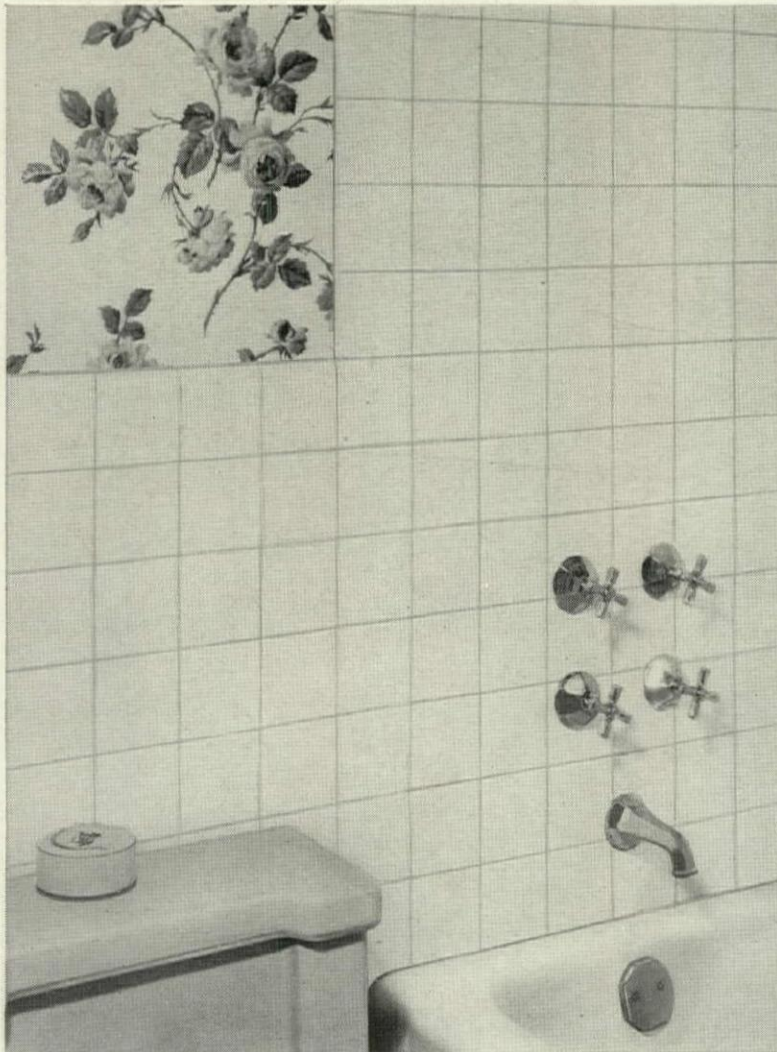


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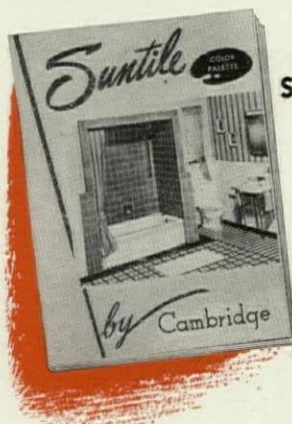
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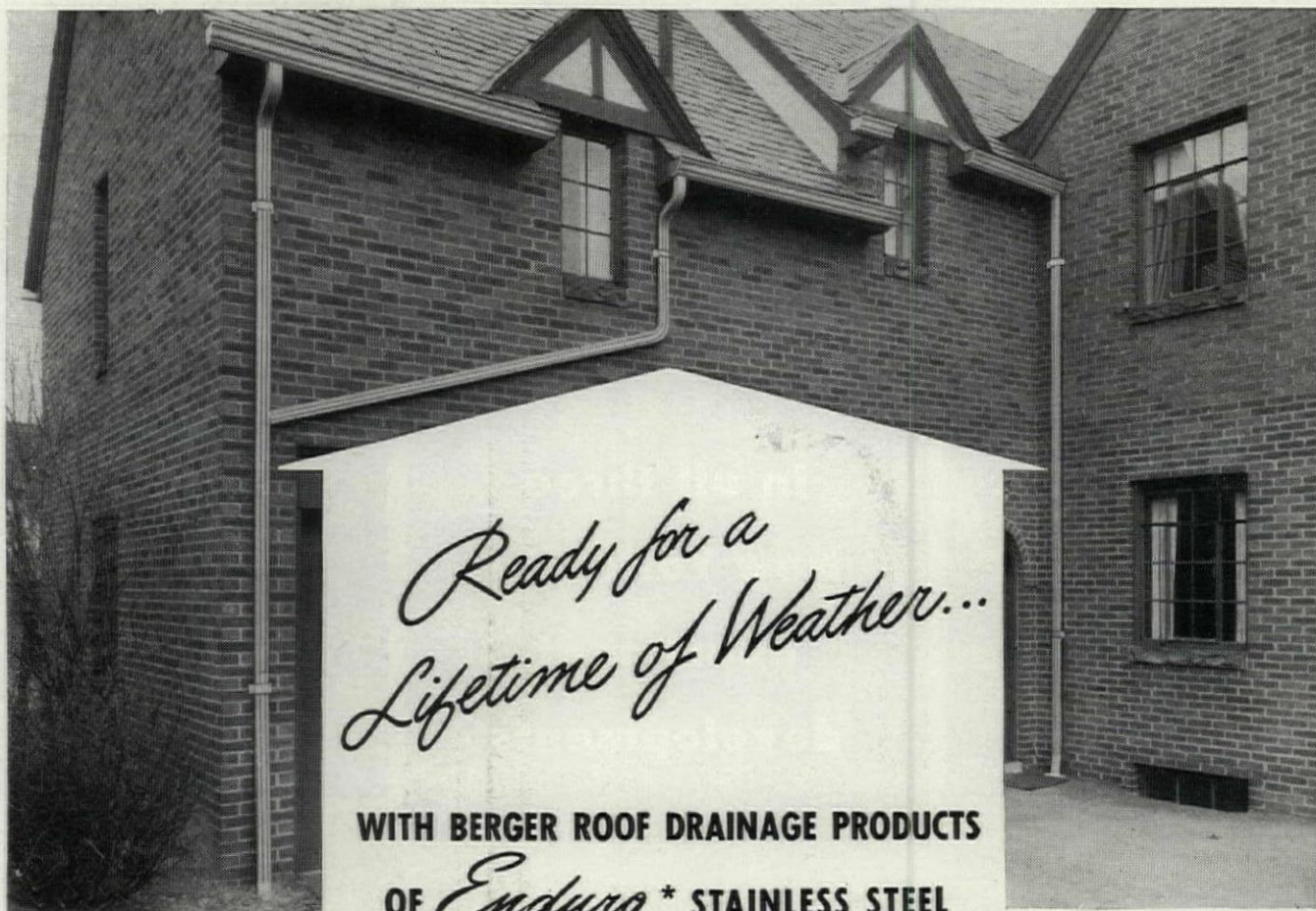


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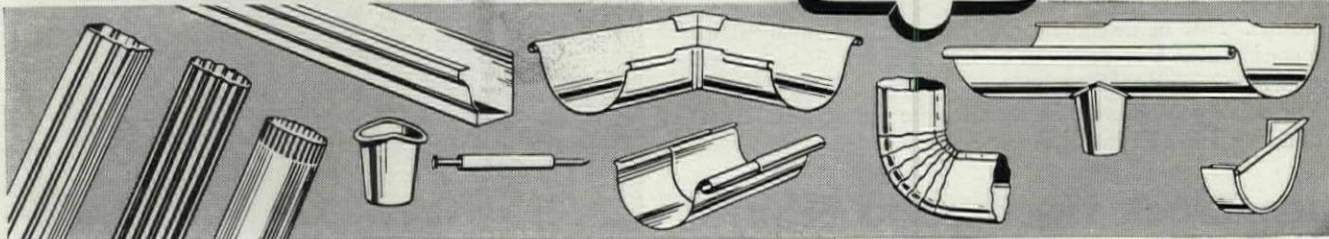
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The Architectural FORUM is published monthly by TIME Inc., 350 Fifth Ave., N. Y. 1, N. Y. Subscriptions may be sent to 540 North Michigan Avenue, Chicago 11, Ill. Address all editorial correspondence to 350 Fifth Ave., N. Y. 1, N. Y. Yearly subscription payable in advance. To Firms and Government departments, their supervisory employees and design staffs, engaged in Building—construction, design, finance, real estate ownership or management, materials distribution and professional instructors and students: USA, Possessions and Canada, \$5.50; Pan American Union and the Philippines, \$9.00; Overseas countries, \$12.00. To those not connected with the Building Industry: USA, \$11.00. Foreign, \$17.50. Single copies, if available, (except Reference Numbers), \$1.00. Reference Numbers, \$2.00. All copies mailed flat. Copyright under International Copyright Convention. All rights reserved under the Pan American Copyright Convention. Entered as Second Class Matter July 17, 1944 at the Post Office at New York, N. Y., under the act of March 3, 1879. Copyright 1950 by TIME Inc.

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Cover, Lake Shore apartments (p. 75) by Mies van der Rohe. Photo: Hedrich-Blessing Studio.



# What a job **GOOD CARPET** can do!



*Model house in the Expandable Homes, Inc., development in Milwaukee, Wisconsin. Houses are offered for \$9,600 including carpet!*



*Living room illustrates "finished" look which wall-to-wall carpet provides. Builder expects to use Gulistan Carpet in all future homes.*

Progressive builders, architects and finance men have found that nothing makes a home "package" more complete, more attractive, than *carpet*. That's why Home Designers & Builders, Inc., builders of the 1500-unit Expandable Homes, Inc., development in Milwaukee, offered houses complete with carpet. And because they knew the carpet must not only look good and feel good but must *perform* well, they chose an attractive, *durable* twist carpet by Gulistan.

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*Bedroom in model home shows the "complete" luxurious feeling obtained only with carpet. Carpet is laid wall-to-wall over radiant-heated floor slab.*

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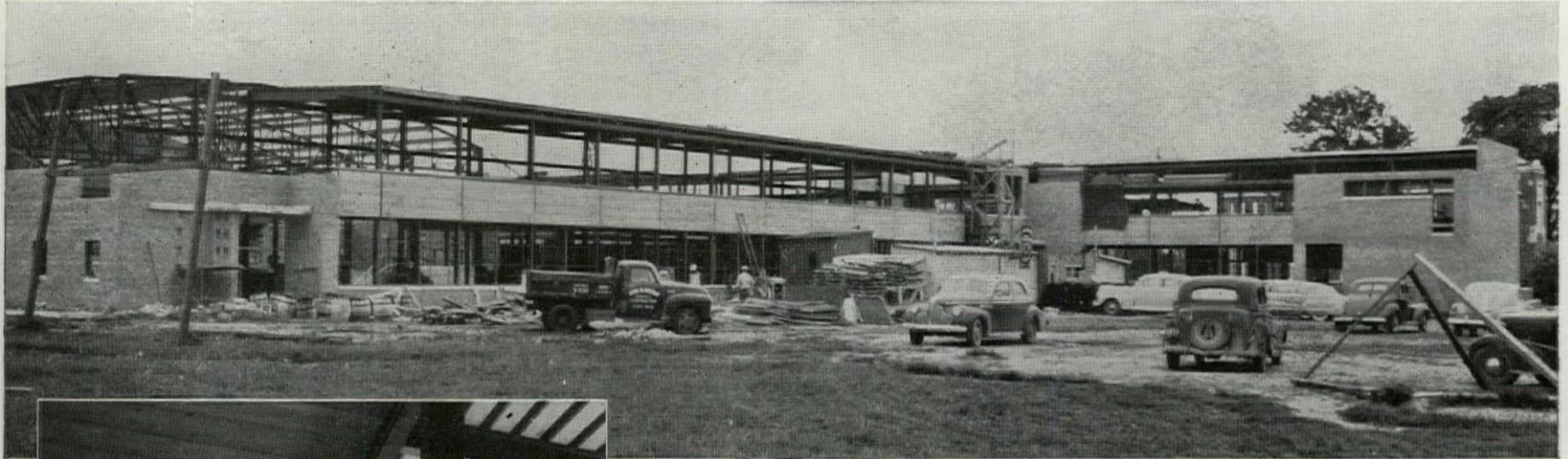
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## CARPETS

*Carpets Woven on Power Looms in U. S. A.  
A. & M. Karagheusian, Inc., 295 Fifth Avenue, New York 16, N. Y.*



# Quality School Construction



## ABOVE:

Partial construction shows Fenestra insulated Type C Panels used as a spandrel between windows of first and second floors. This is four panels high, consisting of 14' long panels laid horizontally.

## UPPER LEFT:

Exposed corridor roof shows Fenestra Type D Panels laid with flat side down. Main roof area under panels at right in photo was finished with a suspended plaster ceiling. The roof was finished over a large area in the early stage of construction.

## LOWER LEFT:

This photo shows an exposed ceiling of Panels extending from wall to wall. Fenestra Panels, factory prime-painted, provide a smooth surface, economically finished by adding only a coat of paint. Attractive, non-combustible. Note Fenestra Hollow Metal Doors. Corridor daylighted by Fenestra Intermediate Windows at right.

Architects: Bennett & Straight, Dearborn, Michigan.  
Contractor: Carl B. Foster, Flint, Michigan.

## STANDARDIZED BUILDING PRODUCTS USED:

### Gymnasium

10,400 sq. ft. 18-gauge Acoustical Holorib

3,000 sq. ft. Holorib Reinforcing Form.

### General Shop and Power Plant Roof

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20,200 sq. ft. 4½" D-18-18 Panels.

### Spandrels Between Floors

4,100 sq. ft. 3-C-18-18.

### Classroom Windows

289 Intermediate Projected.

### Shop and Power Plant Windows

21 Commercial Projected.

### Home Economics Model Home

3 Residence Casements.

### All Doors, excepting main entrance doors.

135 D.S.P. Doors, Frames and Hardware.

# Fenestra

## STANDARDIZED



# ...UNDER 60¢ PER CU. FT.

## ... How Fenestra Steel Panels, Windows and Doors contributed to economical construction in the Robert N. Mandeville High School at Flint, Michigan

Architects Bennett & Straight of Dearborn, Michigan, faced a familiar set of requirements:

- Large size, with a layout involving considerable perimeter for good daylighting.
- To be ready for fall occupancy.
- Limited budget, calling for low cubic-foot cost.

Convinced of the speed of erecting with Fenestra\* Building Panels, the architects looked into their costs . . . saw how on-the-site labor could be saved if the building was planned specifically to use standard units to minimize special work.

They decided on a 7' module. Classrooms were established in a 28' width, with partitions spaced at 14', 21', 28' and 35' intervals. The structural steel frame was designed in a bay size of 14' x 28', saving weight in steel. Saving in roof construction was achieved with standard Fenestra Type D Panels on the 14-foot span. Standard Type C Panels formed spandrels between

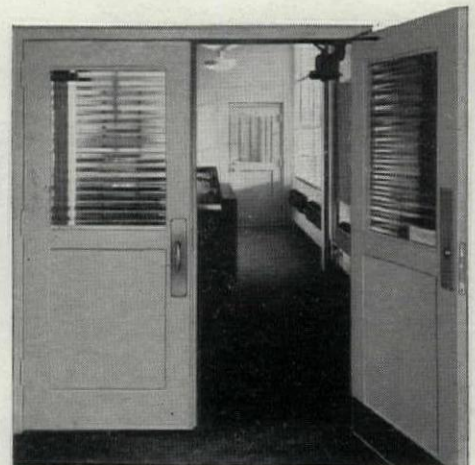
floors and the window walls of Fenestra Intermediate Projected Windows.

For the roofs of the 100' x 100' gymnasium and the shop, Fenestra Acoustical Holorib Roof Deck was used. This provides a surface for application of roofing materials. The underside provides a sound-absorbing, perforated surface. It is non-combustible and, being steel, withstands impact. Holorib was used as the permanent reinforcing form for the seats in the spectator stands of the gymnasium.

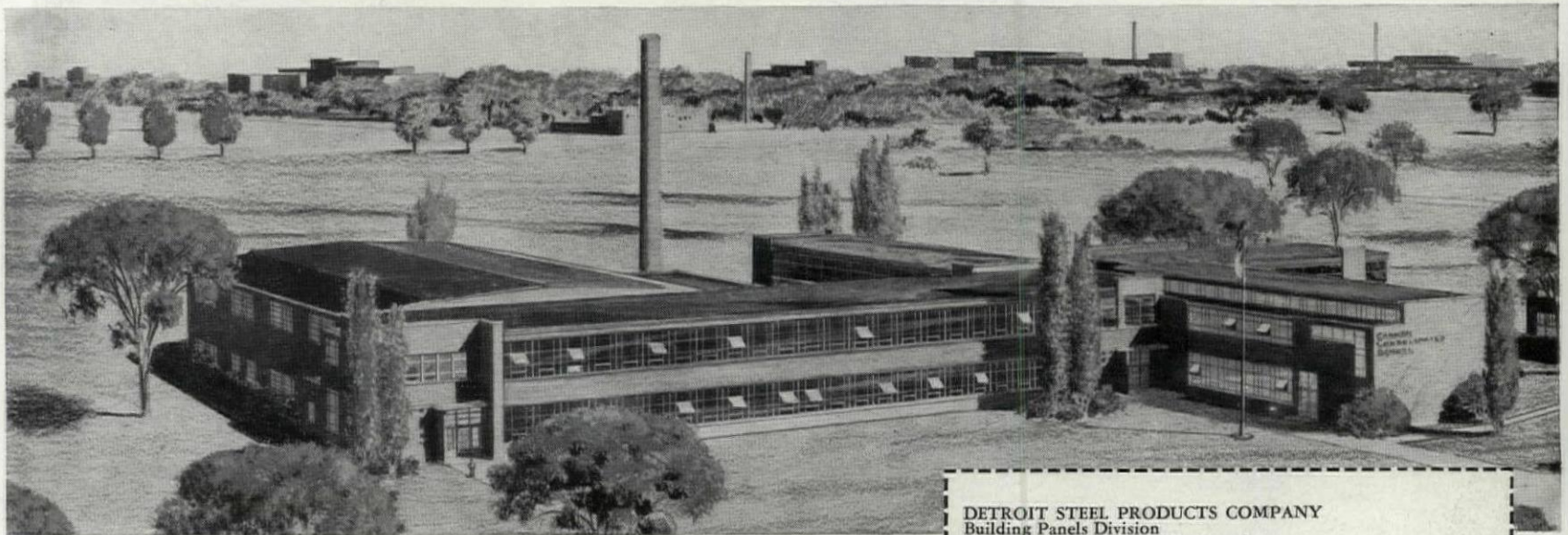
Fenestra Panels—Fenestra Windows—Fenestra Doors—combined in this structure to help the architects and contractor achieve their triple goal of a sizable, sound structure, speedily erected, at low cost.

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All doors in the Robert N. Mandeville High School, aside from main entrance doors, are Fenestra Hollow Metal Doors. These doors, delivered complete with frames and hardware, provide quality appearance, durability and savings in first cost and construction time.



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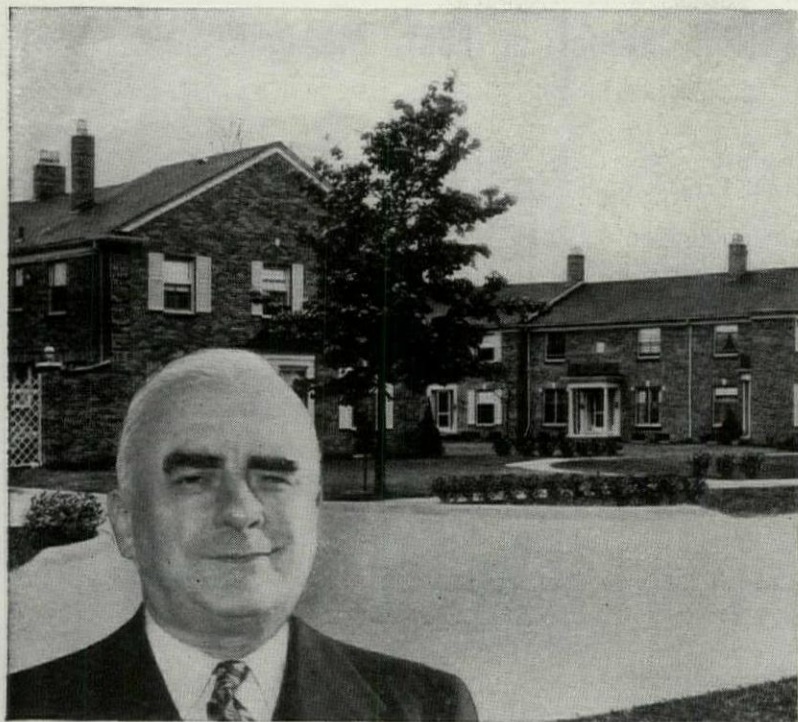
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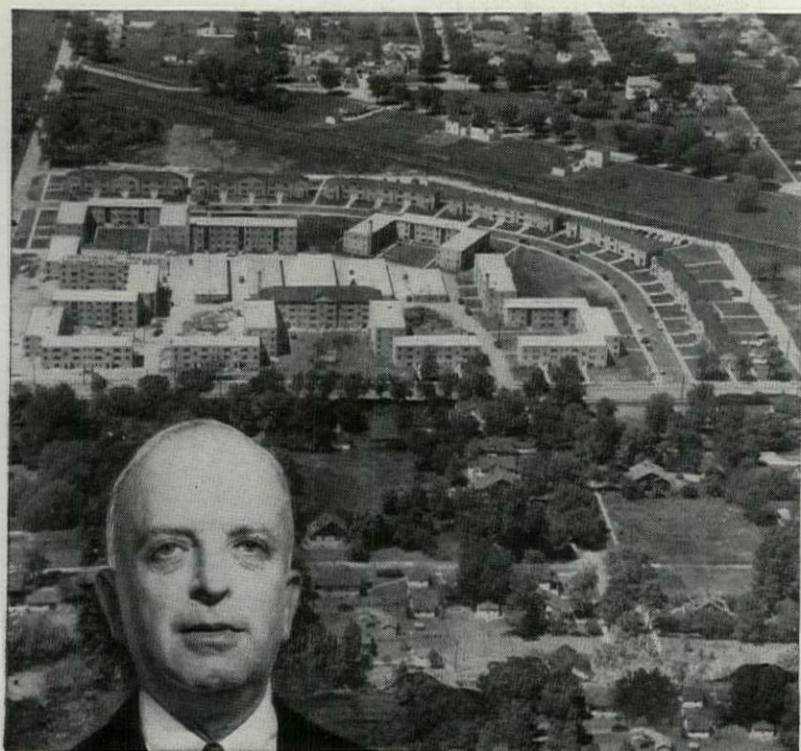
**M. M. ROBINSON**

Vernier Grosse Pointe Apartments,  
Detroit, Michigan



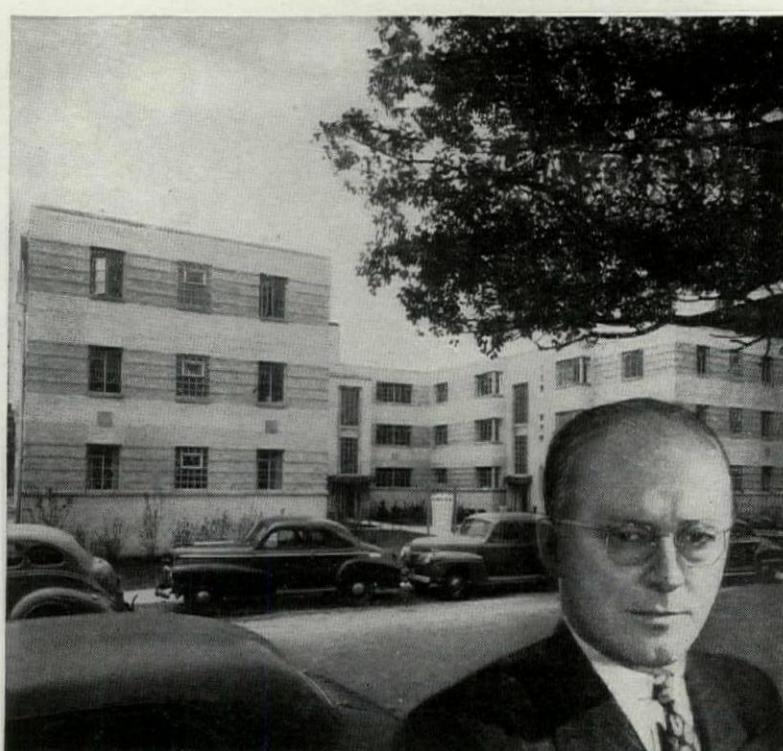
**HARRY J. DURBIN**

Graefield Terraces,  
Birmingham, Michigan



**J. T. SCHLESS**

St. Charles Project,  
Elmhurst, Illinois



**J. E. MERRION**

Merrion Square Project,  
Chicago, Illinois





## WHO WILL BUILD AMERICA in the second half of the 20th Century? The industry begins to probe its central problem

Looking back on 1949, tomorrow's builder will be less impressed with Building's record-shattering volume—a million housing starts and some \$19 billion worth of construction—than with Building's efforts to cope with its central problem. "Little as I realized it then," he will say, "the big news in Building, as we entered the last half of the century, was not the promise of another booming year in 1950, nor the technological revolution on which Building had embarked—no, the big news was the beginning of an *integrated building industry*, an industry that had begun to find its real strength only after facing up to the threat of complete government domination. In 1950, builders decided that *they*, not government, would keep on building America, and in 1950 they began to organize to achieve their purpose."

**The cause.** After 15 years of going to bed with government, Building began to count the cost. Since the start of FHA in 1934, Building—that sprawling agglomeration of somewhat-free enterprise comprising architects, engineers, contractors, builders, labor, mortgage bankers, life insurance and savings bank investors, realtors, appraisers and dozens of other arts, crafts, sciences, trades and professions—had watched FHA supply the principle cement to bind all elements of the industry. Government, with its money and legal powers, had been the largest single integrating force in building. Then, late last year, came the jolt which showed how quixotically government could wreck what it had largely built. Washington's new nondiscrimination regulations (see *Washington*) aroused the industry not so much by their provisions as by their implications. Henceforth the housing market would be subject to vitally important decisions made purely for political purposes. The proof was there for all to see. Exactly one week after Solicitor-General Philip Perlman's publicanese pronouncement in New York, FHAssistant Commissioner Warren J. Lockwood was soothing Texan home builders by saying they would have plenty of time to get racial restrictions on new development property before the nondiscrimination regulations become law.

**The effect.** The industry speeded examination of its position—and its conscience. New Jersey Realtors courteously listened as Robert Armstrong, head of New York's chapter of the American Institute of Real Estate Appraisers, charged them: "unless the real estate interests find better arguments to sustain their position, unless they will at least try to offer a solution to slums as opposed to public housing, I am afraid present trends will persist."

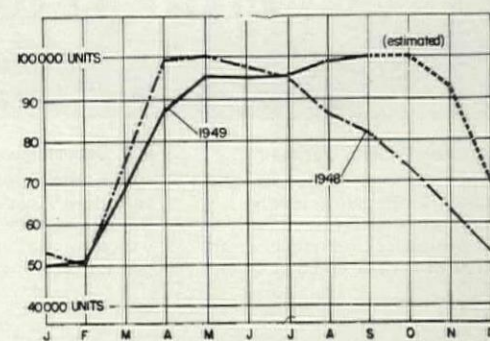
The National Association of Home Builders started to establish its own mort-

gage exchange corporation to stimulate purchases of mortgages by the package in a private secondary market.

In Congressional hearings at Washington, Leroy A. Lincoln, President of Metropolitan Life, suddenly invited little business to step up and ask for loans. In New York, other life insurance executives were reported listening carefully as mortgage bankers probed with them the possibilities of insuring mortgages with private, instead of public, funds.

Significantly, at a mid-month meeting in Washington, the U. S. Chamber of Commerce coralled 17 bigwigs in the industry's higher echelons of banking, construction, insurance, law, marketing, manufacturing and realty to learn if Building's private enterprisers could unite on a solution to the problem that plagued them. That problem had just been stated by the National Lumber Manufacturers Association: "The Federal Government should not engage in the financing or building of houses."

**The stakes.** Builders could keep on thriving in 1950 as public construction replaced the losses expected in private building.\* But even in heavy construction, they crossed swords with government. (The Associated General Contractors were still fighting gov-



A million housing starts for '49 are sure, even more if December hits 70,000 as anticipated.

ernment-paid day labor.) The architects had, through the efforts of A.I.A.'s Ralph Walker, barely saved their fee structure from a fast one pulled by PHA (see *page 12*). The home builder still had to battle bureaucracy as it wielded obsolete building codes (see *Law*). The freedom of the building worker, too, might be in jeopardy if NLRB paid lip service to Taft-Hartley but passed up elections it enforced on other industries (see *Labor*).

At the turning half-century, Building might supply its own cement to give the industry much-needed cohesion. It appeared that Building's men were beginning to realize that without financial freedom they might not long have any other. There were indications that Building would heed the admonition of economist Miles Colean to last month's meeting of the National Association of Mutual Savings Banks: "Your role in the future—if you are to have one—must in no small degree be a political role. You must regain some influence over your own destiny."

\* In Washington the General Services Administration listed 312 Federal building projects, mostly post offices, whose total cost, including construction, came to \$377 million. Congress, however, has yet to appropriate the funds to start building.

## WASHINGTON

### FHA BANS DISCRIMINATION: Is civil rights battle moving toward housing?

Will government insurance on privately-built housing soon mean no segregation between Negroes and Whites? That question persistently threaded its way through the housebuilding industry last month.

The question's urgency had blunted considerably since Solicitor-General Philip Perlman's pronouncement that "the FHA is amending its rules so as to refuse to aid

the financing of any properties the occupancy or use of which is restricted on the basis of race or creed or color." At first, builders, lenders—the entire industry—had stared at the headlines in stunned disbelief.

When everyone had read the fine print, however, the breathing was easier: the new regulations would apply only to covenants recorded after February 15. FHA jumped in the day after Perlman's pronouncement to calm whatever fears remained. Withholding insurance on property where re-





**Solicitor General Perlman:**

"the Federal Housing Administration is amending its rules so as to refuse to aid . . . properties . . . restricted on the basis of race or creed or color!"



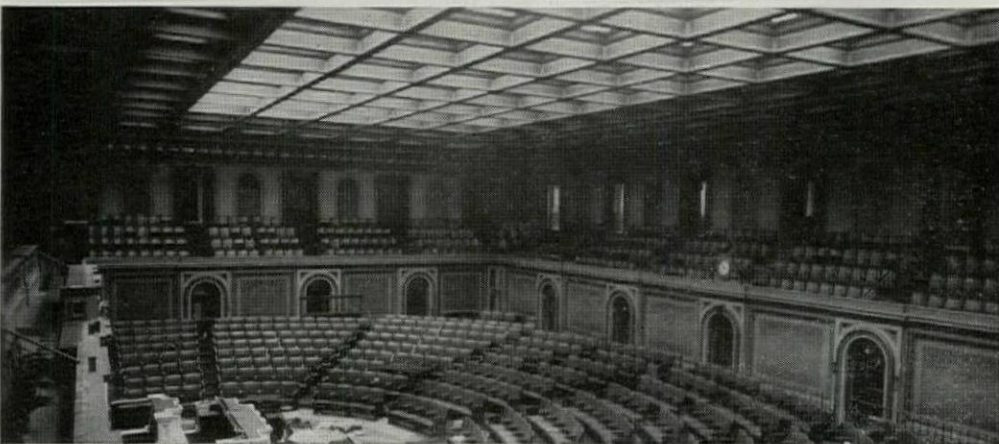
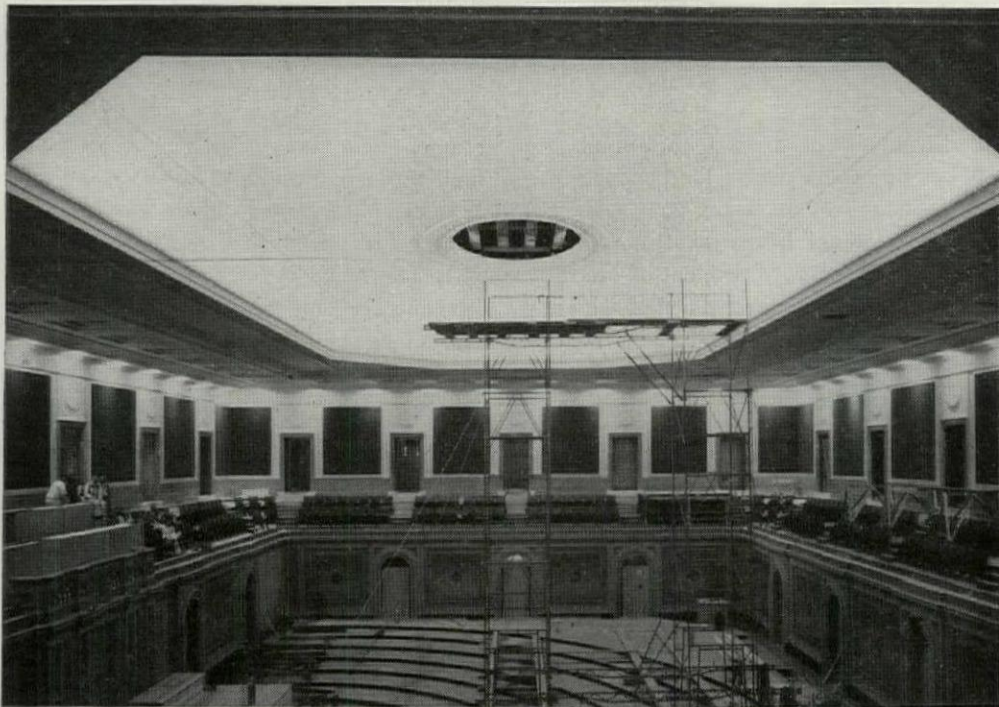
**FHA Commissioner Richards:**

"The date referred to is a future date . . . amendments will be issued sufficiently in advance . . . to put all interested parties on notice."



**NAACP's Counsel Marshall:**

"a private individual can't segregate but in Public Housing the government can. If either kind of housing is Jim Crow it will affect the other."



## MODERNIZATION ON CAPITOL HILL

Congress reconvenes this month under a new ceiling. House of Representatives' old skylight and iron trusses (above, lower) have been replaced with new steel and reinforced concrete roof, indirect lighting, and new air conditioning (above, top). Other improvements to come will bring reconstruction cost to \$2,567,000. Similar remodeling of Senate (which also has new ceiling) will cost \$2 million. To repaint interior of Capitol dome (right), workmen used special aluminum scaffolding designed by Washington Aluminum Co. of Baltimore. Suspended from balcony railing, structure has 51 ft. drop, is equipped with wheels for mobility, weighs less than 1,000 lbs.



striction was part of the deed would not change things one whit, FHA hastily assured. It would "not attempt to control any owner in determining what tenants he shall have or to whom he shall sell his property." The regulations themselves, when they were released later in the month, seemed to bear out those assurances. Restrictive covenants had been useless anyway, ever since the Supreme Court's decision last year (FORUM, Oct., '47) that they were not enforceable by law.\* There were other tempering provisions which made the new change something considerably less than the ogre it had first appeared: it would not apply to existing subdivisions; small penalty for violations was prescribed. (Lenders would simply be permitted to "call" a violator's mortgage.)

**Worry aplenty.** The official assurances succeeded in calming anxieties somewhat. From Houston, San Francisco and Boston, builders confidently asserted it "wouldn't mean a thing." But Building's men in Washington weren't so sure. There appeared to be plenty of reason for worry: one was the great discrepancy between Perlman's concept of the new ruling and that of the FHA. Another was the suspicion that FHA could be politically tinkered with. As one Atlanta builder cannily observed, "If all this doesn't mean anything, why even bring it up?"

There were several possible answers. The best one seemed to be that the administration thought it could champion civil rights without actually tampering with the construction market. Another was that it hoped to use this as a club to force builders to provide sorely-needed Negro housing. (HHF Administrator Raymond Foley had been trying with only moderate success for months to dramatize this need.)

Whatever the reasons it seemed that the administration might have a hot potato in its hand. Thurgood Marshall, the energetic legal counsel of the National Association for the Advancement of Colored People, which is pushing for abolition of all segregation, made it clear his group expects the government to deliver. He wrote FHA Commissioner Franklin Richards, asking him to "make it clear to the public that your interest is in carrying through this new policy and is not, as reported in the press, to make narrow constructions in order to give aid and comfort to those who are determined to continue and to expand racial segregation . . . ." Marshall and the

\* Another angle may have to be settled in the Supreme Court. Missouri's Supreme Court ruled last month that, even though restrictive agreements are not enforceable, violators of such agreements may still be sued for breach of contract.



NAACP want some clear-cut action not only from FHA, but also from the Public Housing Administration, which up to now has been sitting snugly on the contention it could leave all racial issues up to local authorities.\*

**Next step—608?** At month's end, Marshall was still awaiting Richard's reply. And U.S. Housebuilding was awaiting the administration's next step. A possible first step might be taken through the Section 608 program (or whatever its equivalent will be if Congress permits 608 to expire next March; see p. 97), where the peculiar kind of government builder contract gives the government the right to impose requirements on the builder without actually interfering with the mortgage. Presumably this could be carried so far as to give the government the right to determine occupancy.

Would the government use that right? Would it claim others like it? No one could be sure. There were too many indications the federal administration would adroitly direct its political campaign for civil rights toward the well-worn battleground of housing—the field on which it had already won substantial victories and hoped to win more.

\* An example of local authorities' determination to bend over backwards to provide equal facilities for Negroes came from Charlotte, N. C. last month. PHA in Washington held in abeyance a request for 4,000 units for Negroes there until a similar need was shown for Whites.

### HEAVY FANNY MAY causes administration some apprehension

At least part of the reason for the recent weed growth of VA 501 program is that the weed has been fertilized by the vast reservoir of the Federal National Mortgage Association. Lenders, forced by competition to make 4 per cent GI loans, didn't mind too much as long as they could turn them over to the RFC's secondary market. Last month there were serious indications the reservoir was drying up. At the end of November, Fanny May had only \$940 million of its \$2.5 billion authorization left. At this rate Fanny May's authorization would not last out the fiscal year.

Not all the concern centered on Fanny May's approaching poverty, however. There was worry over the size of the fortune she had already spent. The Bureau of the Budget, which had anticipated that FNMA's drain on the treasury for fiscal 1950 would be around \$300 million, indicated that it—along with HHFA—would welcome restrictions to make FNMA a bank of last resort and no more—by requiring such measures as purchase at a discount and mortgage holdings by the seller for at least one year.

### CO-OP HOUSING looms as next challenge to private finance

President Truman, in his "state-of-the-nation address, gave the nod to co-op housing plans that had long been cooking in Washington.

Those plans—aimed to serve the nation's "middle income group"—called for a government-chartered corporation, "The National Mortgage Association for Housing Cooperatives" to be set up under HHFA and financed with an initial investment of \$100 million from the Treasury. The Treasury would get stock in the corporation and would be entitled to dividends.

The corporation would be empowered to issue some \$2 billion in tax-free debentures, to give virtually free assistance in organization and planning to "non-profit cooperatives" and to loan them money (at talked-about rates of 3 per cent) for as long as 60 years.

The legislative strategy by which this co-op loan plan (designed to mollify the ardent advocates of more obvious direct lending) would be hustled through Congress was neat and simple: the new Corporation would be proposed in an amendment to the long range Senate bill now pending (and already passed by the House). The amendment would, presumably, be passed by the Senate and go directly to a conference committee of the House and Senate, thus escaping an open battle on the House floor.

As always, private industry appeared unorganized to meet the threat. A few builders actually approved co-op housing. Others had not even heard of Senator Sparkman's junket to Sweden and, because co-op hous-

ing had been such a flop in the past, tended to under-rate its powerful potential in the future. Their comments: "only one project here, organized more than two years ago and not one house completed" (Los Angeles), "another idea, the woods are full of them, best for Negroes, they seem more willing to pool their efforts" (New Orleans), "Texans have too much individualism to be interested" (Houston), "no co-ops here, and no prospects of any" (Seattle).

But some builders were worried. Cried they: "co-op housing is a form of direct lending that will raise more problems than it solves."

**The problems?** Co-ops, which seem to thrive in good times, go bad quickly in bad times. Default of only a few people in a co-op can cause default on the whole project. In purely private co-ops, the cooperators take the rap (as they did in the '29 crash). But under a government-insured (or direct) loan program, the government would take it.\* Would Congress consider that?

The Bureau of Internal Revenue, apparently, hoped it would. Scratching around for new sources of tax money it recently listed 99,467 tax exempt organizations that had, in 1946, received \$8 billion in tax-free income. Co-ops had the greatest tax benefit of any group on BIR's list. In 1948, it is estimated, co-ops would have been liable for \$500 million in taxes if they had not been granted tax-exempt privileges—"privileges," said Wallace Colwell of the Detroit Builders Association, "denied the individual home buyer."

\* One rap the government stopped taking was Lustron. Late last month RFC announced it would lend no more to Carl Strandlund's ill-starred venture.

## PUBLIC HOUSING

### PUBLIC HOUSING has heavy month: requests, grants and resales

President Truman approved PHA loans totalling more than \$15 million to 118 localities for the planning of 84,040 low-rent homes for some 300,000 low income families. This brings the total of preliminary loans by PHA to almost \$36 million, covering planning of 221,390 units by 227 local housing authorities.

In addition, PHA has reserved funds for 60 additional local authorities which have yet to obtain approval of local governing bodies on their loan applications.

Other news on the public housing front:

▶ The Bureau of Labor Statistics reported that, as of July 1, 1949, nearly 54,000 new dwelling units—in 11 states and 225 cities

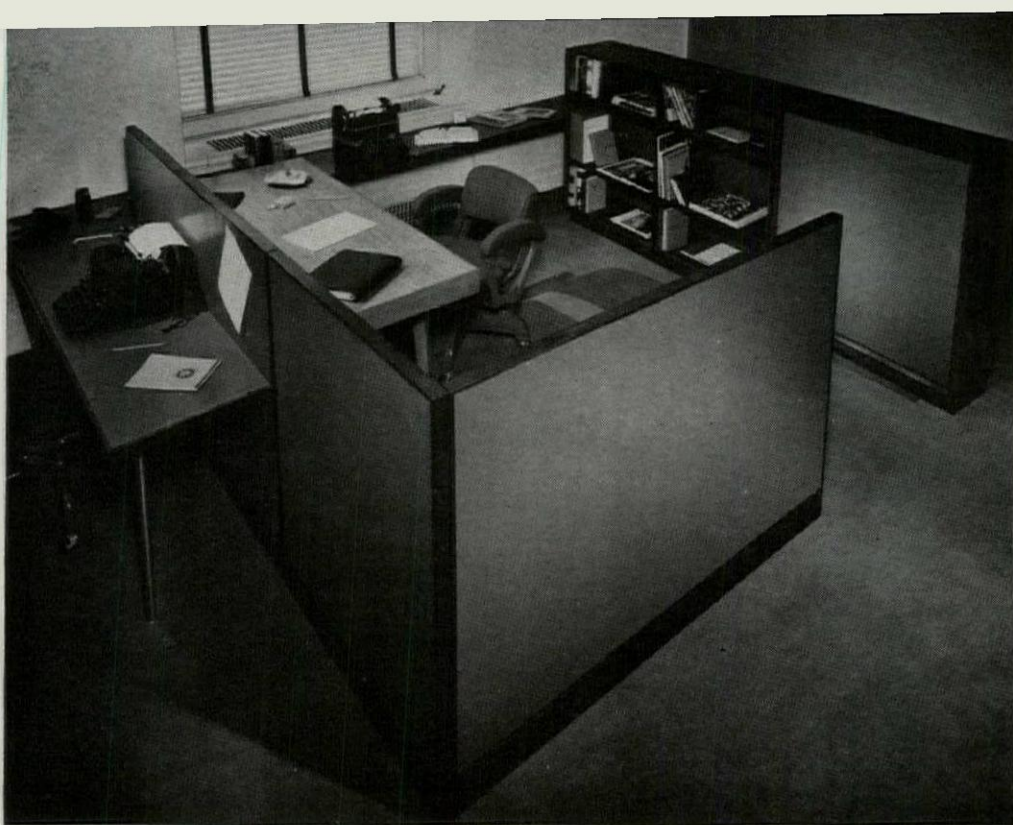
—had been provided since V-J day under state and local housing programs.

More than 70 per cent of the total was built in cities of more than half a million population (64 per cent in New York City alone).

▶ New Orleans, hoping to get 5,000 federally financed units, completed the legal technicalities necessary to get the funds (\$650,000) to make their plans.

▶ The Chicago Housing Authority earmarked 656 acres for the construction of 9,990 units (the first group of 21,000 units already approved for Chicago under the new act) next summer. Little more than half of the units (5,020) will be built on unimproved land, the rest in slum areas.





Photos: Damora

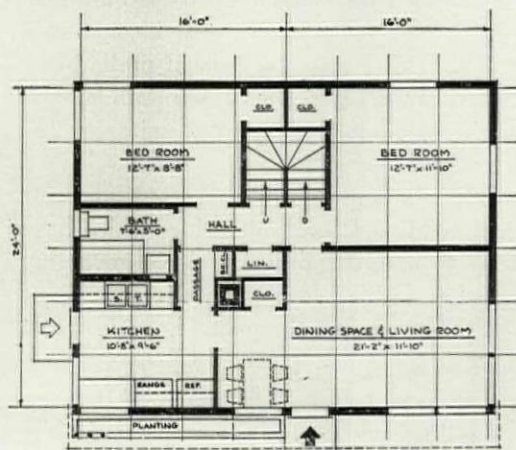
## ACOUSTICAL FURNITURE and screens solve privacy problem in open offices

To increase the openness and flexibility of offices, to give them better light and air and to permit the use of deep windowless space, Designer Maria Bergson has successfully subdivided office areas with waist-high screens and bookcases. This scheme obviously creates an acoustical problem which can be only partially solved by acoustical treatment of the ceiling and wall-to-wall carpeting. So Designer Bergson has brought acoustical controls close to the source of the noise. In the typewriter table is an interchangeable panel of perforated  $\frac{1}{8}$  in. enameled steel backed by 1 in. of glass fiber, reducing typewriter noise about 50 per cent. Partition screens and bookcase backs are also acoustical panels. The 43 in. high screens are fabricated in 3 and 5 ft. lengths and are comprised of steel or walnut-finished birch frames fitted with 2 in. of glass fiber, covered both sides with 22 gauge perforated metal (either steel with a baked enamel gray finish or satin-finished aluminum). Bookcase backs are similar acoustical sandwiches  $\frac{1}{2}$  in. thick. Perforations are  $\frac{1}{16}$  in. holes,  $\frac{1}{8}$  in. on centers, and may be tacked into with thumb tacks, making a bulletin board of any surface. Patents covering details of design, construction and installation have been applied for.



## GOOD AMERICAN HOME PROGRAM

"The Good American Home Program," sponsored by the National Retail Lumber Dealers Association and U. S. Savings & Loan League, gets under way this month with a campaign which the backers hope will provide a quantity of \$7,500-\$12,000 houses throughout the country. Program will attempt to show "middle income families" how they can buy one of five houses designed by Randolph Evans (one of them shown at right) for 25 per cent of their income, by offering those families a budget for the remaining 75 per cent. Detroit will start program off by building the first group of "Good American Homes." Building manufacturers contributing to the program are Ruberoid, Yale & Towne, Lockport Cotton Batting, Sanitas Division of Interchemical Corp., N. Y. Wire Cloth, Kelvinator, American Radiator & Standard Sanitary.



► Detroit replaced its public housing-happy Mayor Eugene Van Antwerp, who wanted to place Detroit's units in residential areas on the city's outskirts, with Albert E. Cobo, who is opposed to public housing in single family residential areas. Cobo is expected to pump for the clearing, replanning and resale of slum land for development by private builders.

► Despite protests from private builders that the city already has 1,114 approved houses not yet under construction and only about 6,000 buildable lots left, San Francisco applied for the funds to plan 3,000 federal units.

► The Opinion Research Corp. of Princeton, N. J., completing a survey for the U. S. Savings & Loan League, found that 49 per cent of the people interviewed believe private industry can build housing more economically than the government. Of the others, 37 per cent disagreed; 14 per cent had no opinion.

► Greenhills, a public housing project built near Cincinnati in early New Deal days at a cost of \$11,508,000, was sold to a nonprofit corporation formed by its tenants for \$3,511,300. The *Chicago Tribune*, decrying the facts that "each tenant is thus getting a subsidy averaging \$11,860," and "federal taxpayers are taking a loss of nearly \$8 million to make this gift," was nonetheless happy that "a welcome start has been made toward liquidating the public housing racket. . . . Greenhills should provide a precedent. . . . All the (public housing) projects should be sold and put on local tax rolls. . . ."

► On the slum clearance front: HHFA announced that it was now ready to receive requests from cities for their share of the \$1.5 billion loan-capital grant kitty for slum clearance and urban redevelopment.

## ARCHITECTS FEES for public housing set by PHA, A.I.A. and NAHO agreement

After months of dickering, the Public Housing Administration, National Association of Housing Officials and the A.I.A. finally agreed on architects' fees for public housing.

Under their agreement, a local housing authority and its architect may contract either on a lump sum basis—with fees not exceeding the schedule promulgated by PHA last fall (and briefed below)—or on a reimbursable basis.

The formula for the reimbursable contract involves a complicated three-way calculation based mainly on 1) a fixed fee, 2) an allowance for production costs limited



to technical salaries on a time-card basis and 3) an overhead allowance. That the reimbursable contract may provide the larger fee is shown by examples released by PHA for non-elevator apartments (elevator apartment schedules are higher):

| Project cost | Lump sum fee | Maximum reimbursable fee |
|--------------|--------------|--------------------------|
| \$ 500,000   | \$ 17,500    | \$ 22,500                |
| 1,000,000    | 28,000       | 37,800                   |
| 10,000,000   | 124,000      | 133,000                  |

The construction cost used in computing fees on either basis will be the estimated improvement cost as determined when a project is approved by PHA. After architects costs have been established by use of the reimbursable contract on several projects, the entire fee schedule is subject to future adjustment based on past experience.

How much the A.I.A. had gained over the arbitrary fee schedule originally proposed by PHA remained to be seen. Though busy architects will probably insist on the higher schedule, local authorities are still free to find an architect with time on his hands who will work for the lump sum figure. Thus, the quality of design on public housing projects could depend more on economics than on good architecture.

Determined that good architecture would win out, however, A.I.A. exhorted its chapters to send delegates to a national meeting in St. Louis on January 31. There the A.I.A. will consider "the architect's responsibility in the public housing program," will hear "carefully selected" speakers on architecture, planning and "no propaganda for or against public housing."

## ECONOMY

### RIISING COSTS begin to vex the builder and building labor

Under the benign influence of unseasonably mild winter weather, Building boomed merrily on into 1950. The boom brought heavy upward pressures on prices and costs—and thus on builders. Said R. L. Murphy of the St. Louis Master Builders Association: "I hope prices don't go any higher. People with money to spend are reluctant enough already to spend it." Murphy echoed the Federal Reserve Board's M. S. Szymczak, who told credit men: "The present balance is a delicate one."

However delicate it might be, builders, like everyone else, were enjoying the spree. There was money, money, money—everywhere. The nation's mutual savings banks gained \$82 million deposits in November,

a 67 per cent rise over last year and in Wall Street investors added \$6 billion to the values of listed shares between July 1 and year's end. All the experts were predicting a continuation of the boom. Yet all signs indicated that builders would have to play every card in the deck to keep selling prices attractive. They faced a cross-rough between rising material prices and higher wage costs.

**Prices up and going higher.** December saw the payoff on the pension pacts in steel. Structural shapes rose \$3 a ton to \$69. Pipe and tubing went up \$5 to \$8. Other prices rose, too. Cement averaged 2 cents a barrel higher on *Engineering News-Record's* 20-city index. Plywood, increased by one big producer three times since last August, was apparently due for another hike as a result of higher log costs. Zinc rose  $\frac{1}{4}$  of a cent to 10 cents a pound, and demand was active.

There were some declines. Lumber dipped \$1 to \$3 per thousand board feet in six of 20 cities surveyed by ENR late last month. Paint and brick failed to rise. Tin dropped to 77½ cents, down more than 25 cents from last October.

**Building costs may depend on labor.** Upward prices in materials reflected producers' higher labor costs. If building labor wanted to make a race of it with factory labor there would be trouble ahead for builders. In Atlanta builders expect a 3 to 5 per cent rise in the cost of houses by next spring. Detroit still suffered from a plasterer's shortage, one builder charging the union with restricting the number of apprentices. Contractors were paying plasterers \$23 a day (\$6 over scale).

Could builders seek stability with long-term wage contracts? In San Francisco carpenters served notice they will press for more money next month. But in Pittsburgh most unions had agreed to a wage scale which is not expected to rise this year. In Seattle, wage stability was attributed to an industry-wide contract hitched to the cost of living index.

In some cases labor seemed well aware that its costs might determine whether or not the building boom could continue. Said Y. F. Geeslin of the Atlanta Building Trades Council: "Labor is not going to ask any increase more than the cost of living. Labor is as much interested in holding the line as any other group." Courtney D. Ward of the Cleveland Painters Union agreed. To labor's great credit, builders were praising the increased productivity of building workers. They hoped it would continue.

## DESIGN

### DESIGN MERGER: Chermayeff's Institute joins Illinois Tech

Two of design's most respected training institutions have merged. Serge Chermayeff's Institute of Design, founded in 1937 as the "New Bauhaus" by Lazlo Moholy Nagy, became the department of design of Illinois Institute of Technology. Chermayeff is director of the new department which will continue its curricula in industrial design and visual communications. Ludwig Mies van der Rohe remains director of Tech's department of architecture.

Administrative functions were consolidated soon after the merger was announced. Academic consolidation will begin next semester, when some of the institute's students will transfer to Tech.

### STUDENT PROTEST hits "Spanish Relegiate" of Texas U plans

Last month the eyes of collegiate Texas were on architecture. The results were typically Texan—robust, dramatic and packed with color.

Students at San Antonio's Trinity University got a peek at the plans for the first unit of Trinity's new plant, a contemporary concrete-brick-glass structure which will be built on a wooded hill overlooking the city (M.I.T.'s William Wurster is consulting architect.) Trinity students were pleased.

Over in Austin, students in the University of Texas School of Architecture were not pleased at all. They immediately set up a roar—not at Trinity's plans but at a series of Spanish Renaissance buildings planned for U.T. Cried 72 students in an open letter to designing architect Mark Lemmon, resident architect Leon White, the faculty building committee, and the student assembly:

"The dummy dormers, ornate friezes and superimposed pediments probably will waste the cost of much additional equipment . . . If the university is to fulfill its role in developing the cultural background of the coming generation, its entire attitude should be creative, not imitative."

Architect Lemmon, who had been shocked to find that Harvard has "just completed a building in the modern manner . . . not more than a stone's throw from the rare book library, which is in the Georgian tradition and was designed by the man who worked on the Williamsburg restoration," had a quick reply to the students' complaints. Said he, about the building he had designed: "I think it's lovely . . ."



# MARKET FOR 1950 will be big in size, slightly different in character. FORUM queries some of the leaders in four of the industry's branches, presents their analyses of construction in the new year

## LENDERS



**L. Douglas Meredith**, executive vice president, National Life Ins. Co., Montpelier, Vt.: We will continue actively in the mortgage market to about the same extent as in 1949, with particular emphasis on FHA loans. Unless governmental agencies take

steps to ease the pressure on the money market, somewhat lower mortgage yields will probably result. Most signs portend active construction in 1950, but a sudden decline in business or adoption of adverse governmental policies quickly could make the outlook less promising.



**Earl B. Schwulst**, president, Bowery Savings Bank, N. Y. C.: We expect to come close to last year's mortgage loan volume (\$117 million) provided Congress and FHA regulations do not unduly restrict builders to the extent that the volume of private

residential construction is seriously curtailed. We have been, and will continue to be, substantial investors in mortgage loans to veterans. We do not foresee any lack of mortgage money. Low yields on government and corporate bonds make mortgage an attractive investment.



**George West, Sr.**, president, First Federal Savings & Loan, Atlanta: I expect to make the same volume of loans next year and maybe more. They will probably be for a much longer time and at a cheaper rate because of the government's fixing of rates

and the new laws affecting housing. We are now charging 5 per cent for conventionals and I don't think we will change. (Construction) loans will not be so attractive in 1950. The biggest problems next year will be competition with government, especially if materials get short.

## ARCHITECTS



**Wallace McKenzie**, president, Smith, Hinchman & Grylls, Detroit: We expect our volume to be slightly higher in the first half of 1950, but we are not very sure of the second half. The first half increase, if there is one, will probably result from an attempt to get existing backlogs out of the way.

On this, we stand in a fair position, but we do not have as large a backlog as we would like to have. Our greatest problem is to get down to greatly simplified designs and increased efficiency in the construction industry in order to encourage owners to proceed with building.



**George A. Bryant**, president, Austin Co., Cleveland: We have now entered on the second phase of the postwar period. In the first, there was a rush to meet the need for expanded facilities and to cash in on immediate opportunities. The premiums paid

could be justified by competitive advantages which depended on speedy construction. Now, most industries are more concerned with attacking their problems at the source. If one problem transcends all others, it is the need to cast aside preconceived concepts and traditions that stand in the way of functionalism.



**Welton Becket**, president, Wurdeman & Becket, Los Angeles: With a backlog of between \$125-\$150 million, we will execute a larger volume of commissions than ever before. New clients are attracted by our experiments in lightweight concrete construction, with its consequent saving in costs.

Major problem facing our industry is keeping prices down. The architect's responsibility is no longer limited to shrewd selection of materials and application of new construction techniques. He must actively assist their development by study and experimentation.

## CONTRACTORS



**H. C. Turner**, president, Turner Construction Co., N. Y. C.: 1950 should be a good construction year volume-wise and a reasonably good year profit-wise. Construction costs have decreased on the average about 10 per cent during the past year,

(but) appear to have stabilized, and the next change is likely to be upward. However, any increase should be moderate. The industry's principal anxiety is that increased taxes and broadened social welfare might discourage private industry from expanding or investors from supporting new developments.



**R. E. Pickett**, president, Walbridge Aldinger Co., Detroit: The market next year should approximate the volume of 1949. There has been an increase of both state and federal school and hospital construction; this will continue and may increase in

volume in 1950. Construction prices are lower than in 1948 and the trend is still in that direction but we expect prices to level off by spring. The cutbacks are largely due to intense competition. In this highly competitive market the greatest problem is to stabilize the industry as regards labor, costs, material prices.



**B. F. Modglin**, president, Modglin & Kahn, San Francisco: We will have more business in 1950—a slight increase, anyway. Most of our business is public work. Our costs have remained about the same this year. Labor

has gone up, but so has efficiency. I doubt that there will be a marked change next year. The situation will be similar over the country, with plenty of construction, especially public works, I doubt that costs will rise much as long as labor remains at its present level. The grave problem facing the industry is labor unrest.

## HOUSE BUILDERS



**Joseph E. Merriam**, Chicago: This year we completed 300 units and started an additional 250. Next year, we plan to finish 400 by summer and begin work on another 400, all in the \$8,500 price bracket for a two-bedroom duplex unit. Heretofore we

have been building in the \$10,500 price bracket. We have changed our approach by going into a basementless frame house containing basic room areas with provisions for future expansion. A vast, almost untouched market lies among persons earning \$60-\$65 a week. The builder's greatest problem is the uncertainty of government policies affecting home financing aids.



**Fritz Burns**, Los Angeles: We will build as many houses as we did in 1949 and possibly a few more. We have always built for \$10,000, and this year we will be coming down to \$9,000 and under. There might be a change in our selling price, due to

streamlining and simplifying design methods. Building costs are no lower, but we hope to get the price down a little by coordinating things in the building trades a little more. Simplify the management-labor relations and offer the public a semi-modern type of house at a lower price. The biggest single problem facing builders this year is merchandising.



**Thomas P. Googan**, Miami: Low cost building has created an unbalanced picture. The market for slightly better homes has been neglected—homes a little larger, with tile baths and other refinements. We will switch from the \$7,000-\$8,000 to the \$8,000-

\$9,000 market. The people who had shelter but who have looked forward to home ownership will be our best prospects in 1950. They have been waiting for a price drop. It has not come. There is no sign of a decline so now they will go ahead and buy. The greatest problem is lack of permanent federal legislation. We must have legislation for at least three years.



## HHFA RESEARCH PROGRAM starts with \$2.3 million budget this year

With appointment of Dr. Richard U. Ratcliffe (since 1944 Professor of Land Economics at the University of Wisconsin) as Director, the Housing & Home Finance Agency's new Division of Housing Research

this month starts an ambitious program of inquiry into almost every phase of housing and the construction industry.



Ratcliffe

Current budget for Ratcliffe's operation is \$2.3 million, of which \$1.3 million will pay for research contracts to be farmed out to schools

and colleges. Of the latter sum, \$725,000 will go for technical and \$600,000 for market research.

Ratcliffe's staff and its cooperating specialists will seek to develop 1) national and regional construction cost indices 2) a better understanding of housing credit and finance 3) data for housing market analysis 4) more current housing statistics 5) a model building code 6) cost-cutting construction practices 7) simplified and more economical residential design and 8) engineering data and statistics.

If the Division of Housing Research comes up with all the answers it seeks, it will, in effect, be the Delphic Oracle of Building—the first fountainhead of total knowledge on the industry since bricks were first laid in the Tower of Babel.

## LABOR

### T-H AND BUILDING: labor, management seek clarification

When the Taft-Hartley law made it mandatory for workers to choose by election the union they wished to represent them, construction looked the other way. The unique character of building labor was such that it seemed ridiculous to hold costly elections which would give a union the right to bargain for only the few months duration of a construction job. And contractors, who needed to have a firm idea of their labor costs before construction began, were not eager to give up their long-standing practice of negotiating with a union *before* construction. So both labor and management rode along on the assumption that T-H could not really apply to the building industry. Last month the National Labor Relations Board set about trying to determine whether it actually did.

When Chester Hewes, a machinist on an atomic energy job in Hanford, Wash., re-

neged on his promise to join the AFL International Union of Operating Engineers (which had asserted jurisdiction over the machinists in pre-construction conferences), the contractor fired him. An NLRB trial examiner ruled that since no election had been held, the union did not represent the machinists; the contractor was found guilty of unfair labor practices.

**Clarification sought.** The contractors and the union took the case to Washington. They sought a blanket exemption of the building trades from the T-H requirement, or at least a clarification of how T-H is to be applied in Building. Said J. D. Marshall, president of the Associated General Contractors: "Give us at least the benefits that we would get from elections."

NLRB itself was puzzled. There was no indication that Congress had intended Building to be exempted from T-H regulations, but even NLRB had to admit the difficulty of the election requirement. Suggested General Counsel Robert Denham: "There may be some basis of arriving at representation other than by election." If NLRB could determine that basis, big contractors would be greatly relieved.

**Builders in doubt.** Residential builders weren't so sure they wanted union shops without elections. At month's end the National Association of Home Builders was preparing a statement suggesting separate treatment for home builders. NAHB saw some merit in elections where they were feasible, and it thought they were feasible in many cases.

Only one party at interest was not heard from: the worker who did not belong to an AFL union and who might, like Chester Hewes, lose his job.

## MONEY

### 4 PER CENT CONVENTIONALS in Chicago points up 1950 money supply

Just how available will Building Money be in the new year? The most dramatic hint came out of Chicago late last month when Morton Bodfish, chairman of Chicago's First Federal Savings & Loan Assn., announced that his organization will offer conventional non-FHA loans at 4 and 4½ per cent interest (from ½ to 1 per cent below existing rates.)

To meet further the new competition in money, First Federal will insert an "open end" clause into its mortgages, providing for additional advances to the borrower up to 80 per cent of property value. Bodfish called this the "most inexpensive way to borrow money open to the average family,"

which will have access to the paid up balance of its loan for property improvement and modernization. (FORUM, June '49.)

First Federal will also write prepayment privileges into its contracts, permitting the home owner to pay off as much of his mortgage as he wishes during times of high income.

## LAW

### RENT CONTROL WAR waxes warmer, battle lines are forming for 1950 fight

Trumpeters for rent control lost little time in saluting the Supreme Court's unanimous December decision to uphold the 1949 Rent Control Act. Blared Housing Expediter Tighe Woods: "The Court in effect rules that the housing shortage growing out of the war still exists." He promptly pressed for renewal of the Act next June.

Realtors reacted bitterly to Woods' warning. William Schmidt, head of Chicago's Property Owners League, advised his constituents to "take the law into their own hands and violate it until it is repealed, as the Prohibition law was."

Plainly, the 1950 rent control battle would be as big, and possibly bigger, than last year's. Labor, public-housers and candidates for office would surely favor continued control. How much heat the White House might put on Congress depended on the results of surveys (by the Bureau of Labor Statistics and FHA) to determine what has happened to rents in certain de-controlled areas. Realtors were making their own surveys and preparing for a last-ditch fight for public—and congressional—opinion.

### NEW YORK CITY RENT CONTROL ruled invalid by state court

New York City landlords moved swiftly to collect 22,071 rent increases granted by the local office of the Housing Expediter between March 1 and November 25 of last year as the New York State Court of Appeals ruled the city's Sharkey Law invalid.

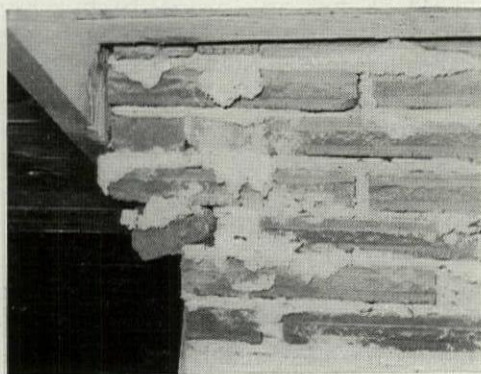
But with equal swiftness, Republican legislative leaders promised they would press for new enabling legislation at Albany to legalize operations of the City Rent Commission in over-ruling rent increases allowed by the federal expediter. Should such legislation be enacted landlords were prepared to fight it on the ground that the enabling legislation would be as much in conflict with federal law as was the Sharkey Law itself. Meanwhile, they merrily went about collecting an estimated \$1 million in rent increases from some 300,000 New Yorkers.



## RESTRAINING ORDER lifted, newspaper continues "shoddy construction" charges

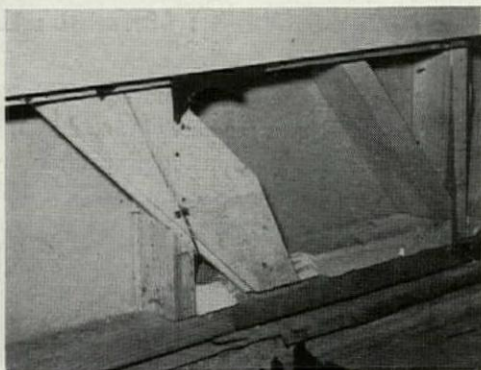
When a group of Pasco, Wash., veterans refused to sign the mortgages on their new FHA-approved houses until certain "faults" were corrected, the builder, Columbia Construction Co., promptly sued one of them for breach of contract. The area's newspaper, *The Tri-City Herald*, took a look at the houses, decided the veterans' complaints were valid, and set out to prove it on the front page.

It planned a series of four articles, charging the houses with, among other faults, warped doors, "potentially disastrous" heating systems, and "cracks through which the sand and cold wind whistled." It illustrated its articles with photographs of loose masonry and cracked braces (see pictures.)



Veteran's house: shoddy chimney brickwork . . .

After the third article was published, the builder got a court order restraining the *Herald* from printing any more. For three days, while alarmed newspaper men shouted "dangerous precedent!" the *Herald* sat on the rest of its charges.



. . . crack in studding brace

Finally a superior court removed the restraining order. The same issue which carried a news story of the court's decision carried also the fourth and last article in the *Herald's* series—a charge that the plumbing in some of the houses apparently did not "meet FHA's own minimum standards."

## CHICAGO GETS NEW CODE—dry wall champions win a pyrrhic victory

Chicago finally got its new building code late last month, and a 4-year plaster battle ended in a compromise amendment.

The amendment was not a clear-cut anti-plaster victory but it did give a foot-in-the-door to wallboard, plywood and prefabrication against the plastering trade's and union's virtual monopoly on interior wall finish.

Twice Mayor Kennelly had postponed a final meeting with the city council on the code. Finally forced by irate public opinion to brave the wrath of big Byron Dalton of the powerful plasterers' union, the Mayor wrote the council: "Many of our citizens are in need of homes and everything possible should be done . . ."

What came through the legislative hopper was no great anti-plaster victory. The amendment put stringent limitations on housing in which plaster can be eliminated. The prefab, plywood and wallboard applications can be made only in small, one-story houses of not more than 1,000 sq. ft. area. Moreover, the houses can not be within Chicago's so-called fire limits, which cover all but about 36 square miles of the city. Thus plasterless construction would be permitted only in the town's sparsely-settled areas. The anti-plaster advocates ran into heavy going on specifications. Wallboard, for example, must have a flame-spread rating that will mean costly flame-resistance coating. The compromise left builders wondering if, in view of the specification limitations, they could produce interior finish that would be less costly than plaster. But they accepted the partial victory in hopes that cheaper ways can be developed to meet the new code's specifications.

Dalton had run full page newspaper ads screaming "Shall we Abandon Fire Safety in Chicago?" and virtually accusing Architect John O. Merrill, who headed the Code Committee, of wilfully condemning Chicagoans to death by fire. At the first hearings on the code, Dalton stood in the gallery, frequently called the aldermen to his side, and saw to it that Merrill's dry wall provision was turned down flat.

Merrill belittled the indignation aroused by Dalton's tactics, stressed other great advances in the code: 1) performance ratings 2) liberalized loads 3) provisions for wider use of new steel alloys 4) reduction of live loads and minimum wind pressures. 5) recognition of fire-resisting qualities of lightweight aggregates for insulating concrete 6) reduction in thickness of nonbearing spandrels from 12 in. to 8 in.

## OPEN FORUM

"I think we are going to have a tough job before Congress next year"—*Tighe Woods, Housing Expediter.*

"There are a great many people who feel that research will have failed if it does not produce a house that can be transported to a new site and erected as one opens an umbrella"—*C. F. Rassweiler, Vice president in charge of Research, Johns-Manville Corp.*

"If the Federal Government continues to pry more and more deeply into private affairs, the 1950 census questionnaires may read like the Kinsey Report"—*Rep. Clarence Brown.*

"The Truman administration is . . . neglecting housing"—*Rep. Vito Marcantonio.*

"The public will not regard us as professional men if we are in price competition with one another"—*Ralph Walker, President, A.I.A.*

"We toured the whole city (Chicago) and saw for ourselves that the greater part of it consists of slums"—*A. Lavrenyov, correspondent for the Russian "New Times."*

"Be very careful in your explanation of this (basis for architectural fees) to a wily businessman. He might not understand it"—*Architect Herbert M. Tatum.*

"Sometimes I think architects forget we ladies were not all trained in the U. S. Army"—*Isabelle (wife of architect Morris) Ketchum.*

"America families do not want to be pushed around or turned into guinea pigs, no matter how noble the motive"—*Leon Keyserling, Acting Chairman, Council of Economic Advisors.*

Thanks to our friendly relationship with Administrator Foley, the Congress and the heads of FHA, VA and Fannie May, good financing was maintained"—*Frank Cortright, Executive Vice-President, National Association of Home Builders.*

"Small business men would do a darn sight better to come and sit down with us instead of coming to the government"—*Leroy Lincoln, President, Metropolitan Life Insurance Co.*

"If we abuse the power given to us, the state can always take it away from us."—*Joseph T. Sharkey, New York's Councilman speaking of his local rent law. (See page 15.)*



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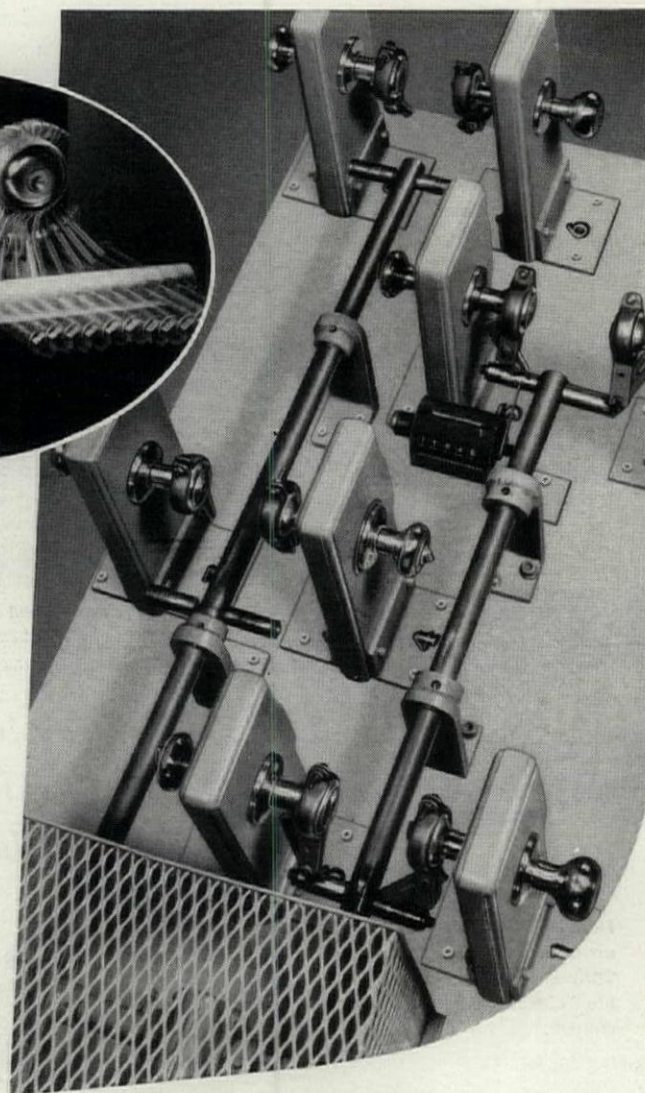
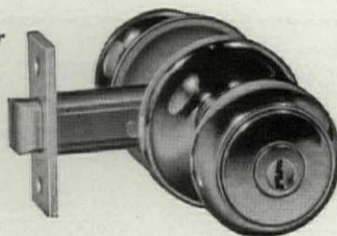


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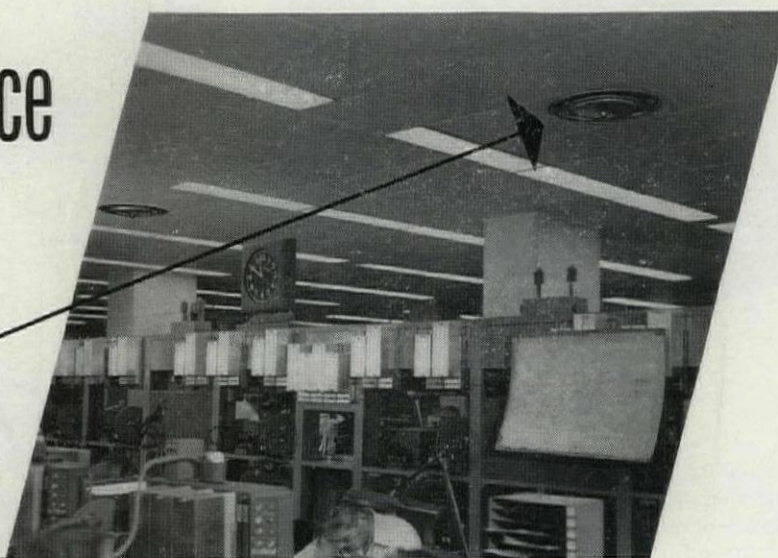


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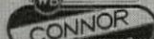
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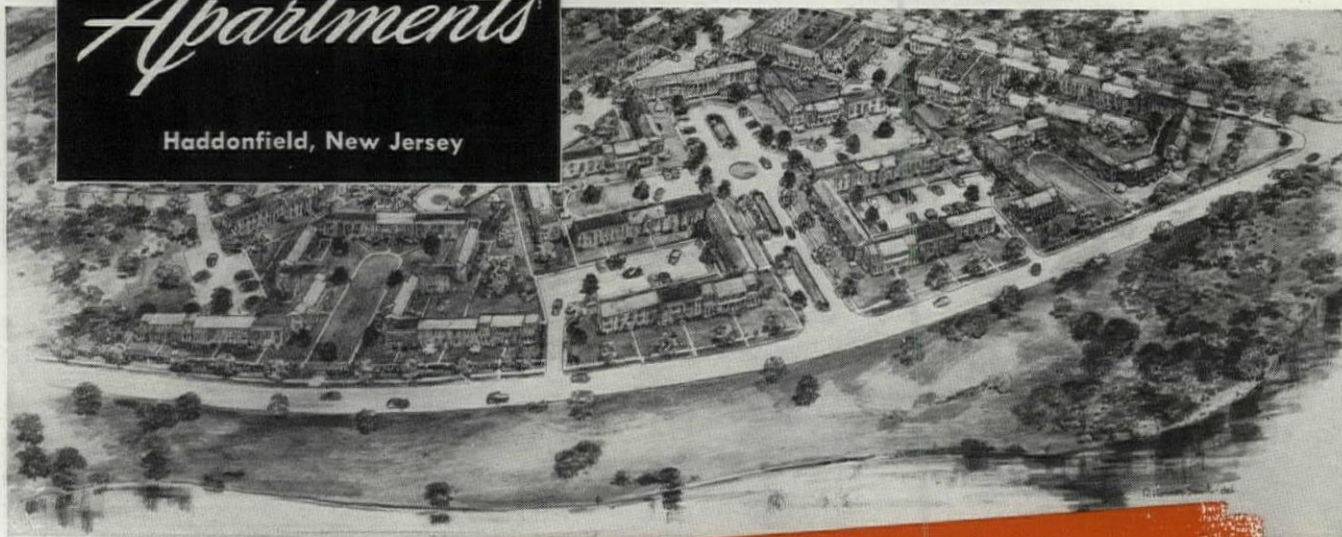
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# Parkway Apartments

Haddonfield, New Jersey

## Another B & G *Hydro-Flo* HEATING Installation

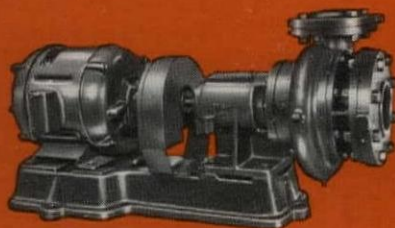


**Owner:**  
Parkway Apartments, Inc.  
Haddonfield, N. J.

**Architects and Engineers:**  
Edwards & Green  
Camden, N. J.

**Builder:**  
Edwards Building Co.  
Delaware Township, N. J.

**Heating Contractor:**  
Herman Goldner Co.  
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4150—B & G  
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31—B & G Compression Tanks

*Illustration above shows the kind and number of B & G Hydro-Flo Products installed in Parkway Apartments.*



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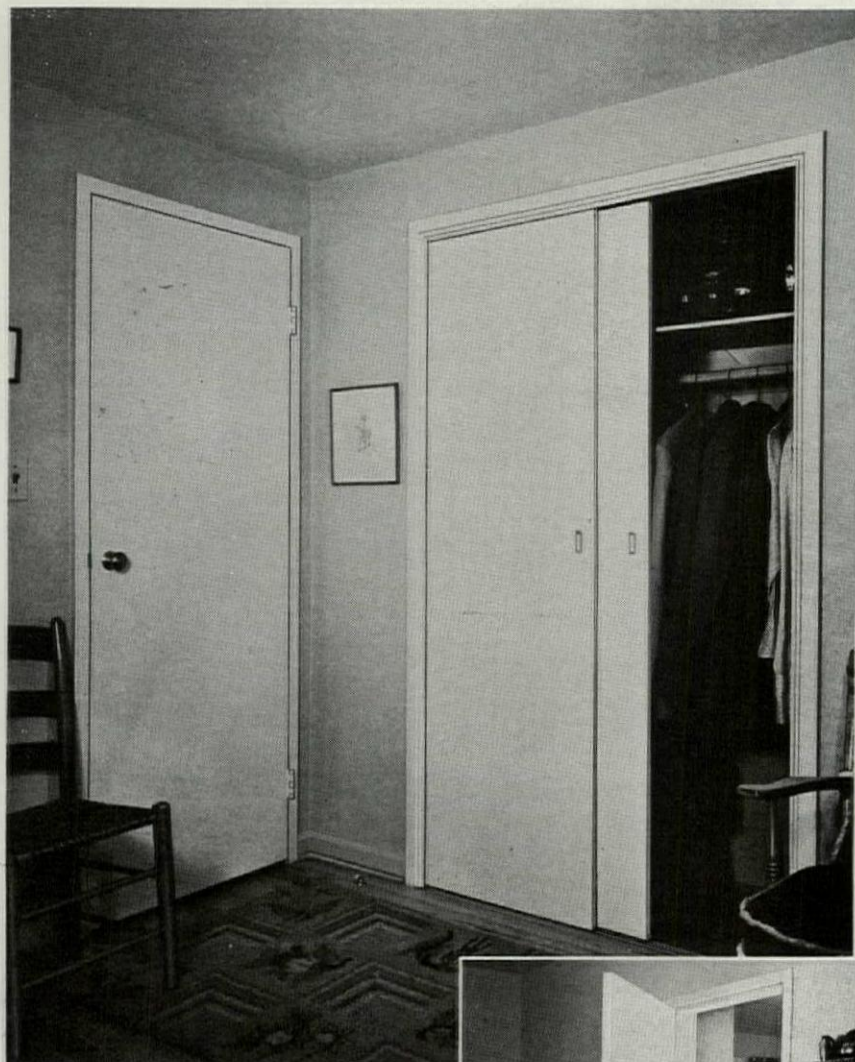
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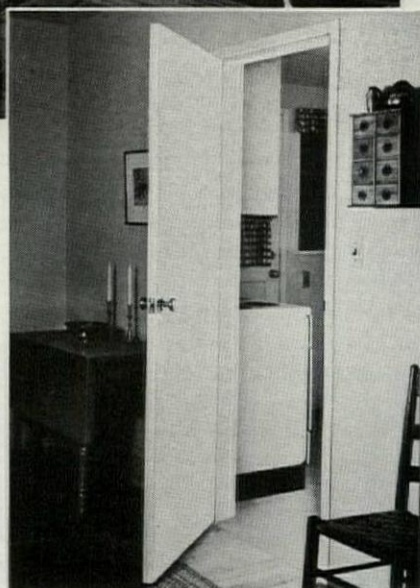


Photographs of  
Graefield Terrace  
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BUILDER: H. J. Durbin,  
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ARCHITECT: Merle Wm. Hogan,  
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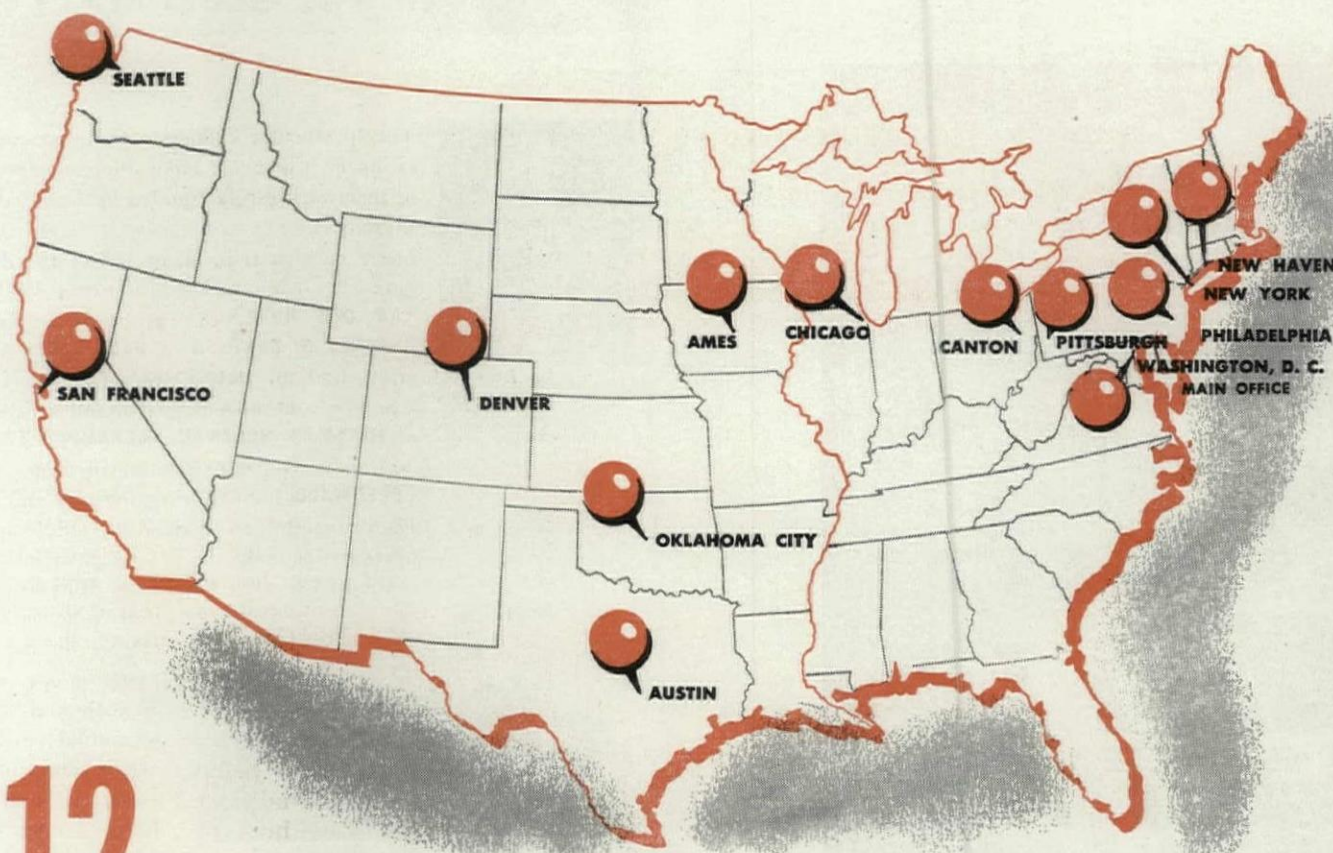
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## BEHIND THE BLUEPRINTS



Mies Van der Rohe

The spectacular Promontory Apartments (p. 69) rising on Chicago's Lake Shore represent a feat of teamwork rarely equaled in the usually hyperthyroid, highly speculative field of apartment house construction. They reflect the design talents of world-renowned architect **LUDWIG MIES VAN DER ROHE**, the practical experience of **CHARLES B. GENTHER** of **PACE ASSOCIATES**, who worked closely with Mies and supervised construction, and the technical engineering know how of **HOLSMAN, HOLSMAN, KLEKAMP & TAYLOR**. An aggressive young real estate promotor, **HERBERT GREENWALD**, helped bring designer and mortgage lender together and gained the public acceptance necessary to make the project financially feasible.

Eighty-two year old Henry Holsman has zealously espoused the cause



Holsman et al.

of good apartment house planning for more than 30 years and his concept of mutual ownership, on which the project is based, is largely calculated to take such construction out of the hands of quick-profit speculators and thereby enable top-notch architects to apply their talents to the design of multi-family dwellings. He is senior partner of an architectural firm whose partners specialize in finance, cost accounting and design (l. to r. in photo: Bernard R. Klekamp, William T. Holsman, Henry K. Holsman, D. Coder Taylor, John T. Holsman).

Mies van der Rohe, least publicized of modern architecture's greats, was born in Aachen, Germany in 1886 and practiced in Berlin from 1911 to 1938. For three years of that period (1930-1933), he was head of the famed Bauhaus in Dessau. Also part of this European era are the two Mies van der Rohe classics, the German Pavilion at the Barcelona Exhibition (1929), and the Tugendhat House in Brno, Czechoslovakia (1930), two of the purest examples of modern architecture ever built. Mies van der Rohe came to the U. S. in 1938, has been chairman of the department of architecture of the Illinois Institute of Technology since his arrival.



Genther

Charles "Skip" Genther, an early student of Mies van der Rohe's and an ardent disciple, was brought into the picture because he and his young partners at Pace Associates understood what Mies was doing and were ready to accept his leadership. They acted as Mies' architectural office. With the Holsmans as consulting architects to bring seasoned housing experience into the picture, the team was organized. The result was not only a superlative design bearing the unmistakable stamp of the master Mies van der Rohe, and a project of surprisingly low cost with important implications for the future management and financing of big city apartment houses.

Greenwald was formerly in social service administration, entered the housing field in 1939 when he took a job in the Holsman office, is now a real estate promotor in his own right.



Greenwald

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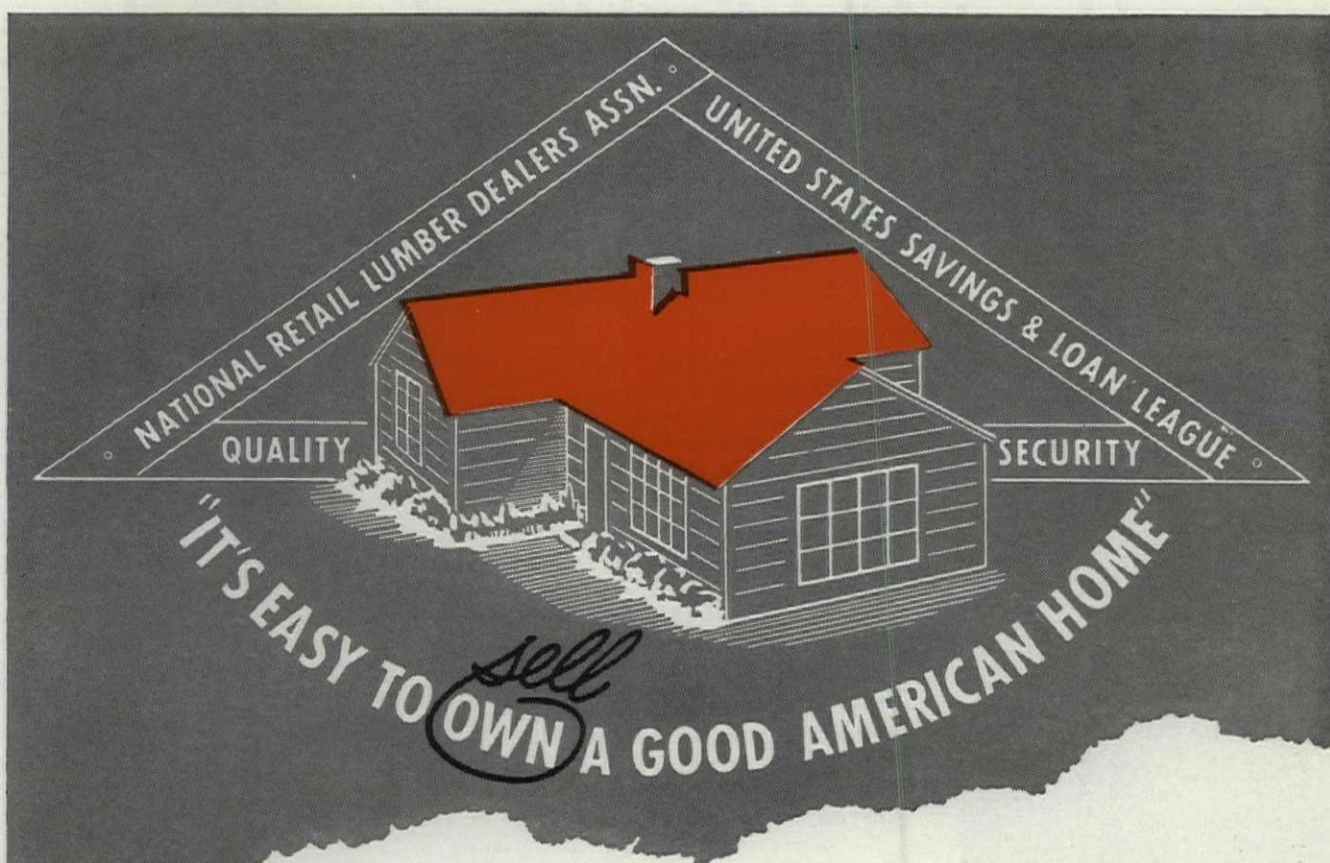
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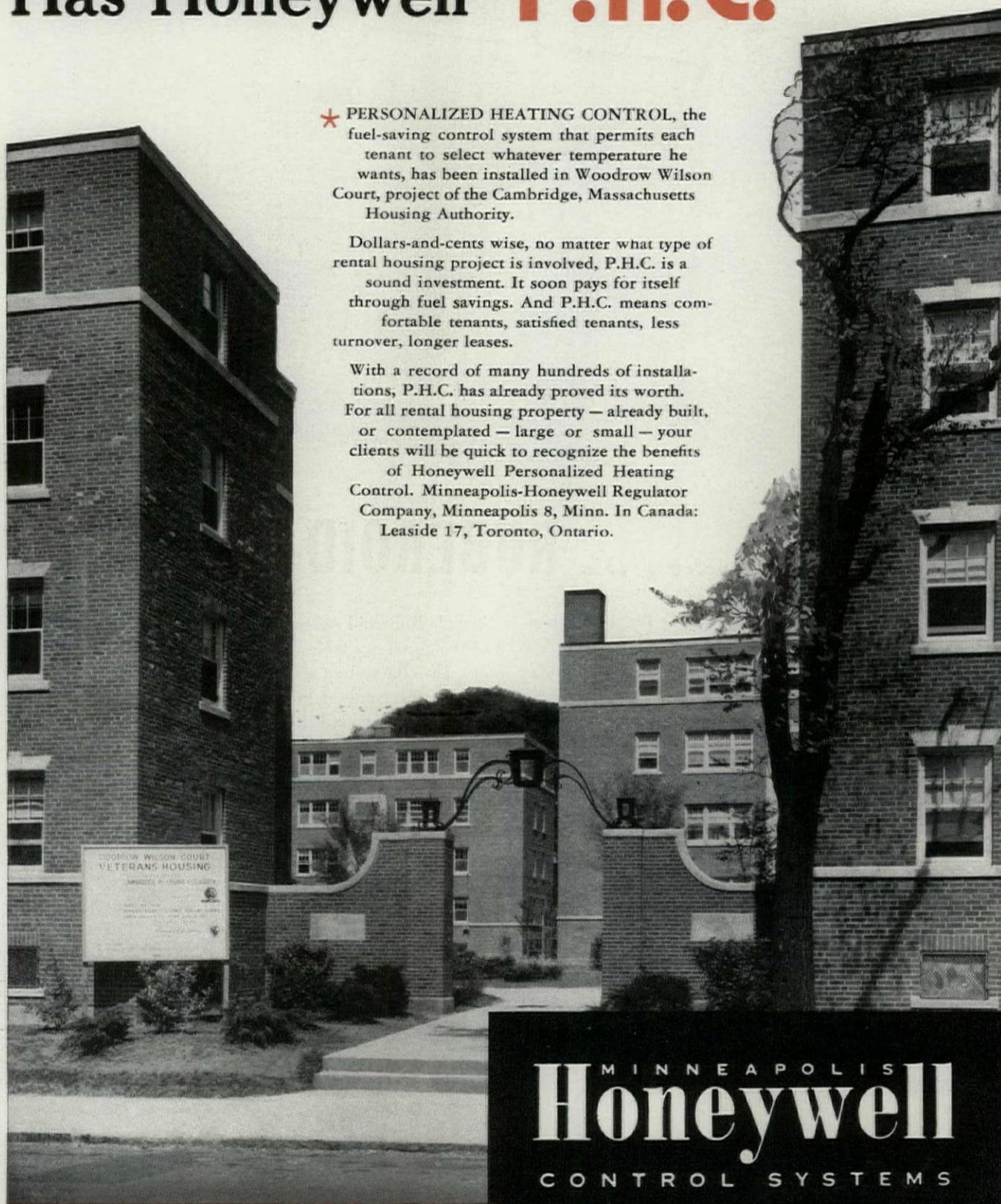


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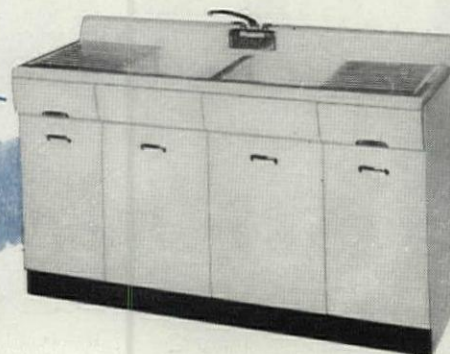
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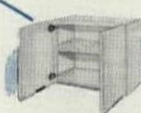
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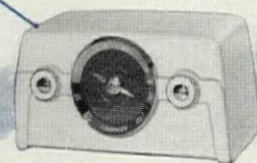
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| Cooling Coils               | Turbo Vacuum Compressors | Propeller Unit Heaters       | Dry Condensers          |
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## LETTERS

### SCHOOLS

#### Forum:

Your October issue is a great contribution to a perplexing problem in education. I congratulate you heartily on this effort to arouse interest in the possibilities of school design.

ROBERT D. CALKINS  
General Education Board  
New York, N. Y.

#### Forum:

Congratulations upon such an interesting number of FORUM.

When I returned from a meeting at midnight, I glanced at the contents and found them so interesting that I studied the articles for the next three hours.

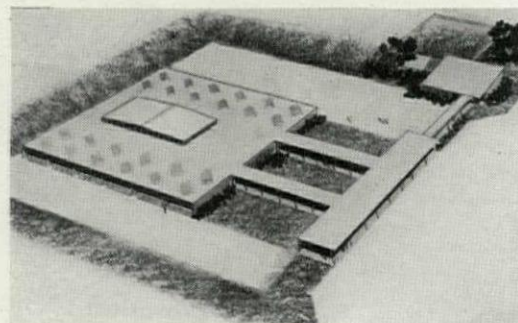
Your editors deserve special commendation for their crusade against the use of extravagant period architecture on school buildings. For decades schoolrooms in America have been designed on a parsimonious basis in order to have funds available for pillars, balconies and belfries.

HENRY E. KENTOPP  
Superintendent of Schools  
East Orange, N. J.

#### Forum:

Shown below is a student problem at the University of Houston by J. C. Langham showing a primary school strikingly similar to your 195X job published in the October issue.

Like the FORUM job, Mr. Langham depended upon top lighting (Barthelme system) and arranged his classrooms with the short wall on



the outside to insure ventilation (fans over toilet rooms in center) throughout the space. His center area was made into a common purpose room which would have probably been better if exterior access had been provided.

Mr. Langham's program required the later addition of six classrooms and he therefore moved his unloading platform forward and created a garden space in the interim which would remain in front of the administration area at all times.

Just wanted to show you that the U. of H. preceded the FORUM in starting the pendulum back from the finger plan.

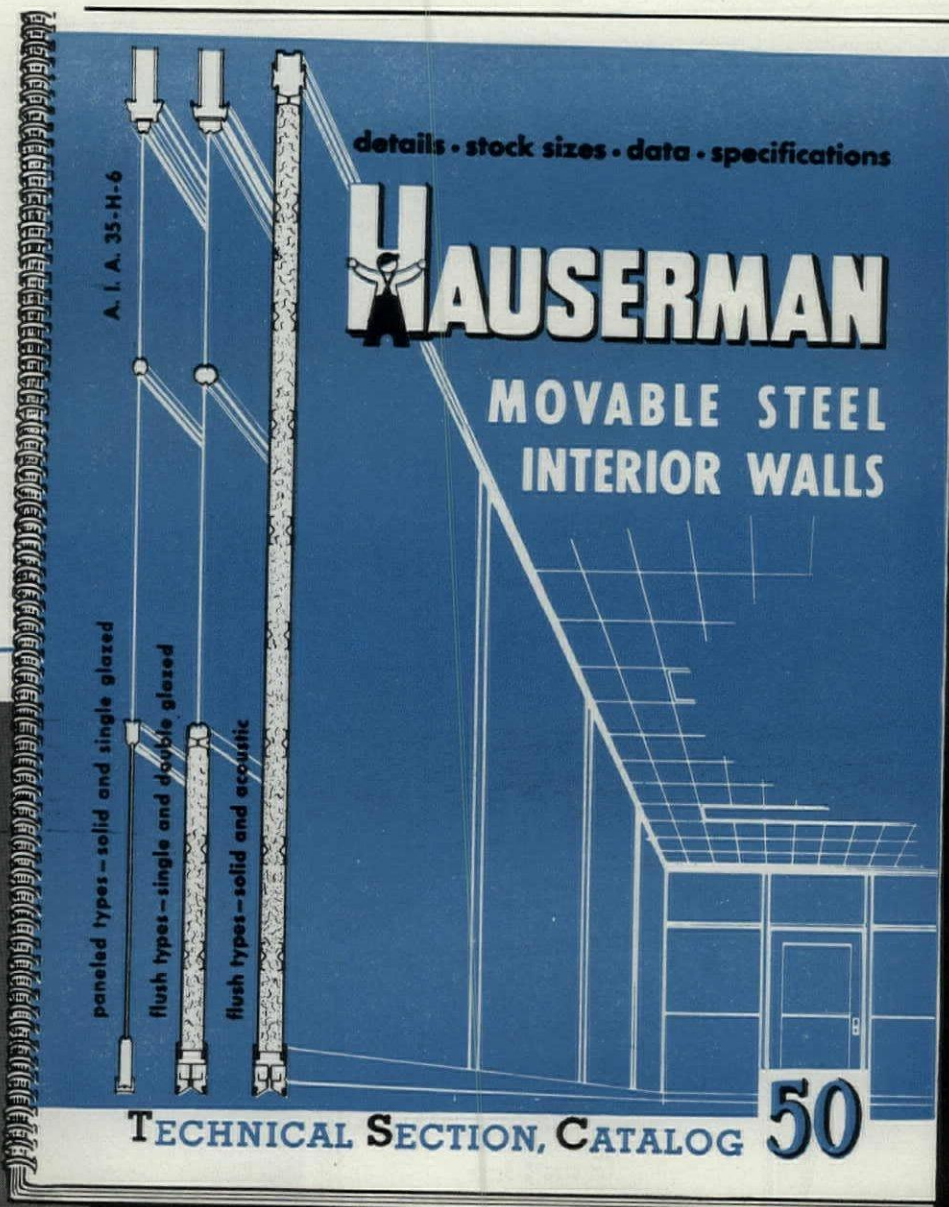
DONALD BARTHELME  
University of Houston  
Houston, Texas

(Continued on page 34)



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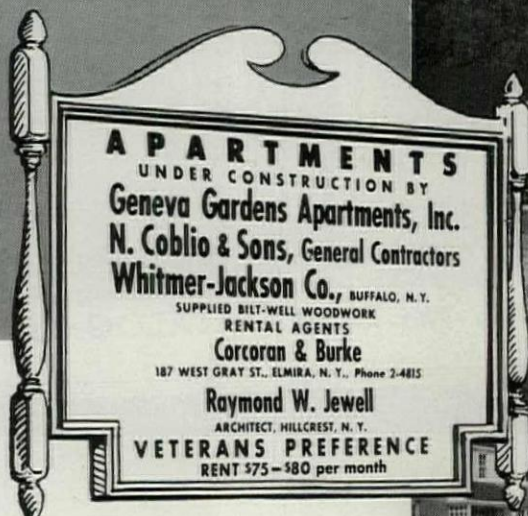


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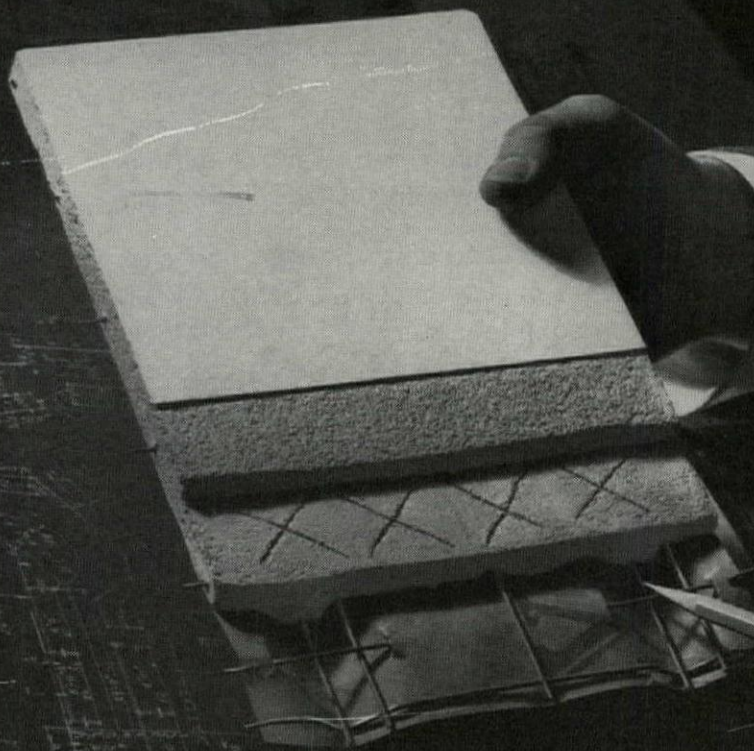
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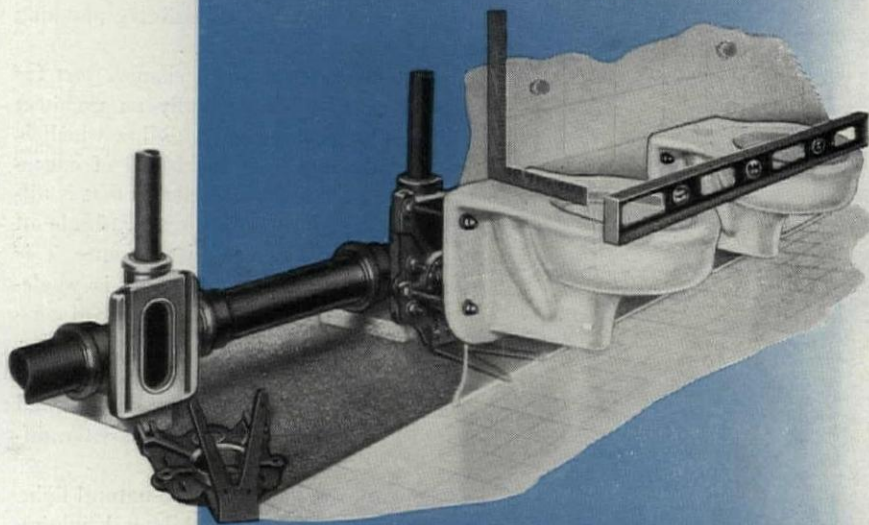




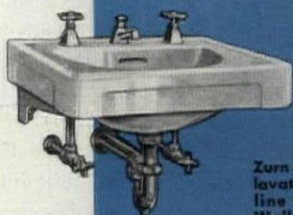
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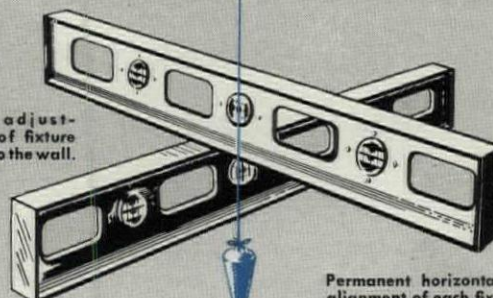
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### Forum:

The October issue of the FORUM . . . is one of the most stimulating documents which has come to my desk in a long time. I hope that some of our New York State architects who still cling to traditional architecture—there are only a few of these now—read the publication and become aware of how far behind the times they are about to be.

There are matters on school building planning which trouble me very much. . . .

One problem has to do with change, just for the sake of change. Occasionally an architect says, "I want to do a school building which is different," or a member of the board of education says, "We want a school building that is different." This seems to indicate an attitude of wanting something different just because it is different. This attitude on the whole is wholesome in that it indicates a complete lack of complacency with what has been done. On the other hand, when something is done differently, the architect should have a carefully studied and well-founded reason as to why he wants the different planning.

The other problem has to do with natural light. We are encouraging the use of bilateral lighting in New York State school building planning. Henry Blatner's job at Clarksville is an example and while some of the older architects may sniff at it a little bit, many are taking cues from the Clarksville job but, of course, "doing it better." (This last remark is only an aside.)

We struggle and strain and some times fret and fume to get more natural light into school buildings—and as I said this office is encouraging this move—and then we struggle and strain and work just as hard to control the natural lighting. Then to go a little bit further into the difficulty, in New York State where the sky is overcast much of the time during the school year, we still have to depend to a large extent on artificial lighting.

I admit to a great deal of confusion in my own thinking on this matter. Sometimes I think that we should be pushing for more and more natural lighting; other times I wonder if we shouldn't simply build fairly small windows just to see out of and depend in the main upon artificial lighting. Yet until a responsible medical group will say that it is all right to consider artificial light as the primary source of light, we would hesitate to follow this second thought very far. . . .

DON L. ESSEX, *Director*  
Division of School Buildings & Grounds  
State Education Department  
Albany, N. Y.

### Forum:

We wish to congratulate you on the October issue which is devoted to the design of contemporary school buildings. It is, we are sure, proving of great value to school officials in communities where new buildings are being planned. When-

*(Continued on page 40)*





"it snaps into place"

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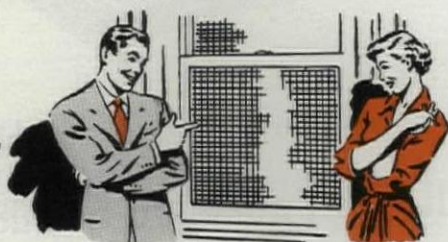


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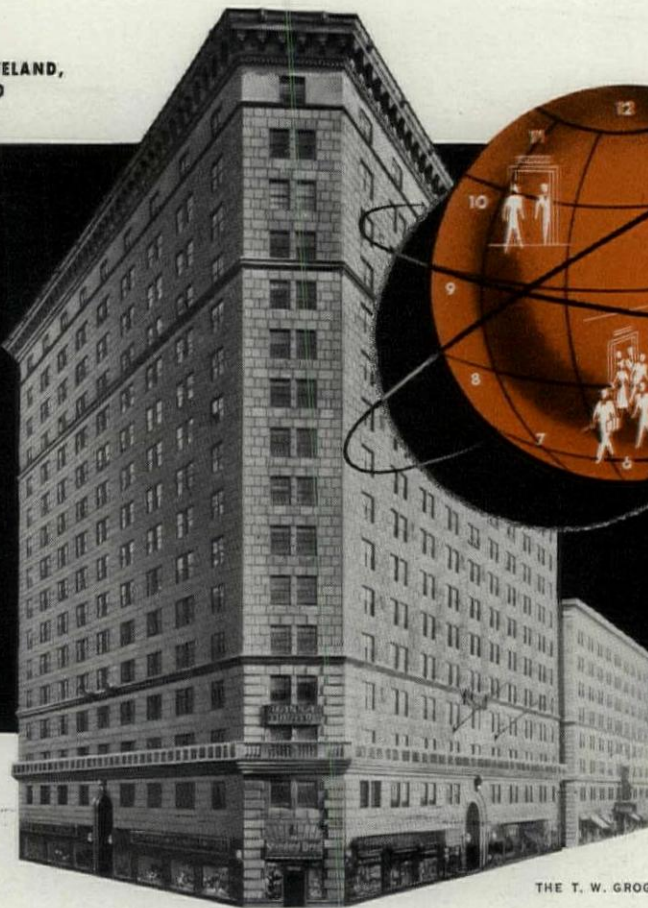
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Hanna Building tenants and visitors will be delighted with the time-saving convenience of modernized service. For the new Otis AUTOTRONIC Elevators, with their traffic-timed automatic supervision, have been designed to reduce the elevator interval from 50 seconds to less than 25 seconds during the morning peak period. A similar speed-up of service will be applied to the other 5 traffic patterns of the day. So, with the time interval reduced through automatic supervision, 8 AUTOTRONIC elevators will serve all floors—and give far better service than the manually operated 5 Express and 5 Local cars they replace.

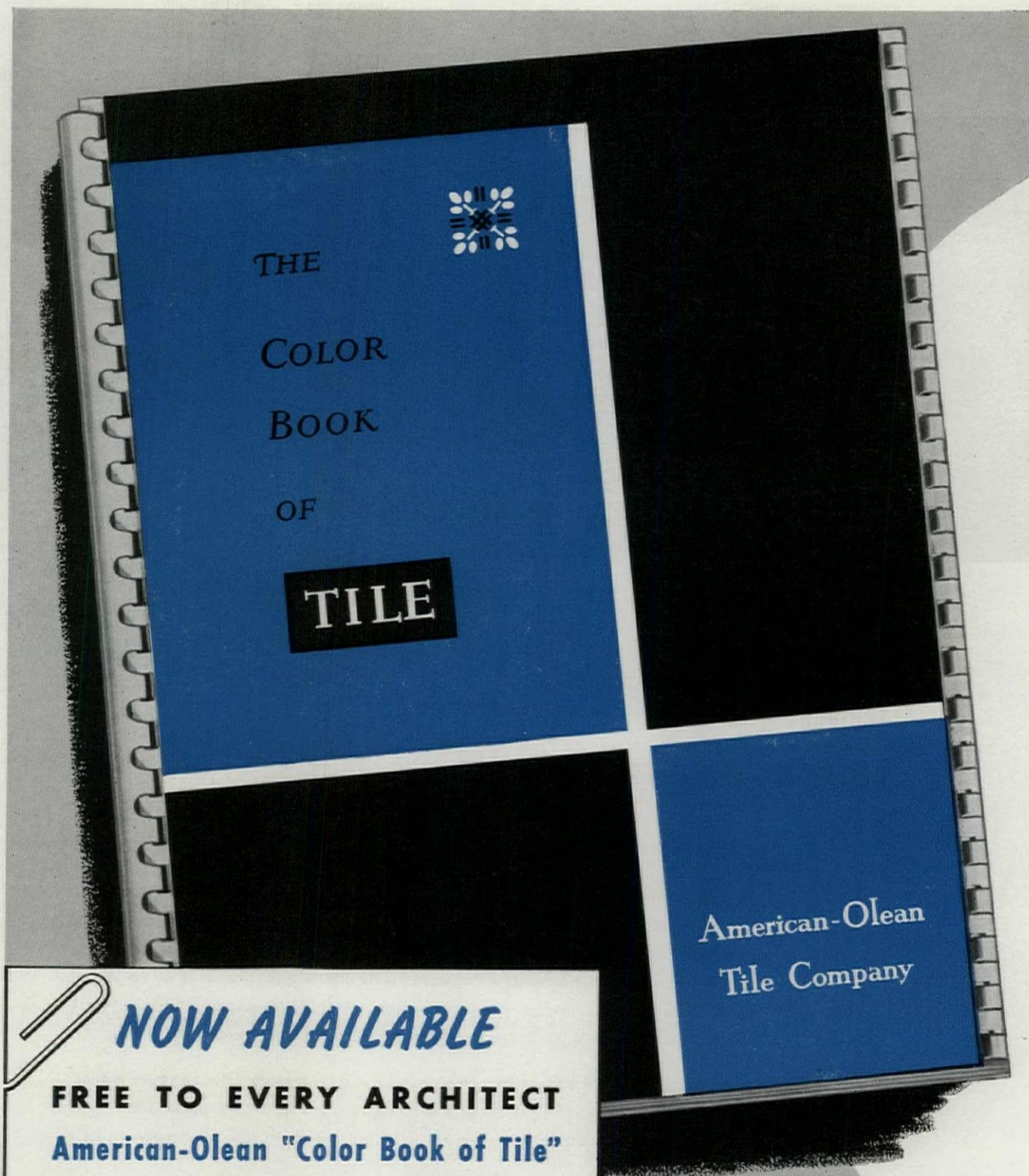
From the management viewpoint there's the increased prestige of unexcelled elevator service and the economy of installing and operating 8 instead of 10 elevators. Otis AUTOTRONIC ELEVATORING—already bought by 38 NEW and MODERNIZED office buildings, hotels, banks and department stores—is explained in Otis Booklet B-721-A.

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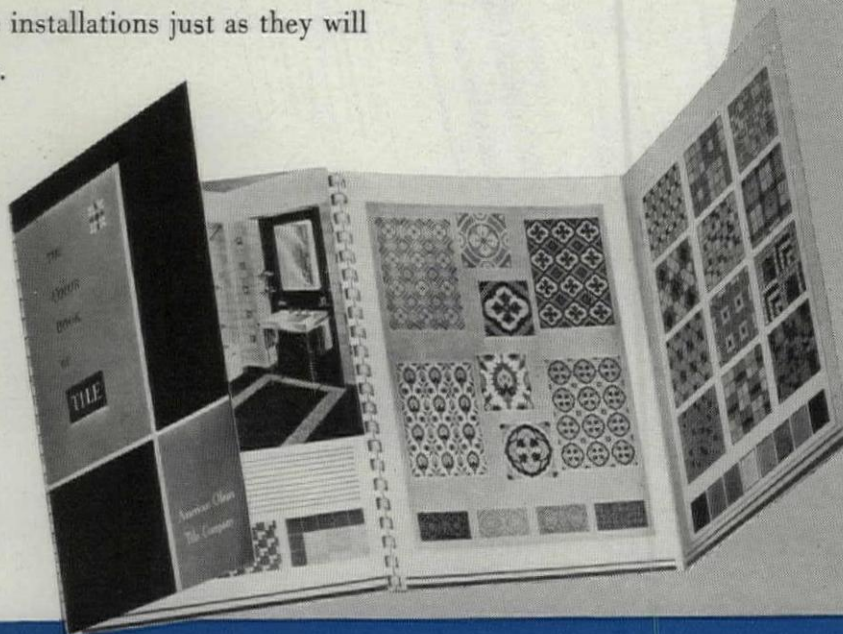
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Nowhere in the building  
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## LETTERS

ever we have had the opportunity, we have suggested to members of school boards that they obtain copies of this issue.

We have found that in many cases, school officials do not realize the faults of schools as they have been built in the past, and are only vaguely aware of the many improvements that have been made. They are, however, keenly aware of their responsibilities, and when properly informed, are very much interested in modern school design.

HERMAN T. HUNTER  
Zeller & Hunter  
Springfield, O.

• A limited number of extra copies are available at \$2 each.—Ed.

### Forum:

This article is timely and in line with my thinking and planning. . . .

In St. Louis schools we are combining the use of steel studs and steel bar joists, with a poured insulated roof. The exterior walls are thick veneer to the window sills and corrugated as-



bestos board sills to eaves, and completely insulated. The floor is dampproof concrete slab. We are using forced air gas heat, and one entire side wall of each classroom is a window.

We are able to build these attractive schools at approximately \$10,000 per classroom, which is much less than the conventional two- and three-story reinforced concrete structure. This new type of construction can be erected in approximately four months. It is true the one-story school will require more ground floor area than the two- or three-story building; however, there is a considerable saving by the elimination of stairways, second-floor toilet rooms and corridors, and as the ground cost is usually not more than 10 per cent of the total cost, the additional land necessary for the play area taken up by the building should not materially affect the project's economic balance. Also, the land is always available for resale in case the school should not be required in the future.

I believe in a school which can be economically sound if it is necessary to "write it off" or convert it into other usage in 15 to 30 years. One-story, semi-prefabricated schools are safe, flexible and can provide all the functions of the larger school. The nonbearing partitions make the interior adaptable to other use occupancy.

V. HARRY RHODES  
Commissioner of School Buildings  
St. Louis, Mo.

(Continued on page 48)





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FOR 50 years Roddiscraft doors have been known as the architects' door. Roddis has worked closely with architects in the production of doors in keeping with new architectural trends and developments.

From "turn of the century" ornate inlaid doors to the simple beauty of the modern Roddiscraft flush door, Roddis has been a leader in door design and construction.

### **Roddiscraft Firsts —**

In the interests of better construction, Roddis pioneered the hot plate press method of bonding—so essential to economical waterproof construction.

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In Roddiscraft's past performance is the promise of the future. Architects can look to Roddiscraft with confidence for continued quality and pioneering in the interests of better products.

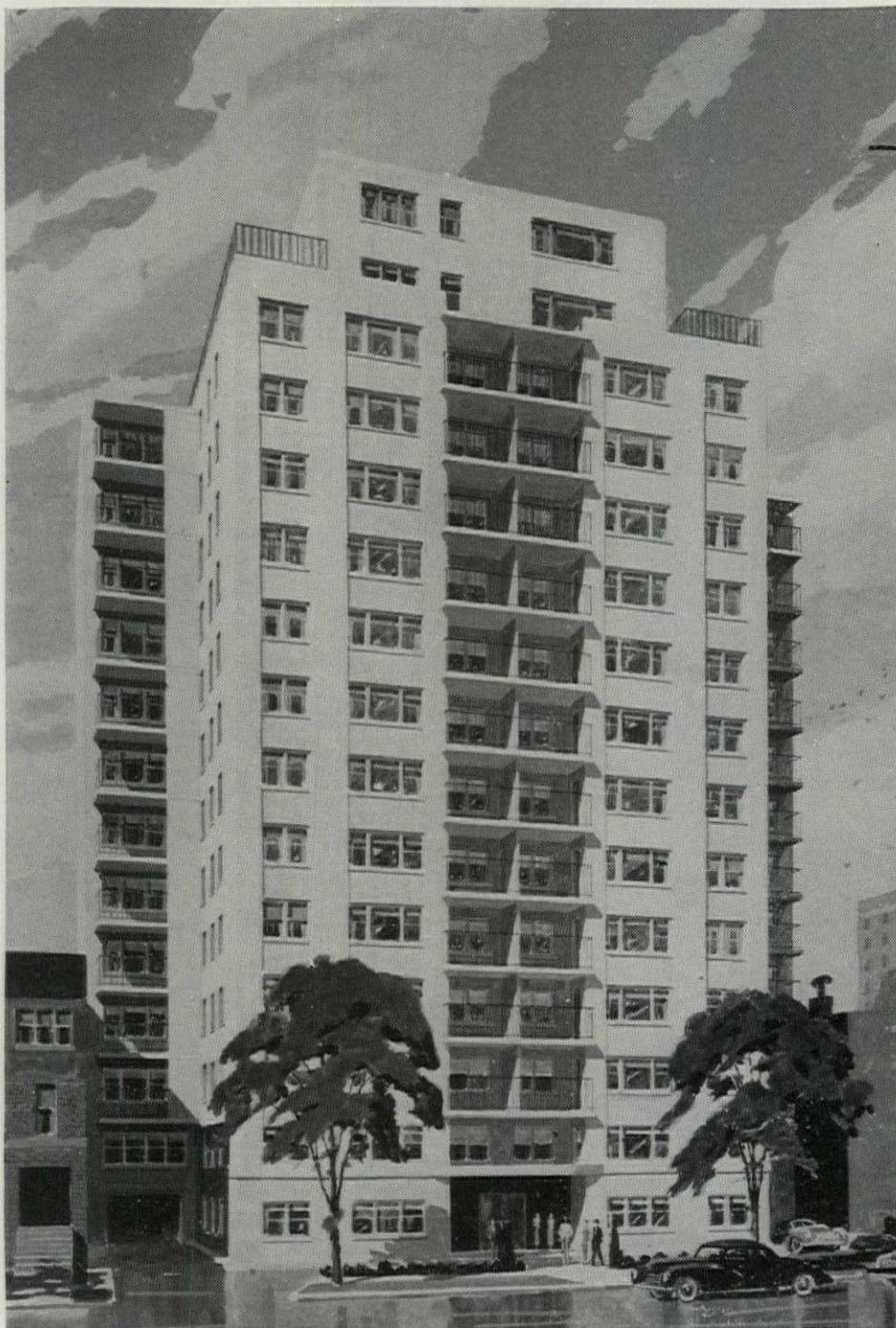
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## 15-STORY

APARTMENT BUILDING  
HEATED BY REVERE  
COPPER RADIANT  
HEATING COILS  
EMBEDDED IN  
CONCRETE FLOORS

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Distributor.

ACCORDING to recent building reports, the "Gold Coast" in Chicago has been chosen for the location of several very fine, new apartment buildings. Among them is 1350 Astor Street.

One of the interesting features of this outstanding building is that apartments on all fifteen floors will have the comfort and convenience of radiant panel heating. The heating coils are imbedded in the concrete floors. They utilize over 52,000 feet of Revere Copper Water Tube . . . nearly two-thirds of a mile of tube per floor.

From the beginning of the installation throughout a lifetime of service, Revere Copper Water Tube is ideal for radiant panel heating. Long lengths of this lightweight, easy-to-bend tube—the joints made with solder-type fittings—reduce the time and cost of installation. And experience has clearly proven that you can rely on this tube for long years of trouble-free service.

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## REPORT CARD HORACE MANN SCHOOL

REPORT ON:

# J&L JUNIOR BEAMS



# J&L STEEL

*Left*—Workman easily guides notched Junior Beam into place during construction of Horace Mann School.

*Below*—Completed school showing clean functional design and unique cantilever construction.

Remarks: **J&L STEEL JUNIOR BEAMS**  
solve unique design problem **AT LOW COST**

At the Horace Mann School in Warren, Ohio, J&L Junior Beams have again demonstrated that they can do a better job in unusual applications, as well as in ordinary styles of buildings.

Notched over lintel beams and cantilevered three feet beyond the outside walls, J&L Junior Beams support not only the roof but also an attractive permanent sun shield over classroom window walls.

Because of their versatility and adaptability, J&L Junior Beams go far towards meeting the demands of today's builders. They cost less to buy and less to erect. At Horace Mann, Warren Engineering Company, who erected the school, assisted by J. A. McMahon, Ltd., Niles, Ohio steel fabricators, has found that lightweight, 12" Junior Beams,

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This means *dollars saved*—through speed of erection, elimination of secondary operations, and ease of handling. Yet in light structures, J&L Junior Beams often offer all the advantages of heavier structural members.

Junior Beams, made *exclusively* by J&L, are the lightest weight hot-rolled steel beams available.

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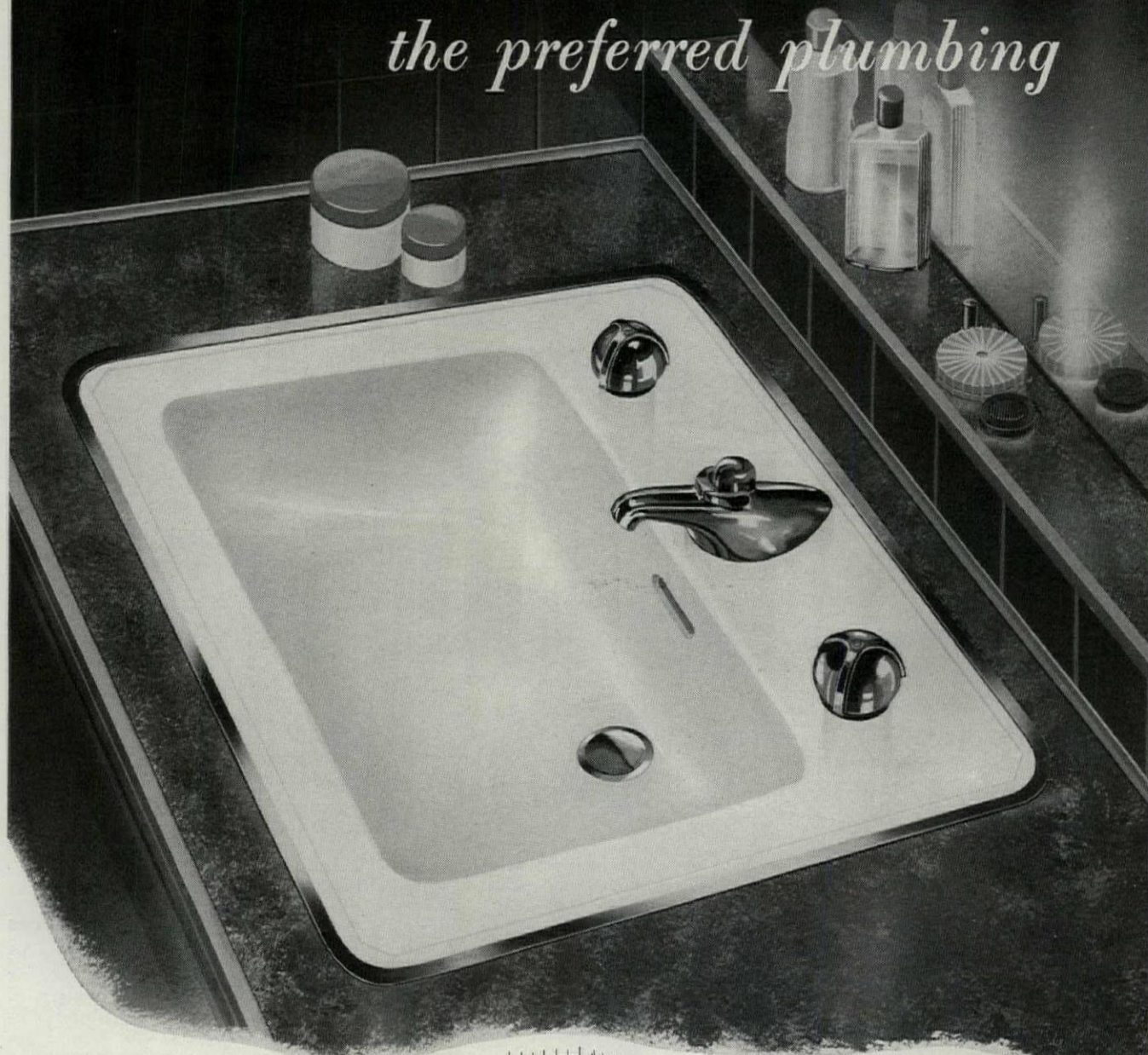
From its own raw materials, J&L manufactures a full line of carbon steel products, as well as certain products in OTISCOLOY and JALLOY (hi-tensile steels).

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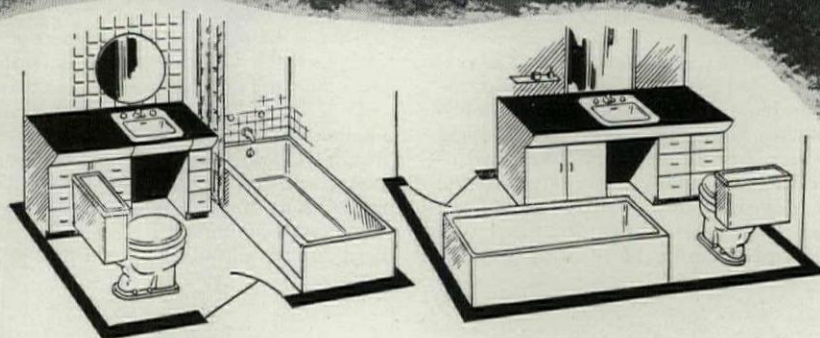


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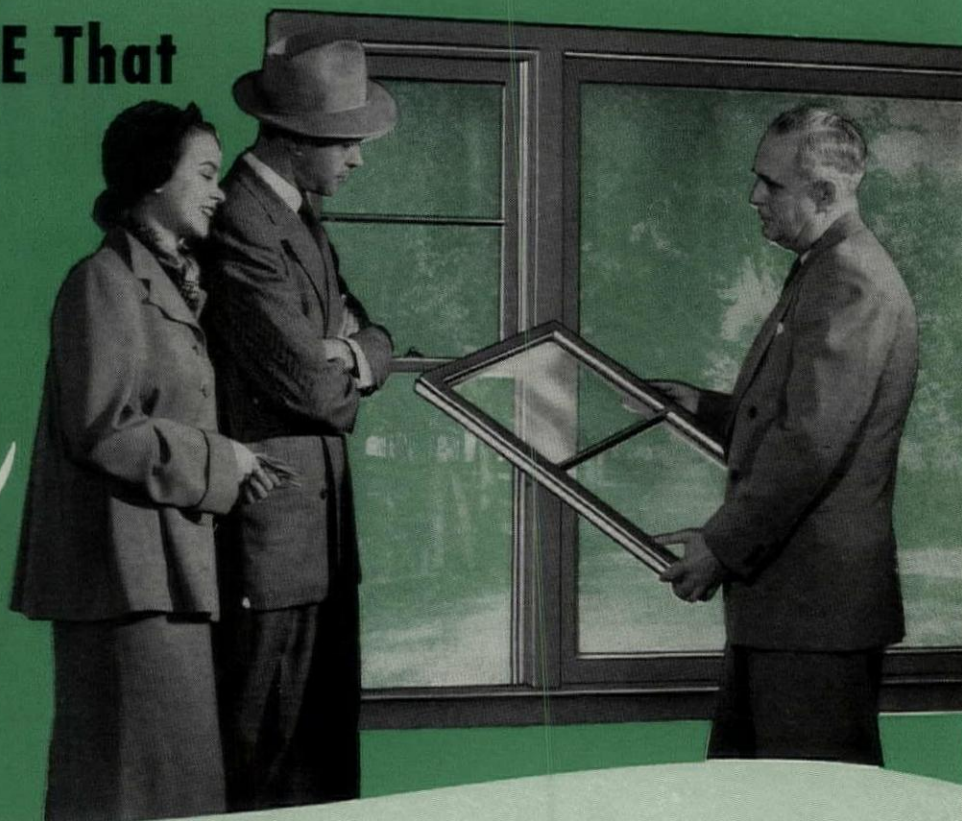
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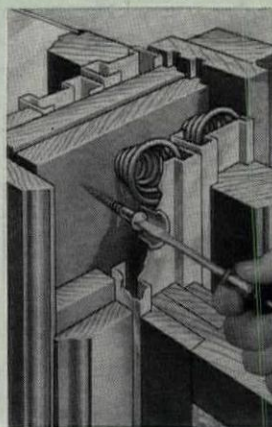
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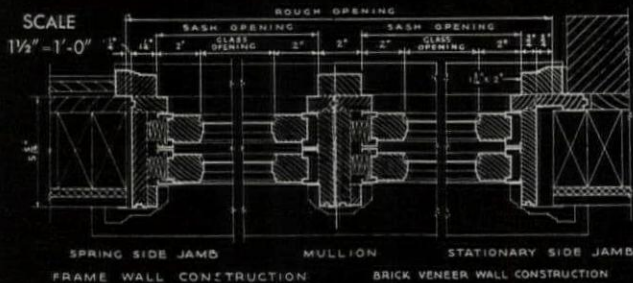
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See R·O·W Windows at the 1950 National Association of Home Builders Show, Booth No. 81. See Sweet's Architectural or Builders File.

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YORK Engineers have at their command an inexhaustible supply of practical information gathered from thousands of successful York-equipped installations. This information and their services are at *your* disposal. If you are "planning" any work involving air conditioning or refrigeration, call your nearest YORK Office. You get impartial, experienced help from the start. York Corporation, York, Pennsylvania.

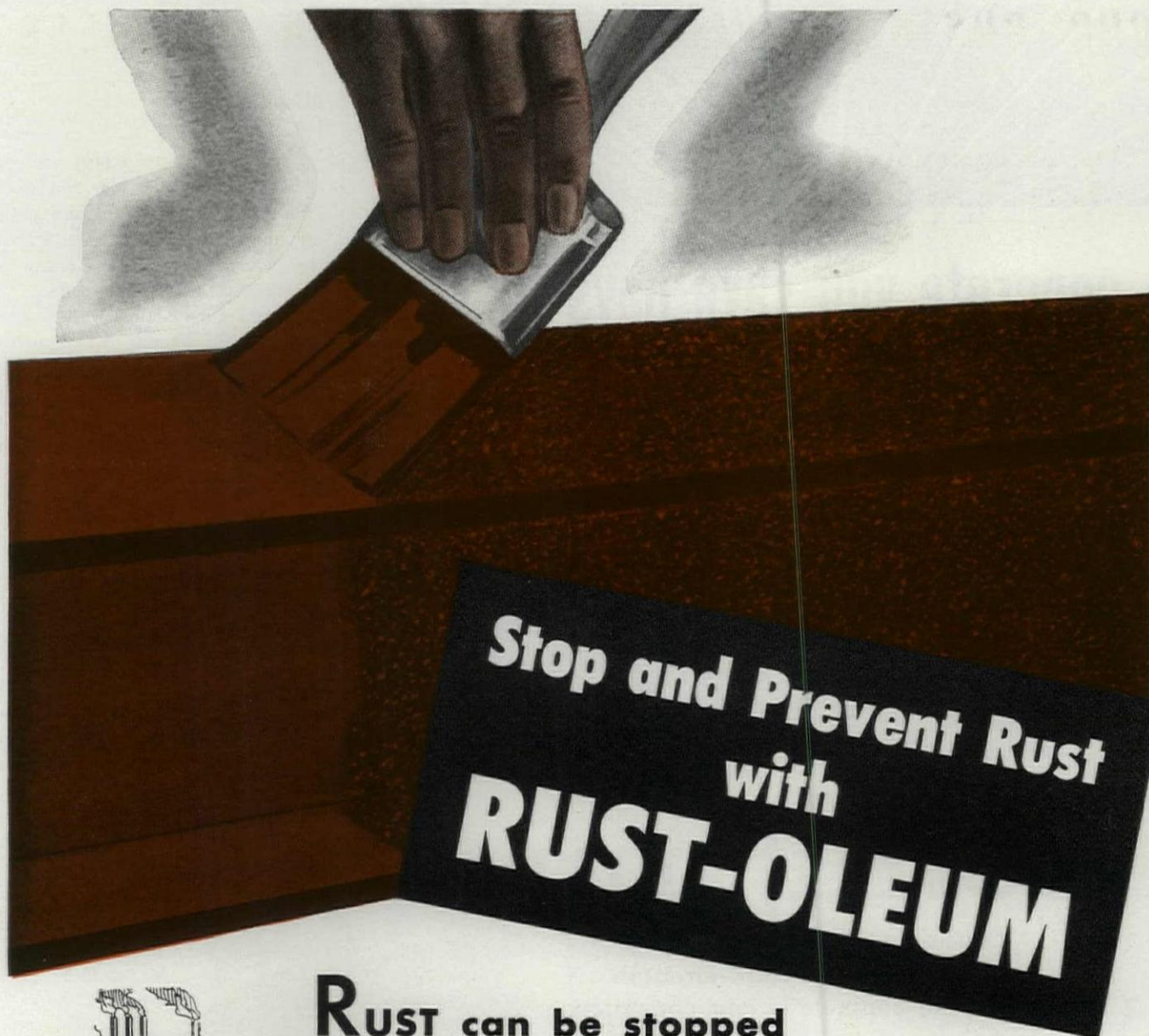


PIONEERS IN INVENTION AND DEVELOPMENT SINCE 1874

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HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885





## **RUST can be stopped ... stopped easily, surely, economically!**

RUST-OLEUM is the answer. For 25 years it has proved its capacity to stop and prevent rust at sea, in fume-choked industrial areas, on railroad rolling stock, bridges and signaling equipment.

RUST-OLEUM . . . an exclusive formula . . . protects metal with a tough, long-lasting pliable film that dries to a hard, firm finish that defies rain, snow, salt air, fumes and weathering. It adds years of extra use to metal roofs, tanks, sash, fences, stacks, gutters, downspouts, machinery and other metal surfaces.

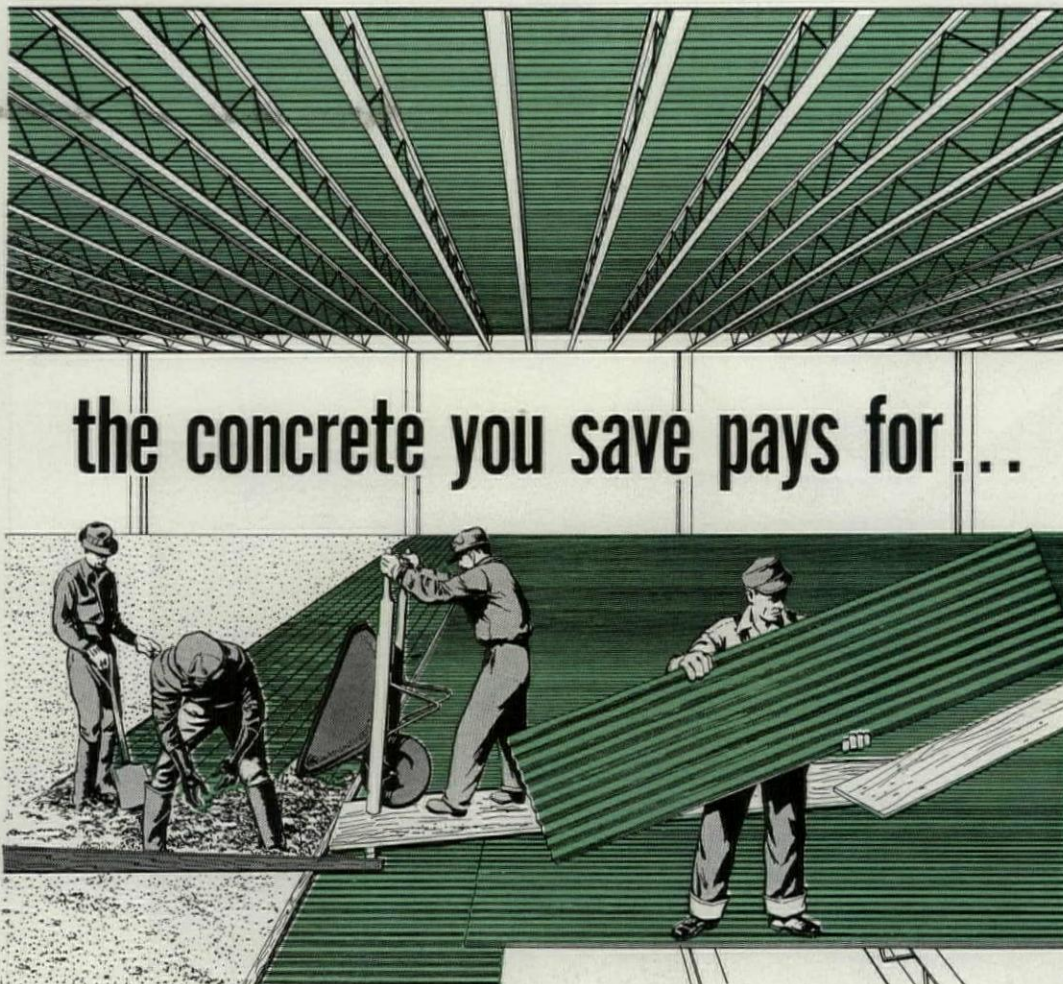
RUST-OLEUM decorates as well as protects. It is available in all colors, aluminum and white. It can be applied to metal where rust has already started. You don't have to remove all the rust.

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100,000 pounds per square inch.

Tough-tempered. High-strength.

Steel base for concrete in joist construction.

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Furnished uncoated, mill-primed for painted exposed

joist construction, or galvanized... with clips to fit all standard joists. Send for AIA file today.

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Standard tough-temper Corruform is made to one specified strength and thickness with guaranteed average strength over 100,000 p.s.i. and certified minimum strength for single test over 95,000 p.s.i.

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Please send me your Corruform booklet.

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## LETTERS

### DISCRIMINATION

Forum:

I find the October school issue of the FORUM to be not only a fine guide and stimulus to architects but a most helpful and progressive civic contribution as well. There is a little fly I would have you remove from the cream before it contaminates the well-brewed coffee.

In the section dealing with "Long-Range Planning," W. W. Caudill, A.I.A., advises architects and planners to pay careful attention to "social boundaries."

... Must tomorrow's architects and planners fall victim of yesterday's ideas on racial segregation just because Mr. Caudill happens to be circumscribed by his Texas environment?

HAROLD J. LEVY, *Architect*  
Brooklyn, N. Y.

Forum:

I was profoundly shocked. . . .

Unfortunately there still exist areas in this country in which racial segregation is the rule, and it appears that the author of your article came from such a region. This, however, should be no excuse whatsoever for your implied acceptance of such an anti-American standard. . . .

TALBOT HAMLIN, *Dean*  
*School of Architecture*  
*Columbia University*  
*New York, N. Y.*

Forum:

... I must take exception to certain thoughts expressed in the article by Mr. W. W. Caudill. . . .

MAXFIELD F. VOGEL, *Architect*  
*New York, N. Y.*

Forum:

Apparently, your critics do not realize that social boundaries do exist and planners cannot close their eyes and imagine that they are living in an idealistic society.

Many cases exist where schools and homes (yes, and churches, too) have been abandoned with great property loss because of changing and overlapping of social boundaries. As long as segregation prevails in certain sections of our country, planners in those regions shall have to consider social boundaries as factors in the selection of school sites.

Incidentally, your staff is certainly to be congratulated for the excellent issue on schools. It will go far to help give our children of all races better buildings for learning.

WILLIAM W. CAUDILL, *Research Architect*  
*Texas Engineering Experiment Station*  
*College Station, Texas*

• Architect Caudill's comments were obviously influenced by the fact that he works and lives in the South where the existence of social boundaries do affect planners and school plans.

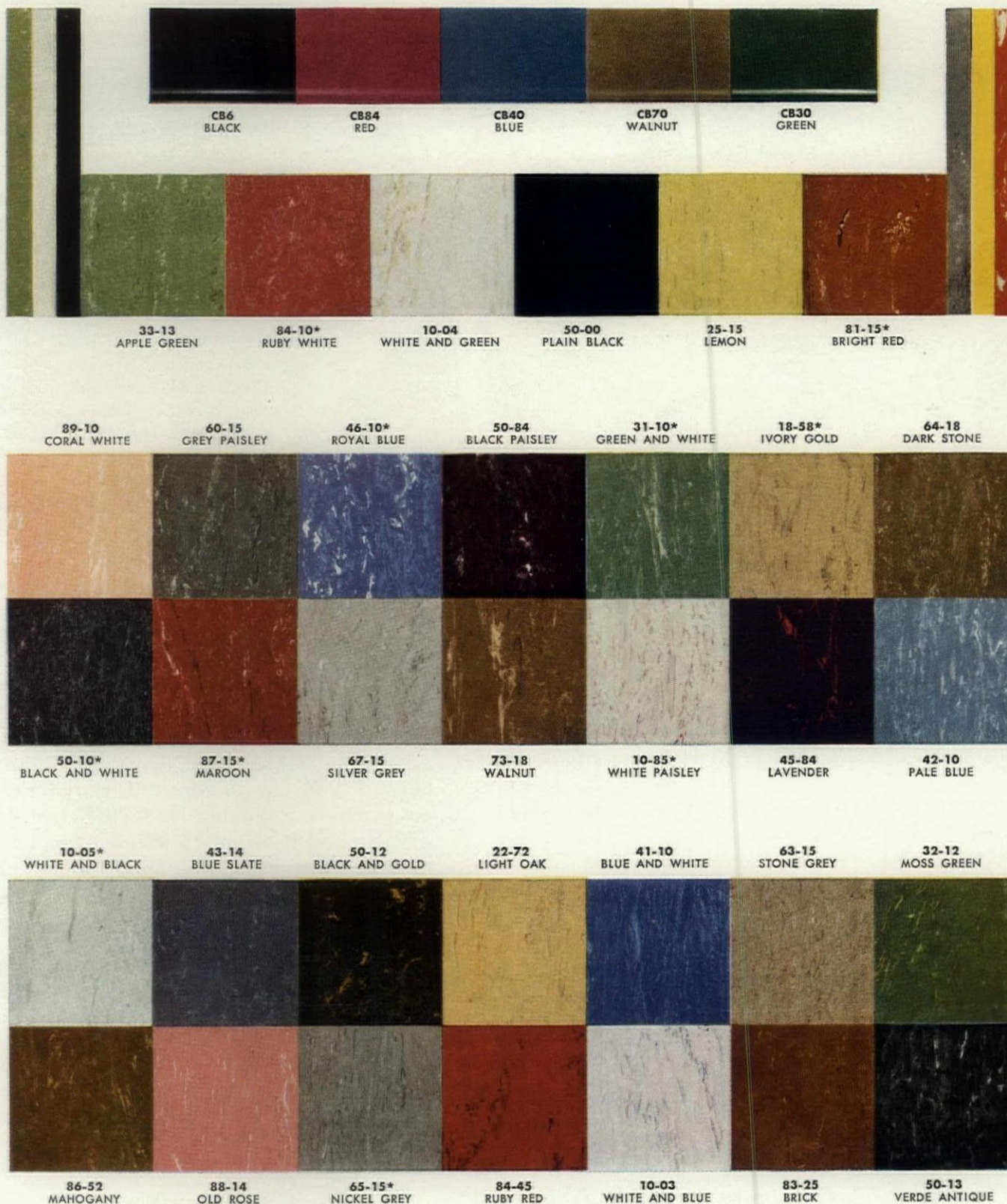
It is regrettable that Forum's publication of Caudill's article erroneously implied to some readers that FORUM favors discrimination.—Ed.

(Continued on page 60)



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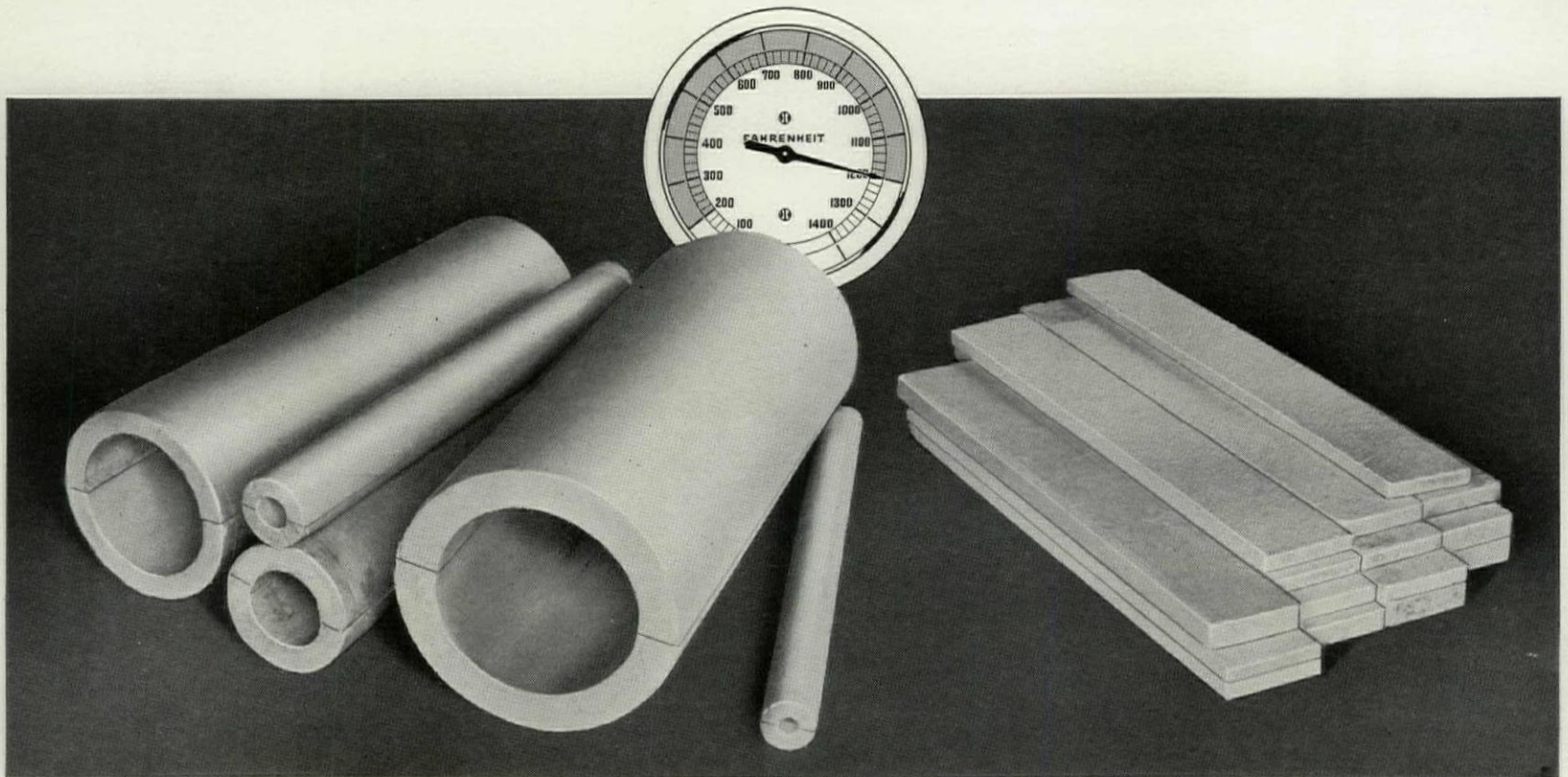
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# UNIVERSAL

*introduces*

**the**

**revolutionary**

**new**

## Universal *Select-a-Range*

FOR RESIDENTIAL,  
APARTMENT AND  
INSTITUTIONAL  
INSTALLATION

# *Select-a-Range*

**and presents a  
striking new conception  
in kitchen planning  
flexibility**

by

*Royal Barry Mills*



# UNIVERSAL

Fresh in conception . . . imaginative in design . . . revolutionary in application flexibility . . . powerful in consumer appeal!

It's the dramatic new Universal electric Select-a-Range, the first really significant advance in range design in over a quarter of a century!

Now for the first time, you can design kitchens with a flexibility and freedom never before possible. Now, you can match cooking facilities exactly and realistically to the specific requirements of each residential unit. And you can do it practically and economically without custom-built equipment . . . and with matchless efficiency!

Yes, all this is readily achieved with the new Universal Select-a-Range. Based on modular design, it is truly functional, completely flexible in adaption and extremely simple to install. But best of all, it frees the designer from the rigid dimensions and the limited planning imposed by the conventional "package" range.

The Select-a-Range is another great advance in the 108 year history of Landers, Frary & Clark, leader in the electric range industry. Pioneers in the electric appliance field, Universal holds many basic patents in range design and has contributed many outstanding improvements to better, faster, easier electric cooking which today are the standard of the industry. It is this experience and this leadership that are responsible for the development of the revolutionary Select-a-Range . . . as well as a whole new approach to kitchen planning and cooking convenience.

*and here it is!*





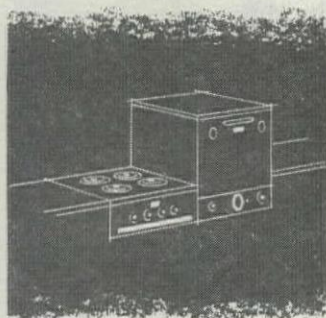
*presenting*

## the dramatic new **UNIVERSAL**

*Now you can design your range as you like it!*



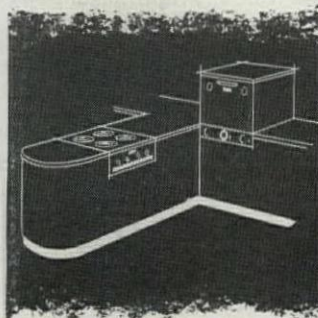
**Typical right-hand oven arrangement.** Surface unit and oven are located at "Convenience-Level" height for easy cooking. Six storage drawers for large utensil capacity.



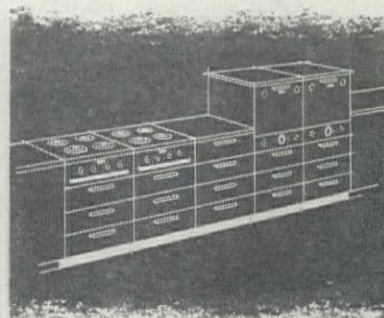
**Economy arrangement.** Minimum equipment provides complete cooking facilities in a compact space at low cost for apartments and small homes. May be economically expanded at any time.



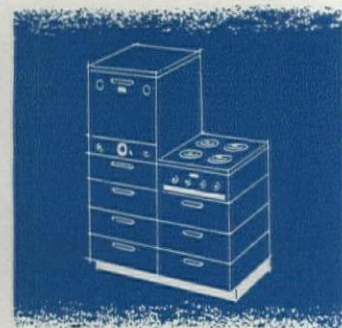
**Two-Oven arrangement.** One of many arrangements for large homes, estates, farms. Ovens may be right-hand, left-hand or separated at any height desired.



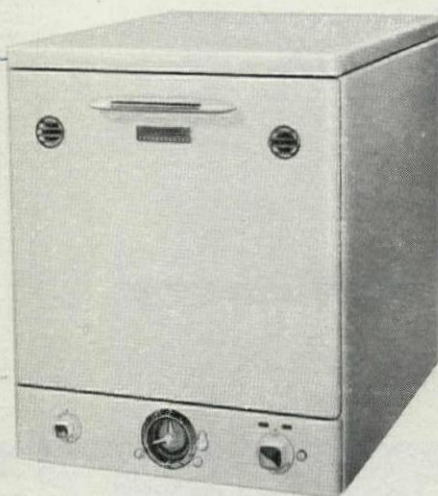
**Separated arrangements.** Platform surface unit is recessed in peninsular counter to serve either side. Oven can be placed on counter or fitted into wall. Oven venting fitted to oven door. Extra units can be added any time.



**Big capacity arrangement.** Two surface units and two ovens, large work and storage areas, big capacity make this arrangement ideal for institutional use.



**Left-hand oven arrangement.** Oven is located at extra high "Convenience-Level" for taller people to eliminate stooping and bending. Provides greater comfort and convenience.



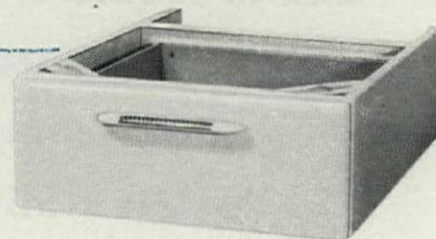
**COMPLETE OVEN** — with one-piece porcelain enamel-lined interior, Thermostat Control and Pre-Heat Push Button. Automatic Timer and Minute Minder are standard equipment but can be eliminated if desired.



**PLATFORM SURFACE UNIT** — with four fast-heating "Monotube" Thrift Units, Seven-Heat Control Switches. Platform backsplash and platform light are optional.

More than 25 different arrangements can be created from these three basic modular units. Each unit is complete in itself so that it can be installed separately . . . recessed in stock cabinets or custom millwork. Or these units can be fitted together . . . with a right-hand oven, left-hand oven, double ovens . . . all at the "Convenience-Level" height to eliminate back-breaking stooping and bending.

**STORAGE DRAWER** — extra-heavy gauge steel, high-baked enamel inside and out, brass runners.





# Select-a-Range

**Universal**  
*Select-a-Range*

FOR RESIDENTIAL,  
APARTMENT AND  
INSTITUTIONAL  
INSTALLATION

*1st*

to give you complete electric range flexibility in kitchen planning!

*1st*

to give you over 25 range variations and freedom to design kitchens as you want them!

*1st*

to give you something new...something different in kitchen design to help you sell your house!

Now you can create and specify exactly the range design in your kitchen planning. Gone are the restrictions of conventional range inflexibility. Here's a great new opportunity to project refreshing new ideas into kitchen design with the revolutionary Universal Select-a-Range.

The Select-a-Range is based on modular design. It is made up of three basic interchangeable, independent, self-contained units... an oven, a surface cooking unit and a roomy storage drawer. These units can be fitted together exactly in more than 25 different arrangements.

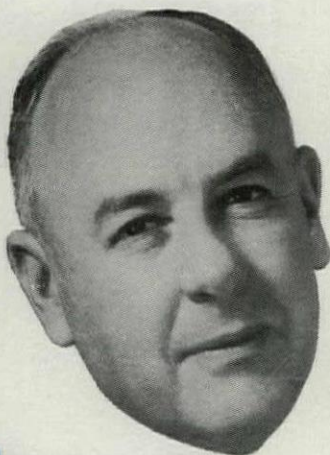
Ovens and surface units can be placed in any location at any height desired. They can be assembled as a conventional range with the much desired "Convenience-Level" oven height or they can be separated into individual units. Because each unit can be purchased separately, you buy only what you need. The Select-a-Range is easily installed and requires no elaborate preparatory work.

For added sales appeal in every kitchen, here's something new for you... something different... something to help sell the house! It can be financed on the mortgage at low cost.

**UNIVERSAL**

*for greater freedom and  
flexibility in kitchen planning...*





*Royal Barry Wills*

## interprets *Select-a-Range* flexibility

From the board of Royal Barry Wills come these six sparkling, modern kitchen designs . . . illustrating how the flexibility of the Universal electric Select-a-Range adds exciting freshness and sales appeal to kitchen planning.

It is this flexibility that gives the designer greater scope to make the whole kitchen contribute more fully to better living. It is this flexibility that provides full cooking facilities in the most compact kitchen where even the smallest apartment range will not fit. This flexibility gives you no-stoop ovens at the "Convenience-Level" . . . larger work areas . . . increased storage capacity . . . greater beauty . . . fuller utilization of space.

All this adds up to more sales power for you. Now homeowners can select the cooking capacity they want . . . from a minimum range that can be expanded later all the way up to maximum capacity. Yes, here's something new . . . something different to increase the desirability of the kitchen. And here is sales appeal at low cost because the Select-a-Range is priced to meet the demands of today's building market. The price of a Select-a-Range of any design can be included in the original mortgage or in a modernization financing plan.

Whether in new construction or modernization, the Select-a-Range is equally at home in Traditional, Modern or Ranch House architecture. Its flexibility is unmatched for apartments, hospitals, small institutions . . . in fact, wherever modern cooking facilities are needed.

### National Advertising and Promotion

These six Royal Barry Wills kitchen designs will be offered in four-color full-page and two-page introductory advertisements in leading national magazines such as *Better Homes & Gardens*, *Saturday Evening Post*, *House Beautiful*, *House & Garden*, etc., announcing the Select-a-Range to the public. These advertisements will appear in the Spring and will be supported by a national promotion and publicity program to consumers, builders, material dealers and appliance retailers.

1. Oven and platform surface unit are recessed in an inexpensive wood cabinet. This minimum equipment "economy" arrangement provides a full 40-inch range in a compact space with ample counter working space.

2. A fully equipped range with a right-hand "Convenience-Level" oven, large storage capacity and adequate counter space for the average size family. An ideal design for modernization.

3. For easier working convenience, the oven and platform surface unit are separated and installed at right angles. The oven is at the most convenient level with large storage and counter space at either side.

4. Oven and platform surface unit are extended with extra capacity storage and counter space between. Surface cooking unit is integrated with serving area in a peninsular arrangement for added convenience.

5. Double baking and broiling capacity is provided by two ovens mounted side by side in a wall at "Convenience-Level" height. Here is extreme flexibility not possible with a conventional range.

6. Big capacity arrangement with two ovens and two platform surface units. Low-level oven provides counter-height work surface with second oven at "Convenience-Level" height adjacent to extra large counter space.

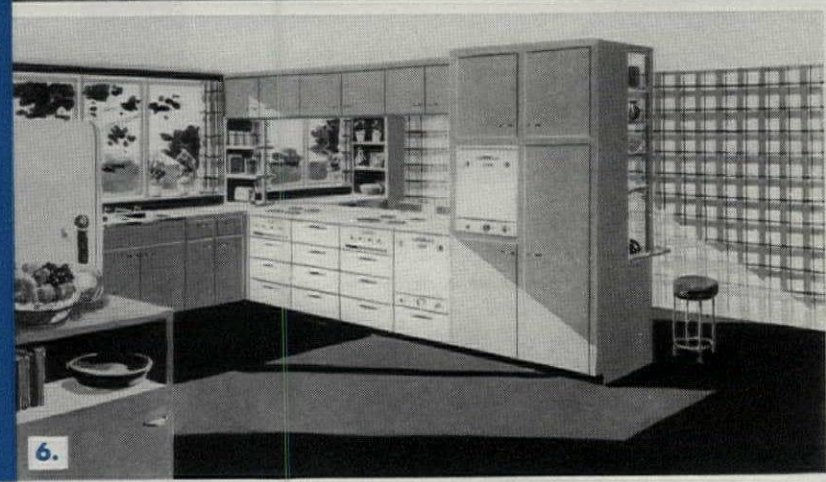
A SPECIAL PORTFOLIO of these Royal Barry Wills designs in full color has been prepared for the building profession. For your complimentary copy, write to Landers, Frary & Clark, Dept. AF, New Britain, Conn.



# Universal *Select-a-Range*

FOR RESIDENTIAL,  
APARTMENT AND  
INSTITUTIONAL  
INSTALLATION

in these smart new kitchen designs



**UNIVERSAL**

for greater freedom  
in your kitchen planning...



# Match the *Select-a-Range* exactly to your

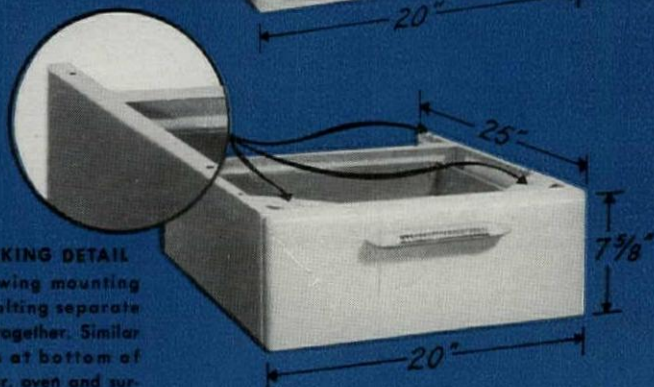
## basic *Select-a-Range* units



**OVEN—RA9401**—Outside dimensions: 20" wide x 25" deep x 24 1/4" high. Baking unit 2300 watts; broiling unit 2500 watts. Maximum connected load 4800 watts. One-piece, porcelain enameled interior 16" x 16" x 19" with rounded corners. Built-in rack guides assure level alignment of racks. Counter-balanced door with dual-hinge spring lock. Two oven vents at top of door. White porcelain enamel outside finish. Wired at the rear through a built-in compartment, permits oven to be backed flush against finished wall or cabinet. U.L. installation rating Form O. Mounting holes in base to fasten oven to counter or storage drawers.



**PLATFORM SURFACE UNIT—RA9402**—Outside dimensions: 20" wide x 25" deep x 9" high. Four fast-heating "Monotube" units; three, 6 1/8" 1100 watts; one, 8 1/8" 1900 watts. Maximum connected load 5200 watts. Seven-heat control switches for each unit. White porcelain enamel outside finish with acid-resisting platform top. Wired at the rear through a built-in compartment, permits unit to be flush mounted within outside dimensions. Mounting holes in the base to fasten unit to counter, storage drawers or framing.



**STORAGE DRAWER—RA9403**—Outside dimensions: 20" wide x 25" deep x 7 7/8" high. White baked enamel exterior finish. Drawers are suspended on brass runners for quiet operation. Extra-heavy gauge steel, one-piece body. Mounting holes in top and bottom for assembly to other drawers, oven or surface unit.

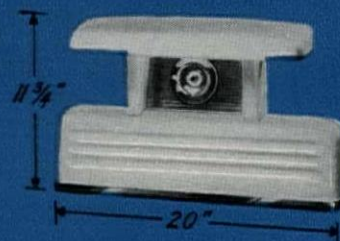
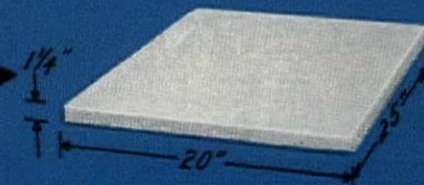
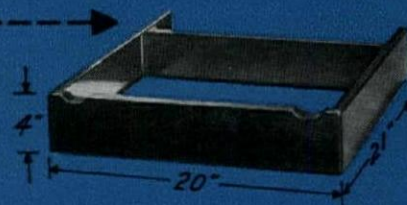
**LOCKING DETAIL**  
—showing mounting for bolting separate units together. Similar holes at bottom of drawer, oven and surface unit and toe base.

**TOE BASE—RA9404**—Outside dimensions: 20" wide x 21" deep x 4" high. Serves as base on which storage drawers and oven or surface unit can be mounted as one integral piece. Side fastening permits two or more bases to be locked side by side for multiple "stacking" of units. Baked black enamel on heavy-gauge steel.

**SPLASH BACK & LIGHT—11-9402-075 & -700**—Outside dimensions: 20" wide x 11 1/4" high to top of light. Fastens to back of the surface unit with chromium trim concealing the joint.

**COUNTER TOP—11-9403-050**—Outside dimensions: 20" wide x 25" deep x 1 1/4" high. Heavy steel with acid-resisting porcelain enamel finish. Serves as top cover for storage drawer unit.

## supplementary *Select-a-Range* units





## specific design requirements

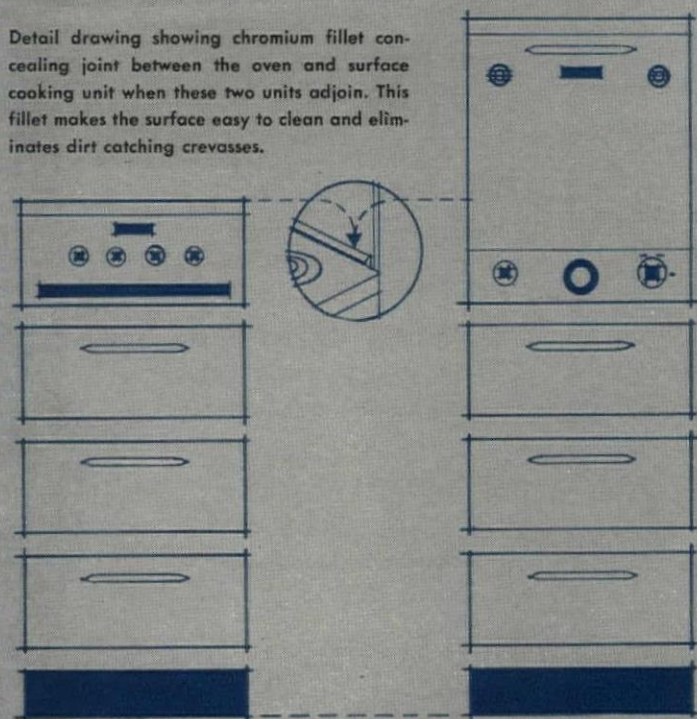
## Universal Select-a-Range

**T**HE DESIGN of the Select-a-Range provides for the building up of required cooking facilities from basic modular units. These units can be quickly assembled into one or more integrated groups as desired.

The drawings on this page illustrate how the modular design of the oven, surface unit and storage drawers permit grouping in almost unlimited variation.

Complete specifications, dimensions and construction detail are shown on the opposite page.

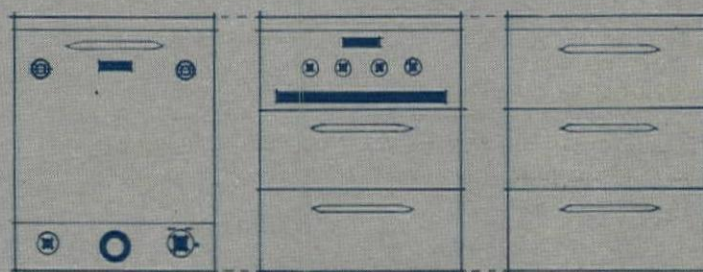
Detail drawing showing chromium fillet concealing joint between the oven and surface cooking unit when these two units adjoin. This fillet makes the surface easy to clean and eliminates dirt catching crevasses.



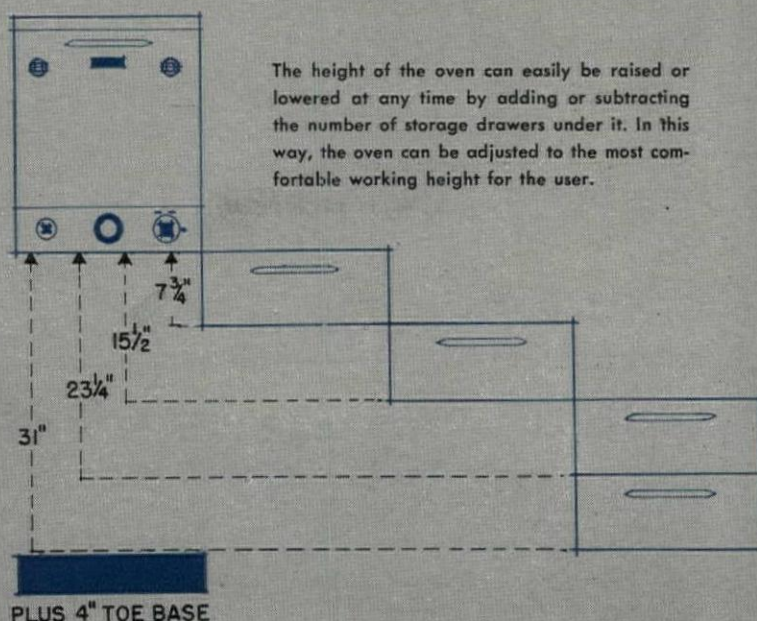
Surface cooking unit can be brought up to counter height with three storage drawers mounted on a toe base.

Convenient working height for the oven can be provided with two or more storage drawers and a toe base.

When two "stacks" are designed as one integral unit, the "stacks" are fastened together providing a secure foundation.



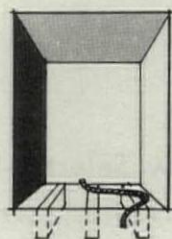
Three storage drawers plus one counter top; or two storage drawers plus one surface cooking unit equals the height of the oven.



The height of the oven can easily be raised or lowered at any time by adding or subtracting the number of storage drawers under it. In this way, the oven can be adjusted to the most comfortable working height for the user.

### Installation is simple and low cost

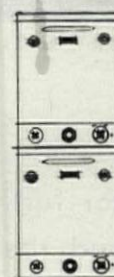
When the Select-a-Range is assembled as an integral unit with oven, surface unit and drawers in one assembly, installation is the same as with a conventional range. One 3-wire, 120/240 volt feeder circuit is brought up to the terminals in the back of the oven or surface unit and interconnection made between the two.



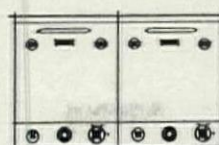
When the Select-a-Range Oven is to be installed in a wall or in cabinet work, the recess must be 20 3/4" wide x 23 3/8" deep x 25 1/2" high. At the bottom of the recess, three lengths of 2" x 4" are to run from front to back, narrow side up to support the oven. No insulation space or venting is required. Feeder circuit is brought in at the bottom rear of the recess.



When the Select-a-Range Platform Surface Unit is to be installed flush in a counter, the recess should be 20 1/4" wide x 25" deep x 9" high. Feeder circuit should be brought into the recess at the bottom rear.



When two Select-a-Range Ovens are to be installed one on top of the other in a wall or cabinet, the recess must be 20 3/4" wide x 23 3/8" deep x 50 1/2" high. No additional bracing needed for the second oven.



When two Select-a-Range Ovens are to be installed side by side in a wall or cabinet, the recess must be 40 3/4" wide x 25 3/8" deep x 25 1/2" high. Separate bracing is required at the bottom of each oven.



**F**amous Universal quality Range features make  
*Select-a-Range* cooking faster, easier, better!



**EXTRA LARGE OVEN INTERIOR**

—16" x 16" x 19" with Balanced Heat and 40% faster preheating with automatic cut-off.

**AUTOMATIC TIMER**

starts and stops oven as desired with simple, foolproof precision.

**COUNTER-BALANCED OVEN DOOR**

has automatic broiling stop.

**MINUTE MINDER**

keeps track of time for any cooking operation from one to sixty minutes.

**"MONOTUBE" THRIFT UNITS**

are fast heating, cannot warp or bend, concentrate heat distribution.

**SEVEN-HEAT SWITCHES**

give exact control of heat for every desired cooking requirement.

**SWIVELED UNITS**

swing up and out for easy cleaning. Chromium flanges keep hot utensils away from porcelain top.

**UNIVERSAL**

LANDERS, FRARY & CLARK, NEW BRITAIN, CONN.

For further information about the new Select-a-Range and the name of your nearest distributor, write to Dept. B-D, Landers, Frary & Clark, New Britain, Conn.



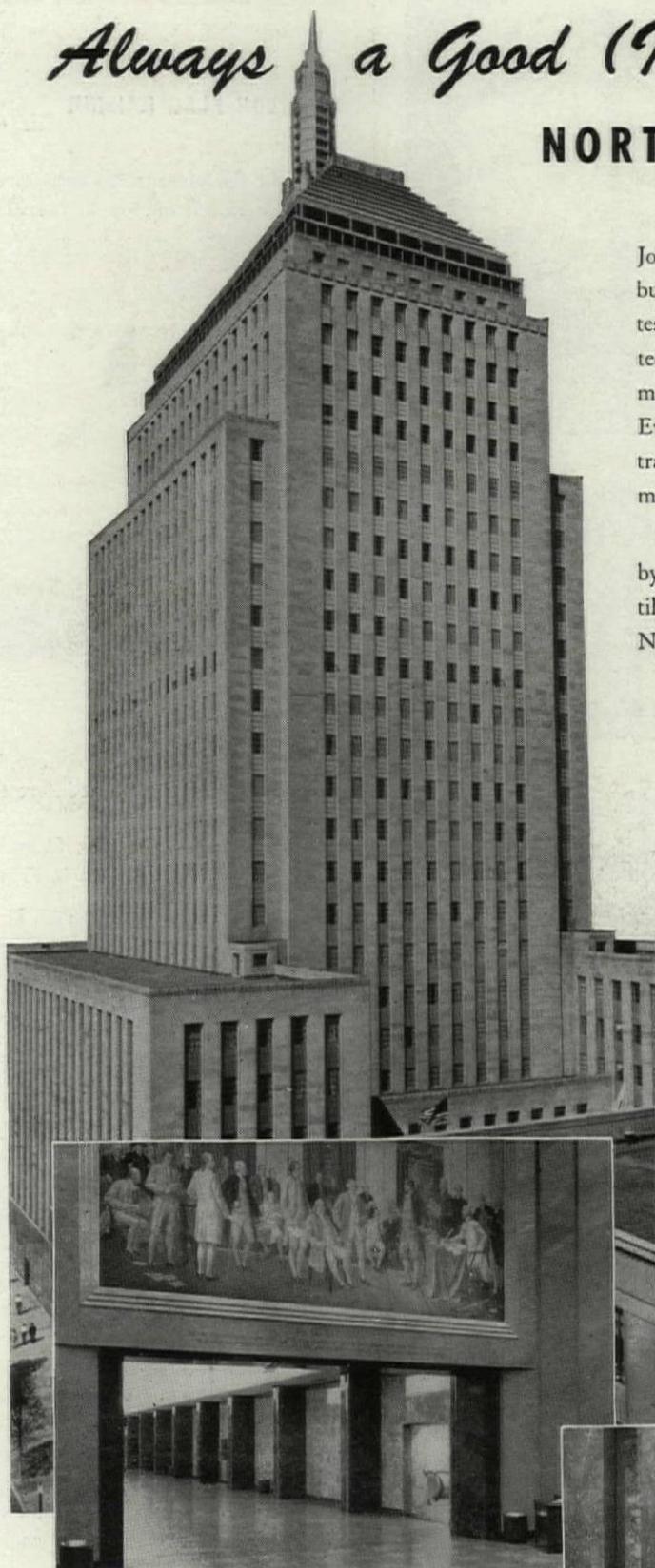
# *Always a Good (Insurance) Policy:*

## **NORTON Non-Slip FLOORS**

A good insurance policy is a sound investment in protection. The John Hancock people knew this because insurance has been their business for 87 years. Their new home office building is convincing testimony of a sound policy to make a long term investment in protection. Elevator lobby floors and all stairs have been made permanently non-slip by using ALUNDUM Terrazzo Aggregate. Even when wet these surfaces will be slip-proof and where foot traffic is severe, durability has been increased greatly by adding diamond-hard ALUNDUM Aggregate.

In stores, factories and office buildings, eliminate the hazard of falls by slipping. For permanent non-slip protection in terrazzo, cement, tile or mosaic floor and stair surfaces, invest in long-wearing Norton Non-Slip Floors.

*See our catalog in Sweets or write for free catalog to  
Norton Company, Worcester 6, Mass.*



In the elevator lobbies and on the stair treads of John Hancock Insurance Company's new office building, permanent protection against slipping and increased resistance to wear have been attained by the always sound policy of investing in Norton Non-Slip Floors.

Photos by A. F. Lydiard

**NORTON COMPANY, WORCESTER 6, MASS., U.S.A.**





SOUTH AFRICA



ARGENTINA

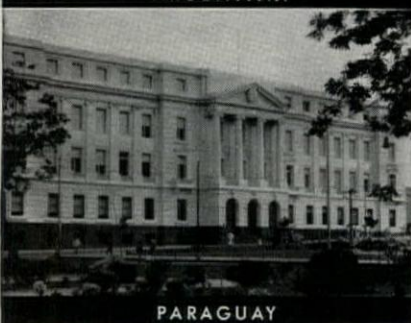
# "MEDUSA WHITE"

## ...A World-Wide Specification

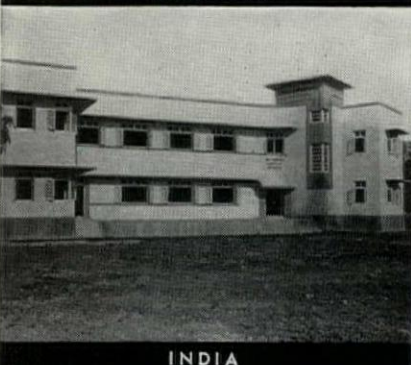
Medusa White Portland Cement is a world-wide specification . . . specified for distinctive architecture in South America, England, New Zealand, India, and many other countries. Architects in countries far removed from American shores *know there is no finer white, no whiter white than Medusa White!*

Make your construction resplendent with beauty. Specify Medusa White for white concrete, stucco, cast stone, building trim, sculpture work, or Terrazzo floors—white or tinted. When this construction needs water protection, use Medusa *Waterproofed* White Portland Cement\* . . . the cement that prevents water absorption. For full details, mail coupon for architectural booklets.

\*Where Medusa Waterproofed White is not available, use Medusa Waterproofing Paste or Powder.



PARAGUAY



INDIA



CHILE

**NO FINER WHITE • NO WHITER WHITE  
THAN MEDUSA WHITE**

FIFTY-EIGHT YEARS OF CONCRETE PROGRESS

### MEDUSA PORTLAND CEMENT CO.

1013-6 MIDLAND BUILDING • CLEVELAND 15, OHIO

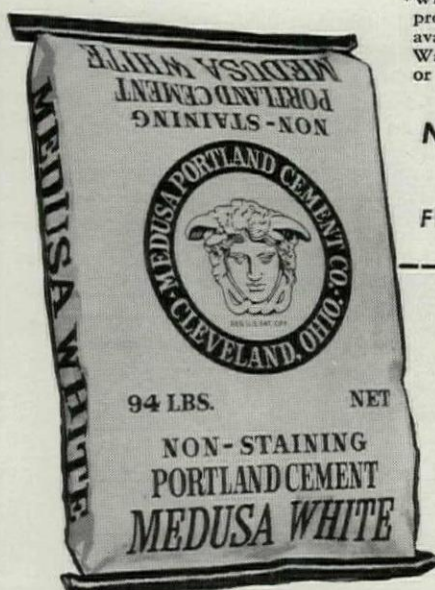
Gentlemen:

Please send me a copy of your free booklets "Medusa White Portland Cement" and "A Guide to Finer Stucco."

Name .....

Address .....

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

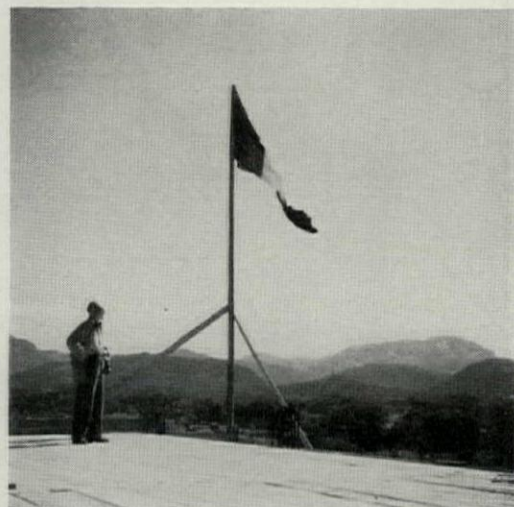


## LETTERS

### TRICOLOR FLAG RAISING

Forum:

I have the pleasure to announce that the flag has been raised on top of the Marseilles living



Henri Moiroud

unit (October 6, 1949). I believe, in all modesty, that this local event might interest you. I attach a photograph of the flag.

LE CORBUSIER, *Architect*  
Paris, France

• . . . Which also shows reader Le Corbusier atop his building. A more detailed report on this interesting project is presented elsewhere in this issue.—Ed.

### CON

Forum:

. . . The magazine has deteriorated badly . . . When you are not playing up to the builder and banker your language is too precious to be valid. . . .

DAVID F. TODD  
Flushing, N. Y.

### PRO

Forum:

. . . Although my interest is primarily in civil engineering, I hope soon to go into the house building field. Your articles on design . . . are right up my alley, and I am extremely glad to have them in my permanent reference file. . . .

Although your work on modern residence design is quite complete, I would like to see more discussion of the reasons why each architect designed as he did.

LAWRENCE H. FALLS  
Potsdam, N. Y.

Forum:

Being partially trained as an architect, I read your magazine with a great deal of interest and appreciate your attitude that financing, the government, labor, economy, etc., are as much a part of the architectural picture as stone, concrete, steel and wood.

ROBERT S. WAPLES, *Vice President*  
Midland Mortgage Co.  
Cedar Rapids, Ia.

(Continued on page 66)



# "Micarta...or equal"?

These check lists prove it has no equal...



## Only Micarta has all these exclusive features:

**The 9 new decorator colors**—The new pastel colors preferred today—selected by a national jury of leading architects.

**Larger sizes**—Sizes up to 48" x 96"—often provide greater cutting economy and larger areas can be covered with fewer seams.

**The "Beautymask"**—Every piece of Micarta is covered by a strong, manila sheet that protects the surface until all applying and trimming is finished—until the entire unit is ready for use!

**Panels with waterproof plywood**—Micarta panels are made with waterproof glue on waterproof Weldwood Plywood.

**True satin and glossy finishes**—The satin finish is built-in... not just a brushed-down glossy finish. Both satin and glossy are true, original finishes.

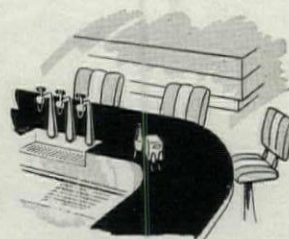
*Micarta Equals or Exceeds the Standards of National Electrical Manufacturers' Association*



Micarta is the modern high pressure plastic laminate that provides perfect work surfaces, table, bar and counter tops for

Bars  
Barber shops  
Bathrooms  
Beauty parlors  
Coffee shops  
Dinettes  
Furniture tops  
Kitchen cabinets  
Kitchen sinks  
Laboratories

Laundries  
Lunch-rooms  
Restaurants  
Retail stores  
Rumpus rooms  
Soda fountains  
Utility rooms



### Check it for chipping

Test it with the cooking utensils or silverware ordinarily used in a busy kitchen.

### Check it for staining

Pour boiling water on it... alcohol, fruit juices, even nail polish or polish remover.

### Check it for denting

Strike it with cups, ash trays or similar objects.

### Check it for scratching

Of course Micarta can be scratched with the point of a sharp steel knife. But just try to gouge Micarta with the edge of a coin.

### Check it for cigarette burn

Snuff out a cigarette on it.

### Check it for beauty

40 bright, rich colors in solids or three different patterns plus Truwood (real wood veneers).

**Two Types:** No. 1—1/16" sheets to be bonded on plywood according to specifications by fabricators. No. 2—7/8" and 1 1/4" panels. Micarta sheets already bonded to waterproof Weldwood Plywood with waterproof glue.

**Two Grades:** Standard and cigarette-proof. Actually, standard grade will withstand burning cigarettes; cigarette-proof grade is guaranteed against such damage.

**Two Finishes:** No. 1—High-polish mirror glass. No. 2—Satin-finish.

Check  
**MICARTA**  
yourself

SEND FOR FREE  
SAMPLE



MICARTA is manufactured by WESTINGHOUSE and sold, for decorative purposes only, by UNITED STATES PLYWOOD CORPORATION.

UNITED STATES PLYWOOD CORPORATION  
55 West 44th Street • New York 18, N.Y.

I want to check Micarta myself. Without any obligation, please send me a FREE sample.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

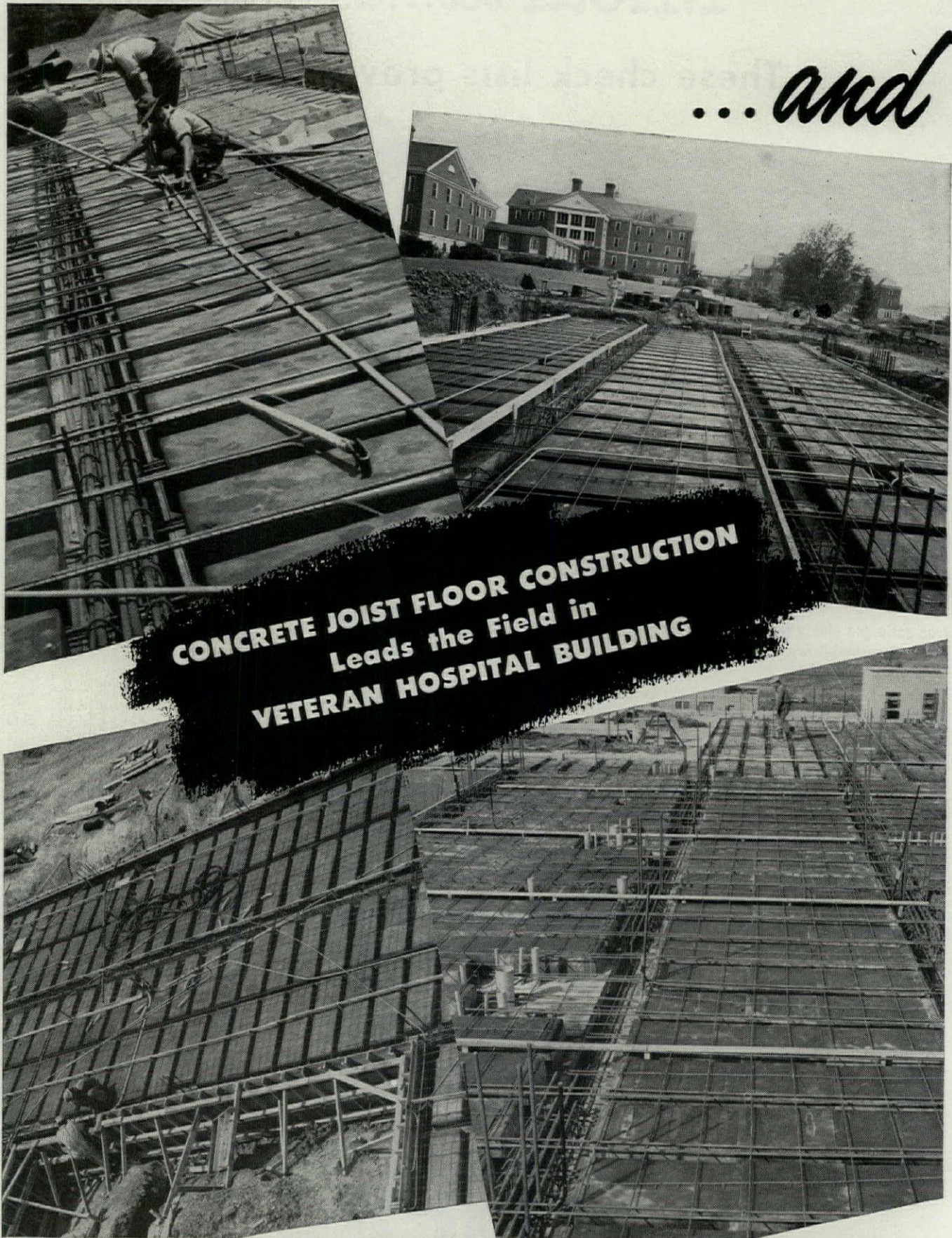
COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_



...and



**CONCRETE JOIST FLOOR CONSTRUCTION**  
Leads the Field in  
**VETERAN HOSPITAL BUILDING**

*In construction products* **CECO ENGINEERING**



# CECO *is first in Service*

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

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

## CECO STEEL PRODUCTS CORPORATION

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

Offices, warehouses and fabricating plants in principal cities

**A Partial List of Veteran Hospitals Where  
Ceco Supplied Concrete Joist Construction.**

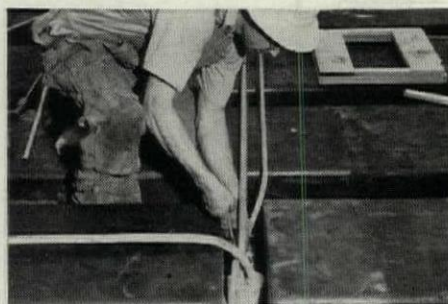
Little Rock, Arkansas  
Livermore, California  
Alexandria, Louisiana  
Saginaw, Michigan  
Miles City, Montana  
Grand Island, Nebraska  
Omaha, Nebraska  
Bonham, Texas  
Roanoke, Virginia  
Beckley, West Virginia  
Clarksburg, West Virginia

**CECO  
STEEL**®

*makes the big difference*



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



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

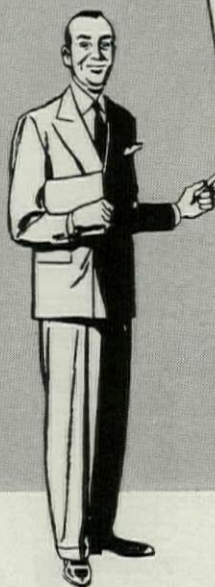


Concrete is being poured here over the steelforms and around the reinforcing steel. The final step is removal of steelforms and lumber after concrete sets.

### Partial List of Ceco Products

METAL RESIDENCE CASEMENTS • INDUSTRIAL WINDOWS AND DOORS • METAL FRAME SCREENS  
ALUMINUM FRAME STORM WINDOWS • ALUMINUM COMBINATION STORM WINDOW AND SCREEN UNITS  
• METAL LATH AND ACCESSORIES • STEELFORMS  
• REINFORCING BARS • STEEL JOISTS AND ROOF DECK • HIGHWAY PRODUCTS





# Use these handy GUIDE CHARTS for SPECIFYING RESILIENT FLOORS

With these three Kennedy Floors you can satisfy every flooring need—carry out your own or your clients' wishes. Information below gives you a quick picture of the general characteristics of each floor. The charts show its suitability for specific areas and its approximate cost range.

**Kentile Asphalt Tile**—colorful, long-wearing, inexpensive to install and maintain. Has been called "the nearest approach to a universal, all-purpose flooring." The only type of flooring which can be successfully installed over concrete in direct contact with the earth.

**Rubber Tile by the makers of Kentile**—a leading choice for its brighter colors... offers many exclusive colors created by CARL FOSS. Highly resilient, it cushions footsteps... is

resistant to chipping, cracking, marring.

**NOTE:** This rubber tile contains no oils—no ingredients to dry out and leave the tile brittle.

**Kencork Cork Tile (Floors and Walls)**—When a truly distinctive floor is desired, Kencork is a first choice. Its natural cork tones are unsurpassed for beauty... bring elegance to any interior. Cork floors made by Kennedy are unusually durable—Kencork floors laid over 35 years ago are still in A-1 condition.

## APPROXIMATE COST RANGE CHART

Where two or more groups appear in a price bracket, the least expensive is on top.  
Cost based on installing a minimum area of 1000 square feet over cement underfloor.

| Cents Per Square Foot | KENTILE   | KENCORK              | RUBBER TILE     |
|-----------------------|---|----------------------|-----------------|
| 20¢                   | 1/8" GROUP A                                    |                      |                 |
| 25¢                   | 1/8" GROUP B<br>3/16" GROUP A                   |                      |                 |
| 30¢                   | 1/8" GROUP C<br>3/16" GROUP B                   |                      |                 |
| 35¢                   | 1/8" GROUP D                                    |                      |                 |
| 40¢                   | 1/8" SPECIAL*<br>3/16" GROUP C<br>3/16" GROUP D |                      |                 |
| 45¢                   | 3/16" SPECIAL*                                  |                      |                 |
| 55¢                   |   |                      | 1/8" THICKNESS  |
| 65¢                   |   | 5/16" NATURAL FINISH |                 |
| 70¢                   |   | 5/16" FACTORY FINISH |                 |
| 75¢                   |   |                      | 3/16" THICKNESS |

\*Special Kentile for Industry (Greaseproof)



## RESIDENTIAL INSTALLATIONS

|   | KITCHENS | BATHROOMS | BEDROOMS | NURSERIES | LIVING ROOMS | FOYERS | BASEMENT<br>PLAYROOMS<br>UTILITY<br>ROOMS |
|---|----------|-----------|----------|-----------|--------------|--------|---|
| <b>KENTILE</b><br>Asphalt Tile                    | ✓        | ✓         | ✓        | ✓         | ✓            | ✓      | ✓   |
| <b>KENCORK</b><br>Cork Tile                       | NO       | ✓         | ✓        | ✓         | ✓            | NO     | NO  |
| <b>RUBBER TILE</b><br>by the makers<br>of Kentile | ✓        | ✓         | ✓        | ✓         | ✓            | ✓      | NO  |

## COMMERCIAL INSTALLATIONS

|   | RECEPTION<br>ROOMS AND<br>OFFICE<br>WORKING<br>AREAS | PRIVATE<br>OFFICES | HOSPITAL<br>WARDS AND<br>CORRIDORS | SCHOOLS<br>PUBLIC<br>BUILDINGS | LIBRARIES | STORES<br>GROCERIES<br>...DRUG<br>CHAINS...<br>DEPT. STORES | RESTAURANTS  | FACTORY<br>AREAS   |
|---|--|--------------------|------------------------------------|--------------------------------|-----------|---|--|--|
| <b>KENTILE</b><br>Asphalt Tile                    | ✓  | ✓                  | ✓                                  | ✓                              | ✓         | ✓   | USE SPECIAL<br>KENTILE<br>FOR<br>INDUSTRY<br>(GREASEPROOF) | USE SPECIAL<br>KENTILE<br>FOR<br>INDUSTRY<br>(GREASEPROOF) |
| <b>KENCORK</b><br>Cork Tile                       | ✓*   | ✓                  | ✓                                  | ✓*                             | ✓         | NO  | NO   | NO   |
| <b>RUBBER TILE</b><br>by the makers<br>of Kentile | ✓  | ✓                  | ✓                                  | ✓                              | ✓         | ✓   | ✓<br>BUT NOT<br>IN OR NEAR<br>KITCHEN AREAS                | NO   |

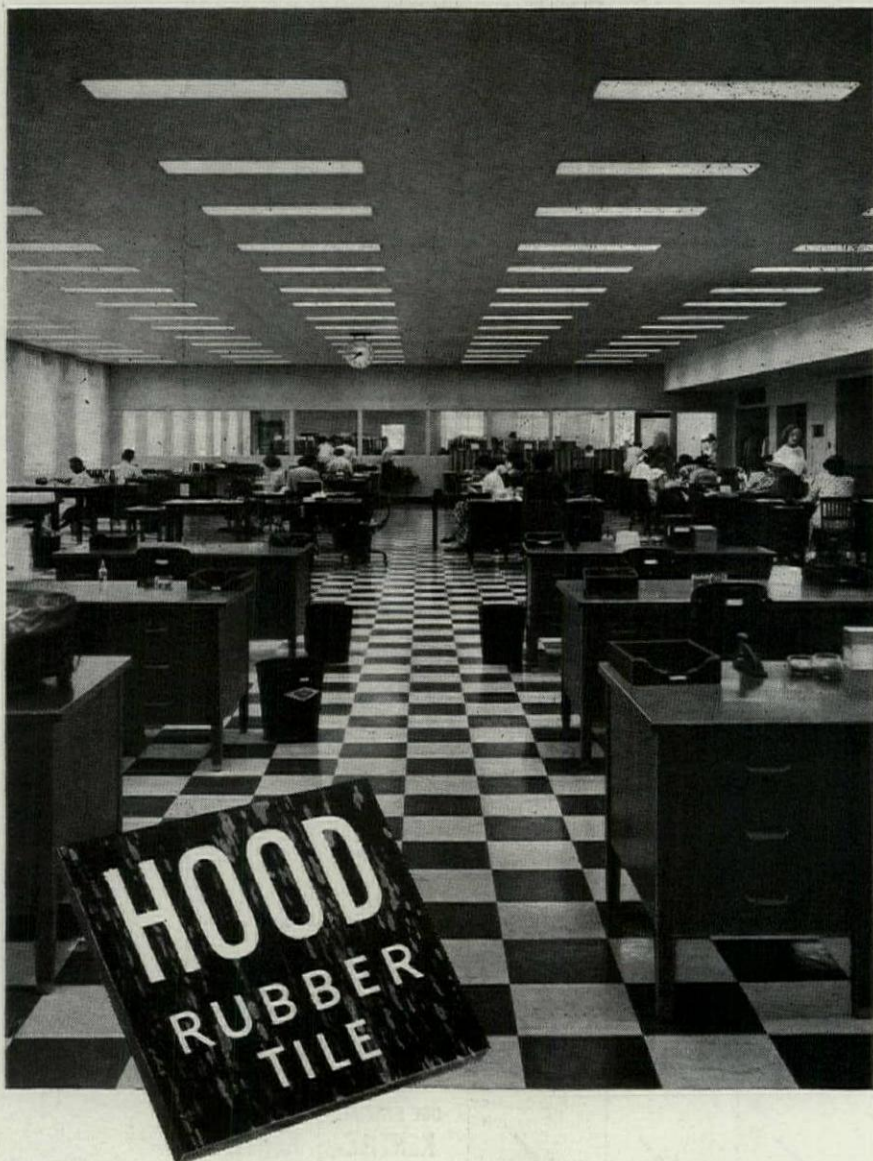
\*When properly maintained

If you would like to have additional copies of these guide charts, please write the office nearest to you

**DAVID E. KENNEDY, INC.** • 58 2nd Avenue, Brooklyn 15, N. Y.

350 Fifth Ave., New York 1, N. Y. • 705 Architects Bldg., 17th and Sansom St., Philadelphia, Pa. • 1211 N.B.C. Bldg., Cleveland 14, Ohio • 225 Moore St. S.E., Atlanta 2, Ga. • Kansas City Merchandise Mart Inc., 2201-5 Grand Ave., Kansas City 8, Mo. • 1440 11th St., Denver 4, Colo. • 4532 South Kolin Ave., Chicago 32, Ill. • 4501 Santa Fe Ave., Los Angeles 11, Calif. • 452 Statler Bldg., Boston 16, Mass.





## The CHOICE for

Yes, and the choice among the country's leading architects, designers and decorators for these jobs for 25 years. Why? . . . because when they specify Hood Rubber Tile, they know from past experience that they are recommending better flooring . . . flooring that lasts a lifetime, is easy to clean, is resilient, quiet, and offers a full range of sparkling colors and pattern possibilities that enhance any decorative plan. For proof, and to make your job easier, see Sweet's or write for full-color booklet.

**HOOD RUBBER TILE**  
**HOOD ASPHALT TILE**



- ✓ Offices
- ✓ Reception Rooms
- ✓ Corridors
- ✓ Display Rooms
- ✓ Hospital areas
- ✓ Banks
- ✓ Stores
- ✓ Schools & Colleges
- ✓ Bldgs. & Insts.
- ✓ Residences
- ✓ Hotels & Clubs
- ✓ R. R. Cars & Ships

## LETTERS

### PITTSBURGH RENASCENT

Forum:

I have read with interest the Pittsburgh story in the November issue of FORUM. Your organization has done an outstanding job, as usual, and this issue will be something for future reference.

ROY A. HUNT, *President*  
*Aluminum Company of America*  
*Pittsburgh, Pa.*

Forum:

I want to compliment you on the splendid coverage given Pittsburgh.

Incidentally, the other articles in the issue are equally informative and attractive.

BENNETT S. CHAPPEL, JR.  
*Assistant Vice President*  
*U. S. Steel Corp.*  
*Pittsburgh, Pa.*

• FORUM was guilty of the following oversights and errors in its November report on "Pittsburgh Renascent:" 1: The Heinz family has given \$1½ million for a playhouse now being designed by Jo Mielziner. . . . Actually, only \$50,000 of this sum came from the Heinz family, in the person of Howard Heinz, and Jo Mielziner's role is that of consultant to Pittsburgh architects Charles M. and Edward Stotz. 2. "Carnegie Tech is in the middle of a \$15 million expansion for its 12,000 students . . . W. L. Mellon has given \$8 million to set up a school of business administration at Carnegie Tech. . . ." Actually, Carnegie Tech is in the middle of a \$4 million campus renovation program, and the W. L. and May T. Mellon Foundation has granted Carnegie Tech \$6 million to establish a graduate school of industrial administration.—Ed.

### ERRATA

• The construction outline for the new Coward Shoe store in Brooklyn, whose front was described in the December FORUM as "ingenious, good looking"



Ben Schnell

and the "bargain design of the year," failed to credit the exterior panel of expanded metal lath (see photo) to Wheeling Corrugating Co.—Ed.

• In its presentation of the new terminal building at the South Bend Airport (Nov., p. 90) FORUM failed to note that its air conditioning system is supplemented with baseboard heating equipment supplied by C. A. Dunham Co.—Ed.

• In its November issue (p. 122) FORUM incorrectly stated that Builder Levitt's radiant heating coils were spaced 12 ft. on centers. The actual spacing is, of course, 12 in. on centers.—Ed.



# Eliminate the "Flying Window Wiper"

## Save \$\$\$

Sealuxe-Browne "Folding Flue" Windows save the high cost of outside window washing.

*Both sides of glass in a Sealuxe-Browne "Folding Flue" Window are easily, quickly washed from room side.*

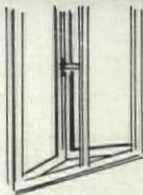


**Sealuxe-Browne "Folding Flue" Windows** *Manufactured*  
*of huge extruded shapes in* **Aluminum • Bronze • Stainless Steel**

**Dust proof • Rust proof • Noise proof**  
**Fire proof • Draft proof**

Sealuxe-Browne "Folding Flue" Windows are free of maintenance. They are air tight—have permanent pure wool felt weather-stripping. Available with or without muntins; reversible mullions to accommodate partitions of any width; inside screens; inside mechanical operators; with or without stools; with or without sills.

### "Folding Flue" Saves Air Conditioning and Heating Costs



The sash in the Sealuxe-Browne "Folding Flue" Window fold open. Can be easily set at any width opening desired—will not move under wind pressure. When slightly bowed open outwardly, without leaving any openings on sides, form a flue that gives 100% controllable ventilation even in windy, rainy weather.

The Sealuxe-Browne "Folding Flue" controllable ventilation principle makes it possible to utilize nature's perfect weather during many months every year, resulting in substantial savings in air conditioning and heating costs.

### How Can We Assist You in the Preparation of Plans and Specifications?

Sealuxe Architects and Engineers welcome the opportunity to work with you. Let us know how we can help. Write us for full size drafting room standards and plaques covering Sealuxe-Browne "Folding Flue" Windows and any of the other Sealuxe Products listed on this page under the heading "Miracles in Metals".

*Universal*

C O R P O R A T I O N

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Dallas 9, Texas

District Sales Offices, Agents and Distributors located in all architectural centers

QUALIFIED AGENTS who know how to get business, are invited to write us. We have a few vacancies.



**Both Sides of Glass Easily  
Cleaned From Room Side**

*Miracles in Metals!*

• SEALUXE WINDOWS: Browne "Folding Flue"; Double Hung; Side Hinged Casement Thermo (Model 51 for Building Fronts of Glass). • SEALUXE ENGINEERED "SOLAR" BUILDING ACCESSORIES OF METAL AND GLASS: Solar Fins—Rectangular and Polygonal; Cellular Fins; Solar Canopies (Eyebrows); Solar Shades (Horizontal); Weather Controls; Alumitex—For walls and roofs. • SEALUXE DISPLAY SYSTEMS: Theatre Poster Frames; Building Directories; Doors and Accessories; Crowd Control Equipment.



**Just wait 'til**

*You get a Peek*

**at the 1950 line of Flintkote  
Interior Insulation Board Products...**

*Smart  
New Colors!*

*Attractive  
New Textures!*

*New, Improved  
Finishes!*

Don't let another day go by. Get the full story *now* on this sensational, new 1950 line of Flintkote Insulation Board Products.

Never before has there been such variety. Now, in this popular, versatile material, you can offer clients their choice from an unusually wide range of colors and finishes.

Write today, THE FLINTKOTE COMPANY, Building Materials Division, 30 Rockefeller Plaza, New York 20, N. Y.

**Flintkote has these other leaders, too**

**INSULATED SIDINGS**

**ASBESTOS-CEMENT SIDINGS**

**ASPHALT STRIP SHINGLES**

**INSULATING WOOL...made of Fiberglas\***

\*TM REG. U. S. PAT. OFF. MFD. BY OWENS-CORNING FIBERGLAS CORP.

**FLINTKOTE** ... *the extra years of service cost no more!*





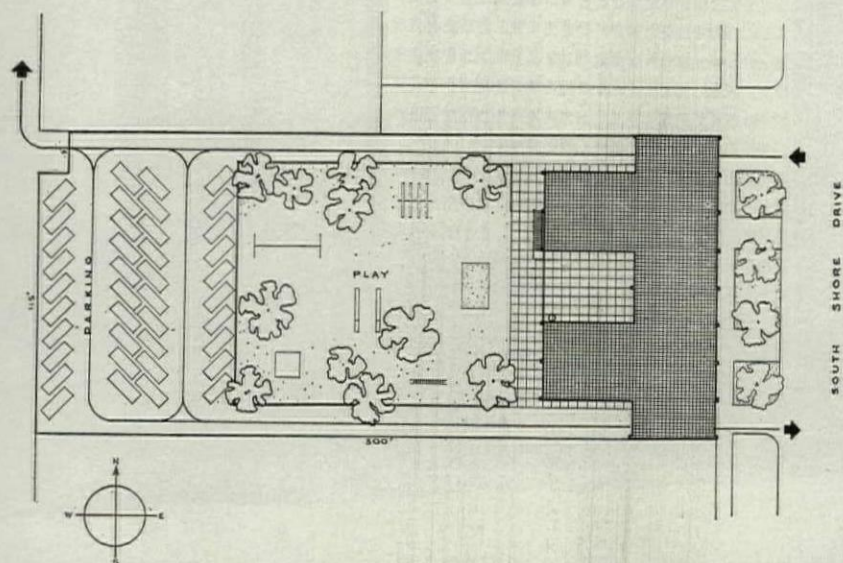
*Photos: Hedrich-Blessing Studio*

**APARTMENTS** are playing an increasingly important role in the housing boom; therefore this month's FORUM is devoted exclusively to apartment building. On the pages immediately following is a detailed presentation of Chicago's pioneering apartment design, construction and finance, highlighted by Mies van der Rohe's Promontory Apartments (above). The second section (p. 87) reports three radically new apartment ideas now being worked out in New York, Los Angeles and Marseilles. Introduced by a discussion of FHA's impact on the design and financing of rental housing (p. 97), the third section is a portfolio of pace-setting apartment projects (page 107). Finally, a technical section (p. 116) discusses two subjects of particular importance to apartment builders—unplastered ceilings and apartment acoustics.



# GLASS AND BRICK IN A CONCRETE FRAME

Mies van der Rohe's Promontory Apartments open to lake view. Loft construction costs \$8.55 per sq. ft.



Photos: Hedrich-Blessing Studio



LOCATION, Chicago, Ill.

MIES VAN DER ROHE, Architect

PACE ASSOCIATES, Associate Architects

HOLSMAN, HOLSMAN, KLEKAMP & TAYLOR, Consulting Architects

FRANK J. KORNACKER, Structural Engineer

PETER HAMLIN CONSTRUCTION CO., General Contractor

Chicago's finest apartments, tall, new, and elegant, have been built at very nearly the lowest cost, because they use loft construction undisguised. Directness was the trait by which, long since, Chicago's architects brought their city world renown. Promontory and Lake Shore (p. 75) have pushed on to new heights of directness. Promontory, visible from far off on Chicago's esplanade, is nothing more than pale yellow brick panels and aluminum sash in a concrete frame left uncolored and exposed. Lake Shore, just begun, will be simpler yet—twin steel frames, steel faced, 25 stories high, glass filled.

Promontory cost \$8.55 per sq. ft., less than most of Chicago's slum clearance projects; Lake Shore is coming in for about the same low price.

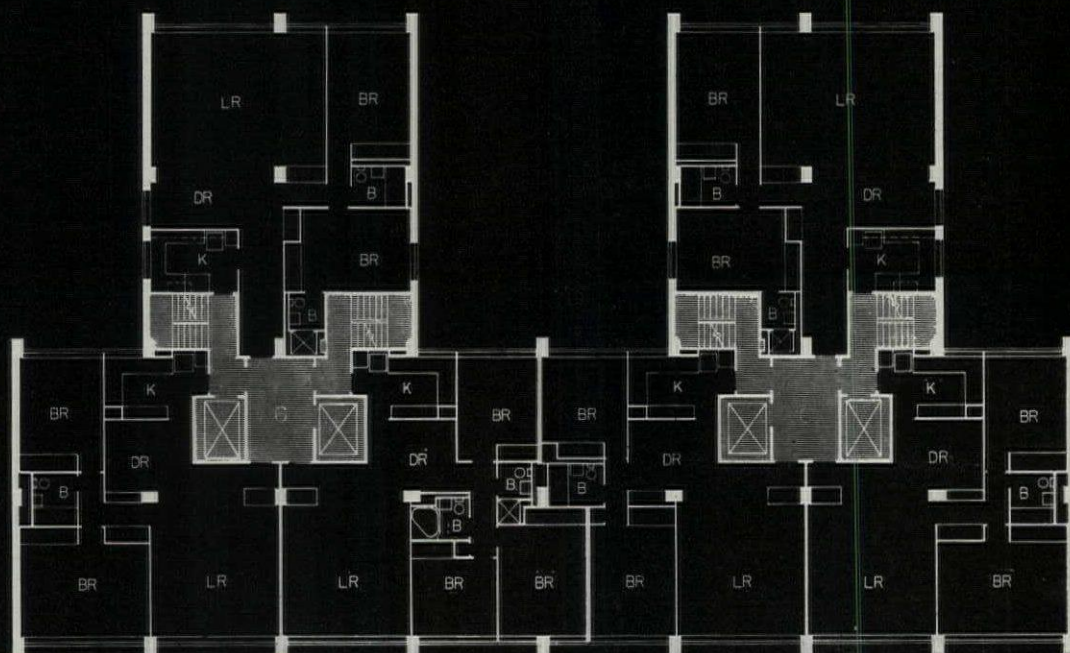
To say that any builder could do the same is true with a big "almost." He would need few inventions, no tricks; but he would need the kind of all-around architectural thinking which amounts to genius. Watching the designs grow, ever so slowly, ever so thoroughly, on Mies van der Rohe's drawing board, Charles Genthner of Pace Associates found the secret, both for the elegance and for the low cost, in "a return to first principles in building."

As may be seen at a glance, structural plans are regular, involve no expensive changes; the joining of parts is precise, involves no left-overs and no fuss; details are simplified, and drawings few. But the thinking that has gone into them is subtle and compound: not only is Mies, son of a bricklayer, concerned with the construction *method* at every point, but, as a great architect, he is concerned that what satisfies the need must also satisfy the eye.

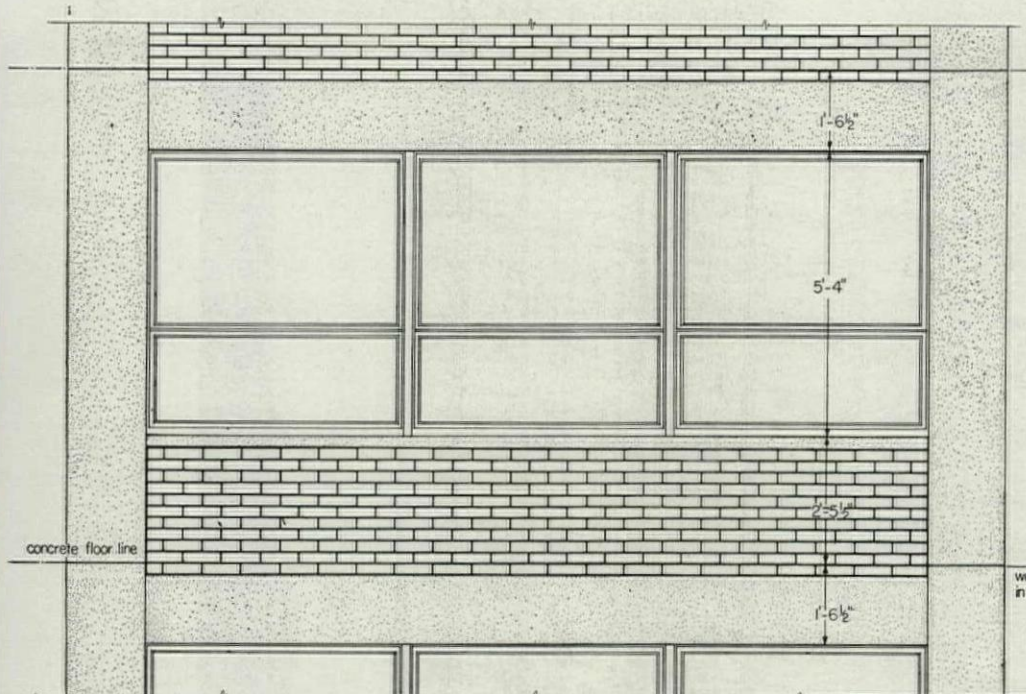
Apartment plans were difficult in the crowded space. Every apartment, nevertheless, has through ventilation; only unimportant windows face the angles of the courts; and the plastic character of the interior space has permitted occupants to live as they prefer: with Chinese furniture or grandstand arrangements by romantic architects, or stock from Marshall Field.

But it is through its architectural structure that Promontory's influence has already spread—a fresh victory for Chicago's way of "building straight."

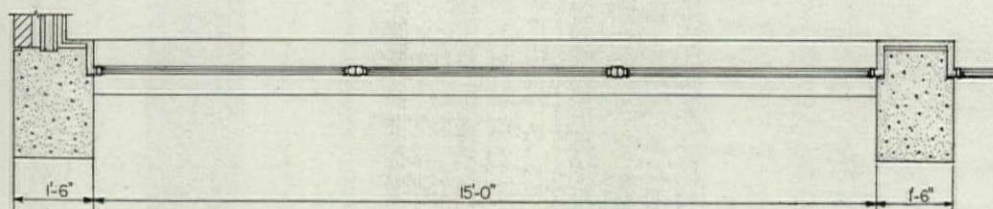




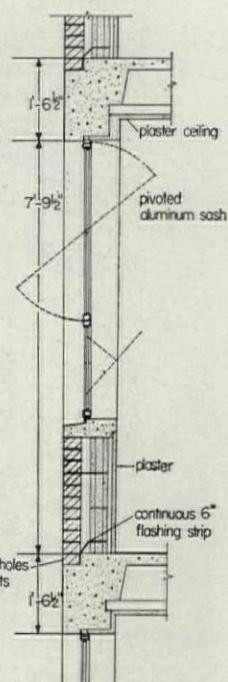




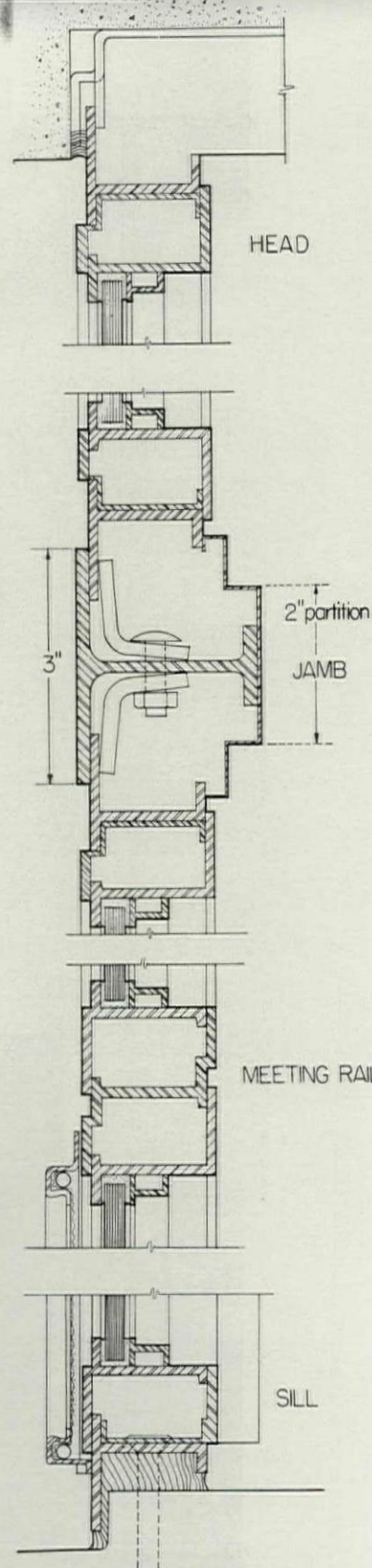
ELEVATION



PLAN

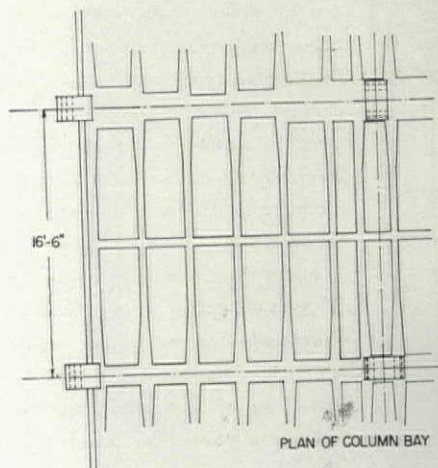
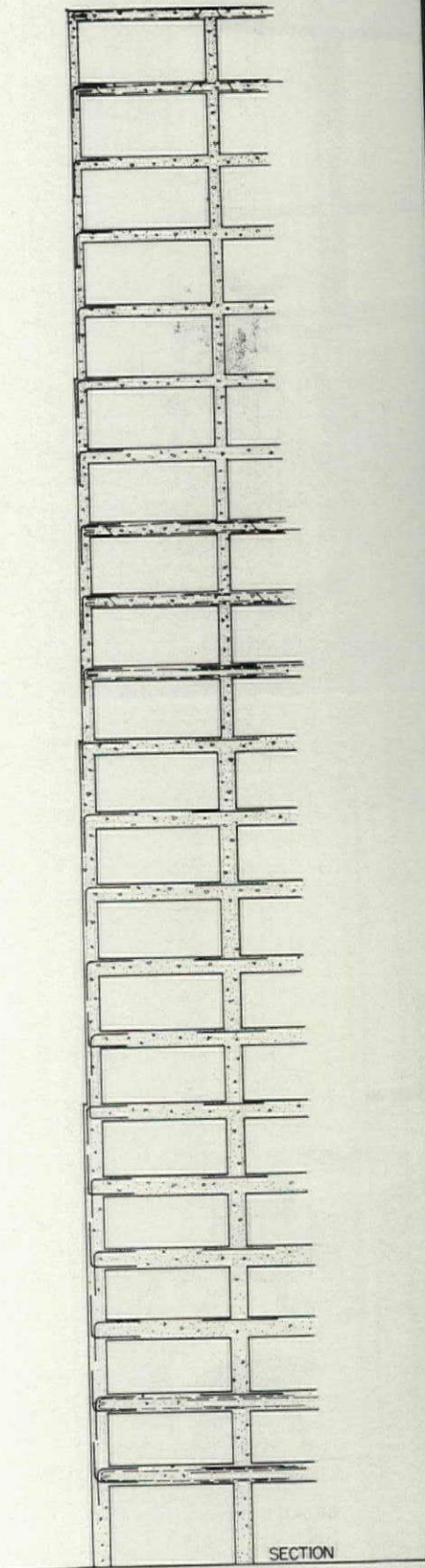


SECTION



**DETAILS** show close attention to function, workmanship, appearance. The buttress-like columns (opposite page) are thickened toward the bottom, for extra load, by stepping out the face, leaving the inner wall surface smooth, and all the brick filler panels exactly equal in width, so that brick can be precisely laid, without cutting, to a drawing made in advance. Concrete columns are scored at every story (photo at left) to soften the visual effect of the steps in the columns. Use of air-entrained cement made a dense surface capable of self-finish. Aluminum windows have a "fixed" upper sash which can be unlocked and pivoted for indoor washing.





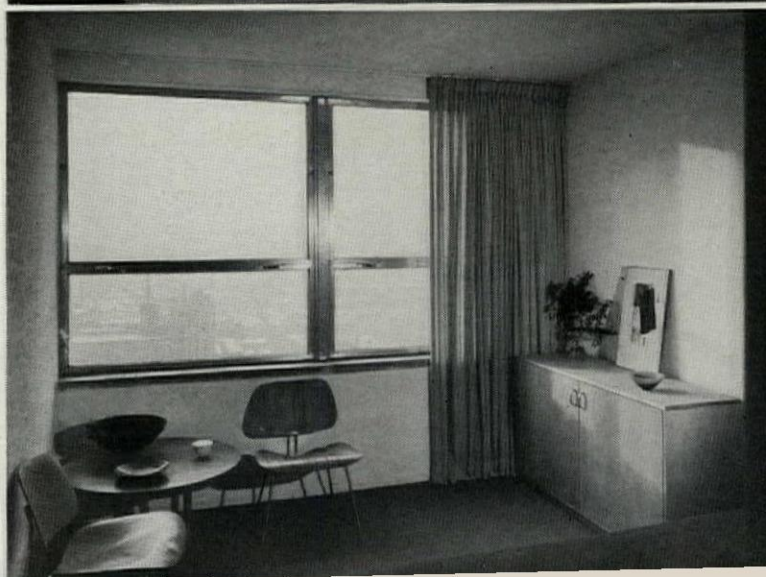
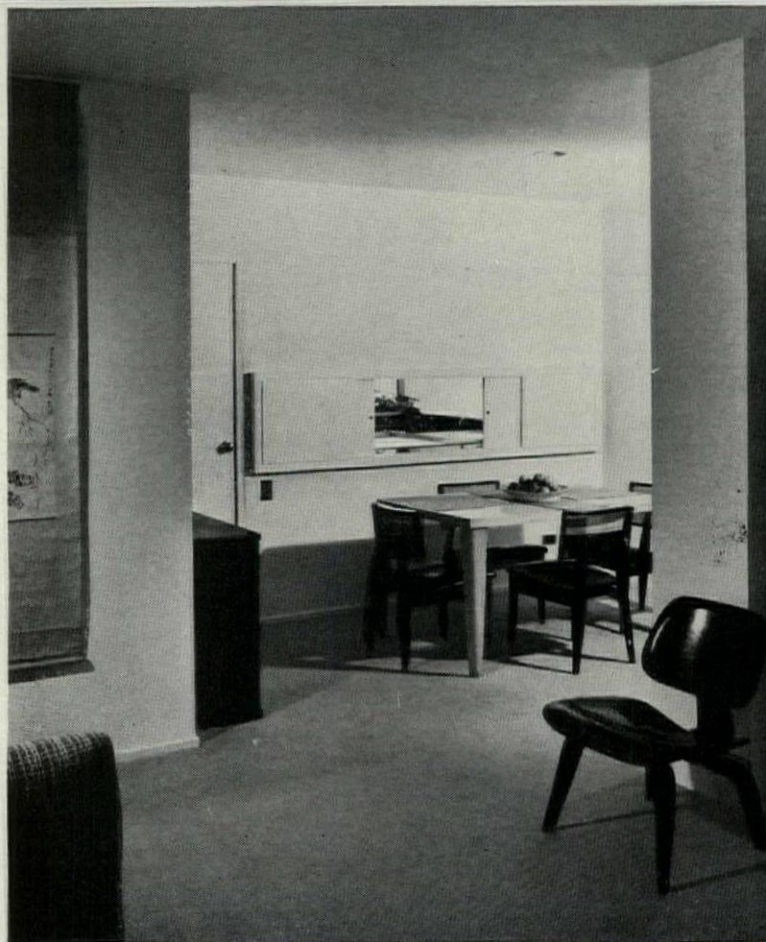




*Apartments in Promontory show great diversity and tenant owners, in some instances, changed partitions. Some used the kitchen pass-through (middle picture) others had it walled up. Floors were covered according to owners' wishes at their expense. The finest effect is that the apartments, wide-windowed, almost literally include the lake.*

*Promontory's total construction cost was \$1,496,000, excluding parking and driveways and floor finishes, but including stoves and refrigerators; the 1,662,249 cu. ft. cost 90 cents per cu. ft.; the 174,930 sq. ft., \$8.55 per sq. ft.*

**CONSTRUCTION OUTLINE:** Exterior walls—10 in. cavity, 4 in. face brick, 2 in. air space, 4 in. concrete block, foil-back Sheetrock lath and furring, U. S. Gypsum Co. Interior partitions—2 in. plaster, Bar-X lath, Wheeling Corrugating Co. Columns—reinforced concrete, Duraplastic cement used throughout, Universal Atlas Cement Co. Floors—reinforced concrete. **ROOFING**—15-yr. bond, pitch and gravel, Barrett Co. **WINDOWS:** Sash and screens—aluminum, J. S. Thorn Co. Glass—crystal sheet, Libbey-Owens-Ford Glass Co. **ELEVATORS**—Haughton Elevator Co. **WALL COVERINGS:** Kitchens—Kentile, David E. Kennedy, Inc. Bathrooms—ceramic or asphalt tile. **DOORS** (metal)—Richmond Fireproof Door Co.; (interior)—flush, solid core birch, PermaBoard Corp.; (exterior)—Ellison Bronze Co.; (45 min. fire doors)—U. S. Plywood Co. **HARDWARE**—Schlage Lock Co. **PAINTS**—Pratt & Lambert. **ELECTRICAL FIXTURES** (apartments)—Kurt Versen; (elevator lobbies)—Appleman Art Glass Co. **PLUMBING FIXTURES:** Lavatories and tubs—Crane Co. Shower Cabinets—Henry Weis Mfg. Co. Water closet units—Sloane Valve Co. **KITCHEN EQUIPMENT:** Cabinets—General Electric Co. **HEATING**—radiant panel system. Boiler—Kewanee Boiler Corp. Oil Burners—Todd Shipyards Corp., Combustion Div. Regulators—Minneapolis-Honeywell Regulator Co. Incinerator—J. Goder Incinerator Co.





Lies van der Rohe develops his open design in the Lake Shore Drive apartments with floor-to-ceiling windows

E. DELMAR PLAZA

NORTH BLVD.

LAKE SHORE DRIVE

LOBBY

LOUNGE

RECEIVING

LOUNGE & STORAGE

TRUCKS SERVICE

GARDEN

WALKWAY

WALK

DRIVE

LOBBY & STORAGE

LOUNGE

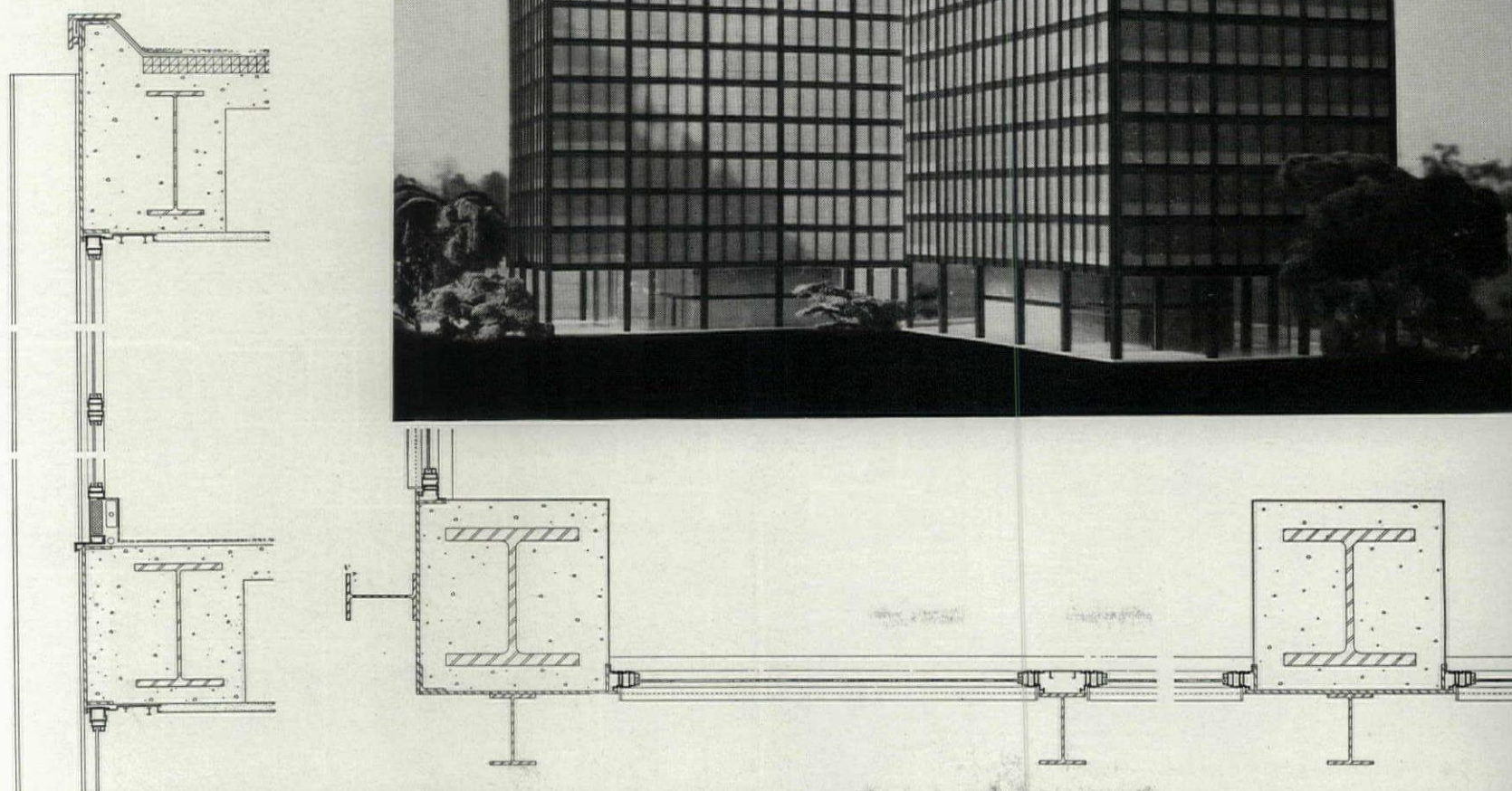
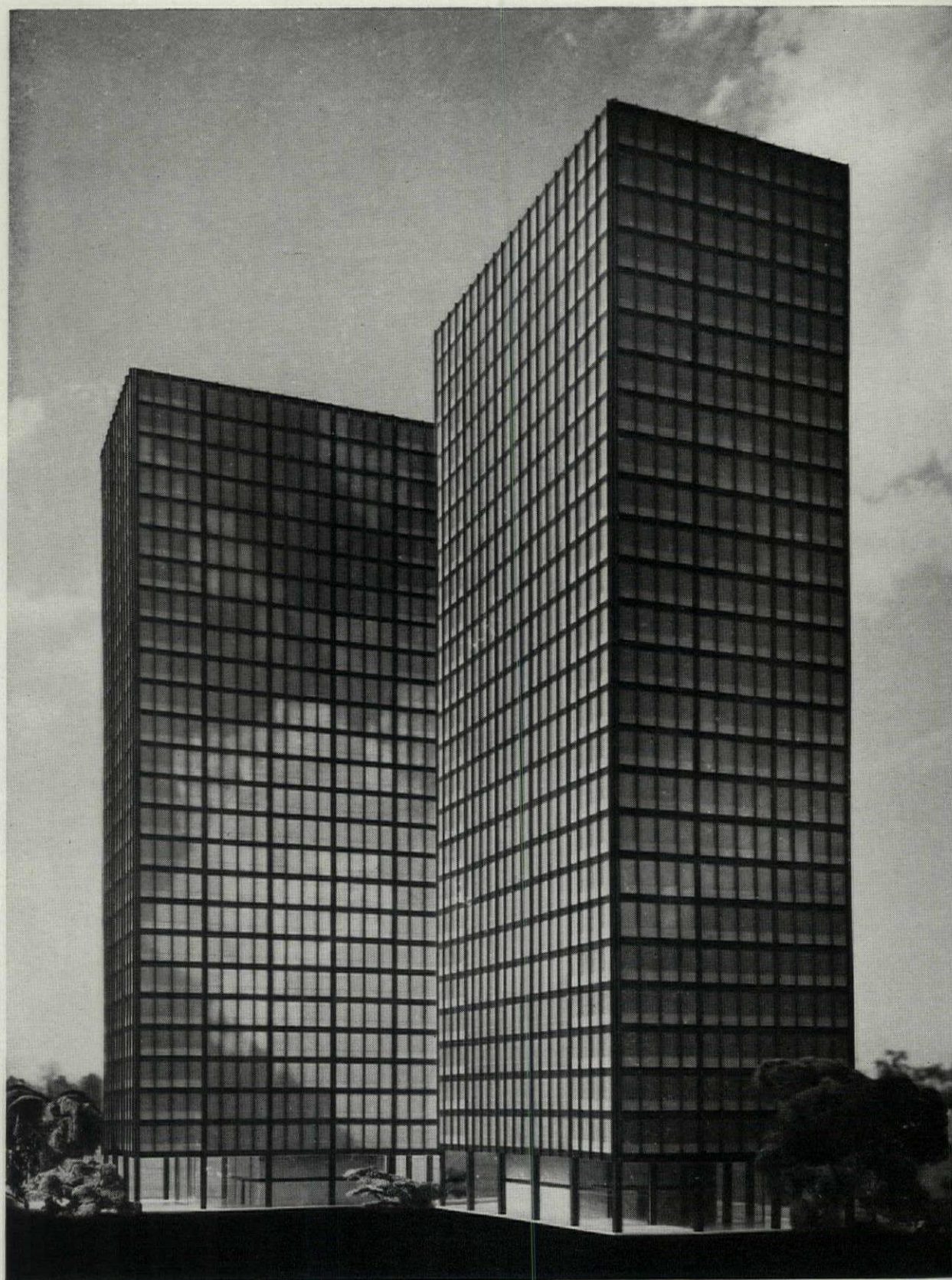
LOBBY

WALKWAY

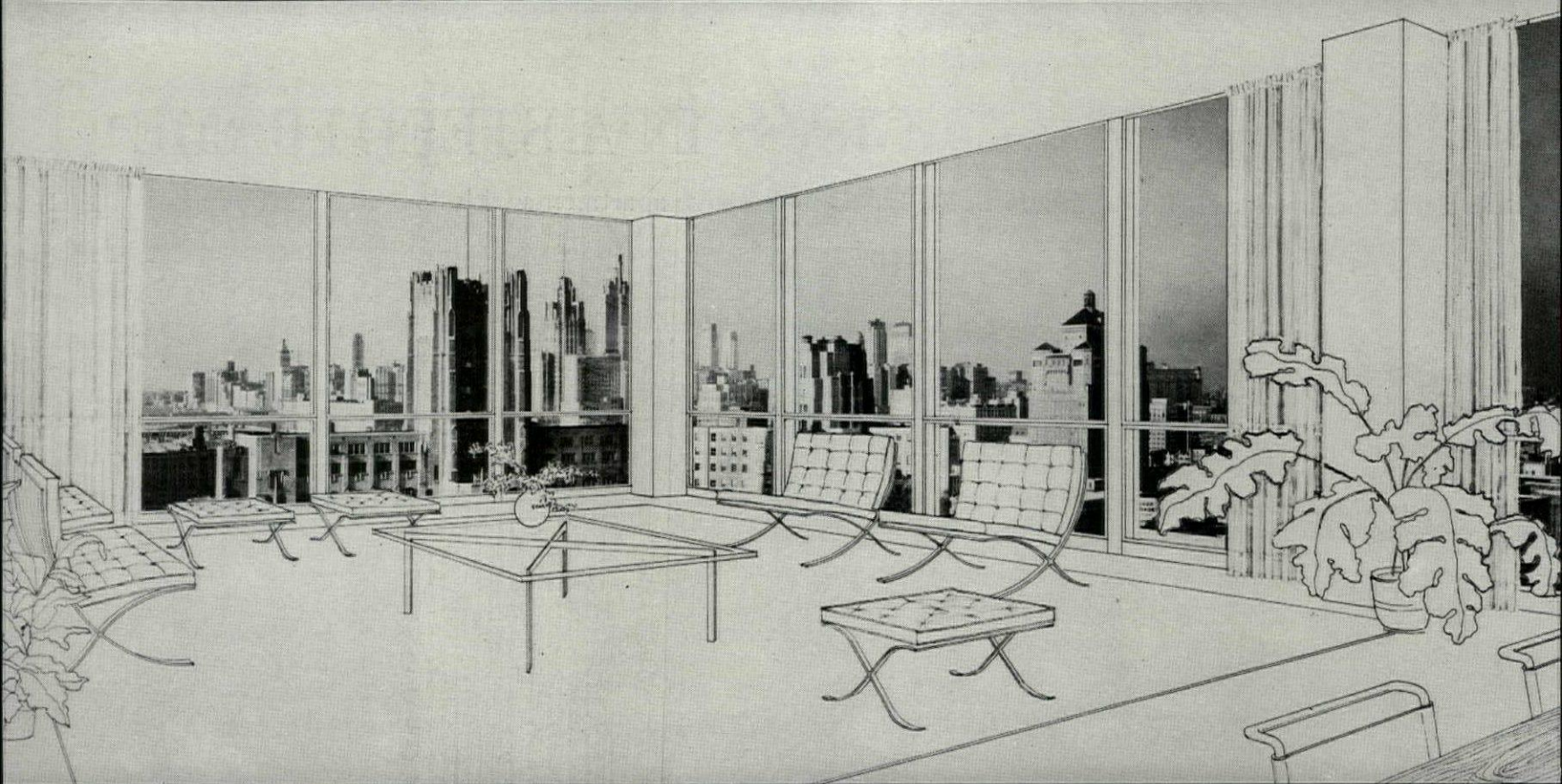
WALK

DRIVE

NORTH BLVD.







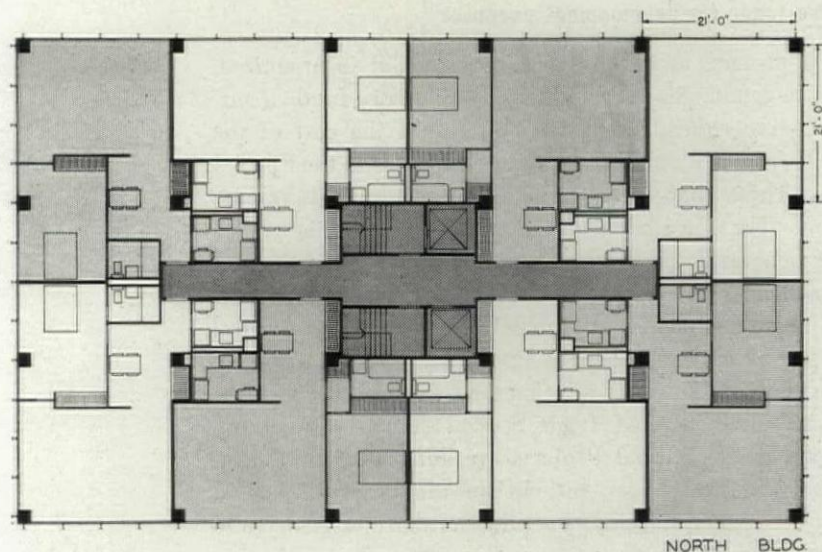


# THE FINANCING OF PROMONTORY

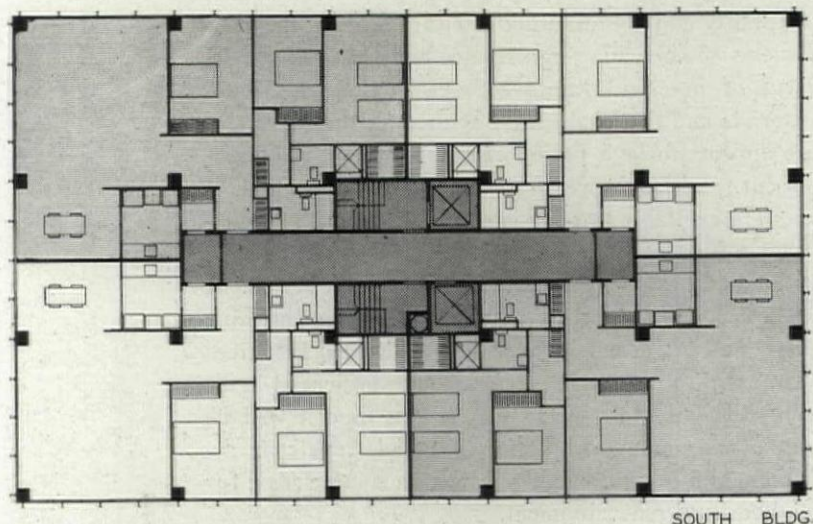
A variation on the cooperative theme helps pay for expert architectural service, helps the promoter raise his equity cash.

The Lake Shore apartments gave Architect Mies an opportunity to execute a concept he had sketched as far back as 1923—the all-steel and glass tower, the crystal cage for humans. The omission of spandrels will be fully appreciated by persons seated back from the wall on the 25th floor; its effect can be tested on the sketch (opposite page) by covering with white paper the part of the window below the crossbar. Never is the radical difference and a glass wall so strongly felt as at such height.

Like Promontory, Lake Shore will be radiantly heated through ceilings and floors. Structurally it is still neater with its 21 ft. square bays completely regular (details are shown on page 75). But the floor plans finally adopted for rental purposes are a far cry from the original concepts of the architect for twentieth century living (opposite page). Unorthodox in surrendering corners of the large apartments in the south building to bedrooms not living rooms, the architect gains shorter corridors, a much nicer kitchen, neat straight lines of interior circulation. And the initial studio apartment plans of the north building are breath-taking.



Final apartment plans (above and below), in contrast to original plans preferred by the architects (opposite), will unquestionably be easier to rent. Most people will probably prefer the living room in the corner, and the closed-off bedrooms, even though public corridor space is increased, kitchens are smaller, passages have more kinks and corners.



Like many a top-flight architect, Mies Van der Rohe has a design portfolio of distinguished but unbuilt buildings. But for some unique promotion and financing, both of his Promontory and Lake Shore apartments would still be in this portfolio rather than standing, trim and lean along Chicago's lake front. It is a sad but sober fact that the U. S. apartment promotion pattern is not designed to produce such unusual buildings as Mies Van der Rohe's Promontory and Lake Shore. In the speculative rush to build as cheaply and as quickly as possible, good design and construction techniques are given short shrift. The result has been to reduce apartment "design" to a few tricks like the corner casement window, the jazzed-up lobby and back-to-back plumbing.

Fortunately, both of the Mies apartments were promoted and financed under a plan which permitted, among other things, a free hand for design and construction practices seldom seen in U. S. apartment houses. Known as Mutual Ownership Trust, it is responsible not only for Promontory and Lake Shore Apartments but also for a group of ten other unusual postwar apartment projects in the Chicago area. Developer of the plan is Architect Henry K. Holsman of the old-line Chicago firm of Holsman, Holsman, Klekamp & Taylor.

Mutual Ownership is a form of cooperative but with some special Holsman touches. Most co-ops are tax-conscious devices where the promoter leaves the tenants on their own after the building is built. Mutual Trust, on the other hand, provides for promoter responsibility during the whole life of the building. Tenants buy a trust certificate representing their share in the building but they do not run it. The promoter sets up a board of trustees, usually including himself, to do the job. Perhaps the most compelling proof of the promoter's responsibility under mutual trust is that he and the other trustees are fully liable in the event of financial difficulty. (Tenant liability, on the other hand, is limited to their original equity investment.) In addition to these fiscal safeguards, the tenants have all the rent reducing and tax advantages of the co-op system.

The net result of the trust plan is a qualitative change in the promoter's approach to his building. The reason: he and his trustees take the financial rap if anything goes wrong. Under such a set-up, a promoter is inclined to check any speculative shortcuts either in design or construction. It was precisely because of this widespread speculative disregard for good workmanship that Architect Holsman developed his plan back in the Twenties. Before the Bust, he and his associates sponsored and built six small trust apartments in Chicago. Significantly, all of them stayed afloat financially during the depression while the great majority of the Chicago co-ops went under.

The trust idea was mothballed during the lean

(Continued on page 124)



**COMMUNITY TRUST** permits private enterprise to build city apartments and to build them better—a statement by one of the Trust's administrators, John T. Holsman

*The operating details of the Community Development Trust are explained on page 77 in conjunction with the financing of Promontory Apartments. Mr. Holsman's statement below covers the broad philosophy and purposes behind this form of building finance.—ED.*

The housing shortage is almost entirely concentrated in cities of 100,000 or more population. This is partly because almost all the increase in U. S. population in the last 20 years has occurred in these cities, whereas most of the housing produced during these 20 years has consisted of small individual homes in the suburban areas and in smaller communities.

If we are to solve this urban housing shortage, we must find ways to get homes built in multi-story structures in large enough projects so that they will establish their own protective environment. Most multi-story apartments today are built by speculative interests, and most of them, when built, cost too much for middle-income families to rent.

Almost all single-family houses are sold to individuals who put up equity money to own their own homes. Individual houses built as an investment for rental are almost unknown. This is because under rent control houses cannot be rented profitably in competition with individual ownership.

In the apartment field the same disparity exists between the rent which must be demanded to justify a speculative capital investment and what the same apartment would cost a tenant-owner living in his own apartment. In fact, the cost to a tenant-owner over a 20-year period is not much more than half the rent he would have to pay a speculative owner.

The traditional pattern of rental housing is one of simple speculation. Little real investment money has ever found its way into this field. This is well known to be true even under FHA. The amount of speculative money and the number of speculators both are limited and cannot be counted on to produce enough apartment units, especially for low-income or middle-income families. The only solution to the urban housing shortage for middle-income families must lie in some form of tenant ownership of apartments.

#### **Equity funds from the people**

The families who need and want apartment housing do have resources with which to pay. In fact, the funds available from these families, if they can be induced into the production of housing units, are much greater than any other source of equity money. They offer the only source of funds in sufficient volume to solve our cities' housing problems.

There are very few top-flight, technical and professional men available in the apartment building field. Speculative operators do not, in general, make good clients and they do not pay for top-flight technical personnel. Therefore, there are very few architects, lawyers or real estate developers with experience in housing and particularly in the problems of multi-unit mutual housing development. The most com-

petent men in all of these fields have shied away from housing because other fields of activity were more profitable. If housing problems are to be solved, more of the really competent men must be attracted into this work.

For large numbers of individual families to pool their resources, find and employ competent technical service, acquire a proper site, let sound contracts, and realize an economical and worthwhile housing development is extremely difficult, so difficult that there must be some established pattern available to them—an organization willing and able to guide and safeguard the effort. It is for this purpose that the Community Development Trust was organized.

Each project under the Community Development Trust plan is a Special Mutual Ownership Trust estate with a board of Managing Trustees and a Corporate Trustee holding title. In addition to these Special Trusts there is a General Trust which likewise has a board of Managing Trustees and a Corporate Trustee.

The purpose of the General Trust is to initiate Special Trusts, to coordinate and guide their operation, to promote and champion the Mutual Ownership method of producing housing and to create a pool of resources.

#### **Reserve funds for development purposes**

Each project, as a Special Trust, when it is organized, agrees to establish out of mortgage and equity funds a surplus reserve equivalent to 10 per cent of the cost of the project. The General Trust prorates expenses to the Special Trusts. These charges are paid out of this surplus reserve account. The remainder of the reserve account is placed in the General Trust by the Special Trusts and Certificates of Beneficial Interest in the General Trust are issued therefore. These Certificates of Beneficial Interest in the General Trust pay a limited dividend of 5 per cent.

The result of this process is that the General Trust accumulates resources derived from Special Mutual Ownership projects. These Special Projects are developed for the individual families at cost, without speculative profit, and in return the special development adds its share of reserves to the general pool, thus creating a strong central organization responsive to the needs of the individual parts and capable of the highest form of management guidance.

One of the important results of the strong General Trust is that it assures the architects and builders and other special agents employed in this field a continuing opportunity which will encourage the most competent architects and other professionals to devote themselves and their organizations to finding solutions to the many complex problems in housing. This continuity and coordination of effort through the General Trust is of particular significance and value in the development of new and improved construction techniques and materials and the application of them in the field.

There appears to be a period of five to ten years of economic security ahead in which to develop this program. If resources are available to push it ahead quickly, it is anticipated that a fund of from \$20 million to \$30 million may be accumulated in this General Trust during this period. If this can be accomplished, the Community Development Trust will enter the next economic recession with cash resources and a large staff of competent technicians experienced in all phases of housing available to it. At that time it will be possible to accumulate properties, remodel, repair or demolish them and re-plan neighborhoods on a large scale for true neighborhood redevelopment.



# PIONEERING CONSTRUCTION IDEAS, ranging from reinforced brick walls to radiant heated ceiling beams, save space, time and money

The most interesting construction job the visiting British building industry representatives found anywhere in the U. S. was a series of apartment projects in Chicago which embody so many new construction ideas that one of the Englishmen called them the "only completely modern thing" he saw.

The walls were built differently; the floors were laid differently; the wiring was run differently; the heating was designed differently; the windows were framed differently; the ceiling were finished differently; even the grading was done differently. In fact, so many things were done differently that it might be shorter to list their points of similarity than their points of difference from the usual garden apartment.

Inevitably, apartments which embody so many new ideas are frowned upon by FHA, so they are financed differently too (see page 78). But the end product is a construction cost per square foot of \$7.76\* in walk-ups and a net cost per month to the occupants from  $\frac{1}{3}$  to  $\frac{1}{2}$  less than comparable housing in a typical FHA garden apartment.

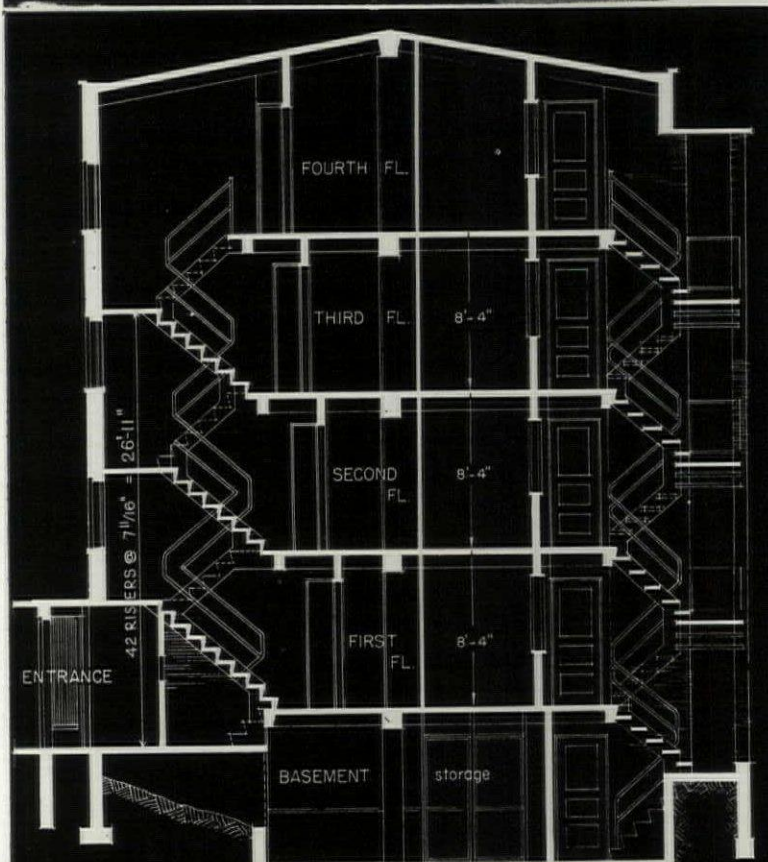
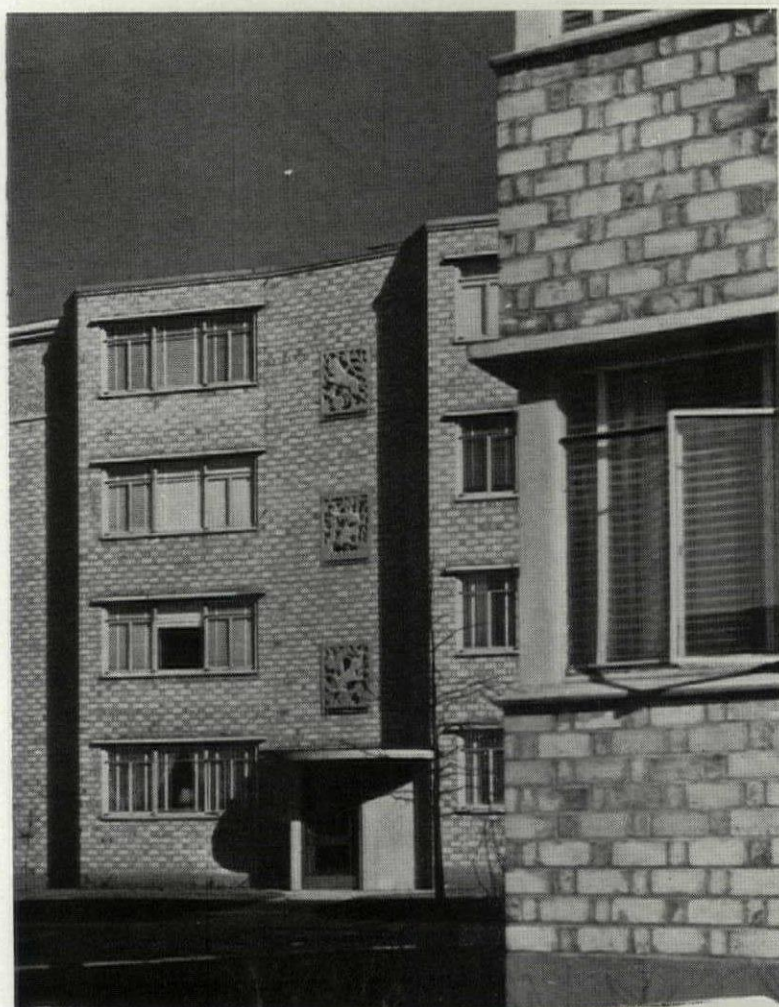
The new ideas for these buildings have been worked out over the past quarter century by an old line Chicago architectural firm whose present name is Holsman, Holsman, Klekamp & Taylor, and the cost of the research and development work of these new construction methods is spread over the various projects erected for mutual ownership by the Holsman-inspired Community Development Trust (see page 78). The senior Holsman, now 83 years old, is an inventor as well as an architect. In fact, he was one of the automobile pioneers, bringing out the Holsman car in 1897—a car which kept up with the field until about 1908.

When he shifted his undivided interest to building and architecture, he never ceased to be an inventor, and his sons and partners share this bent. In the building field, their inventiveness has been concentrated on ways to get the cost of a good apartment down, and their own estimate is that—over and above the economies made possible by good planning for maximum utilization of space—they have also worked out construction economies which reduce the cost of building more than 15 per cent.

In these savings, Holsman senior believes the biggest single item is a scheme for making four-story walk-ups practical for Chicago—one story more than the FHA maximum. (The typical Chicago apartment is built atop an English-type basement, which projects 7 to 8 ft. out of the ground.) In the Holsmans' atypical four-story walk-ups, only 40-43 steps separate the sidewalk from the top floor—"and," says he, "you can't find a conventional apartment in Chicago where the walk up to the third floor isn't more than that."

The trick is done partly by grading the land up at the front and down at the back so that in front the ground floor

\* Costs exclude land, landscaping, interest on construction loans, architects' and service fees. Square foot costs are calculated without including basements and penthouses.





is only one step up, but in the back there is plenty of height for basement windows; it is done partly by an ingenious floor construction system which reduces the thickness of the floor slab to a little over 3 in. and thereby makes possible an 8 ft. 4 in. floor-to-floor height with an 8 ft. ceiling. As a result, the fourth floor is only about 26 ft. up from the ground and in a typical Holsman apartment the fourth floor rents for \$1 a month more than the ground floor and only \$1.25 less than the third floor and \$3.50 less than the second floor\*. (The fourth floor rentals are aided by two added selling points: some of them can have fireplaces, and all of them have "studio ceilings," which is another way of saying that their ceiling follows the low pitch of the roof.) Getting four stories instead of three into their walk-ups makes it possible to spread the grading, sewer, water main, foundation, basement and roof costs over  $\frac{1}{3}$  more apartments.

Other large economies claimed include \$629 per apartment through the substitution of an 8 in. reinforced masonry wall in rowlock bond for a 12 in. brick and concrete block wall; \$650 per apartment on the floor system; \$156 per apartment on the stairs; \$55 on the foundations, mostly due to lighter construction; \$97 per apartment on the heating system and \$50 per apartment by using vertical wiring circuits and by omitting individual apartment meters.

Three main ideas underlie the construction savings:

- ▶ Minimum cubage per square foot of apartment area (on their four-story walk-ups they believe that by a combination of low ceiling heights, minimum partition thickness, half-basements at the rear of buildings and four stories instead of three over the same foundations, they have reduced the ratio of cubage to room size nearly 25 per cent);
- ▶ Maximum use of prefabricated parts, including stair stringers, stair treads and risers, floor slabs, window trim, gable blocks and welded steel box joists with their reinforcement installed at the factory;
- ▶ Simplified design to reduce the number of field operations required to put the various parts together.

The most recent projects on which these savings have been achieved are the Lunt Lake Apartments, which consist of two 9-story elevator apartments and one 4-story walk-up, and Winchester-Hood, whose various units will eventually provide some 800 four-and-one-half to six-room apartments in 4-story walk-up and 5-story elevator buildings. The elevator apartments are all four to a floor, giving each apartment corner ventilation. The walk-ups all run clear through the building. Their most distinctive design feature is the way the living room wall is pushed out diagonally in the belief that getting away from rectangular rooms makes the living area seem bigger and more flexible for furniture arrangement.

\* In the newest Winchester-Hood units the Mutual Owner's equity investment is \$3,750 with monthly carrying charges ranging from \$69 to \$79 for the 3 bedroom apartments and \$65 to \$76 for the 2 bedroom apartments, including \$23 for amortization and \$30 for interest which will be discontinued with retirement of the mortgage 25 years hence. The Holsmans say comparable apartments in other new buildings have a long term rental value of \$136 to \$146 for 3 bedrooms and \$120 to \$131 for 2 bedrooms. The lower charges in the Holsman apartments are partly due to the substantial equity payment, partly to economical construction and planning, partly to economical operation under mutual ownership.

Here are the details of the cubage saving and cost saving ideas worked out in the Holsman apartments:

## WALL CONSTRUCTION

**REINFORCED BRICK MASONRY**—For ordinary brickwork, the Chicago code requires a 12 in. bearing wall for a 3-story apartment; 16 in. for the lower two stories and basement of a 5-story building; 20 in. for first story and basement of a 7-story building and 16 in. for the next 3-stories.

By using reinforced brickwork, the Holsmans hold their bearing wall thickness down to 8 in. (except for the ground floor of the two 9-story Lunt Lake buildings, where the walls had to be 10½ in. thick for 1-story height only).

In addition to costing less, the 8 in. reinforced brick wall eats up considerably less cubage.

**ROWLOCK BRICKWORK**—Further economy on the exterior wall is effected by laying the bricks on edge in rowlock bond with alternating headers and stretchers and a 3½ x 8 in. cavity. This requires only nine bricks per square foot of wall, compared with 13 for a regular 8 in. wall and 21 for a regular 12 in. wall. The ½ in. vertical reinforcing steel rods 10 ft. long are placed in the cavities on 24 in. centers by the steel setters, and ⅜ in. horizontal reinforcing rods are placed every third course by the bricklayers. The wall is then fused into a solid monolithic unit by filling the cavity with a 2,500-psi. cement concrete grout poured from a bucket by the bricklayer's helpers. The mortar is first allowed 20 to 30 minutes to set and, to assure filling the cavity, brick is run up only 3 to 5 courses between grout pours. As the grout is poured some of the moisture is absorbed by the brick, and it is claimed that this makes the concrete much more dense and ultimately much harder than the same mixture if poured into removable forms. No additional labor is required for pouring the grout, but it is found that the bricklayers lay only an average of 650 bricks a day in this bond, as compared with 900 for regular bond in a 12 in. wall.

**NO STRUCTURAL STEEL LINTELS.** Another substantial economy claimed for this type of wall construction is the elimination of structural steel lintels. The reinforced brickwork over the windows forms its own lintel beam as soon as the concrete hardens. The Holsmans estimate the ordinary lintel steel over their 12 ft. window openings would cost about \$5 a foot, whereas an extra reinforcing rod costs only 10 cents per foot.

**CANTILEVERED BRICKWORK.** The reinforced brick masonry makes it easy to cantilever the walls above the corner windows and for the service stair balconies in the walk-up buildings.

**WINDOW FRAMING.** Further construction savings are claimed for the way the windows are set in. To eliminate the temporary installation of a rough window frame, the precast sill and stool is set to grade on the brickwork, and on it is placed a retractable wooden template with adjustable stops set to proper height and width. Precast trim is erected around the template with the jambs tied to the sides and the head trim resting on the top. The brickwork is brought right up to the precast jamb which is placed before the window height courses of brickwork are laid (see cut).

*As a combined result of all these economies, the Holsmans estimate that their masonry walls cost \$1.46 per sq. ft. (including 86 cents for brickwork, 18 cents for equipment and ground labor, 25 cents for screen windows trim and labor, 4 cents for overhead, and 13 cents for contractors profit), compared with \$2.65 for a 12 in. brick and concrete block wall, or \$2.97 for a 12 in. brick and concrete block curtain wall on a reinforced concrete frame.*

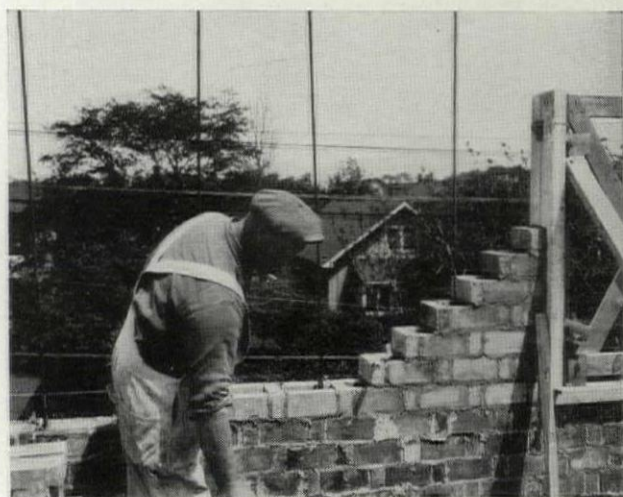
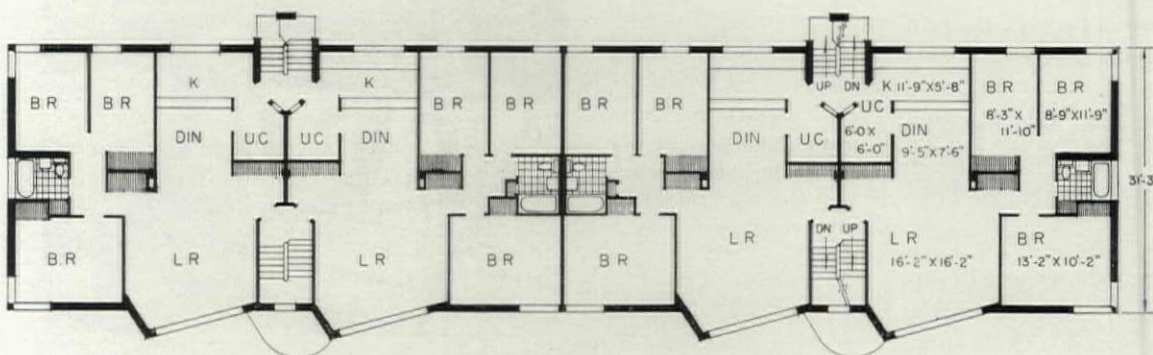




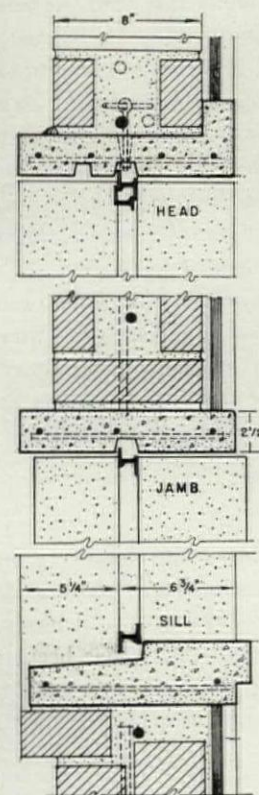
Photos: Stanley R. Jurovich

WINCHESTER-HOOD APARTMENTS incorporate many of Holzman's planning trade-marks: projecting open service stairwells, space-saving angular stair landings, interior bathrooms, through ventilation, corner bedroom windows, splayed living room walls and utility closets.

**CONSTRUCTION OUTLINE:** Foundations—concrete, Universal Atlas Cement Corp. Exterior walls—brick, Brisch Brick Co. Reinforcing steel—Joseph T. Ryerson & Son, Inc. Floor and roof construction and concrete blocks—Trusslab Corp. **ROOFING**—Koppers Co. Metal joists and accessories (floor system)—United Steel Fabricators. **INSULATION**—U. S. Gypsum Co. and Owens Corning Fiberglas Corp. **DOORS** (interior)—Mengel Co.: (metal)—United Steel Fabricators Co.: (wardrobe)—Masonite Corp. **WINDOWS**: Sash—steel casement, Detroit Steel Products Co. Glass—Libbey-Owens-Ford Glass Co. **FLOOR FINISH**—Kentile, David E. Kennedy. **PAINTS**—U. S. Gypsum Co. **ELEVATORS**—Montgomery Elevator Co. **HARDWARE**—Stanley Works, Yale & Towne Mfg. Co. and Sargeant & Co. **ELECTRICAL FIXTURES**—L. A. Pereira Co. Accessories—Pass & Seymour. Wire—U. S. Rubber Co. Switches—Arrow-Hart & Hegeman Co. Panel boards—Erickson Electric Equipment Co. Conduit—Youngstown Sheet & Tube Co. **KITCHEN EQUIPMENT**: Ranges—Welbilt Stove Co. Refrigerators—General Electric Co. Cabinets—Kitchen Maid Corp. **BATHROOM EQUIPMENT**: Fixtures—American Standard Sanitary Corp. Medicine cabinets—Hess Warming & Ventilating Co. Accessories—Gerity-Michigan Corp. **HEATING EQUIPMENT**: Radiant tubing—Chase Brass & Copper Co. Boilers—Pacific, U. S. Radiator Corp. Regulators—Minneapolis-Honeywell Regulator Co. Valves—Crane Co. Circulators—Bell & Gossett Co. Coal stoker—Steel Products Engineering Co. Exhaust fan—The Gallaher Co.



ROWLOCK BRICKWORK forms a  $3\frac{1}{2}$  in. cavity into which vertical steel rods are placed and concrete is poured to produce a reinforced brick wall. Brickwork goes up easily around precast concrete window trim held in place by adjustable wood template. Reinforced horizontally, the brickwork over windows does not require the usual steel lintel.





## FLOOR SYSTEM

The Holsmans have applied for a patent on their floor system which consists of 3 in. slabs of precast lightweight concrete 12 x 32 in. supported on 36 in. centers by exposed steel-box, concrete-filled joists 8 in. deep. The concrete mixture used in the slabs is designed to give them a fine, porous texture which produces a finished acoustical ceiling with a symmetrical pattern of V-joints between the slabs. The joists give the effect of a beamed ceiling. The economy in the system lies partly in the height saving made possible by the exposed joists, partly in the fact that the steel and the slabs need only a coat of paint to produce a satisfactory finished ceiling.

**PREFABRICATED STEEL FORMS**—The joists boxes, made of 16-gauge galvanized steel, are brought to the site with the reinforcement in place and fastened to thrust blocks or angle plates welded to the ends of the joist. For the girders, a 16-gauge, U-section soffit pan is used.

In erecting the floor system, this soffit pan is first set up on shoring and the joist boxes are supported on the girder soffit flanges to span across from it to the pockets in the side wall. In the wall pocket a bent bar is hooked over a horizontal reinforcing rod. Across the girder a U-bar ties the ends of the opposite joists together. Then the girder sides are closed by field welding filler pieces between the joist boxes. The Holsmans believe similar prefabricated steel boxes could be used to advantage to pour the columns.

All metal parts, which include the joist boxes, soffit pans and filler—cost an average of 29 cents per sq. ft. of supported floor area. Forms for the columns would cost about 35 cents per sq. ft., \$9.84 per column per floor.

**PREFABRICATED FLOOR SLABS**—The floor slabs cost 81 cents each or approximately 27 cents per sq. ft. They are laid by common labor. Top groove joints along their long edges furnish a channel for heating tubing and for a field poured concrete rib reinforced with  $\frac{1}{4}$  in. rod.

**POURING CONCRETE**—The concrete for the columns, girders, joists and slab ribs is poured simultaneously and, after shrinkage, the deck is grouted.

**SQUEEGEE**—A thin smoothing coat over the rough concrete floor is spread with a 3 or 4 ft. rubber edged squeegee with a handle long enough so the finisher can work on his feet (see cut).

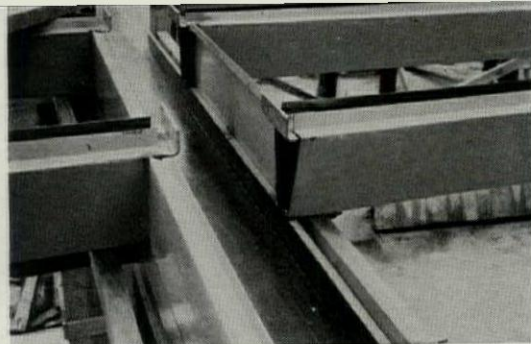
The Holsmans estimate the complete cost of their floor system at \$1.22 per sq. ft., including 29 cents for metal boxes and joists, 9 cents for reinforcing steel, 27 cents for precast slabs, 53 cents for erection and 4 cents for the cement floor finish. Against this they estimate the cost of the conventional Chicago pan and joist concrete system at \$1.78 per sq. ft. including \$1 for the pan-joist construction complete, 60 cents for the metal lath and plaster ceiling, 12 cents for the conventional trowel finish on the cement, and 6 cents for the extra cost of brickwork for an 8 in. higher story.

Erection time is nine days per floor on the walk-up apartments—three days for brickwork, five days for floor framing and mechanical installations, one day for pouring the concrete. The Holsmans try to have three buildings under construction simultaneously to keep all the various crews continuously occupied.

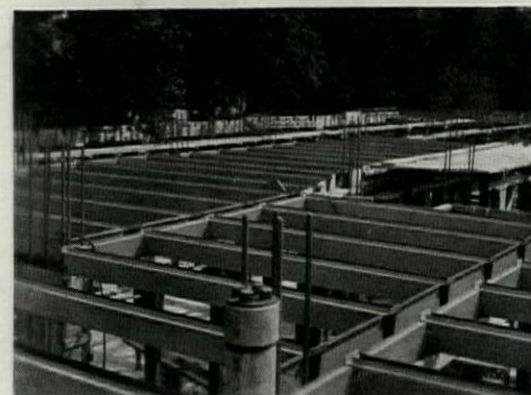
## OTHER SAVINGS

**HEATING SYSTEM**—Considerably economy on the cost of radiant heating has been achieved by placing  $\frac{3}{8}$  in. copper tubing in contact with the flanges of the steel joist boxes. By taking advantage of the high conductivity of steel, it has been found practical to run the tubing on 36 in. centers instead of the customary 12 in. centers, thereby reducing the amount of tubing needed by at least one-half. On

**FLOOR CONSTRUCTION** starts with steel joist boxes, open at the top, which are set on U-shaped steel soffit pan girders . . .



. . . until entire floor is framed in steel. Joists are spaced 36 in. on center to support . . .



. . . precast 12 x 32 in. slabs of lightweight concrete 3 in. thick. Length-wise V-joints between the slabs receive . . .



. . . reinforcing rods which tie the sections together. These V-joints and the open spaces between the ends of the slabs facilitate installation of . . .



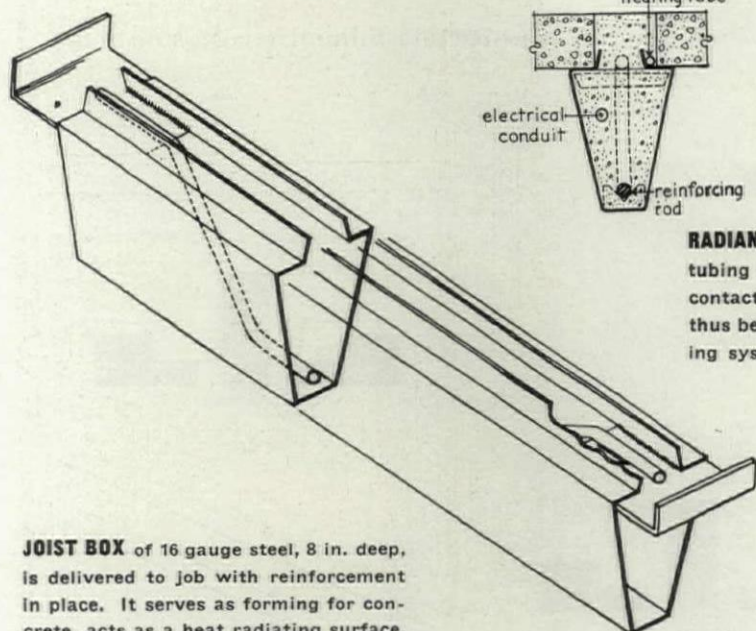
. . . copper radiant heating coils which are placed in contact with the steel joist boxes. The open spaces also permit . . .



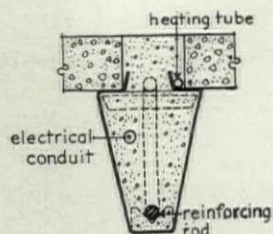
. . . concrete to drop down into the box joists. The floor is finished with a thin coat of concrete spread with a squeegee.



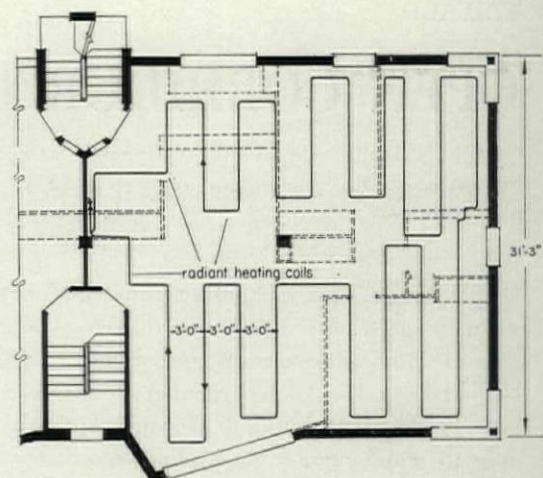




**JOIST BOX** of 16 gauge steel, 8 in. deep, is delivered to job with reinforcement in place. It serves as forming for concrete, acts as a heat radiating surface, and creates the appearance of a beamed ceiling (see photo below). Note 7 ft. high storage partitions.



**RADIANT HEATING** coils of  $\frac{3}{8}$  in. copper tubing are spaced 36 in. on centers in contact with the steel joist boxes which thus become integral parts of the heating system.



Lunt Lake, this saving on tubing alone amounted to almost \$10,000. By being able to take a greater temperature drop through the coils additional savings are achieved on the use of less main piping and smaller pumps. This system adapts itself to sudden changes in temperature more readily than the usual radiant plant where it is first necessary to heat (or cool) the entire floor slab.

**VERTICAL WIRING**—The mutual owners of each apartment buy their electricity wholesale, and there is no sub-metering for separate apartments. The elimination of separate meters saves an estimated \$25 per apartment, and an estimated \$25 more is saved by running the wiring vertically instead of horizontally. Under this system, less than 10 ft. of conduit is required per outlet.

**STAIR DESIGN**—The Holsmans have invented a system of stair construction utilizing precast treads and risers, one end of which is built right into the masonry wall and the other into a 10 x 5/16 in. steel plate stringer prefabricated in story heights with shelf angles welded on. One advantage of this stair construction is that no outside scaffolding is ever necessary, since stairway erection from floor to floor keeps pace with the erection of the wall.

Cost of the stairway is \$198 for a typical 13-riser flight, including \$80 for the stringer and rails, \$25 to erect the stringer, \$43 for the precast concrete treads and risers and \$50 for putting them in place. Against this they estimate the cost of a conventional stair with channel stringer, newel posts and pipe railing, metal riser and poured concrete tread in metal pan at \$440.

**FOUNDATIONS**—Partly because of the lighter weight of the thin outside wall, partly because of the lightweight construction of the floors, and partly because there are no concentrated wall loads to require irregular footings, the Holsmans report a foundation cost of 87 cents per sq. ft., as compared with their estimate of \$1.10 per sq. ft. for conventional construction.

**ROOFS**—The only cost of the roof is the installation of  $1\frac{1}{2}$  in. of fiber glass and 3-ply tar and gravel over the top story ceiling which is pitched  $2\frac{1}{32}$  on 12 from the ridge girder. The wall extends only high enough to form a curb, which is covered with a metal gravel stop built into the coping edge. Thus, the expense and maintenance troubles of parapets are eliminated.

**CLOSETS AS PARTITIONS**—Where privacy is not necessary, closets 7 ft. high are used as partitions to add to the spaciousness of the room and to save the cost of ceiling plaster wall.

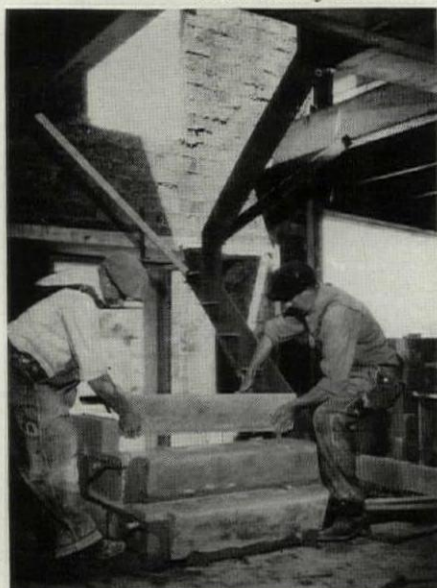
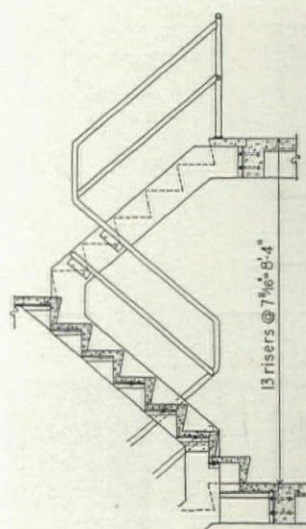
**CONCRETE BLOCK PARTITIONS**—The Holsmans have recently designed a concrete partition block  $11\frac{5}{8} \times 3\frac{5}{8}$  in. whose proportions are sufficiently pleasing so that it needs only a coat of paint to make a satisfactorily finished wall. This block costs 7 cents.

**OUTSIDE BACK STAIRS**—On the walk-up buildings the cost of the required second stair is held to a minimum by placing it outside the building and lighting the front stairs through it.



**STAIRS** are comprised of precast one-piece treads and risers, one end of which is built into the wall, the other into shelf angles welded on a steel stringer.

Photos: Stanley R. Juracich





# OPEN CORRIDOR DESIGN

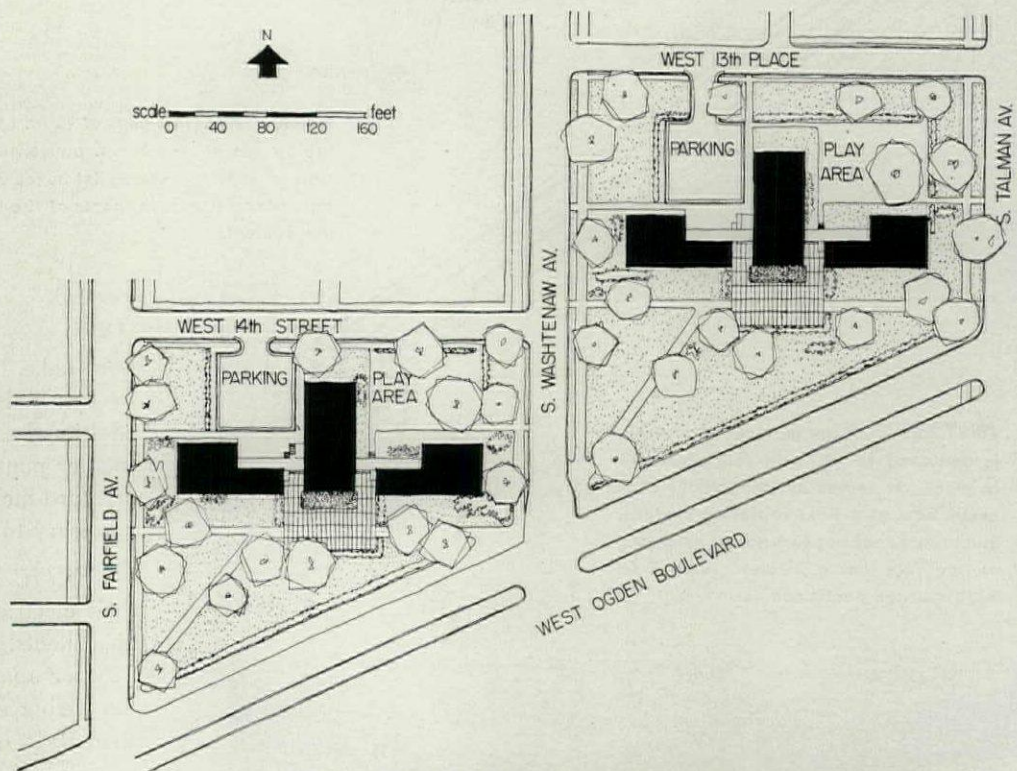
and unfinished concrete construction minimize costs and rents

SKIDMORE, OWINGS & MERRILL, Architects

Ogden Courts, a public housing project, shows better planned apartments, at less cost, than any "608" private elevator apartments reported out of Chicago since the war. Unlike the promoter of "608's," Elizabeth Wood of the Chicago Housing Authority was able to employ top-flight architects, ask for their best "look into the future." The small size of these relocation projects (for people displaced by redevelopment schemes such as New York Life's forthcoming \$18 million scheme in the Michael Reese area) made experimentation permissible. The result is a standard of exposure and ventilation in Ogden Courts comparable with plush New York insurance projects being built to rent for as much per room as Ogden Courts are likely to obtain per apartment. But the construction cost will be not more than \$8.65 per sq. ft. (\$8.42, by CHA calculations); and anything under \$9 is cheap indeed for a well built elevator apartment today.

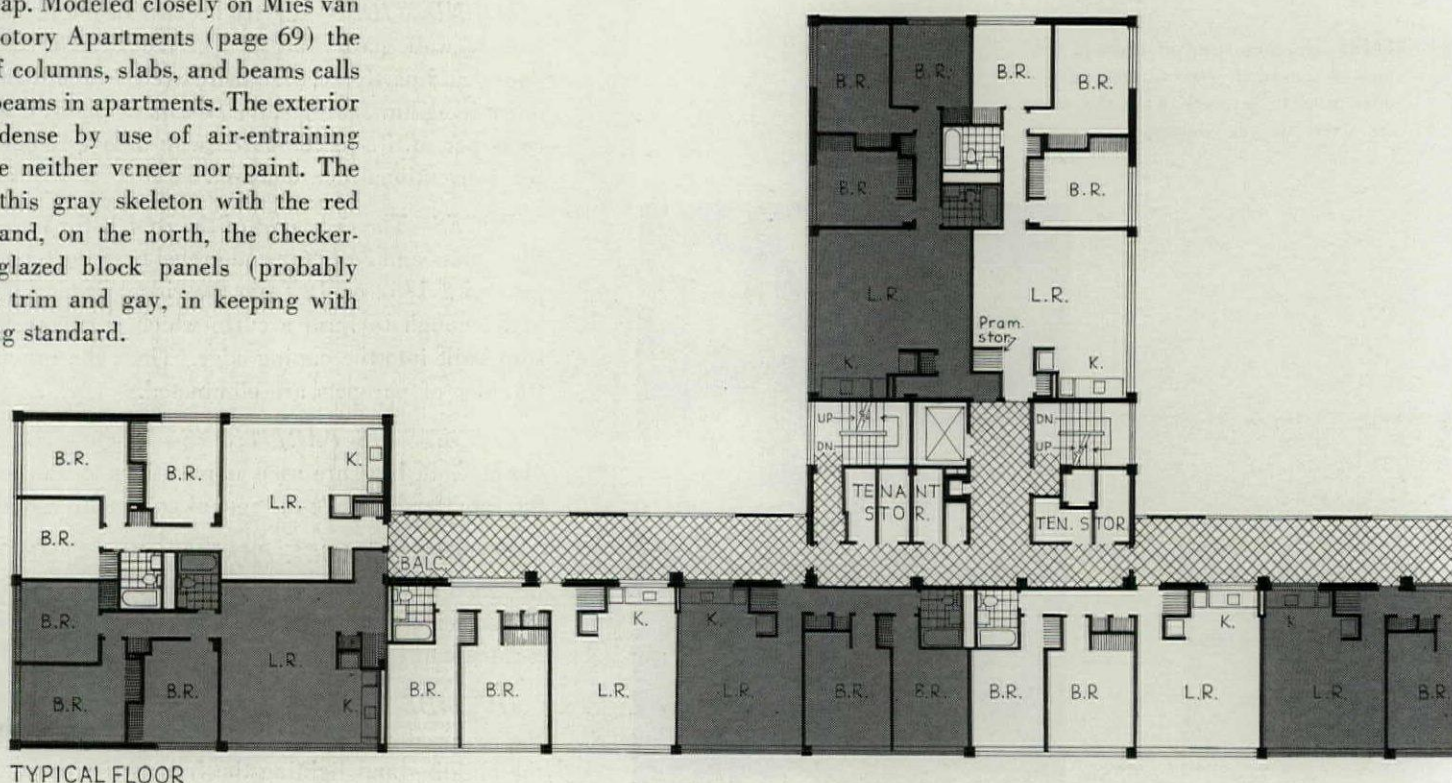
The architects built their two buildings around the idea of an upstairs sheltered sidewalk for every floor. On an irregular site in two blocks they arranged their 136 required dwelling units ten to the floor in two 7-story elevator buildings. These cover only 16.4 per cent of the land. Apartments are of just two kinds. The long cross-bar of the T is lined with 4 two-bedroom units per floor, all with big windows facing south, all strung on an access balcony, 8 ft. wide, on the north side, so that all of them have *through* ventilation. At the three terminal positions of the T-plan are pairs of three-bedroom apartments with *cross* ventilation—six such apartments per floor.

In contrast with the sumptuous planning, construction is neat and cheap. Modeled closely on Mies van der Rohe's Promontory Apartments (page 69) the concrete skeleton of columns, slabs, and beams calls for no visible crossbeams in apartments. The exterior surface, rendered dense by use of air-entraining cement, will require neither veneer nor paint. The visual contrast of this gray skeleton with the red brick filler panels and, on the north, the checker-board pattern of glazed block panels (probably blue-green) will be trim and gay, in keeping with the new bright living standard.

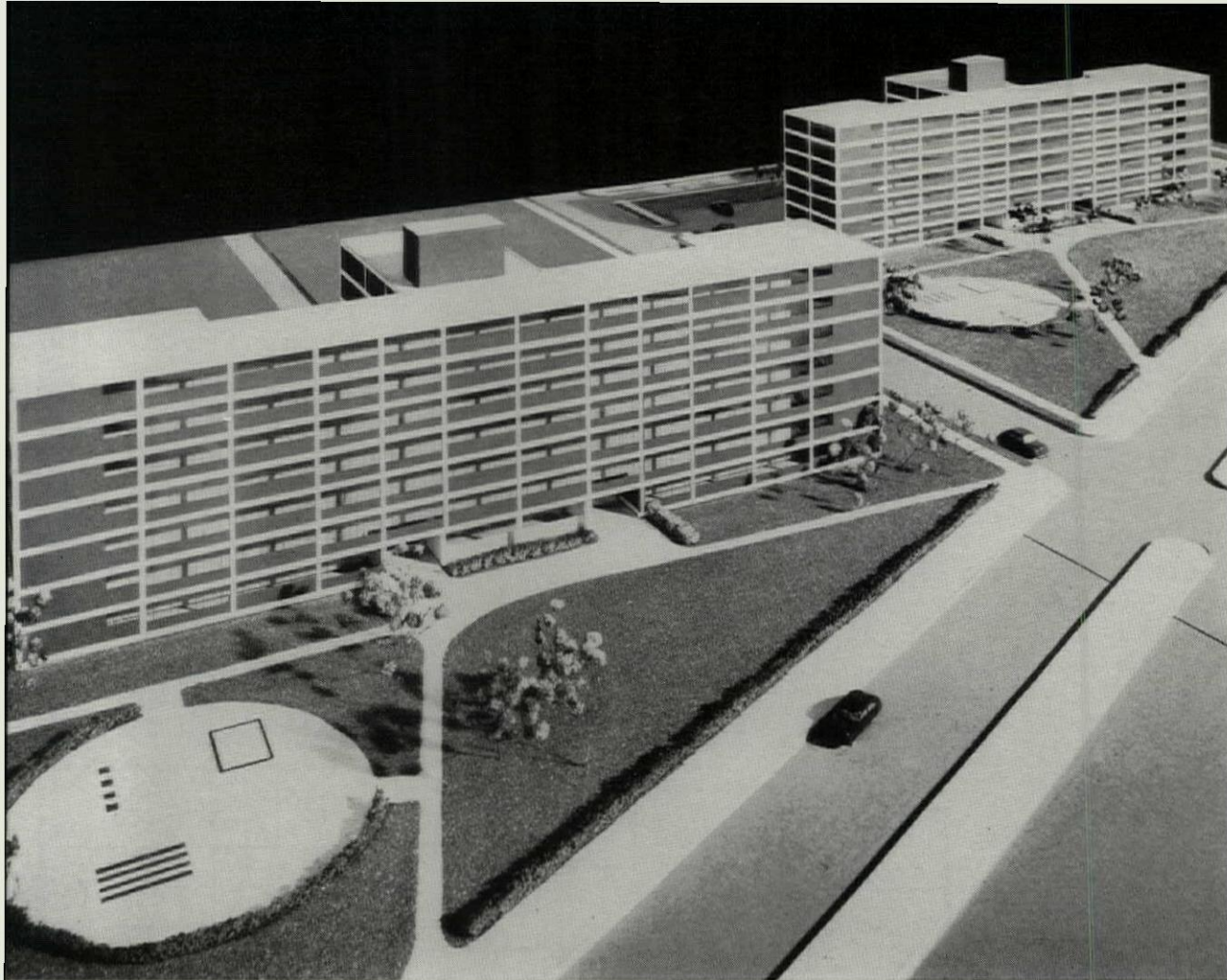


*PLOT PLAN* shows convenient access passages in first floor to parking and play space at rear of buildings.

Ogden Courts have been contracted at a total cost of \$1,272,430 for 136 dwellings totaling 147,620 sq. ft., to be completed late in 1950. Square foot cost is exceptionally low—placed at \$8.42 by the Chicago Housing Authority (omitting stoves, refrigerators, landscaping, and counting balcony areas at half area). Apartment cost is put at \$9,140 after subtracting the cost of administrative facilities, or \$1,786 per room. Apartments, averaging 5.12 rooms, are exceptionally large. Heating is by convectors using steam from low pressure boilers; the basement will be fully available for laundries.



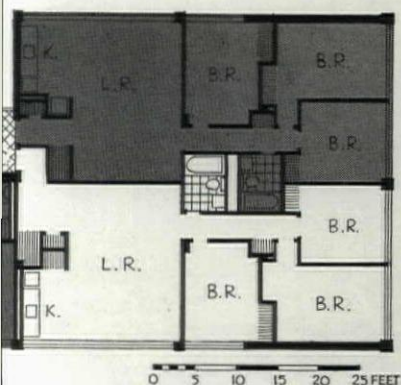




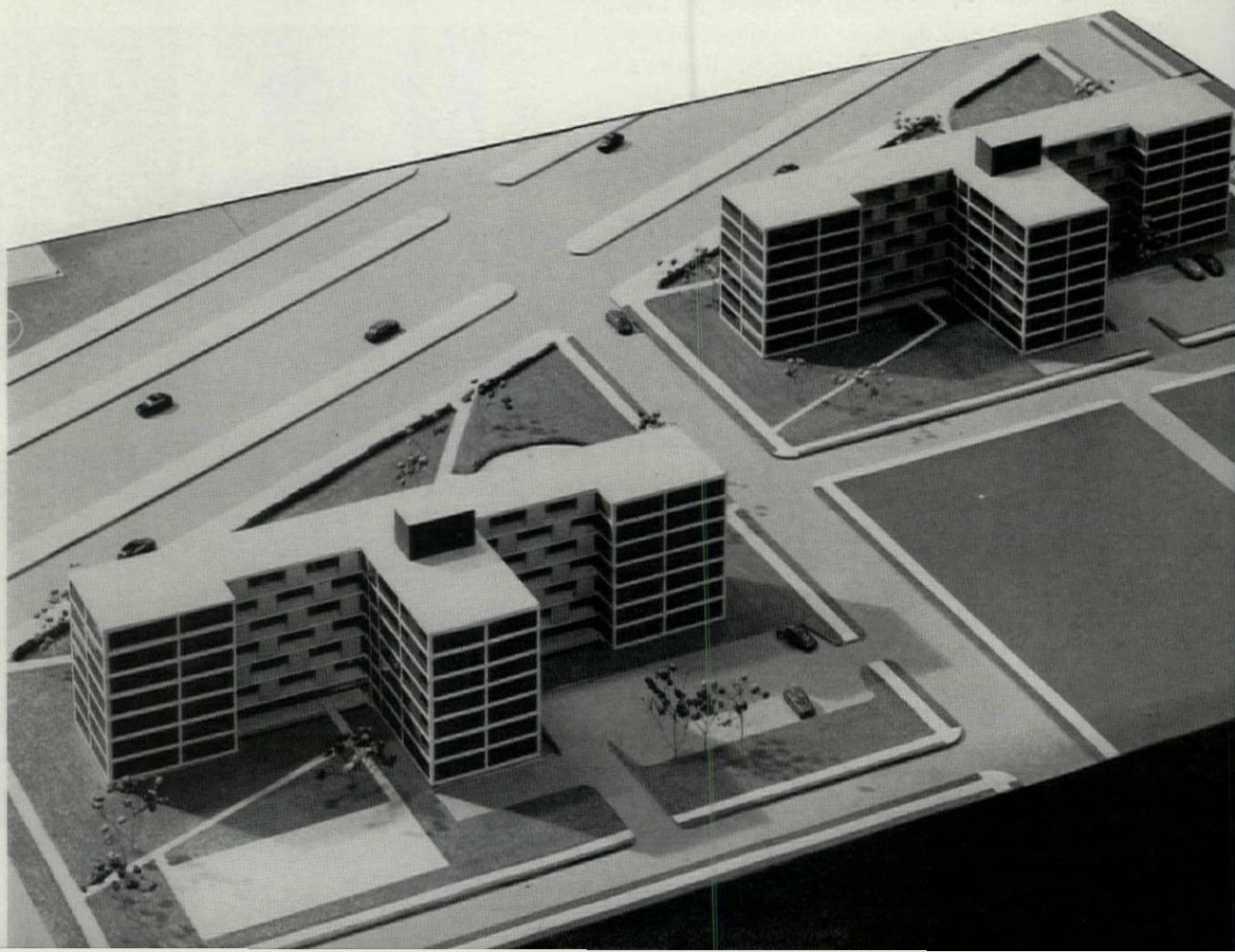
*Idaka*

*Photographs of the model show the unusual skill with which the exposed skeleton of hard-surfaced, self-finished concrete has been integrated decoratively with the plan and with other materials. Columns fall between alternating bays of living rooms and bedrooms, so that strings of aluminum windows, continuous from column to column, vary in sill height according to whether the space inside is a bedroom or living room. Red brick filler panels, contrasting with gray frame, can be laid from inside*

*without scaffolding. The access balconies or porches seen in photo below are semi-sheltered upstairs' sidewalks, faced with alternating panels 4-in. glazed tile and of open-wire, floor-to-ceiling fence. These areas serve as rainy-day recreation space (conveniently supervised by mothers from kitchens); it is hoped they will not become a jumble of storage. The glazed tile pattern will give Chicago a touch of gaiety more common in South America than in the Windy City.*



0 5 10 15 20 25 FEET





# INTERLOCKING APARTMENTS have large dormitory rooms for large, low income families

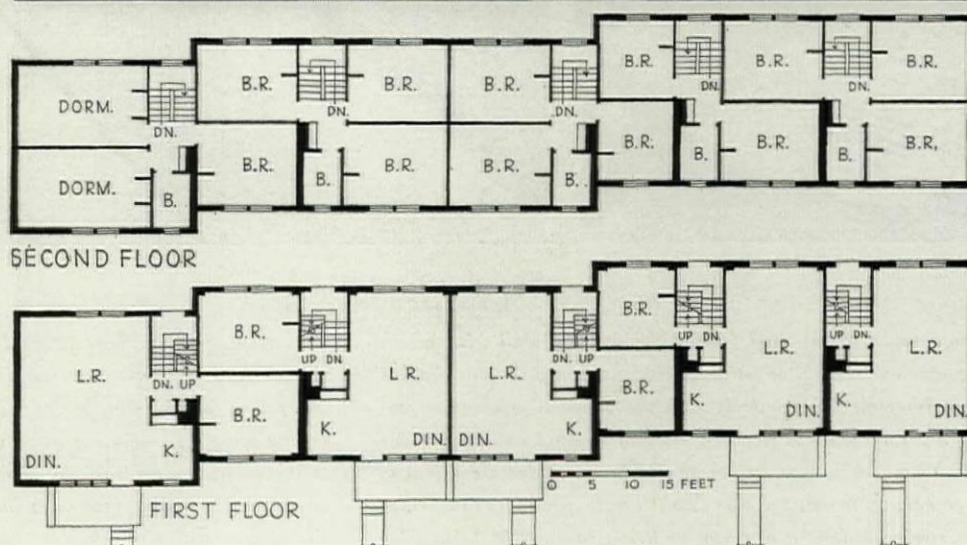
PERKINS & WILL, Architects Engineers  
WILLIAM A. DEAN, Site Planner

One of the most cogent criticisms of new housing of all kinds is that too few rooms are built to accommodate large families, and some jokes have been coined about insurance companies cutting down the birth-rate on which their actuaries depend, by supplying only small apartments. No such criticism can be leveled against Chicago Housing Authority's Racine Street project. It contains 121 dwelling units for a southside population, mostly Negroes who are being relocated to make way for redevelopment programs. These families are not only large but *very large*—from seven to 12 persons. Hence the use of dormitories, housing as many as four beds per room for the use of large families; hence, too, the ingenious interlocking plans, by which dwelling units planned in the orthodox manner around one stair hall can "borrow" a room from another dwelling off another hall. (See plans, right.) Basements are included, too, against the current "economy" trend, not only to accommodate the large laundering activity needed, but recreation also for large numbers of children. (Although toilets are included in the basement, the authorities swear that nobody is to sleep there.)

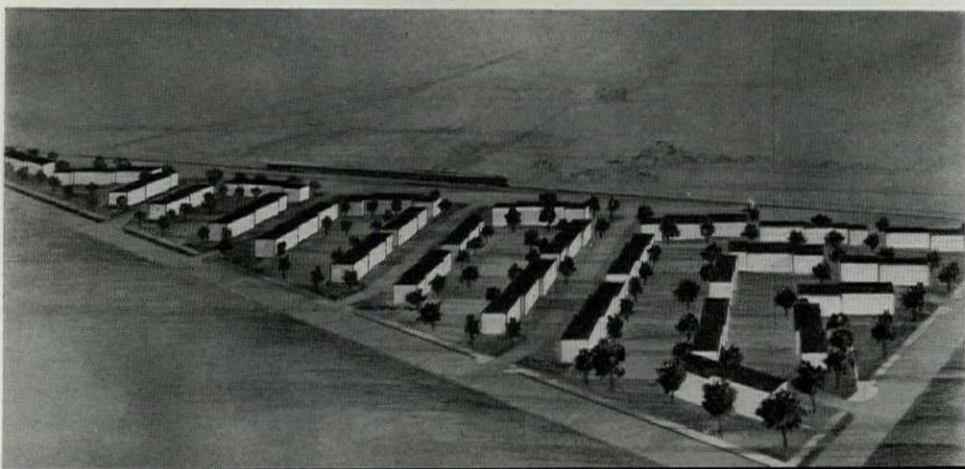
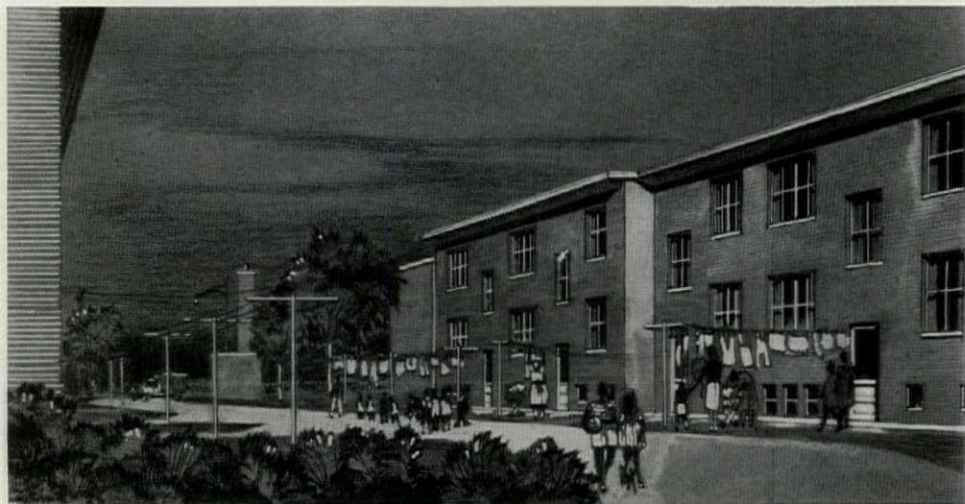
To cut costs, Perkins & Will drew on Phil Will's prefabricated experience, Lee Cochrane's public housing experience and came up with the same mechanical core for every dwelling plan so that every stack could be largely shop fabricated.

Coal firing of the gravity operated warm air heating systems was made necessary by absence of gas at the time of designing, was welcomed for low maintenance cost and the pride it developed in tenants taking more stake in their homes. However, coal delivery necessitated well paved concrete alleys for trucks. The pattern of splayed alleys and of back walks, so designed that coal trucks could back up to dump coal at each unit, limited the site plan.

The total general contract for the 121 dwelling units was \$1,429,000, including the extensive site development, the service building and incinerators. Site work included sidewalks, drives, alleys, sewers—there are some 59,043 sq. ft. of heavy macadam, 1,800 ft. of curbs and gutters, 30,000 sq. ft. of black-topped play area, and 50,464 sq. ft. of concrete alley. All these site costs are included in computing the sq. ft. cost at \$7.33 (including basement), the cu. ft. cost at \$.887, the dwelling cost at \$11,810—for a six-room average. (Omitted from these last computations is the cost of incinerators and the maintenance building.) The tag for the average room cost would depend on whether living room, dining room, kitchen combinations were counted in as  $2\frac{1}{2}$  rooms, or whether credit were given for the generous well-equipped basement space as another room, making the total for each apartment  $3\frac{1}{2}$  rooms plus the bedrooms. On the former basis, cost per room is \$1,970; on the latter basis, \$1,690.



Photos: Hedrich Blessing Studio





# STACKED GARDENS provide outdoor living space for each tenant in a costly 12-story project

LOCATION: Los Angeles, Calif.

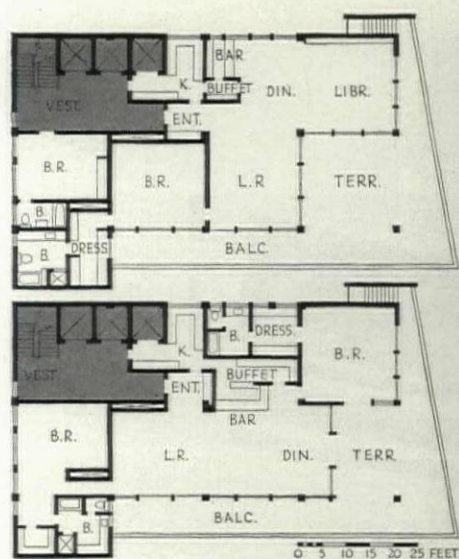
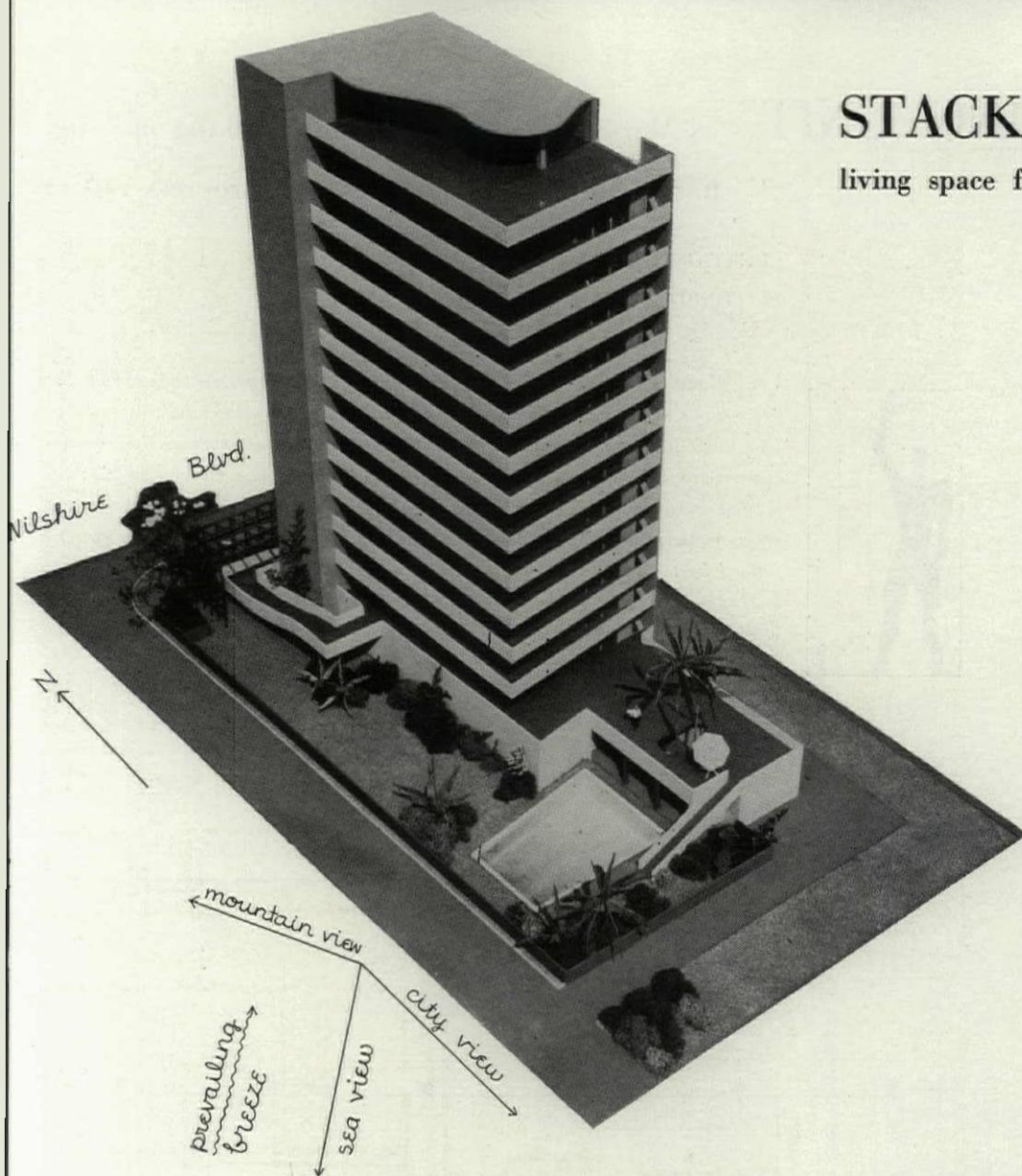
BURTON SCHUTT, Architect

This project is the first ever undertaken to provide really adequate outdoor living space, floor above floor, in a multi-story apartment house. It has been variously described as a stack of hanging gardens and as a stack of penthouse apartments. The amount of space devoted to outdoor living varies with the tenants' option, but in the two typical plans shown on this page, the outdoor living space runs from 1,200 to 1,400 sq. ft. Lavish terrace planting (seasonally refreshed) will thrive under infra-red lamps, implementing bountiful California sunshine. These big terraces are a far cry from the 6 x 12 ft. balconies which are about as far as any existing apartment has gone to provide space for outdoor city living.

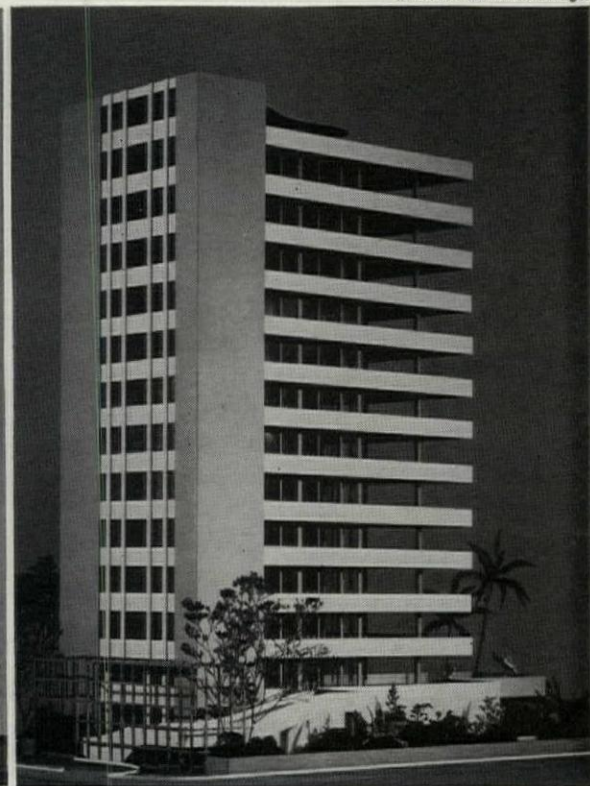
"A home away from home" for a dozen prosperous out-of-towners, this 12-story cooperative apartment will soon be built in Los Angeles. Each apartment—only one to a floor—will sell for about \$100,000 plus a monthly "stipend" for upkeep. Despite this price tag, most of the units are already spoken for by men who must frequently visit Los Angeles on business. Chances are that these men, who now run up huge hotel bills during their prolonged business visits, will write off the cost of their apartments as business expenses.

The main (second) floor will provide a large lobby, a restaurant and an outdoor dining terrace with access via exterior ramps from the main entry and the swimming pool. The ground floor accommodates a parking garage and, beneath the dining terrace, a "lanai."

Photos: William Reagh



Typical apartment plans (above) show the large ratio of terrace garden space to indoors area. Street view (far right) shows a trellis screening the building's main entry.





**LE CORBUSIER'S "LIVING UNIT"** in Marseilles is an ingenious stacking of long, narrow duplex apartments — a progress report

The first gleam of Le Corbusier's "radiant city" is now visible in Marseilles. The enormous apartment house frame is now complete, wherein 1,600 people in 337 units will test his formula for "vertical" living. Basic to the planning of this great French theorist is the belief that people need small, bright, well-planned and equipped quarters for private use; large open spaces for recreation and play. The unique feature of the plan is that apartments run crosswise to the building instead of parallel, so that the larger units resemble brownstone houses, 66 ft. from front to back, stacked high.

Structurally, the building is a "bottle rack"—a ferro-concrete frame with regular rectangular slots into which 23 different types of apartments will be fitted. These individual units are prefabricated and installed with entirely dry construction methods. Their independence of the frame and each other ensures excellent acoustic insulation. Almost all apartments are duplex, arranged so that elevators stop only at every third floor. The living area of each is two stories high with a full-length balcony. Great window space, protected from excess sun and glare by a *brise-soleil*, allows light to reach far into dining areas and master bedrooms. Since each unit stretches entirely through the building (east to west) the bedroom and living area at the other end is also bright and has its own balcony. At both sides there is the "sun, space and greenery" which is the promise of the "radiant city." Apartments, all multiples of the ones shown at right, range from small units for "celibataires" to those for families with five children. The kitchens, located in the center, are ventilated mechanically—a fact about which the French are still wary.

In contrast to the compact individual units, community services will be lavish and varied, unequaled so far in any but luxury housing. The entire roof will be public territory, with a swimming pool, solarium and running track. The 17th floor will provide gymnasium, nursery and play areas. The seventh and eighth floors (halfway up) will be given over to a shopping center, restaurant and clinic. Around the great rectangular slab on every side there will be a rolling park and a broad vista reaching to the mountains and sea.

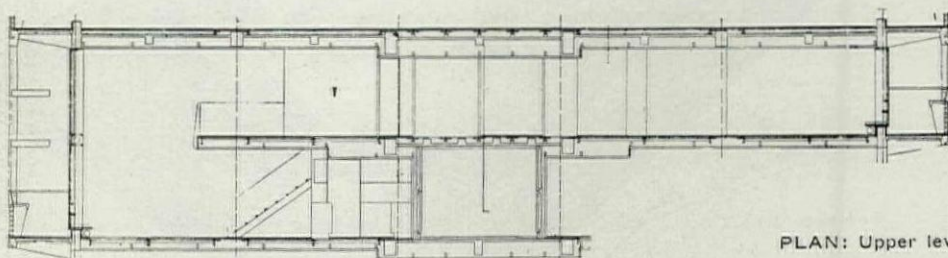
Since the project is publicly financed by the Ministry of Reconstruction, every one in the area feels violently about it—pro and con. Some say gloomily that interiors will be dark, ventilation poor, cost too high. As to the first complaints, Le Corbusier has demonstrated to public officials that actuality proves them false. As to cost, although prices have tripled since the original estimate of \$1 million, the expense will not be out of line with conventional construction. Moreover, Le Corbusier points out, he is providing for national and international use “a delicate prototype.” A similar project for Nantes is already on his drawing boards—in cost and plan it will benefit from his Marseilles experience.

LOCATION: Marseilles, France

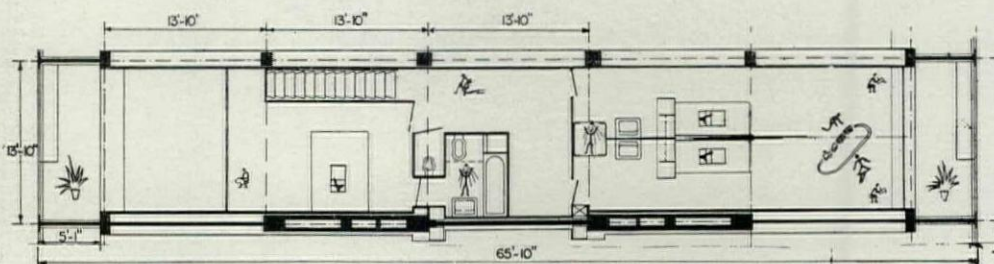
LE CORBUSIER, Architect



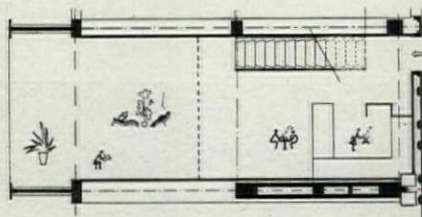
The "Modulor," Le Corbusier's system of building measurements based on the proportions of the human body (sketch left) is, the architect claims, essential to its esthetic integrity. A full-size, 6 ft. concrete relief of this figure marks the main entrance to the building. The duplex form of most apartments (see typical cross-section and floor lay-out below) gives a variety and airiness to units that might otherwise seem oppressive—all are limited to a 12 ft. width. The exterior pattern formed by the various apartments shows the kinship of Le Corbusier, architect, to Jeanneret, painter. This variety will be even more noticeable when the building is complete, since individual balconies will then be painted in an assortment of bright colors.



PLAN: Upper level



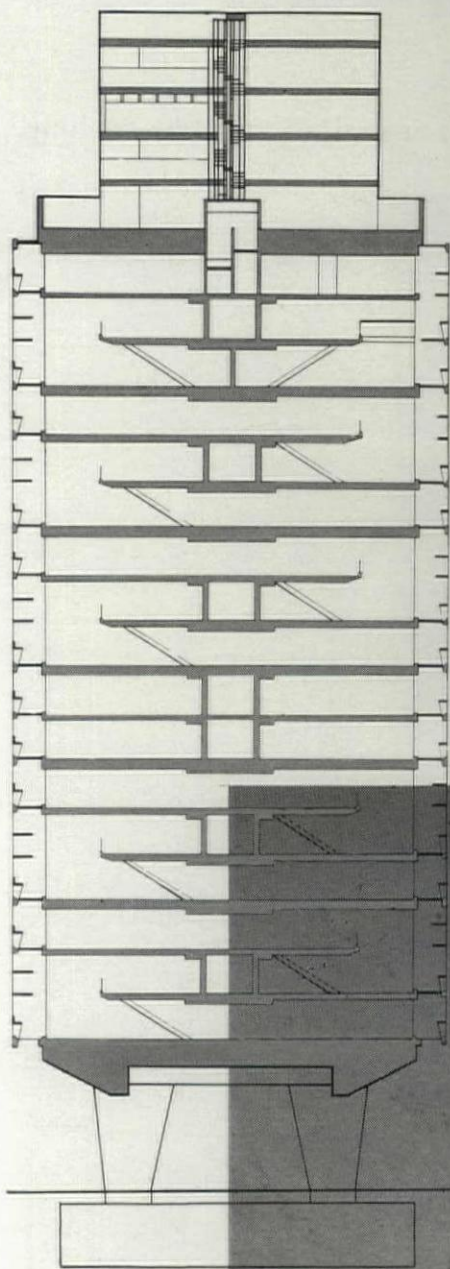
PLAN: Lower level



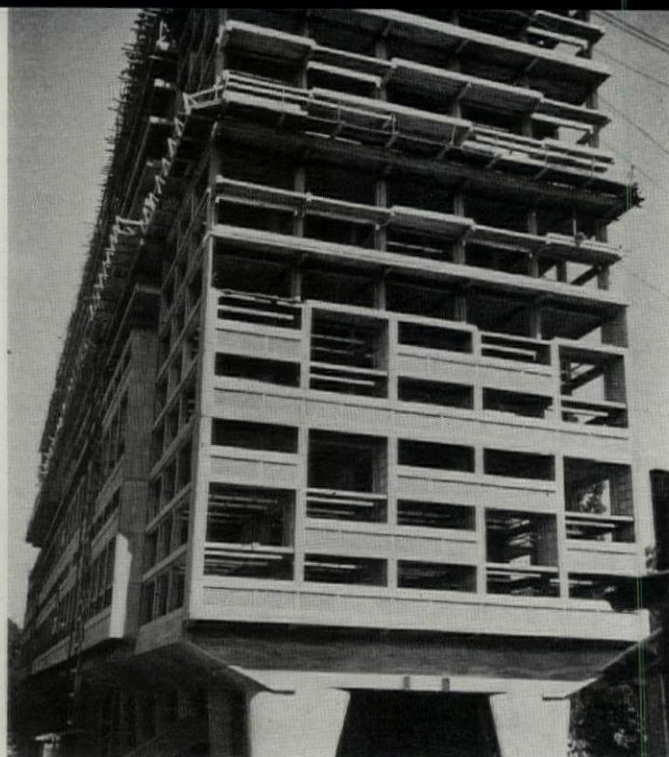
José L. Sert







SECTION



Simone Herman

*The building block is raised 23 ft. above the ground by two gigantic tiers of sills—another Le Corbusier trademark. This arrangement does not permit as clear a “through” view as might have been hoped for; it does, however, solve two other problems—free circulation of air at ground level and ease of passage from one side of the building to the other. Original plans for an automobile underpass and adjacent garage have not as yet been included in the budget.*

José L. Sert









# APARTMENT HELIX

spirals wedge-shaped floors around a slim utility core, achieves a new flexibility of living space and rentals

What's the matter with practically all the big apartments in our cities—including particularly those now being built?

"Plenty", says Real Estate Tycoon William Zeckendorf.

"1. Even the newest ones take practically no advantage of all the research and technological progress of the past 20 years. In fact, I don't know anyone who, given a choice, would not prefer to live in an old building, for its apartments have bigger rooms, better finish and more solid walls.

"2. The new apartments cost too much to build, largely because they take so little advantage of recent research to offset the rising cost of the old methods.

"3. They are all crowded together to kill off each other's view, and none of them makes adequate provision for everyone's desire for a little outdoor living—so pretty soon the tenants move to the country to get some light and air and some greenery.

"4. They are inflexible. If you have a 2-room apartment and your wife has a baby, you can't add another room. If you have a 12-room apartment and business gets bad, you can't cut your apartment in half.

"5. Because they are inflexible and cannot be altered economically to meet changing conditions, they face a high vacancy rate in hard times and a quick rate of obsolescence. All the big apartments on Park Avenue are obsolete because, with present taxes, hardly anyone can afford to live that way—but it costs as much to cut them up into small units as it costs to build a brand new building."

These are the problems William Zeckendorf outlined to his top flight architectural designer, I. M. Pei, formerly of the Harvard School of Architecture, now head of architectural research at Zeckendorf's firm of Webb & Knapp.

Architect Pei came up with an answer that is as exciting to the eye as to the mind and still meets all five of Zeckendorf's objections to present apartments. It is completely flexible. ("you can almost turn a 12-room apartment into three fours in an afternoon"). It provides large outdoor areas. Its plan and construction are made possible only by 1950 technologies. And Pei believes it will cost at least 20 percent less to build than conventional apartments.

Zeckendorf is so enthusiastic over the plan that he is negotiating for a site overlooking New York's East River on which to erect the first helix 22 stories high. This will be a luxury job to give the idea a quality status from the start, but he believes that at 14 stories the same plan can play an important part in improving middle income housing.

## Four revolutionary features:

1. It is circular instead of rectangular, with six rings adding up to a 102 ft. diameter. The three inner rings are the utility core—first the elevators and fire stairs at the center, then a circular corridor, then a 2½ ft. shaft ring for ducts and pipes. The three outer rings are for tenant living—first a 10 ft. utility ring for interior kitchens and toilets backed up to the pipe shaft, then a 25 ft. depth of living and sleeping space with continuous windows, and then a ring of big balconies 8 ft. wide and 40 ft. long.

2. The rentable part of the circle (i. e., the three outer rings) is divided into eight wedges or pie slices, each con-

taining 800 to 820 sq. ft. plus balcony. A tenant can rent as many wedges as he wants and subdivide each into two or three rooms plus kitchen, bath and storage space to suit his needs. If he wants more wedges, he can add one or two. If he needs less, he can turn one or two back to the landlord.

3. The wedges are arranged in a spiral, with each wedge half a floor (5 ft.) higher or lower than the wedges on either side. This gives the duplex apartment's advantages of privacy without the duplex's sacrifice of space for long stairs and duplicate corridors. ("Modern architecture is long on privacy for the family as a group, but short on privacy for the individual against the family," says Zeckendorf). It also gives to planning the greatly increased flexibility of a third dimension.

4. The whole building would be supported without columns by eight radiating fins of prestressed concrete which would do double duty as sound-proof dividing walls between the eight wedges. The sections of these fins will be precast on the ground and lifted into position, as will also the inverted U-shaped sections at the apexes of the triangles. The fins will leave an opening for a door from wedge to wedge almost 25 ft. back from the windows.

## Many advantages:

The circular plan of the Zeckendorf-Pei apartment puts the elevators and stairs in the least desirable space, with a minimum length of hall. Vertically it reduces the necessary pipes and ducts to the minimum by getting the utilities for all the apartments close together at the center. Horizontally it almost eliminates them. It puts the toilet and kitchens in inside space. It gives minimum perimeter in proportion to area, with consequent reduction in heat loss and cooling load.

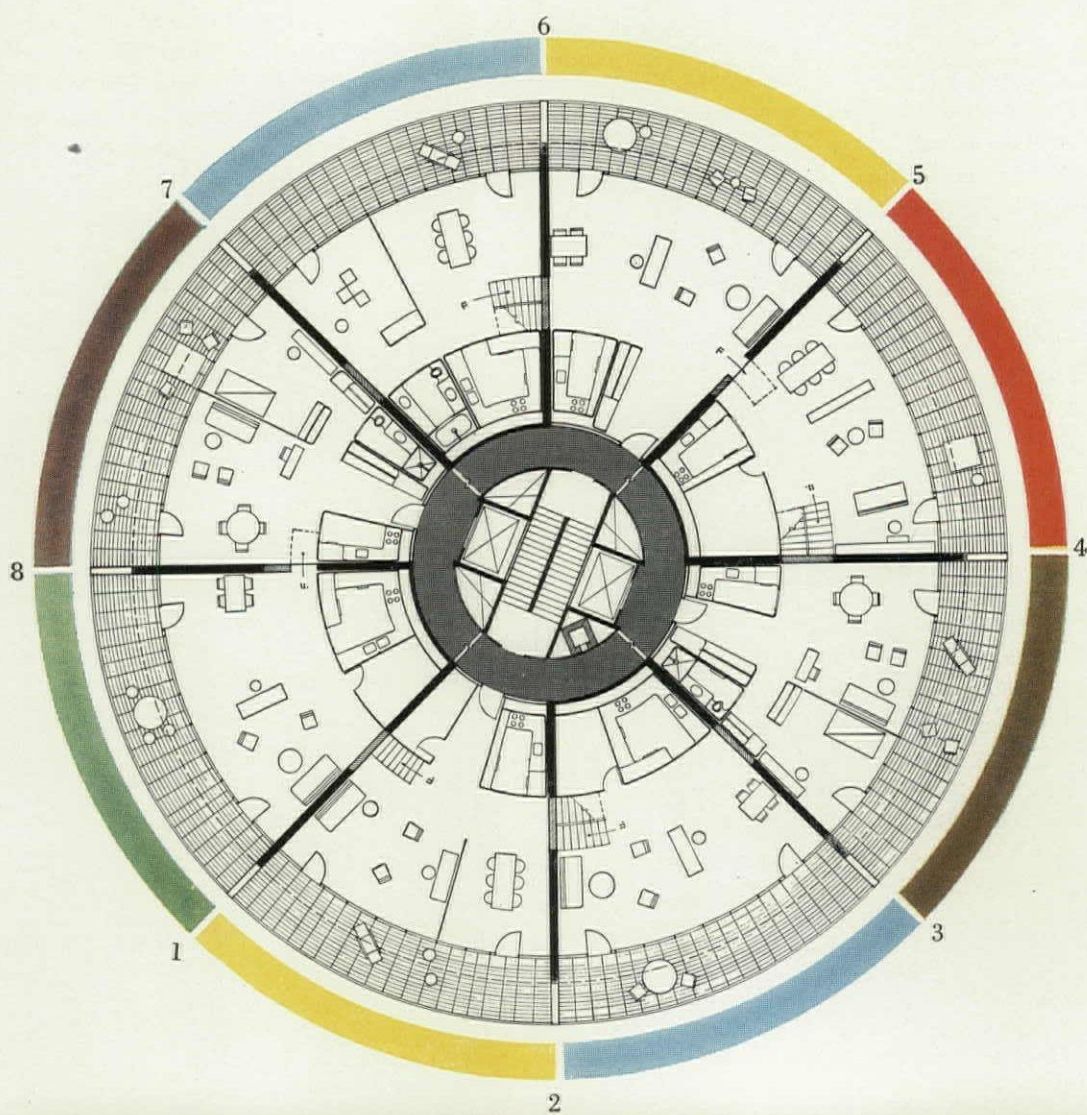
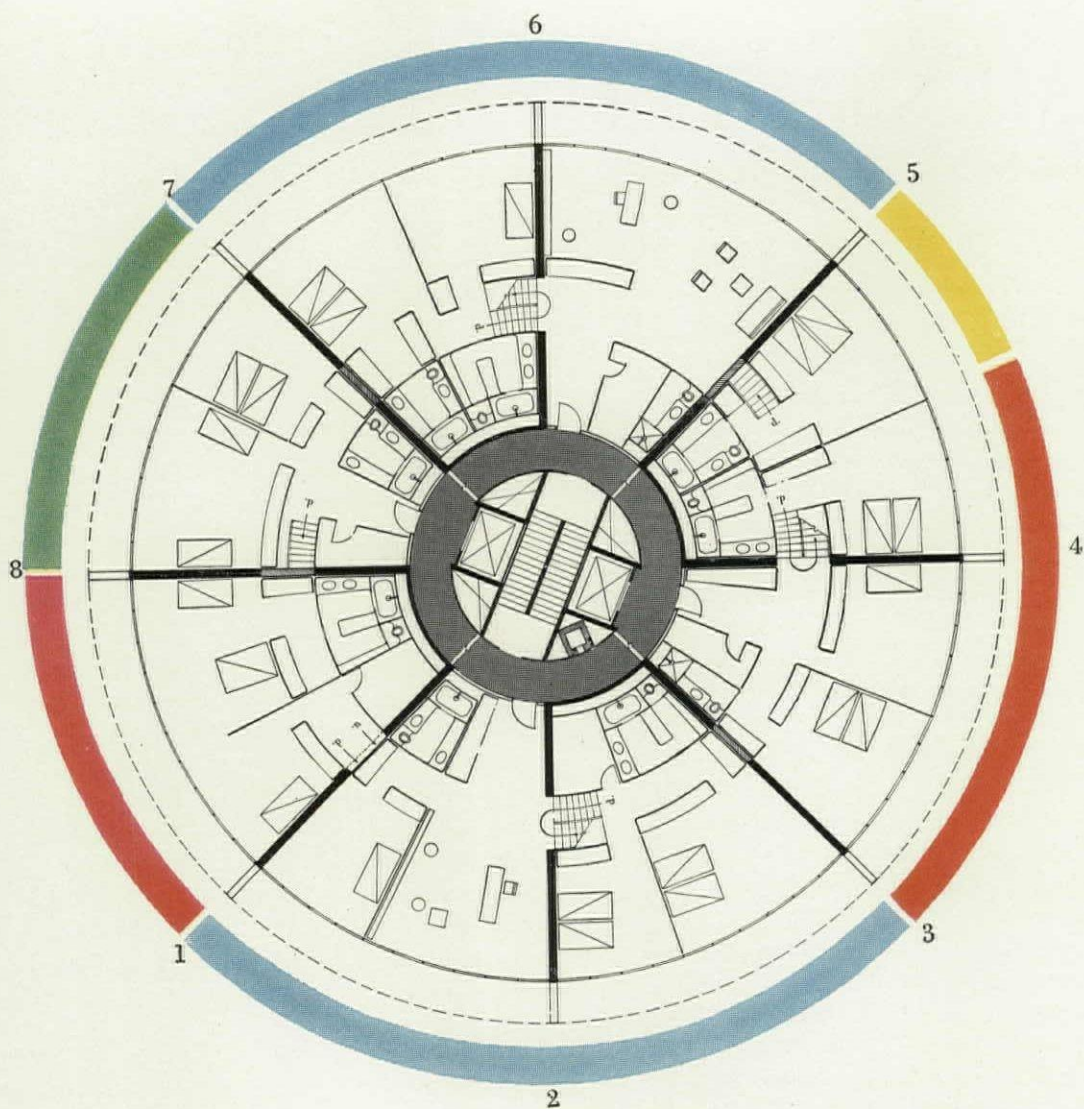
Perhaps most important of all, the circle makes it possible to construct each segment as an identical modular unit, with great economies through prefabrication (see page 94).

The only major limitation is that two circles of 100 ft. diameter cannot be spaced economically on less than a 250 ft. block (in Manhattan, the north and south blocks are only 200 ft.). Pei and Zeckendorf agree that the spirals should be spaced 60 ft. apart for a land coverage of about 30 per cent.

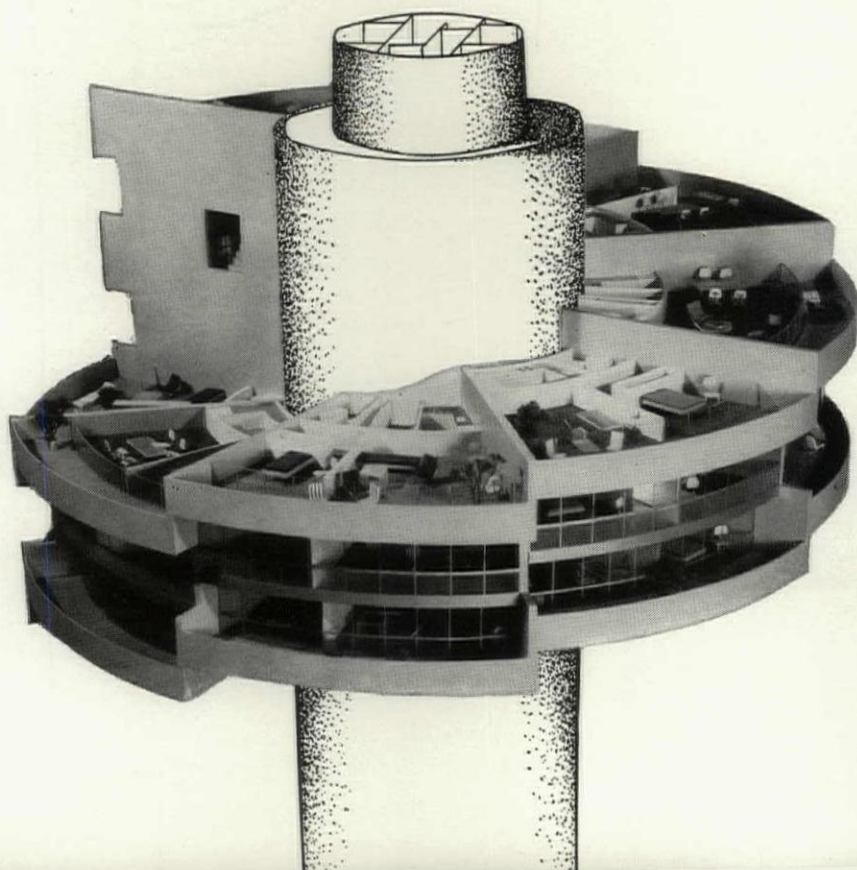
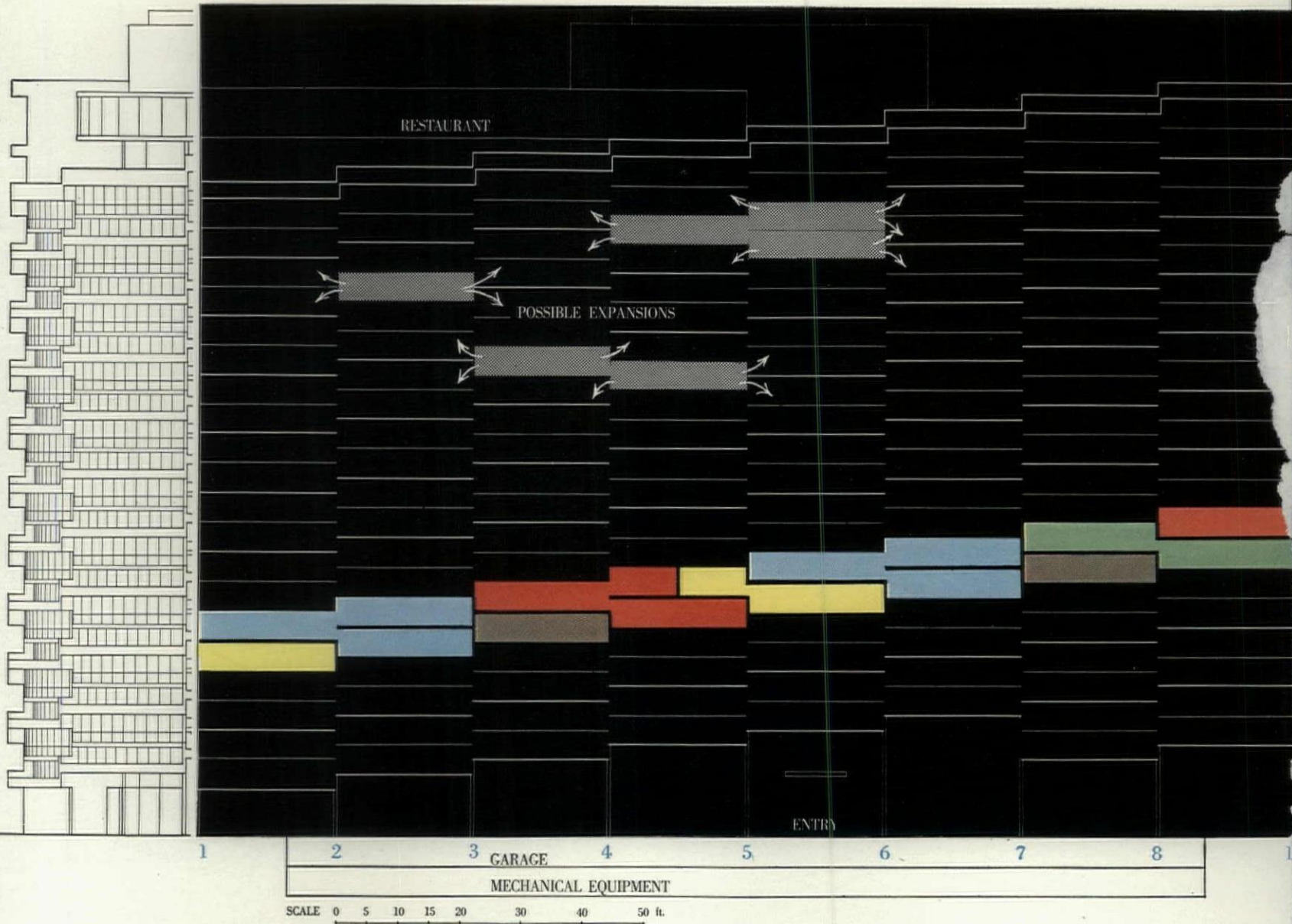
The plan is predicated on air conditioning or forced ventilation. "In fact," Zeckendorf says, "this is the first apartment whose planning started with air conditioning. But because we started with air conditioning, we have an ideal set-up for installing it, and so we have an estimate that our combined heating and air conditioning cost will be only \$2.61 a ft., or about half what it is costing to air condition New York's new office buildings."

The balconies are one of the most carefully worked-out features, for they raised two problems: how to give them privacy and how to keep their overhang from darkening the windows below. These problems were met by putting terraces only on every second pie slice and by letting them project only 4 ft. beyond the outside wall. There is also a 4 ft. overhang over every window, which will serve as an adequate sun-shade on the sunny sides. Incidentally, the balconies are budgeted to add only 10 per cent to the structural cost of the building and only 2½ per cent to the total cost.



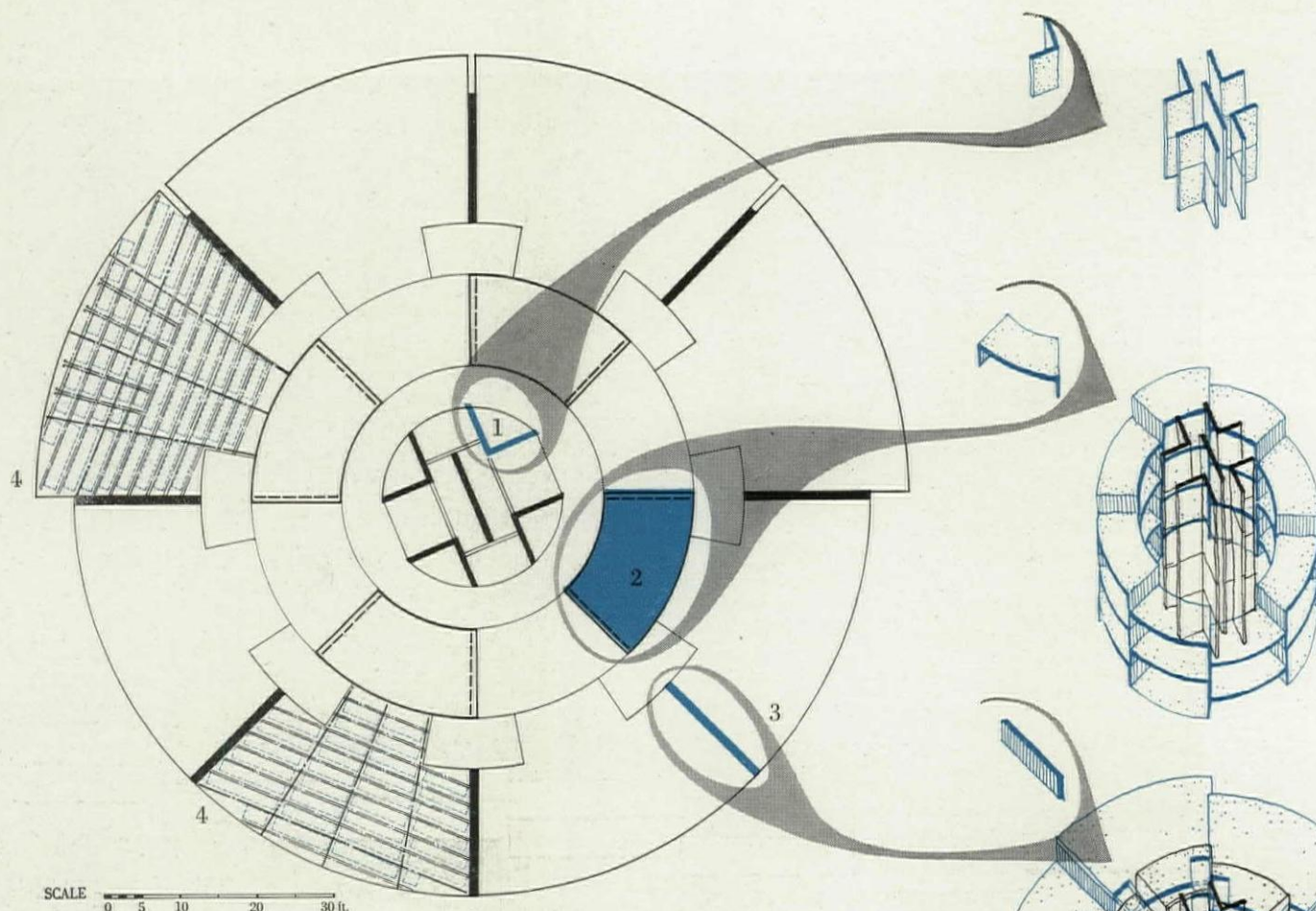






- Single segment apartment
- One-and-a-half segment apartment on two levels
- Two segment apartment on two levels
- Two-and-a-half segment apartment on three levels
- Three segment apartment on three levels





## STRUCTURE combines both precast and poured-in-place reinforced concrete plus some novel assembly methods

FRED N. SEVERUD, Engineer

The structural system evolved for the spiral apartment is such that the building could be entirely executed in precast concrete were it not for some inconvenient building code restrictions on this subject and for the great weight in relation to present capacities of hoisting machinery. For these reasons a certain amount of poured-in-place work—floor slabs and corridor floors—will be necessary.

At ground level there will be eight radiating walls of varying heights supporting the spiral. These will be poured along with the foundation.

The central core consists of vertical slabs (that create the stairs and elevator shafts) surrounded by a concrete ring which can be made with movable forms like those used in silo construction. Always kept a few stories ahead of peripheral construction, the core serves as a hoisting tower to lift the precast service units into place. These are cast as inverted U-shaped wedges each containing openings for mechanical shafts.

Following the building's plan, pouring of each floor slab and placement of each half-story precast bearing wall occurs in spiraling sequence with the completed, adjacent apartment unit serving as a working platform. Tin pan forms will be used for the floors. Corridor floors at the same level will be poured simultaneously. Vertical reinforcing rods in

the wall panels create stirrups for hoisting, serve as dowels to brace the panel above. Stair openings in floors and walls will be blocked where desired by removable panels.

In this project, all major elements of the structure, including the installation of utilities, are subject to such a novel approach that cost comparisons can only be matters of conjecture. However, recent experience shows that precast concrete walls save more than 20 per cent of the cost of conventional construction. And since, in the U.S. saving in man hours is becoming more and more the governing cost consideration, it seems reasonable to assume that the simplicity, standardization and repetition of the spiral apartment makes for a highly efficient and economical construction job.

If an all precast structure were not taboo, the engineers believe it would be entirely practical to cast the complete floor slab of one apartment and half of bearing wall and simply stack them spirally, in an inverted U position. Developing cranes with sufficient hoisting strength should not prove to be an unsurmountable obstacle. The shape of the units makes for easy handling and, because of the circular plan, it would seem feasible either to erect them by crane (which would have a very short reach of the boom minimizing the tipping moment), or by gin poles supported on the central core.

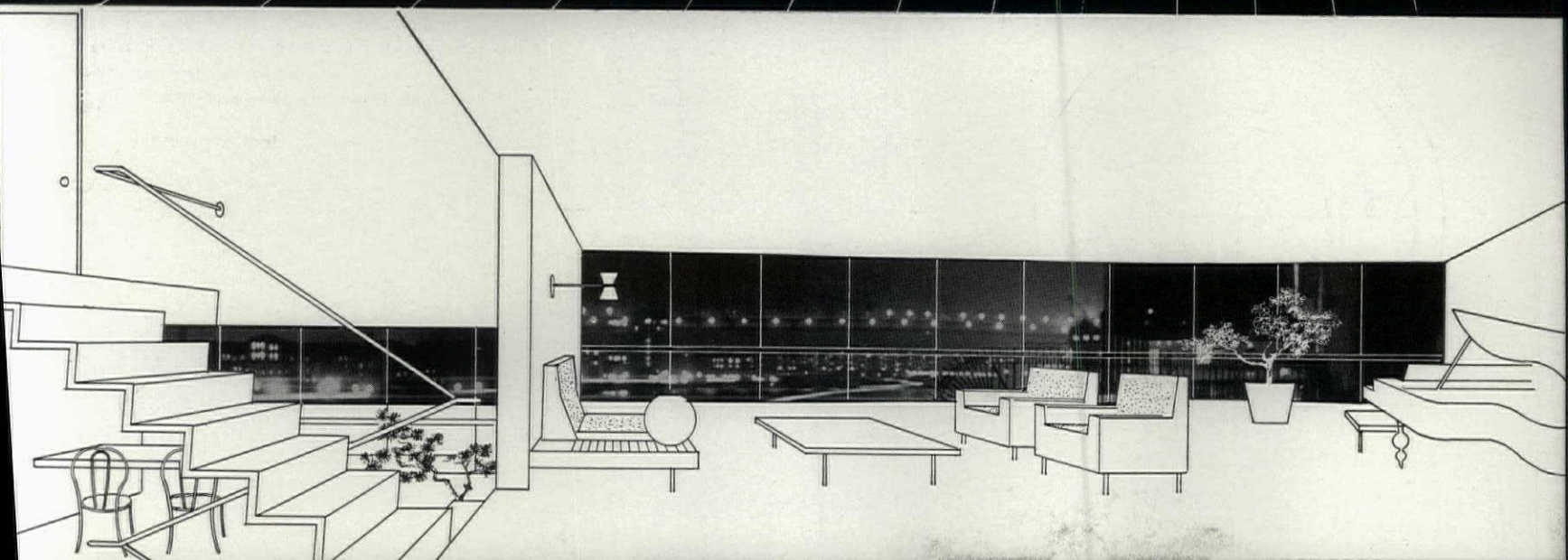
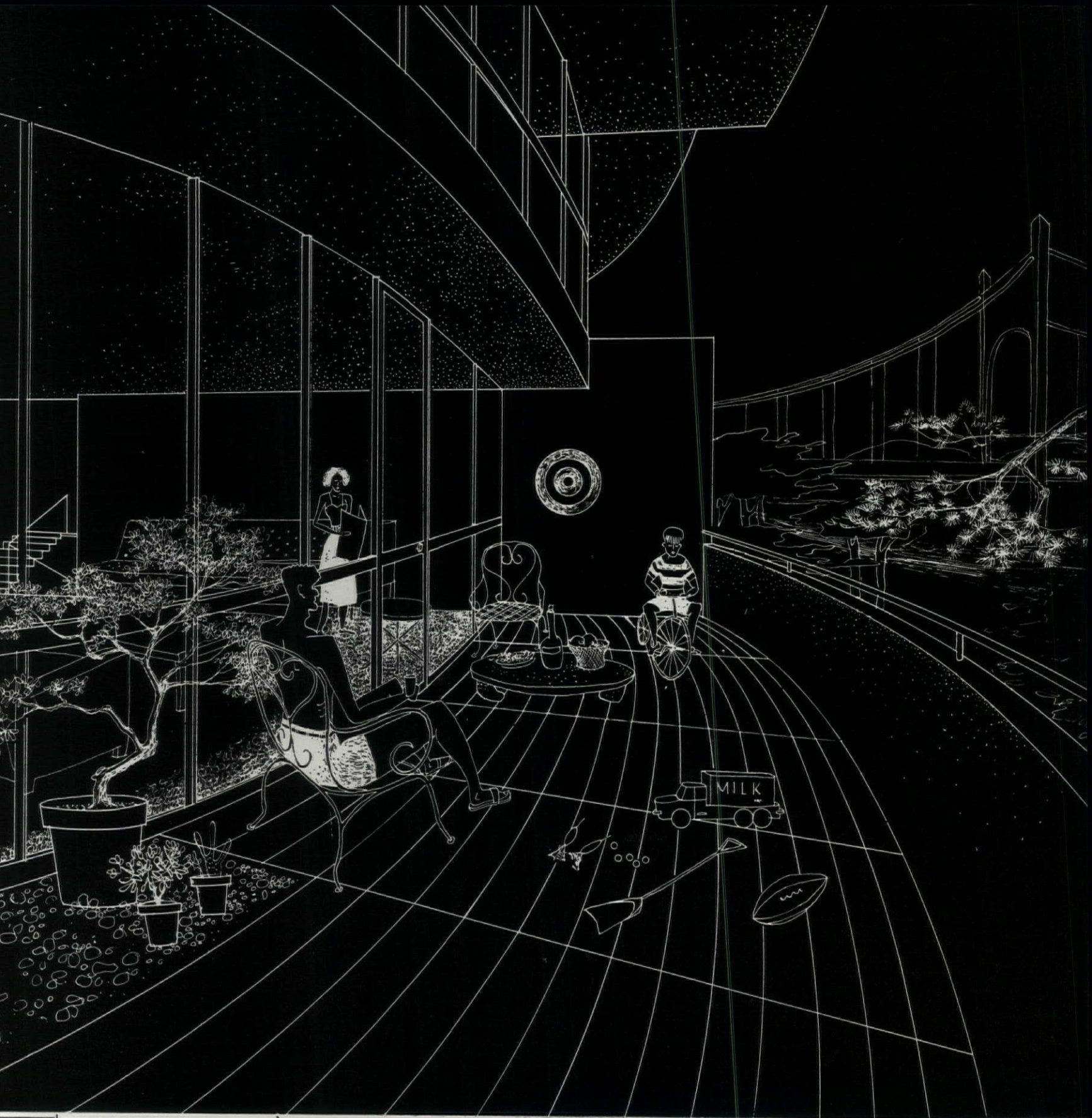
1. Precast vertical sections are stacked to create central mechanical and elevator core.

2. Precast service units of inverted U-shape are only a half-story high but when stacked in spiral pattern create full ceiling heights.

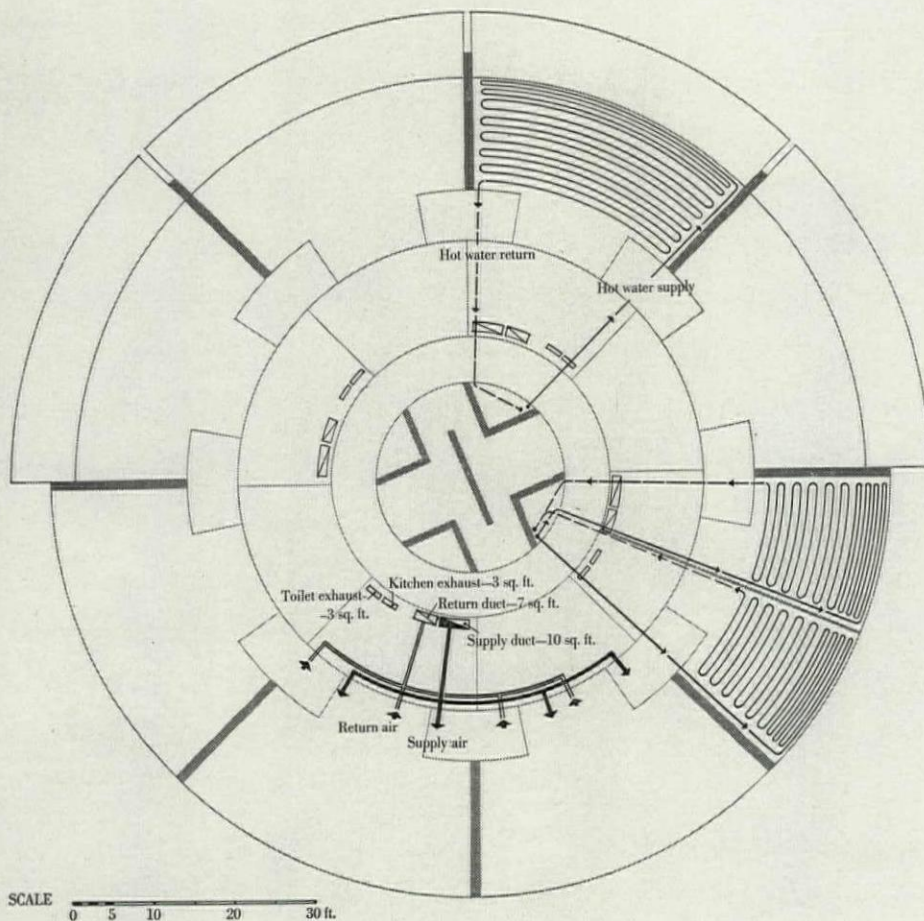
3. Each precast half-story high wall section is put in place to support the floor segment of the adjacent half level.

4. Lightweight reinforced concrete floor segment is poured-in-place. It is of tin pan construction, reinforced with double rows of  $1\frac{1}{4}$  in. rods, as shown in diagram. Concrete has depth of 16 in. at reinforcing ribs, 3 in. over pans.



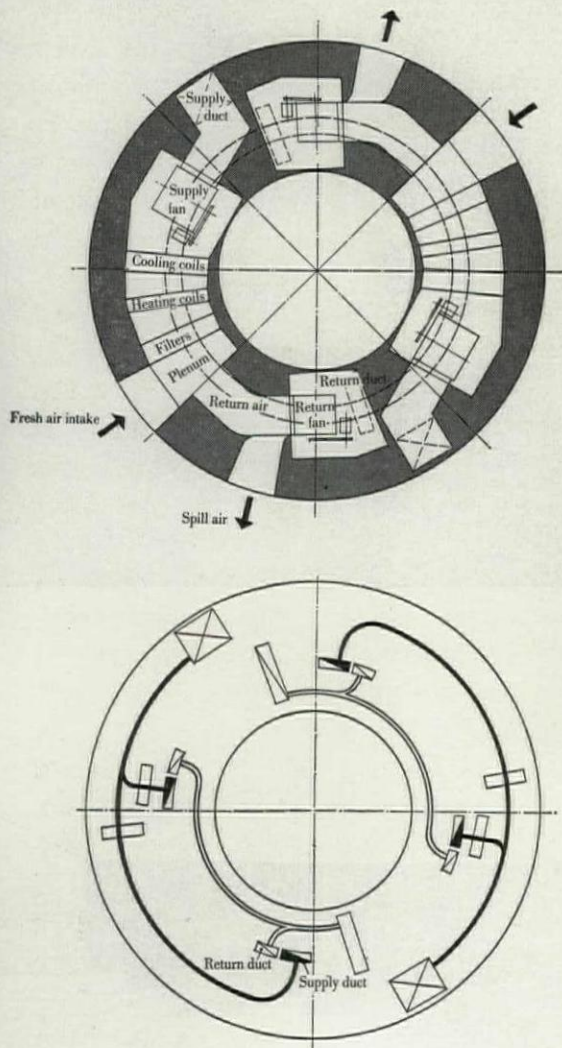






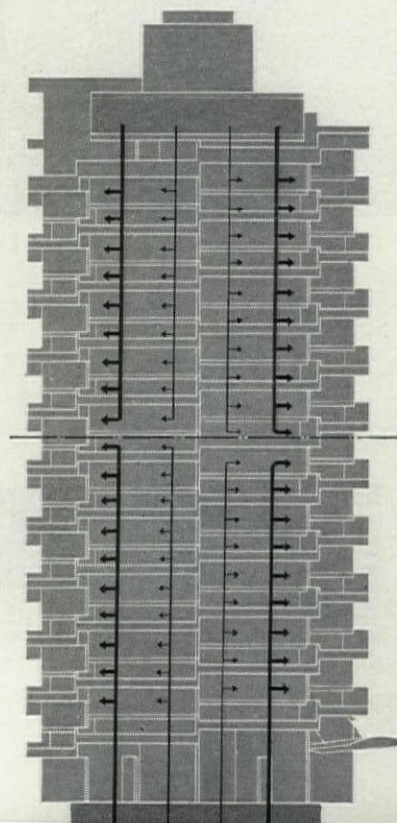
**MECHANICAL INSTALLATION** is ingeniously integrated with shape of building to effect unusual saving

JAROS, BAUM & BOLLES, Consulting Engineers



PLANS of double-decked equipment penthouse at left show air conditioning equipment and horizontal duct system. Duplicate equipment for the lower half of the building is located on one floor in the basement.

SECTION below shows vertical distribution of air (bold arrows) and heat (small arrows) in each vertical half of the building.



The triangular shafts of the central core accommodate the flow and return of chilled water for cooling, steam risers and returns for the air-conditioning equipment, domestic hot and cold water, and electric feeders. Air-conditioning, ventilating and some plumbing stacks are located on the inner ring of the service area.

Due to the central grouping of the utilities, the absence of corridors and the fact that none of the building is more than one room deep from the source of air-conditioning, horizontal runs of piping and duct work are held to an absolute minimum thus achieving a major structural economy. Conventional heating and air-conditioning layouts for new office buildings in the metropolitan area are currently running from about \$4 to \$4.60 per sq. ft., and since offices are more easily and economically handled than apartments the estimated cost of \$2.61 per sq. ft. for this building is nothing short of sensational.

The air-conditioning system will include cool and tempered ventilation from the same source. Emanating from the periphery of the service ring, warm air is directed toward the outer wall where heat loss is greatest. Manually operated louvers at the mouth of the supply ducts permit individual regulation for each unit.

For maximum efficiency the building was divided in half horizontally, the upper portion served by air-conditioning equipment on the roof, the lower by similar equipment in the basement.

Radiant heating is located in the ceiling to gain extra sensitivity and eliminates any possible loss of efficiency due to carpeting. As shown on the diagram, in the few apartments that include a half-unit, twin coils are planned.

While the mechanical performance of the structure has been ingeniously worked out, the shape of the building itself is highly important both to comfort and economy. Because the circumference of a circle is the shortest length enclosing a given area, minimum heat loss is achieved on the peripheral wall. Furthermore, rooms laid out on an arc undergo a very gradual reaction to the sun's movement whereas on right angle buildings, thermal variations are much more abrupt and radical. This allows the thermostatic zoning of the spiral building to be kept to four sections, north, east, south and west, controlled by only four shielded thermostats on the roof. (Conventional buildings often require two or three thermostats to an apartment and as many air-conditioning outlets.) Where one of the spiral apartments spans two quadrants of the circle, it is served by two of the roof thermostats. Finally, a high degree of standardization has made the whole heating and ventilating job simpler by making the use of double insulating glass economically feasible.



# APARTMENT BOOM floated on public risk and private profit.

FHA's 608 program has stimulated the volume of rental housing but watered its finance and stifled its design

*Not since the tinsel days of S. W. Straus & Co. bond financing has the U. S. seen anything like its present apartment boom. On Long Island meadows, where only yesterday big estate holders Alfred P. Sloan and Harry F. Sinclair had nothing more than an occasional golfer to obstruct their view, enough garden apartments have sprung up to swing election districts which had been Republican for decades. In Miami, owners of new apartment buildings slashed rents 10 per cent, still could not fill them up. In Chicago, where a complete new rental city of 11,000 inhabitants had appeared 27 miles from the Loop and tycoons by the dozen were becoming part owners of apartment buildings, to rent advertising lineage was up 100 per cent over a year ago. Some 30 per cent of last year's record housebuilding starts were in apartment buildings.*

*But the remarkable fact about the Great Apartment Boom is that this time it is being supported, not by the optimistic financing of some contemporary S. W. Straus, but by the U. S. government. Last year, by conservative estimate, 70 per cent of the apartment buildings started were covered by FHA mortgage insurance, under which for 1/2 of 1 per cent a year the government assumes 100 per cent of the risk. This means that if too many vacancies appear and mortgage payments cannot be made, the U. S. government may become the owner of up to \$2.4 billion worth of apartment buildings. But nobody else involved in the deal will lose a cent. In fact, they will all have made money.*

*The apartment buildings are all being financed under FHA's famous section 608 which guarantees up to 90 per cent of their hypothetical cost or value. This miraculous piece of legislation makes it possible for almost anybody of moderate acumen to become an apartment owner without spending a cent of his own money. The money comes from some eager lender who, even at the worst, cannot fail to make a little profit. In the event of mortgage default, he can simply hand the property over to the government and take back federal debentures, now somewhat above par. Even if he just becomes restive, or sees a chance to put his money to work at 1/2 per cent more, he can sell the loan to another helpful federal agency, the Federal National Mortgage Association, which already owns about \$28 million worth of 608 loans. This combination of public risk and private profit is perhaps the only way an apartment building boom could have got started under rent control, which suspends the normal action of supply and demand on all postwar housing. It has, in fact, put up so many apartments that in most cities the*

*housing shortage is now more a matter of politics and rent control than a matter of less housing units per thousand population than was considered normal before the war.*

**H**UNDREDS of builders all over the East have found that the surest way to tap the 608-bonanza is to consult a local specialist in the idiosyncrasies of FHA apartment building. More often than not this specialist is an architect. One such specialist, who will be referred to as John Smith, thinks that the surest way for a 608-builder to go bankrupt is to hire what the FORUM might call a good modern architect. Mr. Smith is quite possibly right. But this should dismay more than modern architects; it points to the very heart of what is the matter with today's government-backed apartment boom.

Under the 608 set-up, most builders are interested only in a quick profit. They naturally find that they can add nothing to this by making their buildings any better than they have to. The real way to make a profit is to figure out ways and means of making the actual cost of the building less than the amount of the mortgage loan approved by FHA. And just about the easiest way to start this process is to pay the architect only 1 1/2 per cent instead of the 5 per cent fee which FHA allows in its estimate of building costs. By this one simple step, the builder adds more than two-thirds to the 5 per cent profit that FHA expects him to make. Smith can quickly point out to him a great many more ways to the same end.

So far Architect Smith has had his finger roughly on \$66 million worth of 608 building, and a good guess would be that his earnings have been over \$1 million. As for 1950, Smith is not particularly worried about the impending March 1 demise of Sec. 608 which has been so kind to him. He is sure that Congress will share his own opinion that a shut-down on 608 building would precipitate a major depression. "This title alone," he says, "is keeping three million men employed in construction and an additional three million in the materials industry."

Nor is Smith particularly disturbed by the fact that 608 apartments are now being freely offered for sale in the New market on a 33 per cent return basis—i.e., if the new buyer is able to keep them rented at the FHA rent schedules, he will make 33 per cent a year on his investment. This profit rate is some indication of what the smart guys who are selling out think the buyer's chances are.

Smith simply thinks the sellers are very wrong. He is convinced that more inflation is on the way—"we have to pay



off the national debt in cheap money"—and that "these 608 buildings will be cheap compared to what we can buy later."

Some more detached observers of the present housing situation share Smith's point of view. They say that it is the manifest purpose of the government to provide housing. Some of this housing is being provided by direct government action under the public housing law passed last summer. The balance is being provided by government guarantee under this or that FHA Title or under the VA program. The public housing to be rented for \$35 an apartment to poor people will cost (in high-cost areas) about \$10,000 per unit, not counting land. The FHA apartments to house middle-class families at \$20-25 a room will cost about \$2,000 less, and, if government overhead were included in the public housing costs, FHA apartments would be even bigger bargains by comparison.

These philosophic viewers hold that, even if the government eventually has to swallow the cost of all the FHA apartments put up since the war, the cost will be much less than the cost of public housing. And by harnessing the most acquisitive aspects of private enterprise to FHA housing, the government has already gotten more new apartments started under FHA in the past three years than it is likely to provide in the next two or three under public housing and at about four-fifths the cost. Under the circumstances, perhaps it is unkind to look a gift horse in the mouth and wish that the standards set for the FHA housing had been better.

### Rent control dilemma

In any event, Smith is an intelligent man and a competent architect, and an excellent specimen of an indispensable element in our society: the man who gets things done. Unlike many other diggers in the FHA gold mine, he is no apologist. "Sure we're gambling with the government's money," he says cheerfully. "Any man who would gamble with his own money under rent control would be a fool." It is hard to argue with this point of view. In a way, the FHA formula is an attempt to compromise with the basic economic dilemma of rental building today: the fact that new rental building at \$2,000 a room must compete with rent-controlled buildings built ten years ago for \$800 a room—and still pretty good housing.

For many years, Smith has specialized in designing the type of apartments favored by FHA and is widely acquainted with its staff. He has the whole encyclopedia of rental housing regulations written in the back of his head. He knows how to meet 608 minimums without spending an extra dollar, and he also knows just what kind of plans will get the quickest processing.

Smith's intimate 608 know-how has put a lot of men in business. "Give me any smart business man," he says, "and I can make him an apartment builder in three weeks." Candidates show up in his office by the hundreds. He tells them how much they can afford to pay for land, exactly what to build, what rent schedule to set up, where to go for mortgage financ-

ing. He attends to all the FHA processing. The builder is on his own for materials buying and for construction (if he lacks experience, he simply hires a good building superintendent).

One of the ways in which Smith is a great boon to a 608-builder is his precise knowledge of current construction costs. He gets this by the direct route of being a 608-sponsor himself. This year he is building (as well as designing) \$10 million worth of 608 jobs, and says he will build \$25 million more next year. His building firm is an interesting one: participants in the sponsorship are the plastering contractor, floor layer, carpenter and Smith.

Smith's architectural work has not appeared in the FORUM. This is no reflection on his ability, but rather an indication of his own frankly expressed prejudice against contemporary design. "No matter what kind of project these modern designers attempt," he says, "it always turns out to look just like a gas station."

While Smith's own planning principles would sound elementary to a qualified "modern" architect, they are probably in advance of the great body of 608 apartment planning. In spite of the huge volume of work in his office ("We turn out plans in three weeks."), he does all preliminary sketches himself. He makes an effort to relate siting to contour, to obtain enough interior wall space to take furniture, to provide ample closet space, some ventilation in bedrooms, etc. His claim to distinction is the really brilliant way he can execute these minimum requirements of apartment planning within a very rigid cost limit—a limit set by the sponsor's intention of realizing a maximum cash take out of the deal. Here is a rough idea of the builder's possible cash take:

- ▶ He may save up to 3½ per cent of the 5 per cent architectural fee allowed by FHA.
- ▶ He may get a 3 per cent premium from the mortgagee. (In New York, the premium has ranged as high as 4 per cent. Over the country as a whole, a 1½ per cent premium is commonplace, and, with the advent of New York and Massachusetts savings bank money in the national market last summer, competition for 608 loans became even keener.)
- ▶ He may build faster than FHA's allowable schedule of 12-18 months. (Some builders finish in five to six months, not only making a tremendous saving in labor but realizing six extra months of rent.)
- ▶ Most importantly he tries to turn an honest penny by cutting construction costs below the estimates made by FHA in setting loan value. (Savings up to 8 per cent on subcontracting and materials shopping are possible. Moreover, since up to 18 months may elapse between FHA processing of the application and building completion, the builder will profit from any general drop in construction costs—like the 10 per cent drop over the last year.)

"Why shouldn't the more efficient builder make a greater profit?" ask many defenders of the FHA status quo. So far this has sounded fine to Congress, as it does to any casual observer. But in this case the profit isn't the customary per-



centage taken by enterprisers for their own management time or their own risk capital—but, through all these devices, up to 12 per cent cash actually taken out of a long-term mortgage loan backed up by the taxpayer's credit. It is in addition to the 5 per cent builder's fee which FHA allows in making its estimates of allowable construction costs.

Even if the builder isn't smart enough to make money by undercutting the building costs allowed by his FHA loan contract, two more ways to a quick cash profit are still open to him. These are by inflating the value of his land and by eventual sale of his inflated or fictitious equity after the job is built (although few buyers have as yet appeared in the market).

FHA allows current market value, not actual purchase price of land in valuing 608 projects, but limits the amount that land may count in the deal to 10 per cent. In cases where the builder has made a favorable land buy, he may profit accordingly. But even surer ways of making money out of land are available. Mere FHA approval of a 608 plan will jack up land value overnight. There is considerable speculation in FHA commitments and several heads of FHA district offices have admitted it, while arguing that they have no power to prevent sale of commitments. Speculation in FHA commitments works like this: A speculator buys a piece of land, then secures FHA approval of a plan designed (more or less) for the site. The FHA stamp of approval enables him to sell the deal at five or six times what he paid for the land.

### Land deals

Another way the builder can realize immediate cash profits out of land after loan commitment is to sell it and then build on a leasehold. There are plenty of prudent investors ready to hand the builder this extra cash profit by buying land at many times its precommittal value. From the land buyer's point of view, it is a sterling investment. Both federal mortgage insurance and the value of the building itself stand between any default on the lease—and if the development is burdened by lease payments based on a precarious inflation of land value, nobody can lose but the government.

Whether these fascinating pieces of financial legerdemain are the legitimate rewards of ingenuity may, perhaps, be argued. But their net effect is scarcely debatable: to reduce the long-term value of the rental buildings covered by the taxpayers' guarantee.

Because the whole 608 program is insulated from the normal forces of a competitive market by government insurance, neither the builder nor the lender need have the slightest concern with whether the apartments being put up so fast today will be vacant tomorrow. Just what this means to building quality can be seen by contrasting 608 sharpshooting with the program of a legitimate equity investor in rental housing like the New York Life Insurance Co. New York Life's chief concern is to build as much long-term "livability" value in its developments as it possibly can under

current construction costs. This—and this alone—can be expected to hold tenants and rent levels as the years go by.

Just how thin a 608-equity can get is demonstrated by cases where commitments have been issued to so-called "owning corporations" who lack even the resources to post the required FHA examination fee (0.3 per cent). The "owning corporation" then peddles the commitment to a builder on this basis: the builder posts the necessary cash, takes over the mortgage fund, builds the building, pockets the difference between the loan and the cost, and turns the completed property back to the promoting group, which sometimes also shares in the builder's profits.

### Continuous inflation

Those who feel that the day of the Great Default will not be forever delayed by the current shortage of rental space point out that the 608 formula demands a continuous inflation. Future earnings for many a 608 project are calculated on the basis of 1) inflated rents; 2) an inflated mortgage; 3) reduced construction standards. This inflation of equity rests upon the assumption that every item of cost and income will remain constant for the life of the project—that is, sustained high building costs, constant operating costs, 7 per cent vacancy (10 per cent used to be considered "normal" by apartment operators in the immediate prewar years). Even where 608 equities are real rather than fictitious they amount, of course, to 10 per cent as compared with the 30 per cent equity customary in the conventionally financed apartment house.

If there is no reason for the "equity" owner to try to hold onto it in bad times, what about the loan stake in 608 projects? Or, in other words, what may the government eventually get for its money? FHA-insured loans typically amount to eight to eight and a half times the gross rent role at high rents. This compares with the customary appraisal of existing first-class properties at six to seven times the rent role at federally controlled rents. It should be noted that this is a comparison of *loan value* on a 608 and *market value* on what many investors now call a "legitimate house."

Inflation may very well continue to rescue 608 projects by making up for whatever may be missing in equity and loan values. But any reverse of this process is likely to be disastrous. The whole FHA risk-bearing formula, which has flourished in a period of rising real estate values, has yet to meet the decisive test of a serious value decline. Cynics point out that a special HOLC for apartment buildings will not, however, be necessary, since the mechanism for mortgage collapse is already set up: the Federal National Mortgage Association, now buying whatever 608 loans lenders want to sell and even stepping in as direct lenders where private lenders will not venture.

The two most vulnerable points in FHA's rental stake are the large number of high-rent (\$95 to \$130 a month) apartments and the high proportion of "efficiency" units which it has permitted to get a start. FHA has made belated attempts

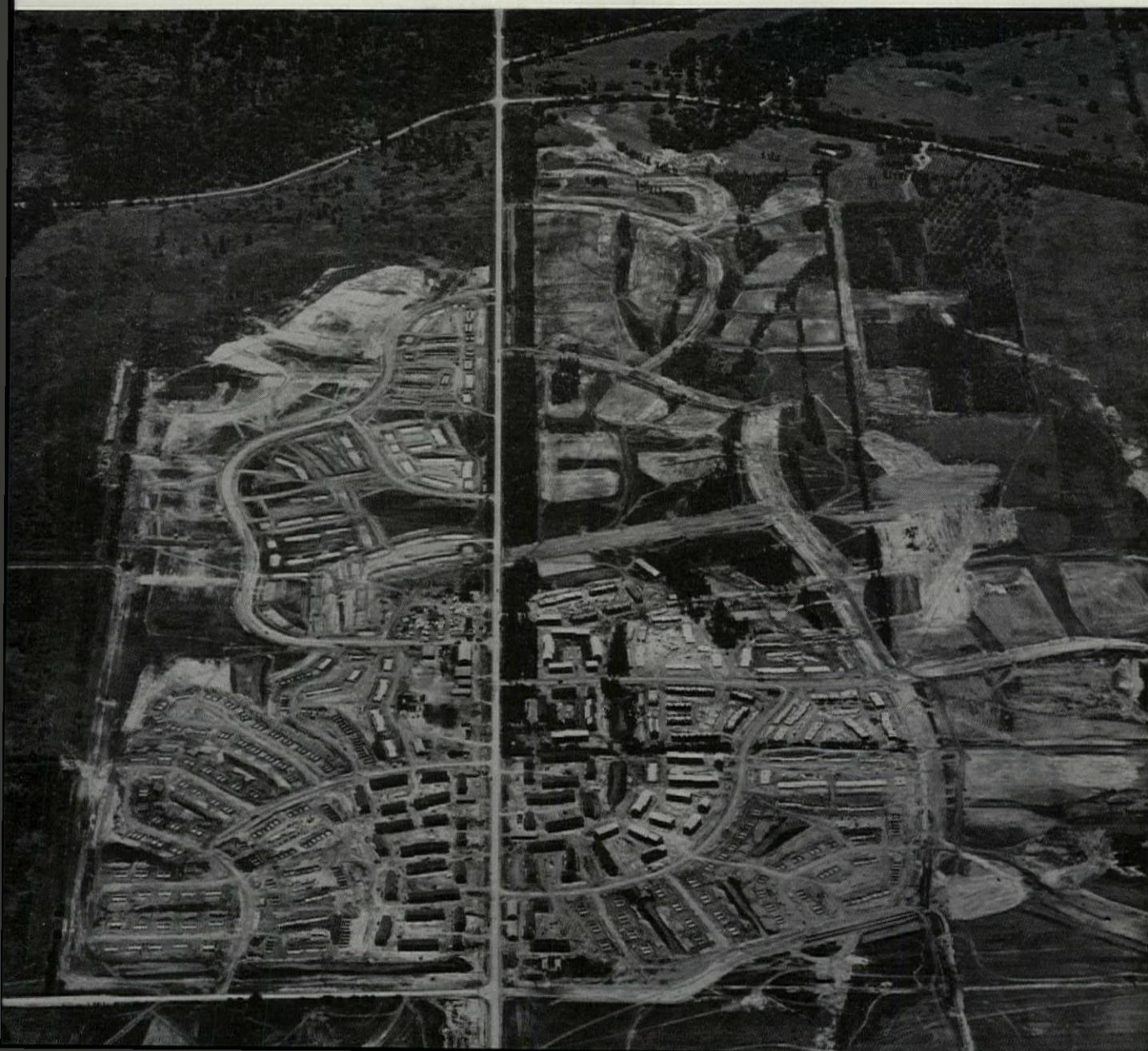


to stop both high-rent and "efficiency" building. By now, practically all local insuring offices have cut their rent ceilings from 10 to 20 per cent (ceilings vary according to building location). Typical current rent ceilings on a 2-bedroom apartment are: Washington, \$65 (the local office is so convinced that the area is overbuilt that it is actually processing nothing but applications for Negro housing); Los Angeles, \$80; Detroit, \$75; Atlanta, \$65. Last summer the New York FHA office found a rental lag as high as four months in buildings in outlying sections and stopped processing rents higher than \$110 for a 2-bedroom apartment. By October, this ceiling was discovered to be still too high and rents were again cut (to \$88 for the comparable 2-bedroom apartment). But these belated rent cuts will make little difference in the rent levels of 608 projects built throughout 1950, because commitments run so far ahead of actual building. For example, when New York set a November 1 deadline for its most recent rent crackdown, it already had applications on file for 3,100 units, all of which will have to be processed at the old ceiling of about \$25 per room.

The big 608 building boom was set off in 1948 when FHA made an important shift in its formula for computing loan limits. Previously the loan limit had been \$1,800 per room and builders had argued that it simply was not possible to

meet FHA minimum requirements at that price. When FHA changed the loan limit to \$8,100 per apartment unit, applications zoomed. The shift meant that the builder could stretch the loan limit by putting in plenty of 1½-room or 2-room "efficiency" units. This started the building of elevator apartments in high-priced locations. In the first 11 months of 1947 only 2.6 per cent of 608 applications had covered elevator apartments; by 1949, elevator apartments accounted for 24 per cent. Examination of commitments issued during the first six months of 1949 shows that roughly half of them were for units of 3½-rooms or less (a 3½-room count: living room, bedroom, kitchen, dining alcove)—a size inadequate for a family with even one child. By last November, most local FHA offices had stopped accepting plans including anything less than one-bedroom units and were refusing to pass any large number of these.

When FHA began to plug the 608 rental program late in 1946, it hoped to meet the accumulated shortage of rental housing and give veterans some alternative to buying a house in a peak cost period. FHA said it was especially eager to increase rental supply in smaller communities and offered quicker processing for small projects. How far these latter aims were met can be gauged by the fact that roughly half of all 608 commitments so far issued are clustered in the



ONE GIANT EXCEPTION to the general mediocrity of 608 work is Park Forest, a complete new city of 11,000 population built 21 miles from Chicago's loop—39 minutes by electric train. Planned by Chicago architects Loebl, Schlossman and Bennett, this development is located on 2,400 acres of rolling, wooded farmland. Its handsome 5- and 6-room duplexes cover only 11 per cent of the building site (110 families per acre). The development is owned by American Community Builders, Inc., a firm organized by Philip Klutznick, Nathan Manilow and Jerrold Loebl. Park Forest was started in 1947 under the old \$1,800 per room 608 loan limit. But very little other 608 building got underway in the Chicago area until FHA adopted its \$8,100 per apartment unit loan limit. Currently dozens of tall elevator apartments are under construction within the city limits and builders have not yet felt the chill of lagging rentals which has blighted the Eastern garden-apartment belt.



environs of the cities of New York, Washington and Baltimore. At the end of 1948, over 56 per cent of dwelling units were in projects of 100 units or more (16 per cent of these were in projects of 300 units or more).

Of all the parties involved in a 608 deal, the FHA is the only one with a real financial stake in the long-term value of the properties. FHA's principal mechanism for getting long-term value is a document called "Minimum Property Requirements for Multi-Family Dwellings" and the countless decisions made by hundreds of over-worked, underpaid FHA employees in relating the blueprints before them to the standards set by this bible and to the unpredictable future of the rental market. Neither the minimum standards themselves nor the design philosophy which sets them are adequate protection for the unparalleled risk involved in this \$2 billion worth of government-backed loans.

One trouble with officially set minimum standards of any sort is that they tend to become maximums. Many architects say that the average FHA official is more enthusiastic than the builder himself in holding plans to the required minimums. One architect recalls that he persuaded the sponsor to adopt larger room sizes and other amenities not required by FHA in the interest of long-term rentability, only to have the sponsor told by the FHA examiner: "You're crazy to build anything this big!"

Many architects argue that FHA minimum standards are already substandard. Its minimum 150 sq. ft. living room is 10 sq. ft. less than the minimum living room acceptable to the New York City Housing Authority for a family of four. Its master bedroom minimum of 100 sq. ft. compares with a master bedroom of 125 sq. ft. in New York public housing. Useful size of the living room is generally further reduced by the fact that it is used as a passage to reach other rooms. FHA uses the interesting phrase "semi-privacy" to lend special approval to those plans where this passage is accomplished at one end of the living room rather than diagonally across it. Corner ventilation (two windows at right angles as distinguished from through ventilation) is a minimum requirement for all bedrooms, but even this is usually waived in the case of small apartments.

### **Agreement not to compete**

There is no way of knowing how many other exceptions have been made to the already low 608 minimums. In each local insurance office, the chief underwriter has the right to waive minimum standards if local need for housing is severe.

Although they are certainly not intended to do so, FHA minimums actually serve as a general agreement to restrain competition. Because the buildings are protected from the normal hazards of future rentability by government insurance, nobody needs to build any bigger rooms than anybody else.

One member of the New York Chapter A. I. A. housing committee which has just begun an investigation of 608 design standards says: "Minimum standards on mechanical work are not being adequately met. FHA requires that me-

chanical work be designed by a registered engineer, but builders who don't want to pay an engineer's fee frequently turn to engineers employed as salesmen by equipment manufacturers. With the minimum examination of mechanical work permitted by FHA, this subterfuge often succeeds. These men can't give much time to each individual job; they often are obliged to use rule-of-the-thumb methods. We were once able to reduce the cost of a mechanical installation by one-half over the plans presented by the manufacturer who designed the job."

This same architect, a member of one of the few top-rank architectural firms which have had a chance to do 608-work, also recalls that on one big recent job, the mechanical subcontractor called up to inquire if the plans would show the size of the boilers, size of piping, where the valves were going, etc. He was unaccustomed to getting such detailed plans on 608 work and said that he was obliged to increase his bid where he had to supply mechanical information.

### **Impregnable conservatism**

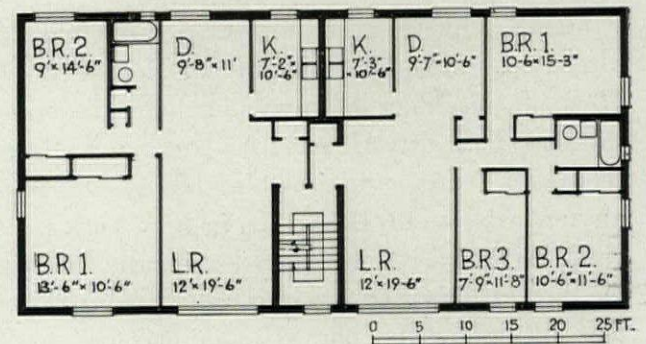
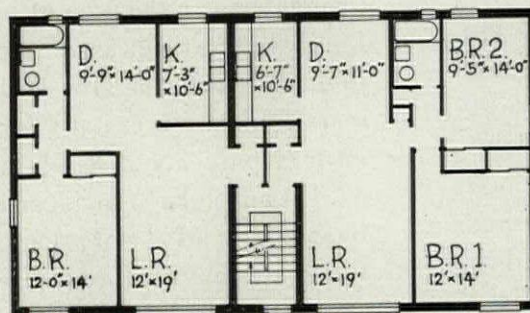
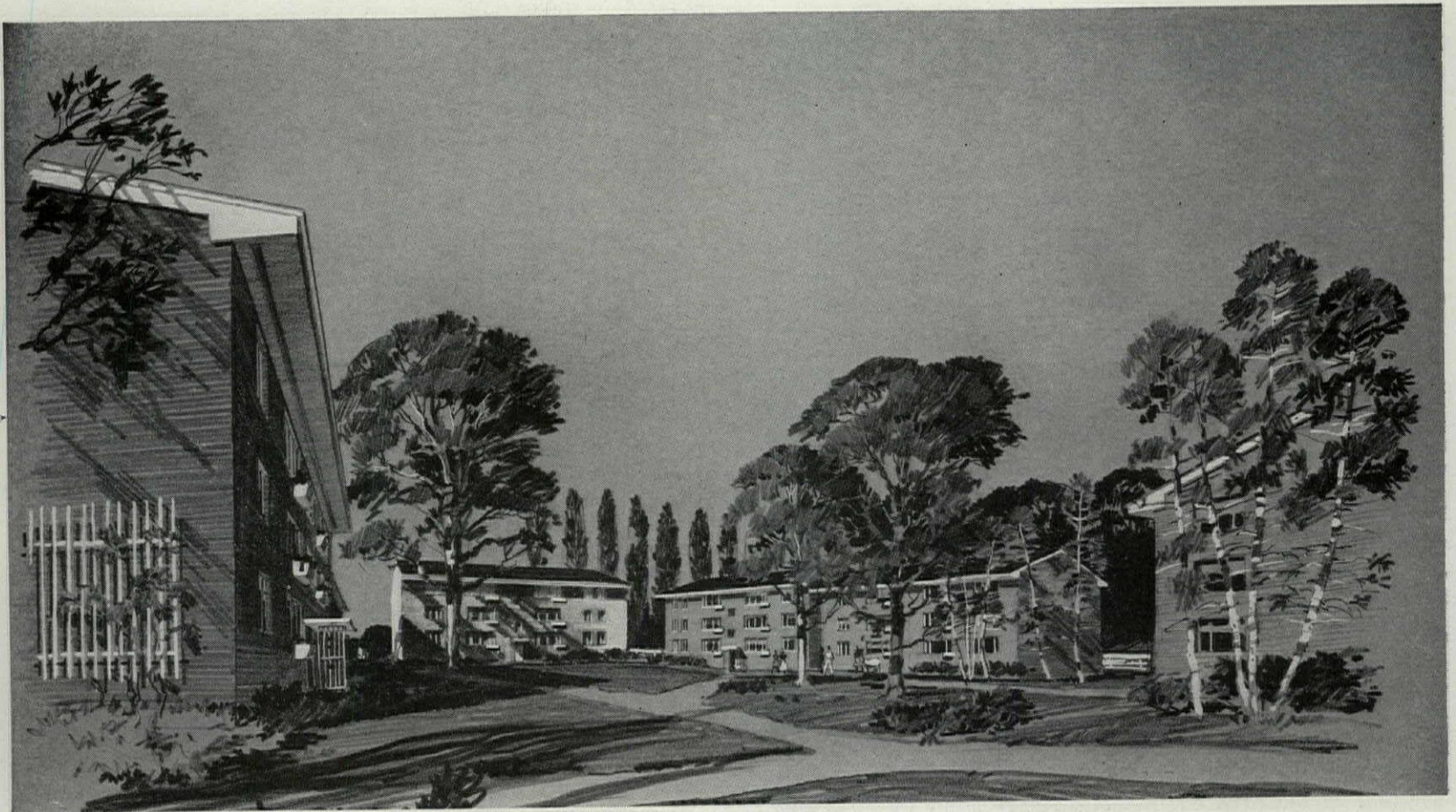
It was not always so. When FHA appeared in the housebuilding business in the depressed year of 1934, its planning and construction standards were actually regarded as a great light in a wilderness at the mercy of jerry-builders and fly-by-nighters. In the area of the moderate and low cost single-family house, this was, during FHA's early years, pretty close to the facts. In the area of rental housing, FHA's effect was more limited since, until the advent of 608 in 1942, it had insured only about \$144 million worth of loans covering 37,964 units. Even so, it can be credited with popularizing the livable 2- and 3-story garden apartment, a building type which appeared before the depression and held its rent levels remarkably well in the real estate disaster which followed.

But as the agency and its standards aged, its initial crusading fervor was buried under an impregnable conservatism. Meanwhile, the housebuilding industry itself, as a result of war expansion and of an accumulated technological advance, finally passed across the threshold of the industrial revolution. As FHA acquired a large interest in existing residential real estate values, it became increasingly fearful of any threat to those values—either through the introduction of new construction techniques or new planning principles. Moreover, FHA's specialty was the single-family house, and its standards for the apartment building were in many cases simply adapted from standards considered adequate for the detached dwelling. When the 608 rental program suddenly boomed to enormous proportions in 1948, FHA was dealing with a building type with which it had had little previous experience and to which its whole point of view was maladapted.

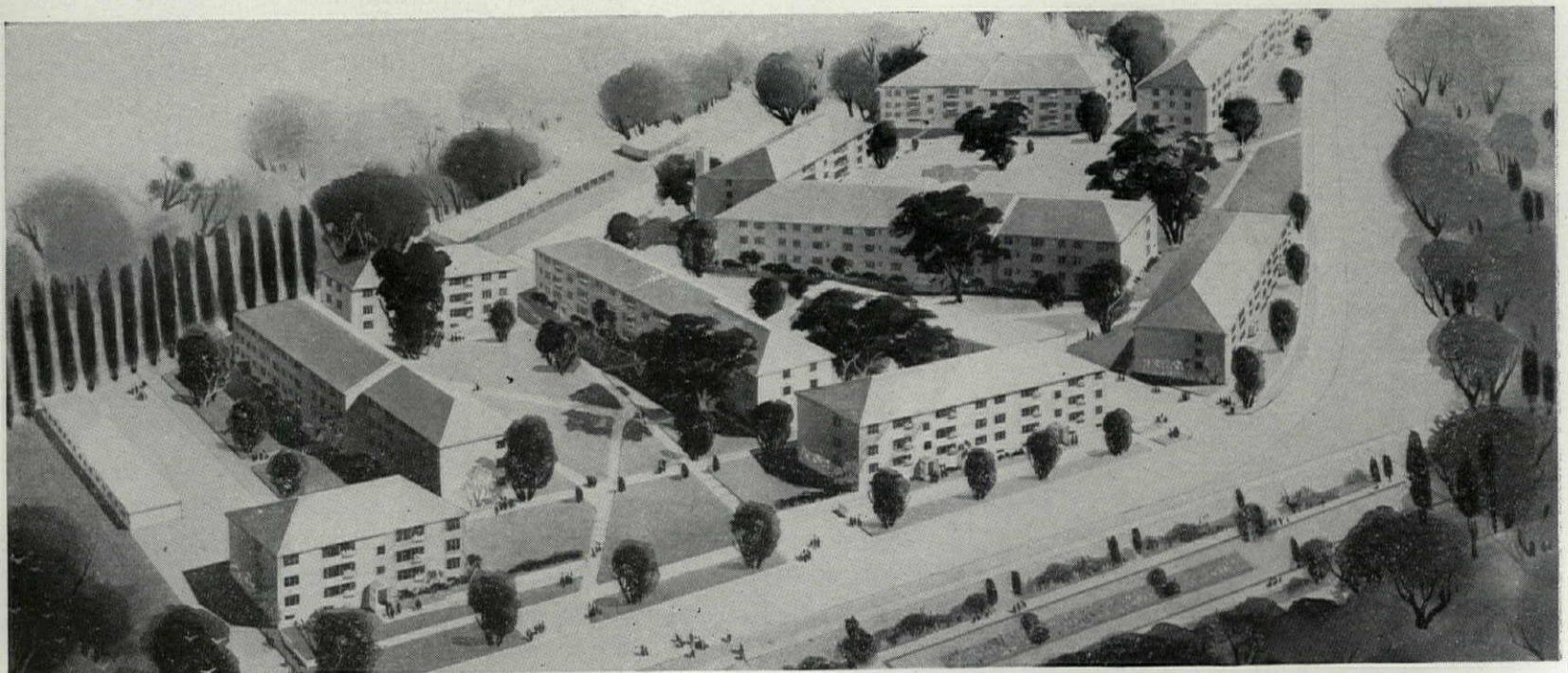
One of the most fascinating aspects of FHA's underwriting position in today's rental building is its strange mixture of financial radicalism on the one hand and design conservatism on the other. That is, FHA shows an optimism in going along with nonexistent equities and inflated loans that would make a conservative banker blanche. But it is far

*(Continued on page 104)*

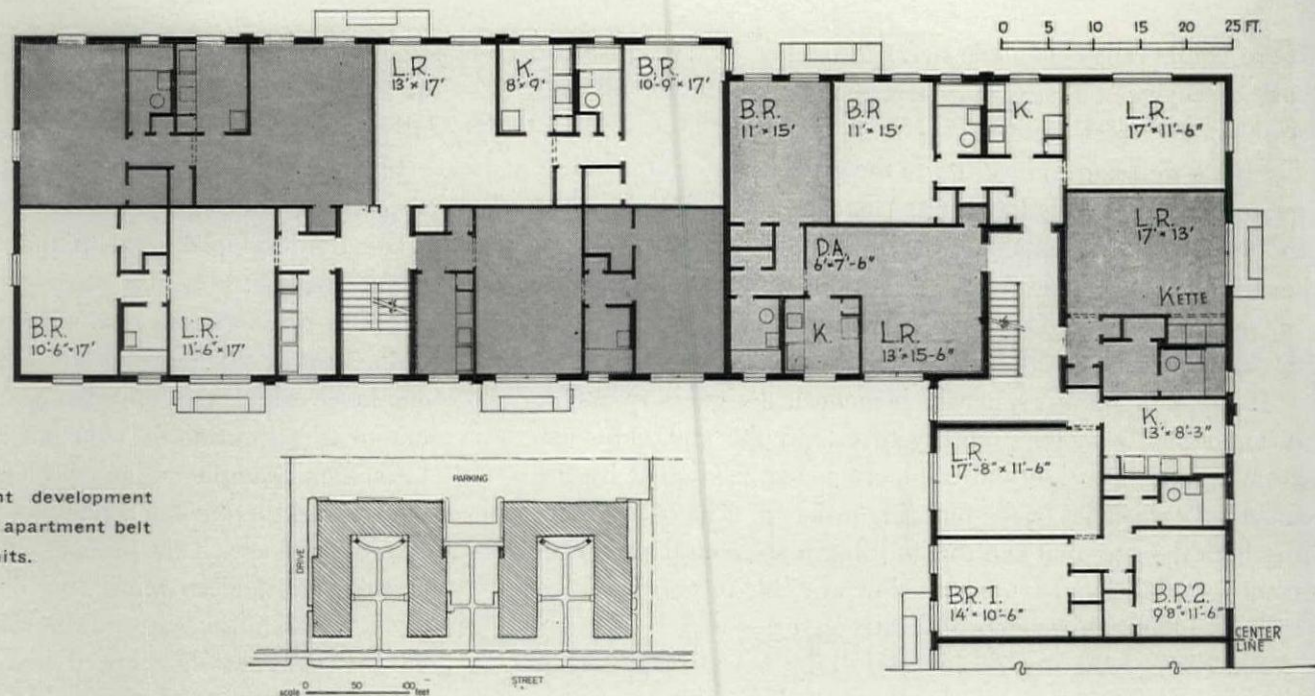




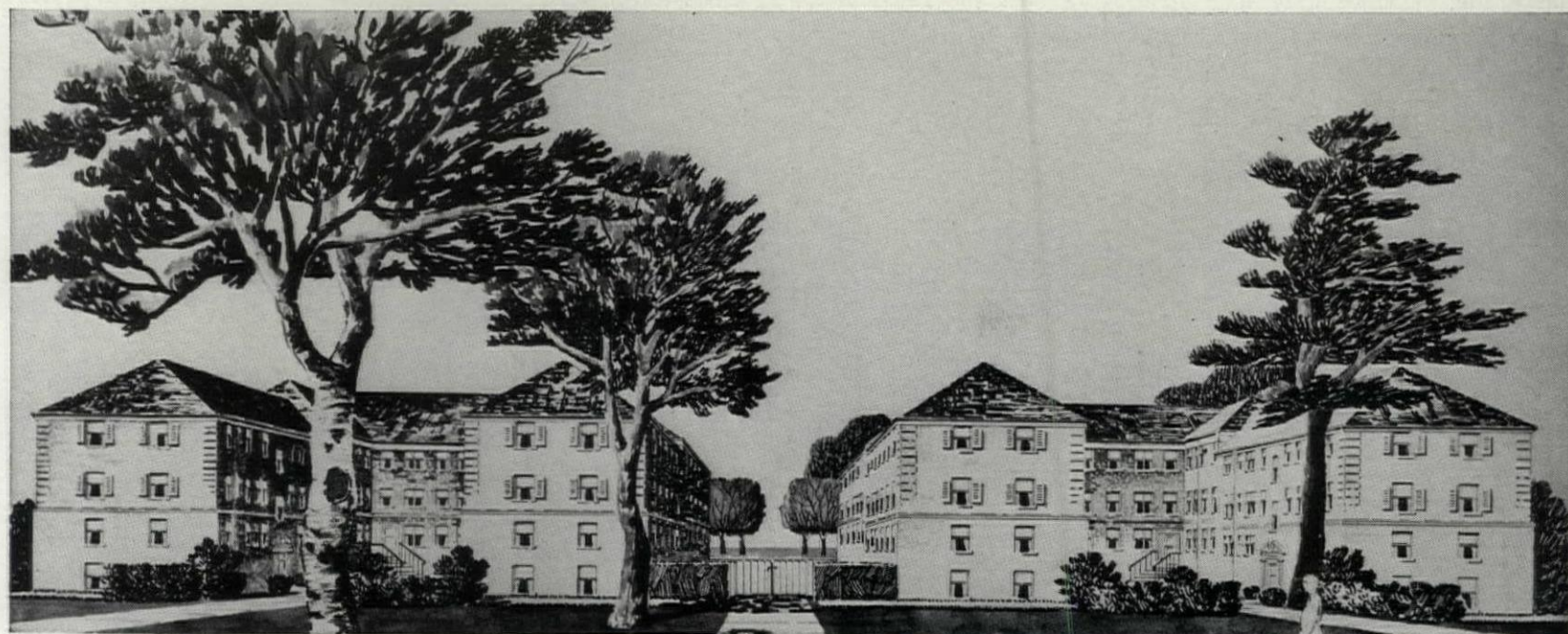
GEORGE NEMENY and A. W. GELLER, Architects  
 BRYAN J. LYNCH and DONALD L. KLINE, Landscape Architects  
 PETER W. BRUDER, Consulting Engineer







Typical FHA-insured apartment development built in booming eastern garden apartment belt shows court plan, "efficiency" units.



## 608-APARTMENTS shrank to "efficiency" plans in 1948

These two plans for 608 apartment developments show the difference between planning for long-range rentability and simply meeting FHA's minimum standards. Centennial Gardens (page opposite) was built in Syracuse, N. Y. "Modern" architects Nemeny & Geller, although working within very sharp cost limits, managed to increase room sizes 25 per cent above FHA minimums and to open their site plan for light, air and vista. The development was built under the old \$1,800 per room loan limit. It has 63 five-room apartments (\$105), 39 four-room apartments (\$85) and 24 six-room apartments (\$127).

A more typical 608 job (above) is now under construction in a town of comparable size and climate. The shift to the \$8,100 per

unit loan limit invited the sponsor to load the project with 30 2-room units (no bedroom, \$60-65) and 45 3½-room units (one bedroom, \$80-97). There are 25 4½-room units (two bedrooms, \$100-107).

Surrounded on three sides by a beautiful city park, the Syracuse development covers only 20 per cent of its site (25.5 families per acre). Over strong opposition from FHA, the architects opened the site plan for maximum view ("FHA insisted right up to the end that the corners of the building be joined," they recall.) Buildings front on 90 ft. courts.

All apartments have through ventilation (half of them have cross ventilation in addition). All apartments have entrance foyers with coat closet. Owner Jackson Potter be-

lieves that plan and location will maintain the present rent levels. "There has not been one tenant turnover," he says, "as compared with a 3 per cent vacancy in five other 608 developments I own."

The development shown above covers 34 per cent of its site (65 families per acre), even has four basement apartments. About half the apartments face a 52 ft. wide court, one-fourth face the rear asphalt-paved garage court.

Over a third of apartments have neither cross ventilation nor through ventilation; another third have cross ventilation only. One-third of apartments lack foyer; most have inadequate dining space. Small double-hung windows with shutters contrast with large picture windows in Syracuse buildings.



more conservative than the average banker in its refusal to take a chance on any new architectural solutions for the problem of rental building.

FHA's well-known hostility to the great body of new building techniques loosely labeled as "modern design" is probably the surest way to expose the already dubious value of its insured projects to severe competition from new rental building in the future. The quickest way to demonstrate this is to examine what many architects call "FHA's court fetish."

If there is one area in which modern designers excel, it is undoubtedly in their ability to extract the maximum use from whatever inside and outdoors space is allotted by the financial exigencies of the building problem. That is, by freeing both the site plan and the building plan from the requirements of traditional symmetry, they are able to provide more space for the requirements of family living.

But FHA seems irrevocably wed to the "court plan." That is, apartment buildings must be twisted around a court—sometimes only 50 ft. wide—even if this means siting against the grade. ("Once they had us moving half the hillside around," one architect says.) Orientation to sun, to prevailing winds, to view—all this is likely to be overlooked in favor of a "pretty" court plan. While the court plan may mean

slightly less total building perimeter, it also means an irregular interior, where the tendency is to squeeze rooms into not fully useable corners.

In defense of the court plan, it must be said that where projects are built on barren flats or close to the building line in heavily developed areas, perhaps the best that can be done is to create a little landscaping and turn the view inside. But architects who have engaged in near mortal combat with FHA on the matter say that the court is required even where all semblance of reason has disappeared—in cases where the contour is rolling and the view magnificent.

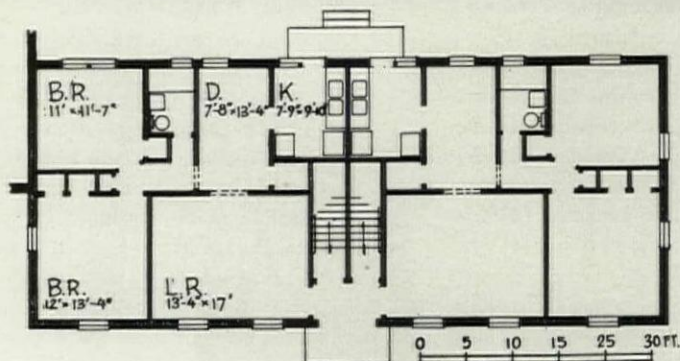
Another example of an obsolete point of view is FHA's requirement that the kitchen must be closed off from the living area by a door. This blanket attitude completely neglects the fact that modern ventilating devices take care of kitchen odors, that families with small children are not likely to shut the door between the kitchen and other living areas, that a cheaper and better solution might be to baffle off the kitchen from view.

Most "modern" architects who have encountered FHA processing agree that the most disheartening aspect of the situation is official insistence on routine planning with which they are familiar and a complete unwillingness to try any-

George Van



REDFIELD VILLAGE, built in Metuchen, New Jersey, is a better-than-average example of the conventional approach to apartment design favored by FHA officials. It was planned by architect Erwin Gerber, Newark (see p. 106). Its 312 apartments are divided into 3½ room units (\$85-\$90) and 4½ room units (\$101-\$105). Room sizes exceed FHA minimums. Pilasters and shutters have been liberally applied in an effort to give more domestic scale to this large building group.





thing new. With both FHA and the sponsor lined up solidly against any departure from exactly what was done yesterday, the architect is helpless. If he wants to keep his 608 clients, he soon learns not to start any arguments with FHA processors. Some local FHA offices actually go so far as to suggest that the architect simply make use of FHA's stock site or building plans, which it is happy to take off the shelf.

Part of FHA's resolute conservatism is no doubt related to what it has time to review. There is often simply not time for examiners to study new designs or new systems. If it continues to occupy its pre-eminent place in the nation's housebuilding, FHA greatly needs more and more competent assistants—a reviewing staff not prejudiced against independent architectural initiative.

### **Priority for good planning**

Another factor that has conspired to hold 608 planning firmly to the familiar ways of yesterday is the builder's rush to get his plans in before some deadline or other has expired. Title VI has been extended by Congress in a series of indecisive stops and starts; various changes in administrative regulations urge builders to get their applications in before something new turns up. Builders thus want their architects to do a quick and minimum job (for a minimum fee). One very practical thing FHA could do to counteract this would be to adopt a progressive attitude on planning, then give commitment priority or other preferential treatment to applications where an excellent planning job has been done.

When the fabulous Section 608 expires next March 31, Congress will be under great pressure to renew it. But this time Housing & Home Finance Administrator Raymond Foley will not be among those bringing pressure to bear. Foley has never been really happy about the continued post-war extension of various parts of the emergency Title VI, a special insuring fund set up to cover the extra risks of war housing and kept separate from FHA's regular insuring fund. He will probably recommend that Congress allow 608 to lapse, but give a little more appeal to the old 207 rental program. Thus 207 loans might be authorized up to 90 per cent for low rent apartments (grading down to 80 per cent in inverse ratio to rents), but the appraisal base changed from 608's "costs not higher than those of December, 1947" back to Title II's "reasonable long-term value." This is about what happened on the single house program last year. Foley and FHA Commissioner Franklin Richards have both said recently that costs have adjusted themselves to the point where there is virtually no difference between the long-term valuation and replacement cost yardsticks.

This would undoubtedly be a step in the right direction, and would probably put FHA-insured rental buildings on a somewhat sounder financial footing. But it would not cure the basic flaw in the FHA formula for getting apartments built: the fact that there is every incentive for the builder to undercut the long-term value of the property and a complete lack of incentive for him to do anything else.

Part of the trouble with the quality of current rental building is that FHA has not fully recognized nor discharged its responsibility for representing the public interest. Congress shares some of FHA's confusion. "After all," some Congressmen say, "the government isn't lending the money, is it?" But the difference between making a loan on an apartment building and insuring that loan is not so great as FHA appears optimistically to believe. Actually complete control of the building operation has passed from the private lender to FHA. Even the most cautious private lenders now exercise their prudence simply by rejecting whatever FHA-insured loans seem to them unusually precarious. On what FHA-insured loans they make, their participation in the building operation is limited to rubber-stamping the plans and specifications that have been through FHA processing.

FHA can argue that its regular inspections of the building job are more effective than lender supervision in the old days. It can point to its requirement that the owner make regular payments into a replacement reserve, so that when repairs or new equipment are necessary there will be money to provide them. But it can hardly argue that it has done much to improve apartment planning over what was commonplace in prewar building or to enlist first-rate architectural talent in the job. On the contrary, its rigid insistence on routine planning has reduced the architect to the status of a draftsman. Its prejudice against "modern" design has served to keep the country's best architectural talent from lending a hand in the solution of the critical problem of reducing the cost of rental housing. Its indifference to what the builder actually pays in architectural and engineering fees is enough in itself to make sure that top-rate firms will continue to have little to do with apartment building.

In a period of acute housing shortage, there may be some excuse for hastily putting up what many architects call the "slums of the future." But when FHA returns to the 207 rental insurance program it ought immediately to set about raising and revising its minimum standards. It ought to undertake research to see how well these minimums have actually provided for family living requirements. It ought to ask itself if it will continue to exert its massive force against any improvement in American living standards. If there is any reason to extend the public credit to risks not considered prudent by private capital, it is certainly not to the risk of thin equities and inflated loan values but to risks more properly in the public interest—the risk of new planning methods and experimental building techniques.

### **Help the long-term investor**

FHA will probably continue to be the dominant force in both single-family housebuilding and apartment building for as far ahead as anybody can see. But it may not be too late to inquire if, for apartment building at least, there are not other, and perhaps better ways, to the same end. First-class rental housing—if the investor can manage to hold on to it



long enough—can be shown to be a better long-term risk than, as real estate operator Robert Dowling says, “than even the best-managed groups of other investments.” Most of the apartment buildings which went through the wringer of the last depression are now paying off a handsome return—although not to the original bondholders. It is this kind of long-term assurance which persuaded New York Life to put \$30 million into its spectacular Fresh Meadows housing development in a year of peak building costs.

But if the insurance companies are investors big enough and patient enough, to wait for long-term returns on rental housing investment, there are few others. The special handicaps and hazards which beset this type of investment are

usually enough to make equity stakes drop like apples in any sharp economic downturn. It might be well to consider how the government fiscal power—instead of being limited to the awkward FHA formula—might be employed to offset some of the disadvantages which an equity investor in rental housing must suffer. The first of these, of course, is the obsolete real estate tax system, basically unchanged since land was the nation's primary source of wealth. Federal income tax incentives for the legitimate equity investor in rental housing would be an even more powerful tool for directing the flow of money into a socially useful direction. In a future article, FORUM will explore some of these alternative ways to lick the rental housing dilemma.

## 608 DEFENDED — A rebuttal by Architect Erwin Gerber, a 608 specialist, claims, among other things, that modern architecture prices itself out of the apartment market

*One of the early pioneers of the garden type apartment, Architect Erwin Gerber of Newark, N. J., has had a long experience in the planning and design of this variety of apartment building both as an FHA technician and more recently as a prosperous practicing architect. Today he is a specialist in the design of FHA 608 apartment projects and is thus a professional colleague of the architect referred to as Mr. Smith in the preceding article. FORUM showed Architect Gerber proofs of this article and invited his comments. His statement appears below.—Ed.*

Rather than attempt an unnecessary defense of FHA, I will endeavor to answer the charges in the preceding article against 608 as one who was in at its birth, helped to expand it and finally reaped a few of its benefits while on the outside looking in.

Not all FHA offices allow 5 per cent for architectural work, some drop the fees as low as 3 per cent. We must not forget that the fee includes engineering and landscape work, which in some cases exceeds the work by the architect.

The builder who is smart enough to buy a \$75,000 piece of land for \$25,000 should not be vilified. The builder who by smart purchasing and elimination of excess overhead and lost motion saves an additional amount should not be classified as sharp. Does the trade give a bad name to the general contractor who customarily adds 10 per cent overhead, 10 per cent profit and 10 per cent for emergencies to any job that he figures? Does the answer lie in public housing? This writer remembers 1939 when the preliminary costs of a public housing project, without the costs of the structure itself, ran to 16½ cents per cu. ft., while the FHA builder was erecting an entire apartment project for 24 cents per cu. ft.

In my experience as a FHA employee and later in my practice, I never found any resist-

ance to modern architecture by FHA because it was a different trend. The trouble was that allowance could not be made for the additional square foot area or the trimmings necessary over and above a typical house. Complaints by some architects about being stymied by definite square foot area limitations in rental housing can be answered in a few words. *The owner must put up in cash, in advance of start of construction*, the cost over and above the mortgage amount of any excess square foot area, gingerbread, additional cost due to poor planning, etc. This naturally affects the economics of the project and few owners will venture into such a deal in these days of controlled rents.

The statement that no money is required in 608 is not correct inasmuch as at least 15 per cent of the mortgage amount for front money or risk capital is required. While it is true that in the past year most projects more than “bailed out,” the year before most of the sponsors left approximately 12 per cent additional in the projects due to the \$1,800 per room limitation. The only real fault in 608 was the processing time. In these price changing days (incidentally, prices are up 4 per cent on the average, since Sept. 1) the architect designs something in the fall of one year, the job is processed in the fall of the following year and the contracts are let three months later. In the meantime prices have done “flip flops.”

FORUM's stress on the “Great Default” will also affect the insurance companies and banks who are lending money on non-608 apartments and commercial buildings. A close analysis will disclose that their typical mortgage amount has about doubled over 1939. I know of no 608 loan which has exceeded 100 per cent of a 207 loan of 1939. If the 608 mortgage set-up is wrong, then we must condemn every maximum private loan made.

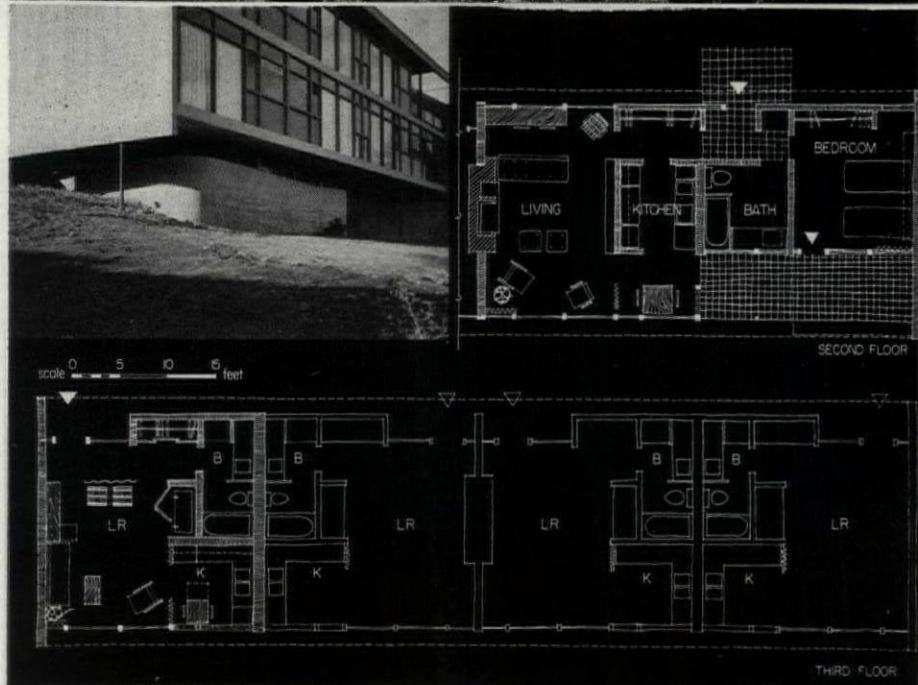
The condemnation of efficiency units in 608 is both unfair and unproven. The truth of the

matter is that, as a 608 sponsor, I can honestly state that the efficiency apartments are the first to rent and stay rented. The proof in long term occupancy, as any owner of apartments during our last depression will testify, is that the so-called efficiency apartments stayed rented at all times, unless the apartments were built in a suburban area where they did not belong in the first place.

The FHA court fetish could possibly have been overdone. I am one architect who literally developed high blood pressure while in constant war with the land planning section of FHA over site layout, in which work I take particular care and pride. However, when I look back in retrospect I believe the fault lay with all concerned. Land planning is a field by itself and very few architects have the touch in developing a suitable site plan. The constant work load pressure on the various FHA architectural sections has led them to leave site planning criticism to the overworked and undermanned Land Planning Section, which in turn took on a shell consisting of a court, a re-angle and a cul-de-sac. Quite a few layouts which I had to jam down the throats of “experts” appeared later in the experts' book as recommended layouts. Perhaps we should all go back to school to learn how to build a \$10,000 apartment for \$7,000 without the sponsor providing the \$3,000 difference.

FORUM's solution in the substitution of 207 for 608 brings a hearty guffaw to this pioneer, for 207 was always fraught with red tape, strict compliance to rent schedules and profit limitations. A 207 can only be built where taxes are extremely low. The real bugaboo in FORUM's desire for modern thought in apartments is that, if the cost figures disclose a greater differential than 5 per cent over the capitalized figures, then the project must be abandoned altogether. I believe that 207 will work when some of the good sections of 608 are added to it.





# STUDIO UNITS

exploit local materials and a view

LOCATION: Spokane, Wash.  
McCLURE & ADKISON, Architects  
BRUCE WALKER, Associate  
ERIC E. PLATT, General Contractor

This two-story strip of studio apartments achieves a suitably carefree solution to its problems. Gang-plank approaches bridge the two levels of a steep site and eliminate the need for interior halls. The entire structural frame is openly set on stilts. So pleased was the owner with the design that he reserved a double unit for his own use—leaving only six apartments for rent (at \$85 each per month).

The mild climate of Spokane makes possible a broad use of glass along the north side, overlooking the city (photos below). Each living area receives light at both ends: the north window-wall and a full-length glass panel at the south. Built-in closet and cabinet space make up the rest of the south wall and give privacy to the entrance side. A ground level "garden room" fitted with barbecue pit and indoor games provides extra recreation and entertainment space. Laundry and drying area, as well as the heating plant, are housed on this level.

All six studios were rented well in advance of completion, and a similar strip may be built later at the lower end of the 100 x 130 ft. lot. Total cost, exclusive of land and landscaping, was \$51,940, or \$9.28 per sq. ft.



Photos: Dearborn-Massar

*Mondrianesque pattern of the north facade is revealed both day and night (photos above and upper left). Waist-high plywood panels of dining alcoves form a pleasing contrast to window-walls.*

*Interiors are finished in plaster and cedar plywood. The owner's living area (at left) boasts a handsome brick fireplace.*



# DOUBLE-DECK BREEZEWAYS contain entries to two-story flats, eliminate interior stairs, create sheltered play areas

Some interesting variations on the usual appearance and layout of garden apartments mark this small 16-unit project. Particularly noteworthy is the placing of an 8-ft. wide breezeway between each of the apartments on the project's main court. This variation on a normal party wall separation has much to commend it from the standpoint of the project's livability.

In the first place, it gives every apartment on the court four-way exposure—a climatological blessing which is particularly welcome in Houston's hot and humid climate. The main and service entrances to both the upstairs and downstairs apartments open off this breezeway—a single stairway serves both second-floor apartments. Result: The omission of interior stairs and halls increases living space and improves the floor plan. FHA objected strenuously to the breezeway arrangement, claiming that it did not provide a "suitable" front entrance to the apartments. The architects won out, however, with the argument that prospective tenants would prefer the functional advantages of their "side entrance" to the monumentality of a "front" door.

On the exterior, the architects have used a trim, warm arrangement of second hand brick, shakes and good-sized windows. The roofs have a low (25 per cent) pitch with wide overhanging eaves which permit hurricane-proof ventilation of the attic. In interior layout, the one-bedroom units which adjoin the breezeway are, in the architect's words, "smaller than we would like them to have been." Noteworthy, however, is the separation of the dining area from both the kitchen and living room so that it can be used, temporarily, as a guest bedroom.

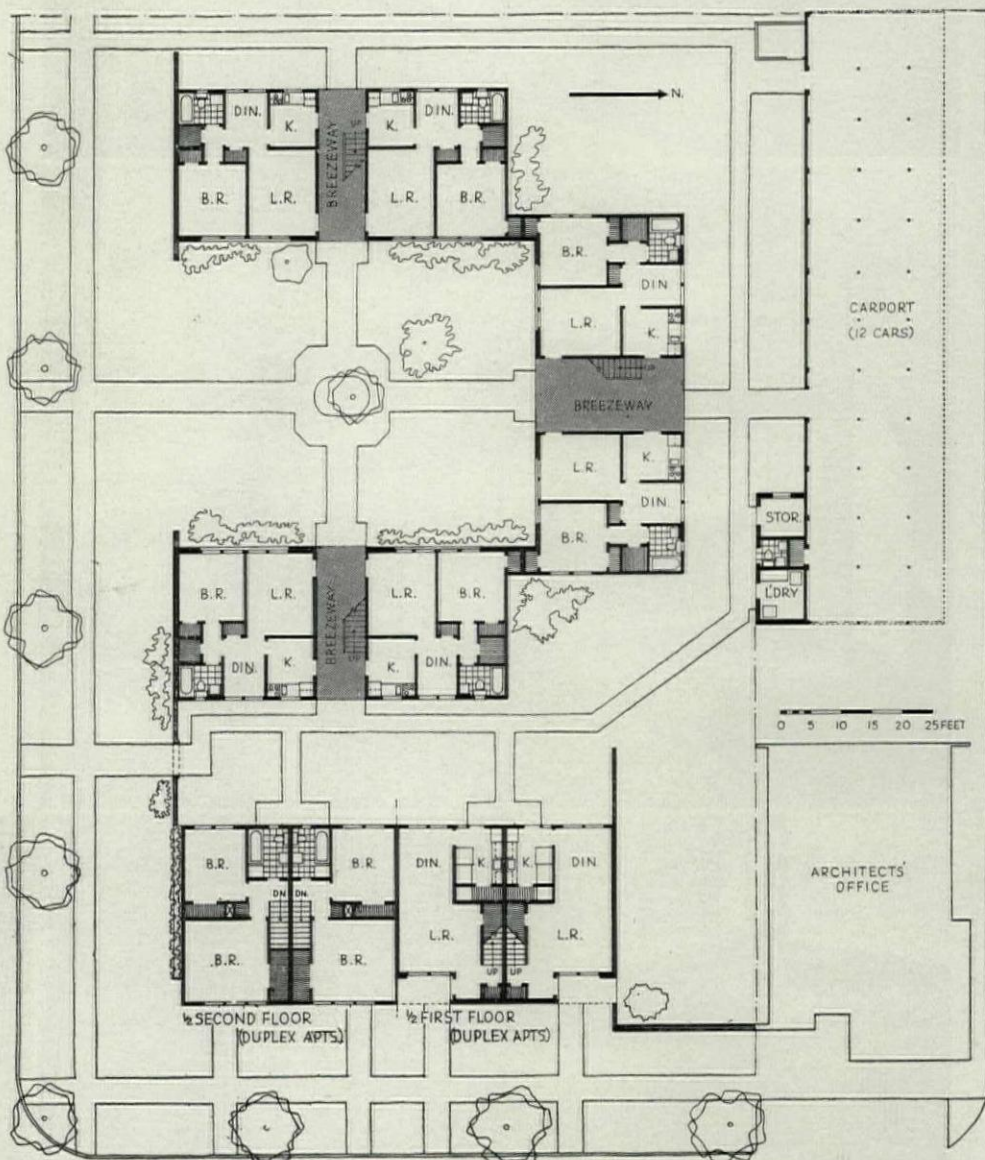
The project's six duplex apartments are all located in a separate unit that was built without benefit of breezeways. Here, however, the architects have also given careful study to the design of the entrance which benefits from a small exterior porch, interior separation from the living area and easy access to the stairs.

The apartments were built under the FHA 608 program. Rents are \$95 for the duplex units, \$75 for the smaller flats, six of which are furnished and rent for \$100. Construction cost was \$112,500 or about \$7,000 per dwelling unit. The \$115,000 mortgage was taken by Houston's Gulf Coast Investing Corp.

**CONSTRUCTION OUTLINE:** Waterproofing—The Philip Carey Co. Exterior walls—studs, sheathing covered with brick or 1/2 in. asbestos board, Johns-Manville Corp. Ceiling—gypsum board, U. S. Gypsum Co. **SHEET METAL WORK**—Armco Steel Corp. **WINDOWS**: Sash—Aluminum Metal Products Co. Glass—Benswanger Co. **FINISH FLOORING**: Kitchens—asphalt tile, Uvalde Rock Asphalt Co. **PAINTS**—Pittsburgh Plate Glass Co. **DOORS**—Rezo, Paine Lumber Co. **HARDWARE**—Lockwood, Ltd. **ELECTRICAL WIRING**—General Cable Corp. Switches—General Electrical Co. **KITCHEN EQUIPMENT**: Refrigerators—General Electric Co. Sink and cabinets—Mullins Mfg. Co., Youngstown Kitchen Div. Washing machine—Bendix Appliances, Inc. **BATHROOM EQUIPMENT**—Kohler Co. **HEATING**—warm air system. Heaters—General Electric Co. and Day & Night Heater Co. Regulators—Minneapolis-Honeywell Regulator Co. Water heaters—Day & Night Heater Co.

LOCATION: Houston, Texas

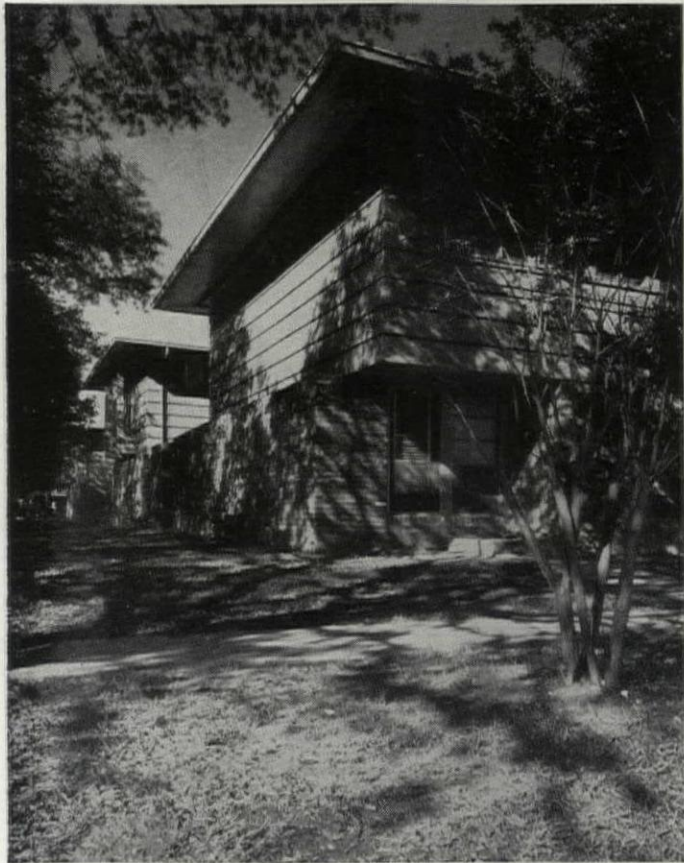
WILSON, MORRIS & CRAIN, Architects R. C. WEST, General Contractor



I. B. Lindenthal







*Second-floor overhang provides protection for entrance to duplex apartments (above). Brick wall is extended beyond building to close off utility yards between buildings. Interior picture (right) shows living area of duplex apartment, looking from dining area.*

*Trim effect is obtained by extending part of shingle sidewall across breezeway as a protective railing. As a result, the two open areas are neatly in scale with the groups of double-hung windows on either side of each breezeway. Mothers living in the project find the breezeways a lifesaver on rainy days when they provide a dry play space for their moppets.*





# THREE STORY APARTMENT HOUSE uses full-length balconies to gain maximum living space

LOCATION: Seattle, Wash.

PAUL THIRY, Architect

E. J. McCAUL CONSTRUCTION CO., General Contractor

This 12-unit apartment house squares off a neat compromise between the restrictions of a hilly site and those of the Seattle building code. It promises, moreover, a neat annual profit of 10 per cent. In evolving the design, the architect was faced with a number of stiff conditions. Less than half the lot (100 x 100 ft.) was usable. A frame building, as this was classified in Seattle, is restricted to three floors above ground. The owner demanded, in addition to the 12 apartments, garage space.

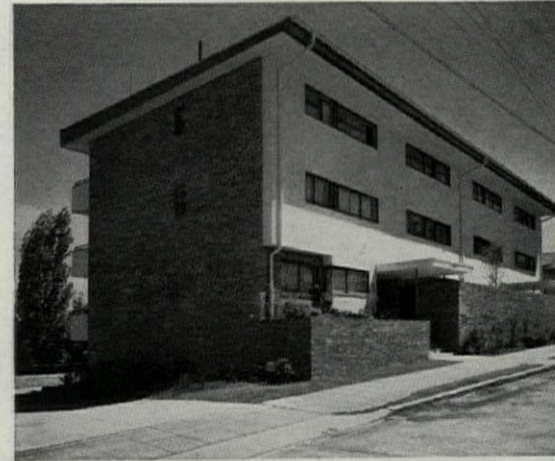
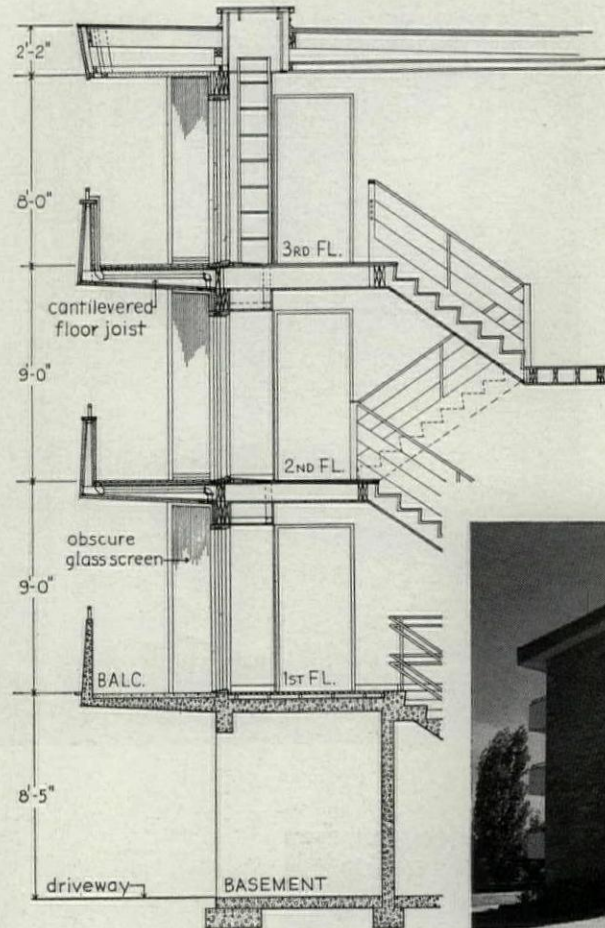
The fact that the apartment had to be set right at the sidewalk line and, also, that the fine view of Lake Washington and the Cascade Mountains was towards the east, led to the placement of all balcony and window areas on that side. An elevated concrete driveway was provided at the rear to open up the entire length of the basement level for a garage.

The full-length balconies on every floor provide unusually generous additions to the living area of each apartment. They also provide the second emergency exit to stairwells, as required in the local code. This is worked by affixing doors of obscure glass to the permanent panels which mark off individual balcony space (shown in the vertical section). Exit doors open only from the outside and thus keep unwanted visitors off the balcony. This space manipulation saves the two extra hallways which would otherwise be necessary.

Utilities are also geared for economy—and to render a resident manager unnecessary. Each apartment is heated by radiant panels set in the ceiling, controlled by an individual thermostat. Individual metering is used, not only for overall heat but for water, hot water and electricity. This arrangement not only guarantees individual comfort but permits savings when the apartment is not in use. The basement level has laundry facilities as well as individual storage space. Charge for garage space is included in the rent (\$110-\$135 a month).

The building cost was \$126,000 (\$9 per sq. ft., including basement); land and landscaping brought the total up to \$141,000. A mortgage of \$68,400 (20 years at 5 per cent) was provided by the Citizens Federal Savings & Loan Association without FHA insurance.

The total monthly income for the 12 apartments is \$1,440—a yearly gross of \$17,280. Expenses (including taxes and maintenance) run to less than \$2,300 a year. The \$15,000 net profit represents a 10 to 11 per cent annual return on this carefully calculated investment.





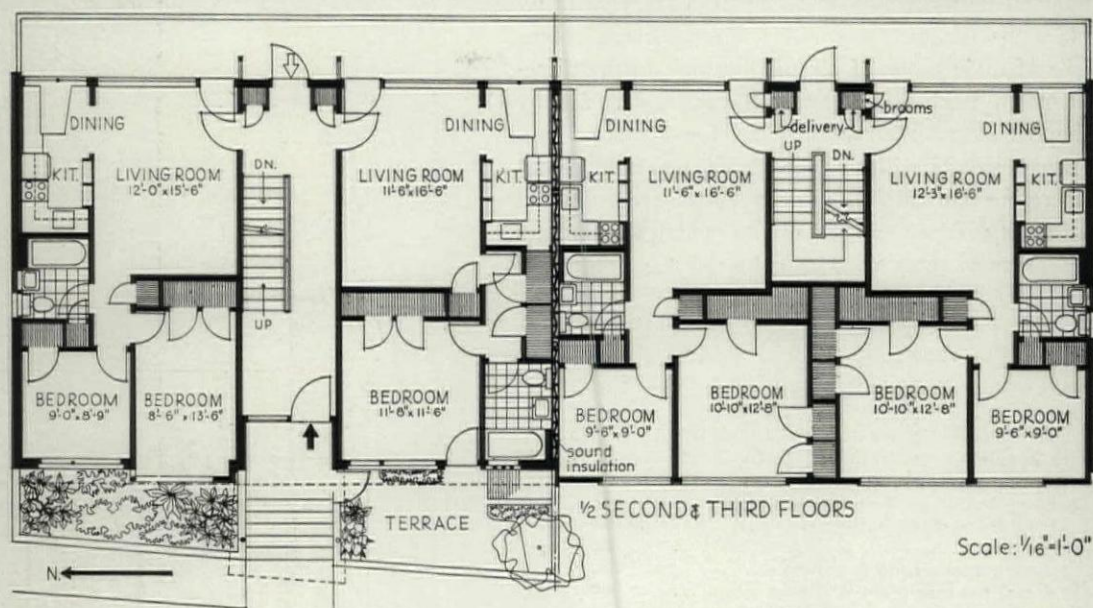


Photos: Chas. R. Pearson

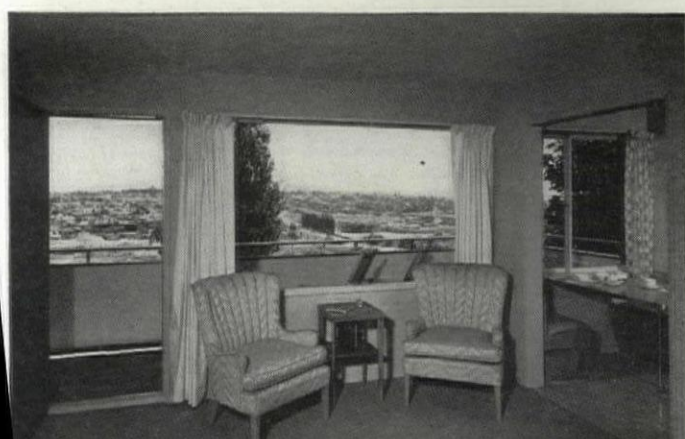
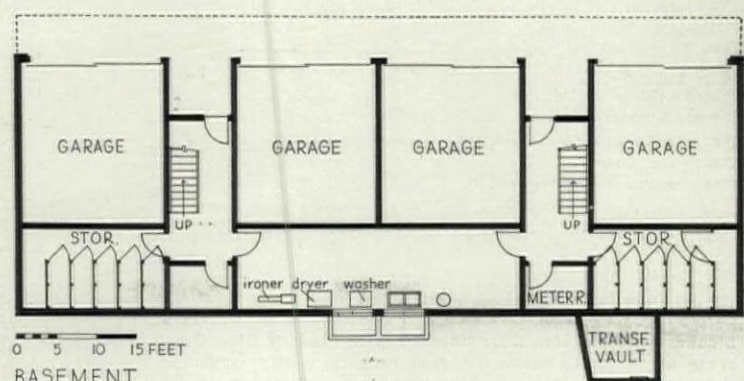
Turning its back on the suburban street (upper left) the building opens up at the back to admit a view.

Floor plan (right) reveals minimum of hall space. Emergency exit for each unit is provided via balconies.

An approximation of indoor-outdoor living is gained by balconies and generous windows (below) in living areas.



1/2 FIRST FLOOR





# ONE STORY ROW HOUSES are staggered in two directions to improve the usual pattern, gain privacy and create useful outdoor living areas

LOCATION, Wellesley, Mass.  
HUGH STUBBINS, JR., Architect

Design of this 90-unit state-subsidized veterans' housing project sets a new standard for the planning of small public housing developments on raw land and demonstrates an imaginative site planning technique which can benefit private housing as well. With 15 acres of elbow room, it was deemed desirable to give the tenants one-story row houses on 33 ft. wide lots rather than narrower, less costly two-story duplexes.

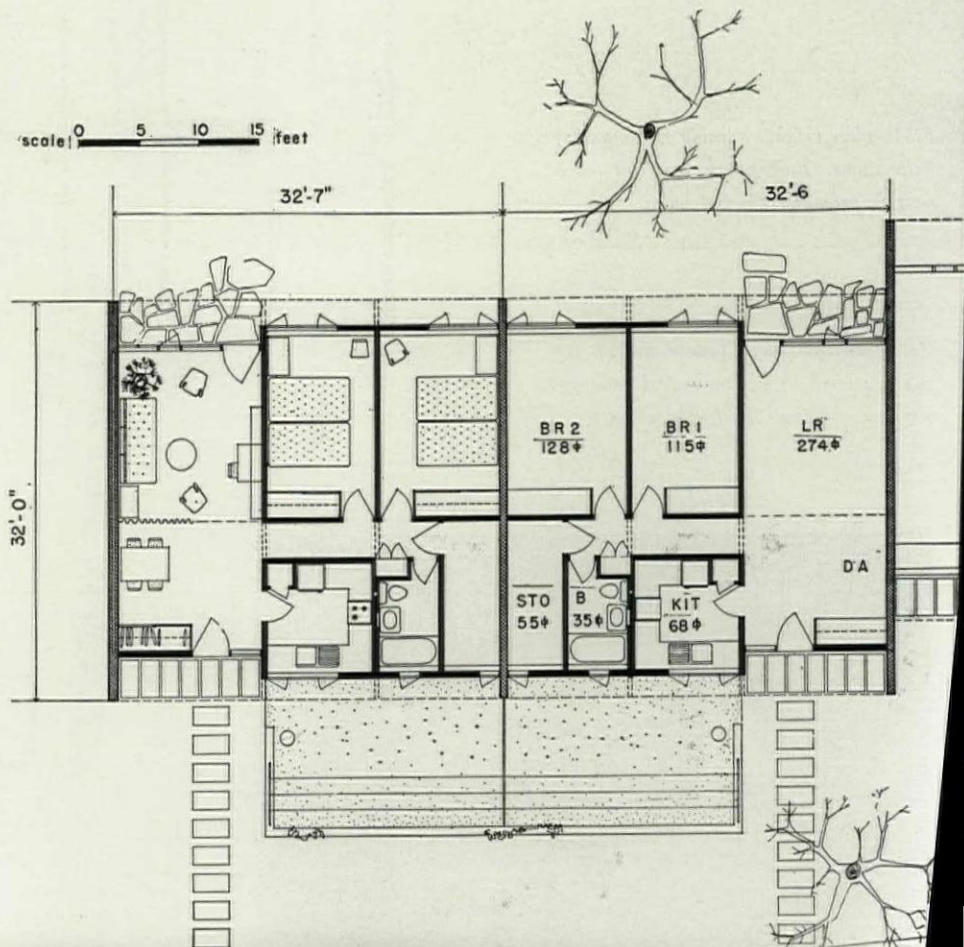
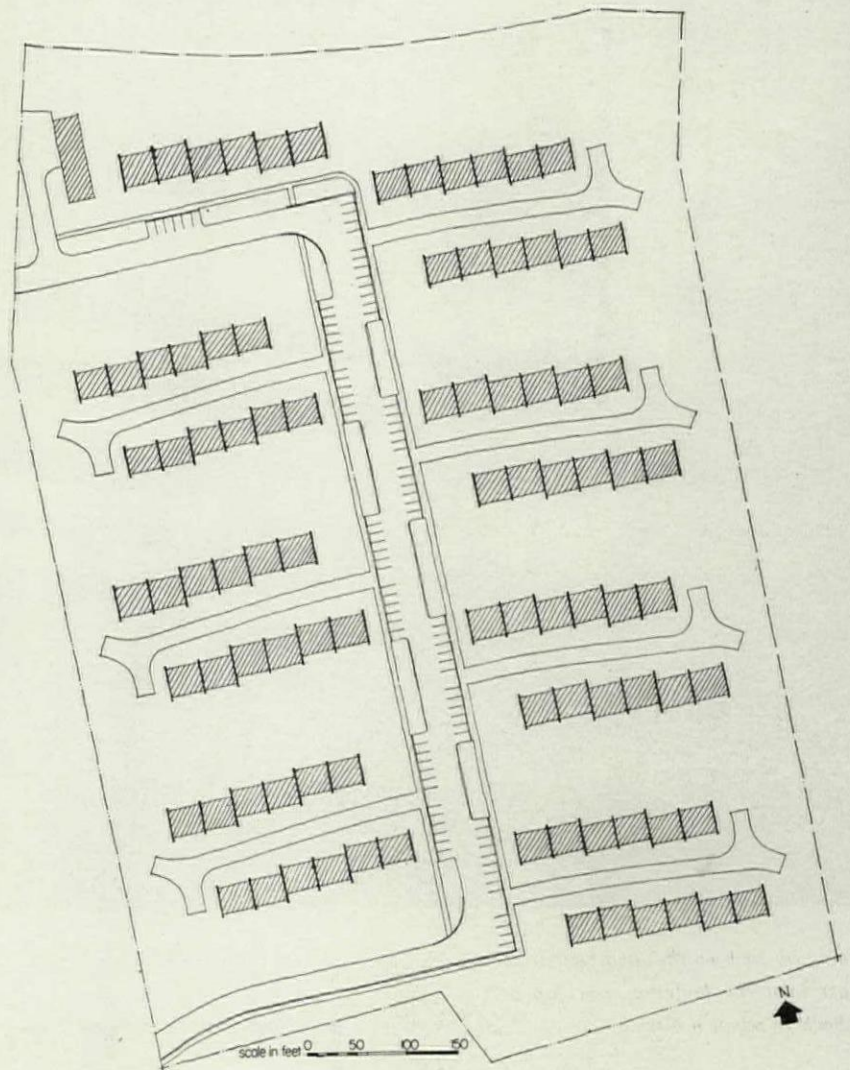
Two-way staggering of the dwellings makes the most of the site and produces several auxiliary benefits. The two- and three-bedroom units (675 and 788 sq. ft. respectively) are grouped in pairs, three of which in staggered formation comprise a six-unit building. The set-backs give privacy to adjacent apartment entrances and avoid the monotonous appearance of the typical row house building. Privacy and variety are further enhanced by the staggered arrangement of the 15 buildings on either side of the project's main road. Living rooms opposing each other across the courts are separated by a minimum of 100 ft. and will be further isolated by heavy planting at the center of this intervening "front yard."

The compact planning of the radiant heated apartments features a 45-55 sq. ft. storeroom to replace the basement, generous closets, living rooms free of main paths of circulation and, in the three-bedroom unit, an interior bath made feasible by the one-story construction. As shown below, construction costs will average \$9,507 per unit. Total operating costs including debt service are estimated at about \$70 per unit per month, which will be met by average rents of \$46 (plus \$5 for additional utilities) and a state subsidy of \$24.

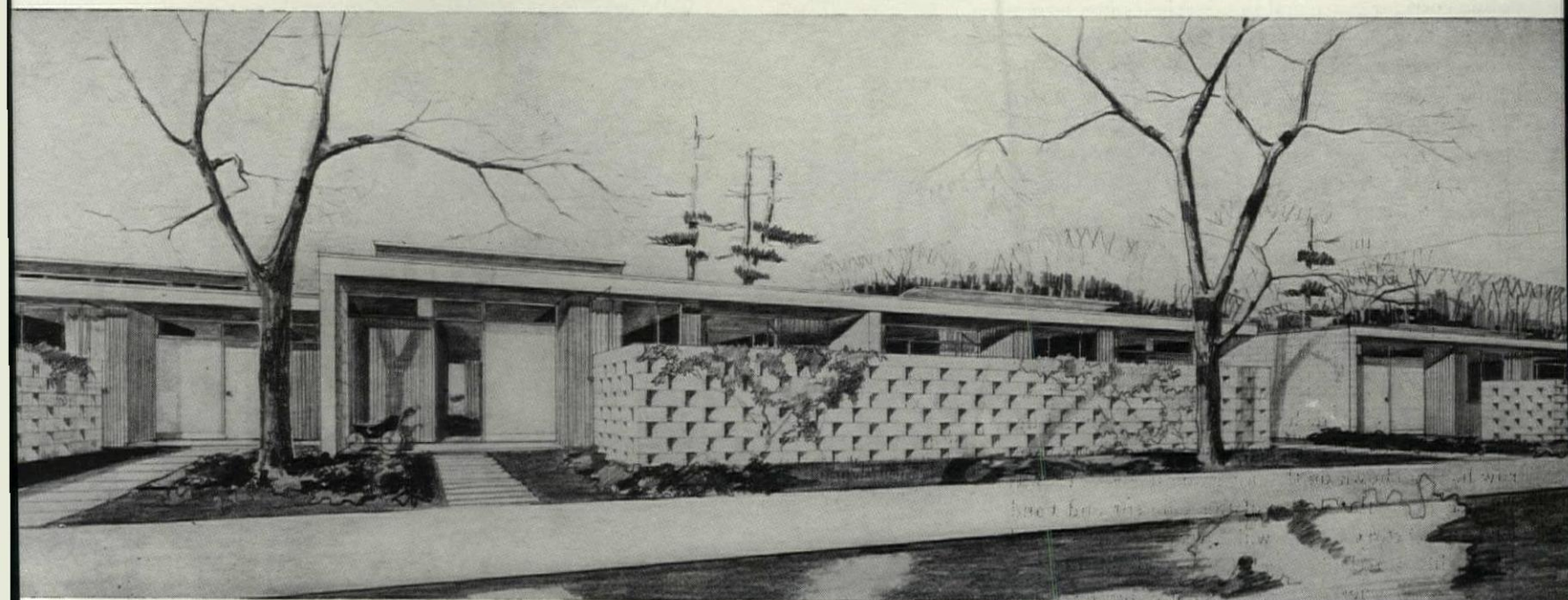
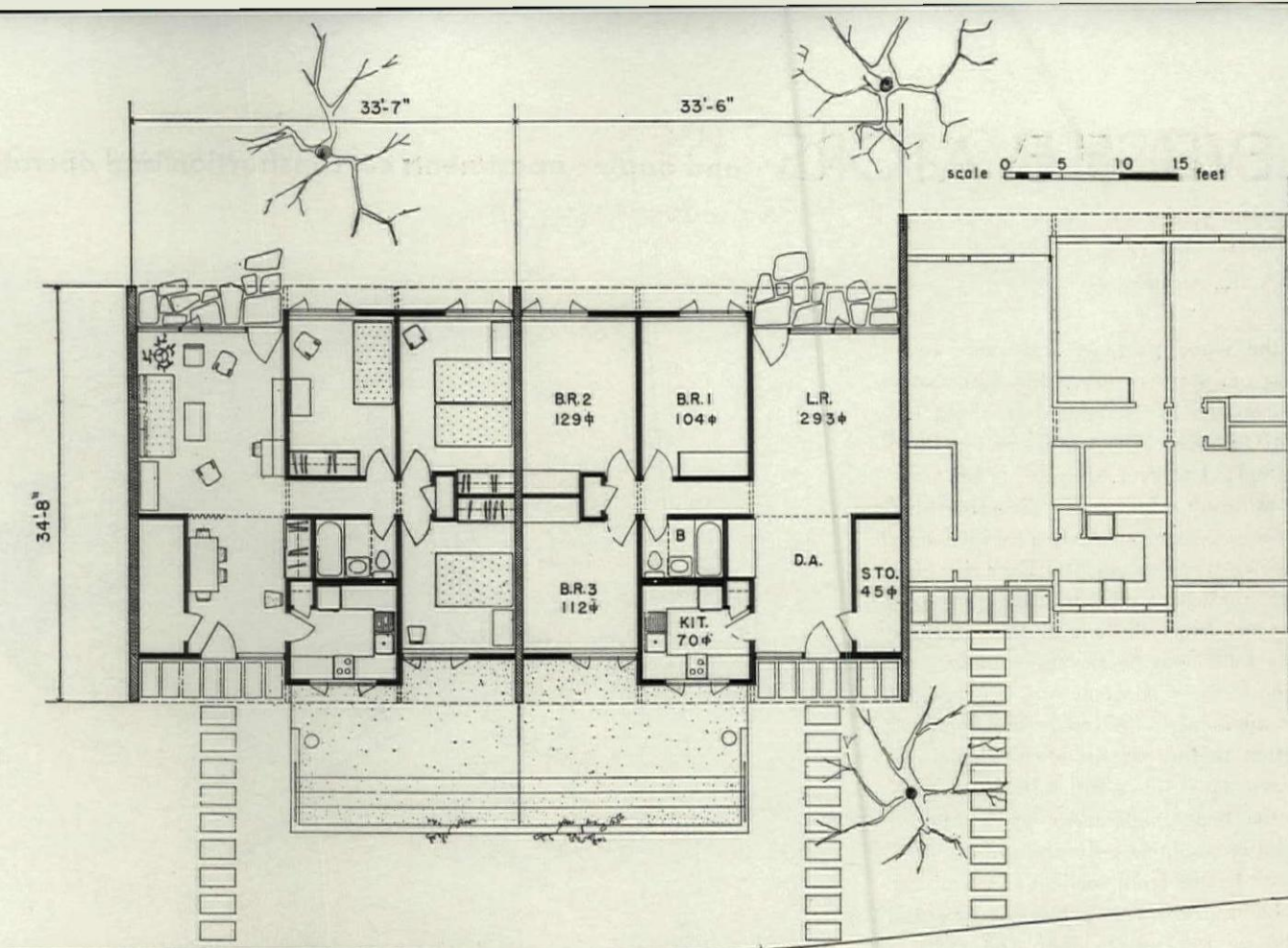
## COST ESTIMATE PER DWELLING UNIT

|                                       |          |
|---------------------------------------|----------|
| Site acquisition .....                | \$ 155   |
| Site improvement .....                | 1,123    |
| Dwelling buildings & equipment        |          |
| Structure & fixed equipment.....      | \$7,234  |
| Plumbing .....                        | 685      |
| Heating (floor coils & controls)..... | 350      |
| Central heating plant & piping.....   | 550      |
| Electrical .....                      | 477      |
| Movable equipment .....               | 211      |
|                                       | <hr/>    |
|                                       | 9,507    |
| Nondwelling buildings .....           | 89       |
| Administration .....                  | 80       |
| Architectural & engineering .....     | 633      |
| Carrying charges .....                | 100      |
| Pre-occupancy charges .....           | 10       |
|                                       | <hr/>    |
| TOTAL .....                           | \$11,697 |

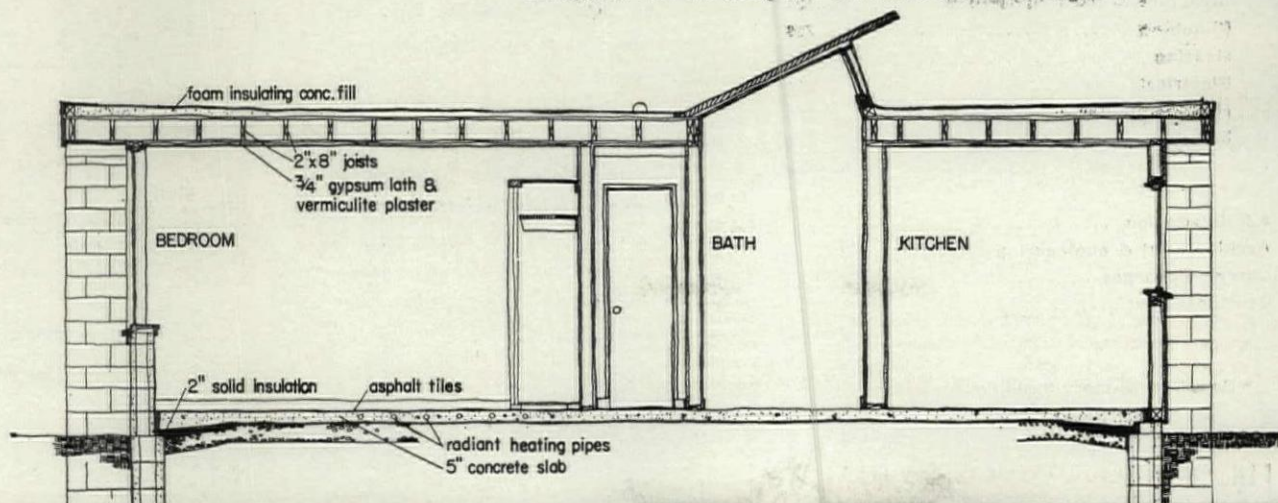
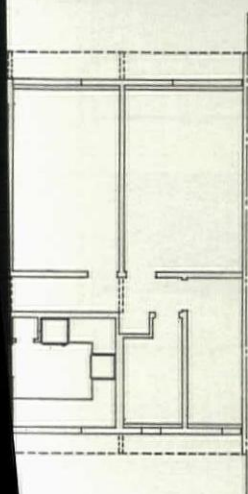
CONSTRUCTION OUTLINE: Foundations — concrete block. Concrete slab floor finished with asphalt tile. Concrete block party walls. Frame exterior walls—redwood finished. Interior finishes—lath and plaster. Roof—built-up.







All rooms on the street side of each dwelling are protected from outside view by both obscure glass (beside the main entry) and by a perforated cinder block wall which forms a service court for laundry drying and other unsightly "back yard" activities. Dwelling units were purposely faced north and south to avoid the hot western exposure. Those whose garden fronts face north have south clerestories over the living and bathrooms to admit sunlight.





# SKIP-LEVEL ELEVATORS and duplex apartments cut construction and operating costs

LOCATION: Wellesley, Mass.

HUGH STUBBINS, JR., Architect

Designed for the same purpose and same town as the preceding one-story project, this multi-story building was proposed to accommodate about the same number of families (75) on a site one-third as big (five acres). However, despite its ten-story verticality, the building offers much the same kind of accommodations as are normally provided only in two-story, garden-type apartments. Each dwelling unit is a duplex apartment with living-dining area and kitchen on the lower floor and two or three bedrooms and a bathroom on the floor above.

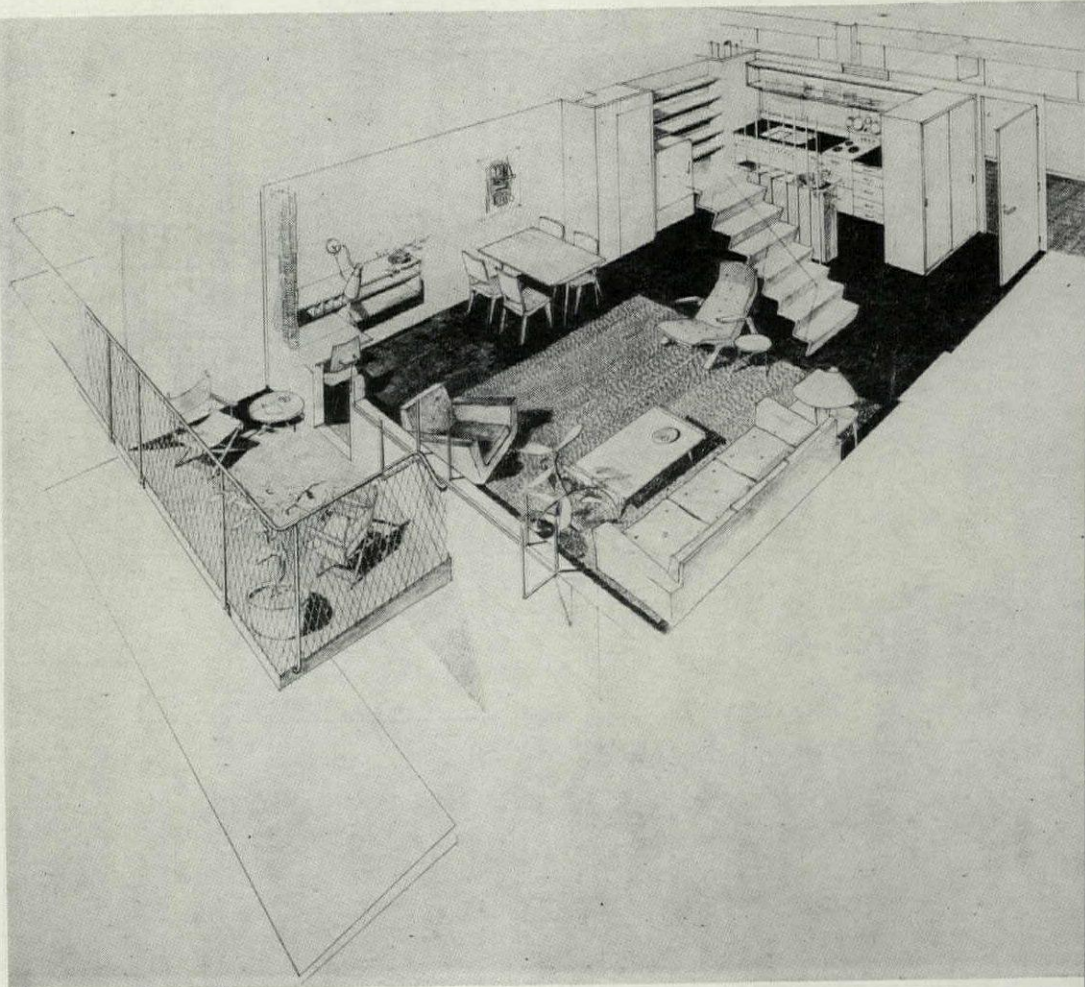
Unusual in multi-story construction, this type of planning holds advantages for tenant and landlord alike. In addition to the psychological attractions of the duplex form (it is like a two-story house) the tenant enjoys the benefits of more open outdoor space (the building occupies only about 3 per cent of the site) which results from vertical construction. On the other hand, the owner's construction and operating costs are lowered through the reduced public corridor space and skip-level elevator service permitted by the duplex arrangement of the apartments. As shown in the accompanying photos, the public corridors occur only on alternate floors. For the 12-story design, originally proposed, construction costs were estimated at \$869,200, or \$10,865 per unit, \$2,173 per room. Rents were to average about \$56 per unit, excluding a state subsidy of about \$29 per unit.

Although about 90 per cent of the prospective tenants were in favor of this type of multi-story project, it was abandoned when neighbors objected to its height in relation to the towns' typical one-family houses and succeeded in influencing a town meeting to restrict the height of residential buildings to three stories. However, substitution of one-story row houses shown on the preceding pages in no way detracts from the merits of this efficient and handsome multi-story design which was favored by both the architect and the local housing authority. It is an effective variant of an apartment planning technique widely used in Europe.

## COST ESTIMATE PER DWELLING UNIT\*

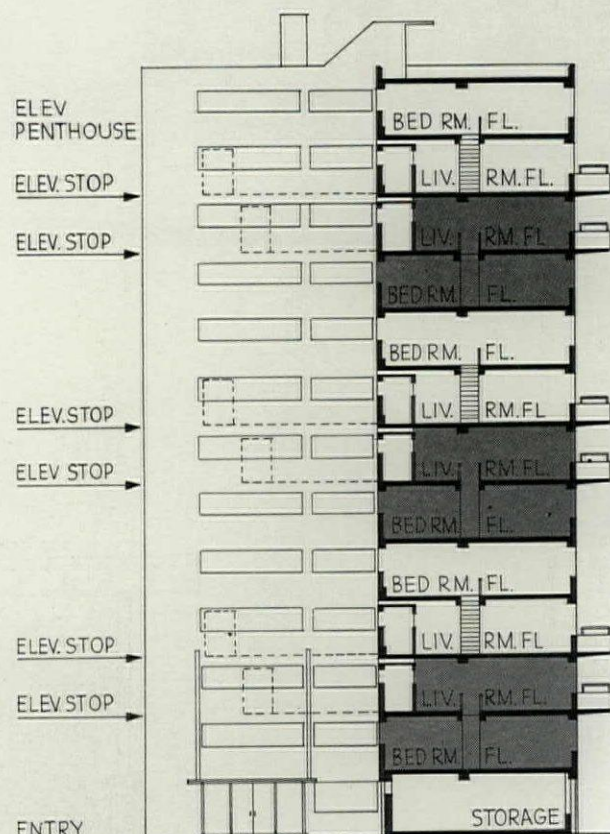
|   |          |
|---|----------|
| Site acquisition .....                    | \$ 124   |
| Site improvement .....                    | 619      |
| <b>Dwelling buildings &amp; equipment</b> |          |
| Structure & fixed equipment .....         | \$8,150  |
| Plumbing .....                            | 759      |
| Heating .....                             | 651      |
| Electrical .....                          | 543      |
| Heating plants .....                      | 326      |
| Movable equipment .....                   | 436      |
|   | <hr/>    |
|   | 10,865   |
| Administration .....                      | 100      |
| Architectural & engineering .....         | 848      |
| Carrying charges .....                    | 157      |
| Contingencies .....                       | 382      |
|   | <hr/>    |
|   | \$13,095 |

\* Based on 12-story building

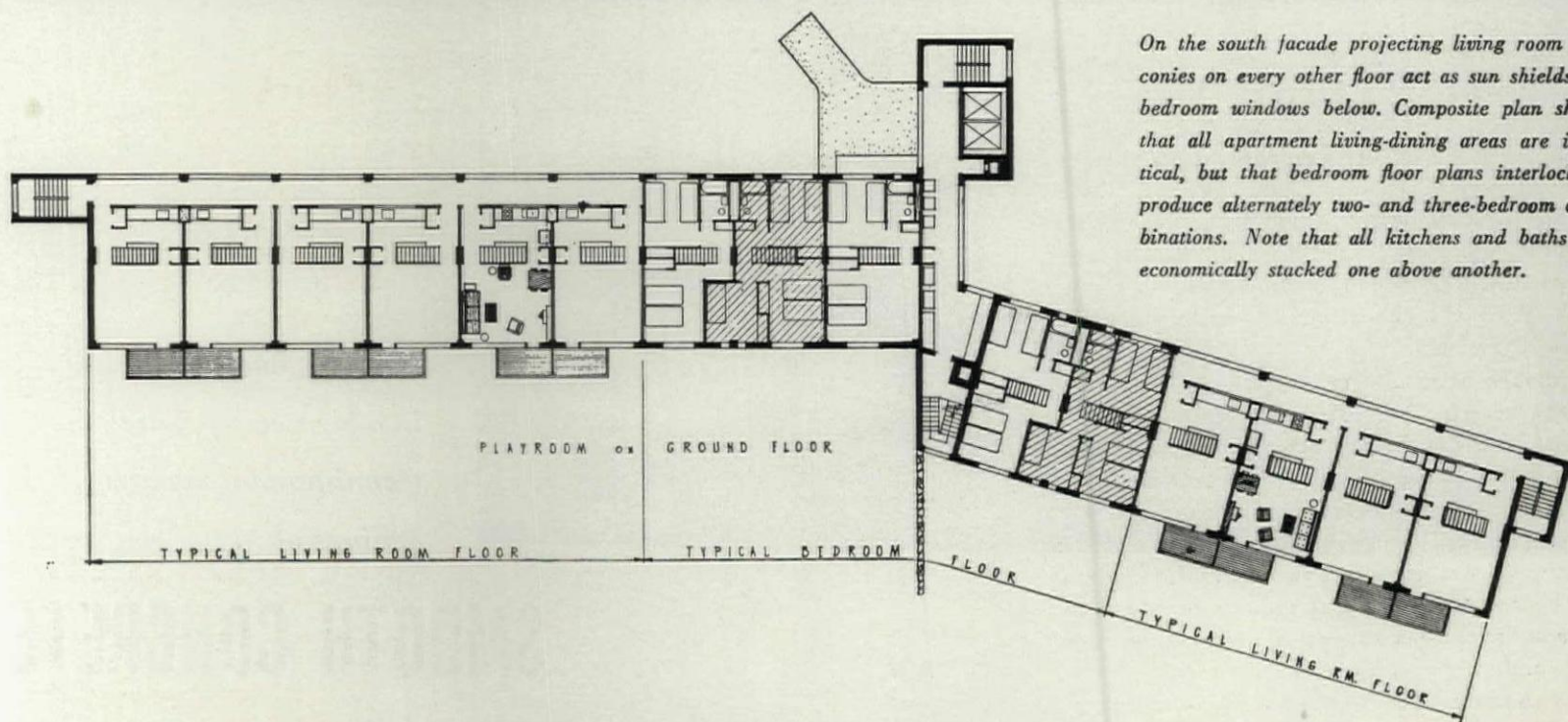


Typical apartment's lower living floor opens to southern view through wall-to-wall window. Outside is a private balcony which provides outdoor living space and, by connecting apartments in pairs, serves as an emergency fire exit.

Two elevators in the projecting service tower make only three stops each—at every other layer of duplex apartments. Thus, elevator costs are minimized and elevator service improved. (This section shows the originally proposed 12-story building in which living floors were grouped in pairs to minimize inter-apartment noise. When the design was cut to ten stories—opposite page—living areas were placed on alternate floors.)



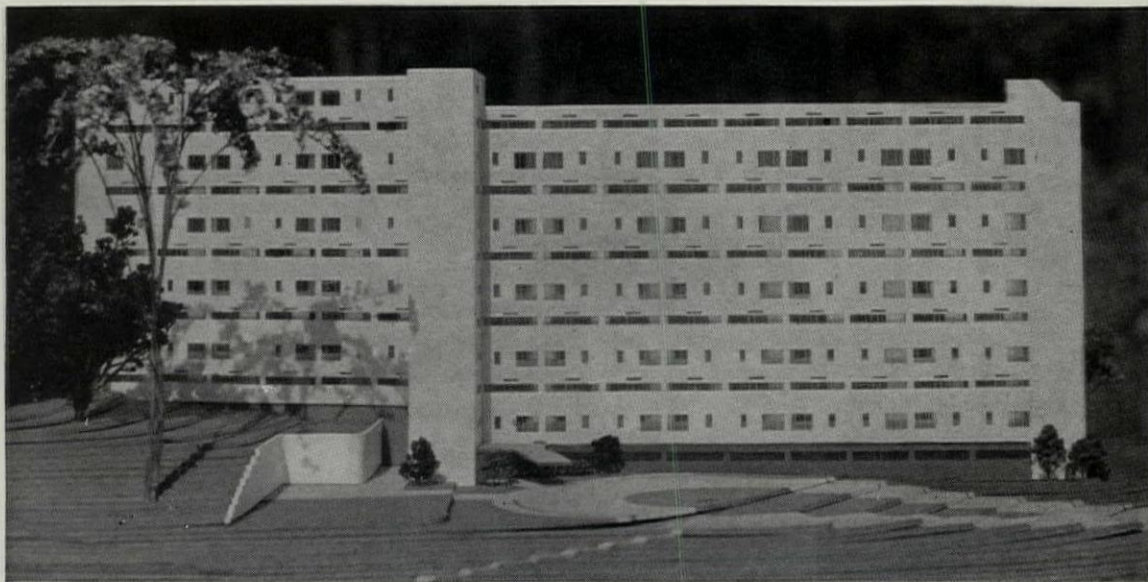




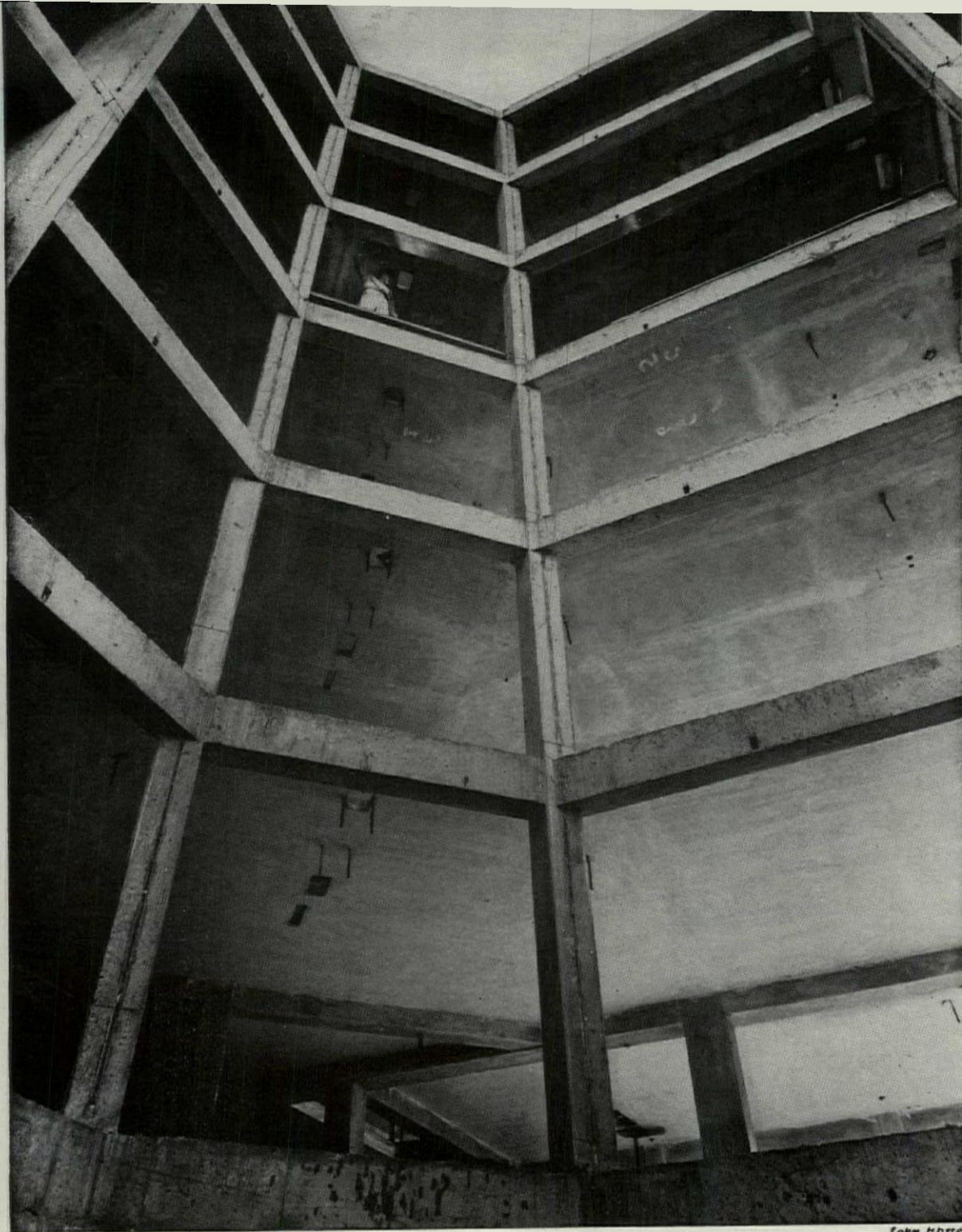
*On the south facade projecting living room balconies on every other floor act as sun shields for bedroom windows below. Composite plan shows that all apartment living-dining areas are identical, but that bedroom floor plans interlock to produce alternately two- and three-bedroom combinations. Note that all kitchens and baths are economically stacked one above another.*

*North facade's interesting fenestration is comprised of small bathroom windows, large bedroom windows and strip windows lighting the circulation galleries on alternate living floors. Main entry is at juncture of long wing and projecting elevator tower.*

*The composite plan, above, for the sake of brevity, shows living and bedroom floors in a single drawing and does not therefore dramatize the fact that circulation galleries extend the full length of the building between the central elevator tower and the emergency stair towers at either end.*







John Bessel

*Not new, but being used  
in a big new way, are  
techniques for making  
ceilings of . . .*

## SMOOTH CONCRETE

Smooth concrete ceilings without plaster—methods for this money saving technique have been mature for several years and are in broad use, but indications now in 1950 are that new attention will extend their application from minimal buildings to luxury apartments, hotels, and high rent business structures.

The workmanship of finish on exposed concrete, used on both interiors and exteriors, has been improved vastly in recent years, and the ultimate gesture of leaving bare concrete ceilings on apartment interiors is nothing new to jobs like the giant New York City housing projects. Postwar, the New York Housing Authority has built 42 projects totaling \$540,000,000 with only paint, no plaster, on the slab ceilings. And, of course, industrial jobs and utility build-

ings are seldom plastered. But now luxury apartments like Skidmore, Owings & Merrill's Manhattan House in New York (to be built on the high rent upper East side for the cost-and-luxury-wise N. Y. Life Insurance Co.) are to wear unfrosted ceilings, and planners of other costly apartments, hotels and office structures are also interested in withholding the trowel.

The reasons are cost and performance. A lot of money has been saved by leaving plaster off concrete slab ceilings and, with the recent techniques of placing concrete in slick formwork, there does not have to be any substantial sacrifice of the finish. Estimates around New York of the cost of plastering an apartment-height ceiling (three coats totaling  $\frac{3}{4}$  in.) run from \$1.50 to \$2 per yard. If plaster is omitted in favor of

the latest methods of assuring a smooth finish to a concrete slab, the cost above routine structural slab cost runs about 60 cents per yard.

Another reason which may seem minor on first consideration, but is not, is the vertical space saved by eliminating furring and plastering on the ceilings of multi-floor structures in tightly zoned cities.

A good example of both these reasons for picking smooth concrete ceilings over plaster is New England Mutual Life Insurance's 12-story, 260 unit apartment building in Cambridge, Mass., planned from the outset with smooth concrete finish on ceilings, columns, and beams. Cost was the primary reason, but space was important too.

According to Mutual's Architectural Consultant, A. O. Willauer, a basic considera-





*Albert Rothschild—Douglas Fir Plywood*

tion in planning the building stemmed from the zoning height limitation of 100 ft., motivating an effort to cut the ceiling-to-floor-above dimension to a minimum in order to get 12 floors in the building's 100 ft. height. If the ceilings had been furred and plastered, they would have had to dig this building into the ground an additional 2 ft., thus doubling the excavation cost and adding about 45,000 more cu. ft. of expensive building inclosure. Another possibility, but one remote to the actuaries, would be to give up one floor and its income.

#### **MONEY PLUS SPACE**

The answer to the space requirement was smooth concrete, and it is expected to be a highly economical answer as well. Mutual expects to show a saving of 25 per cent on estimated cost of plastering throughout, or about 3 per cent on the cost of building. Not mentioned in this job's economy was time—but one big New York builder says two months are saved in construction of a 15 story building by substituting smooth concrete ceilings for plastered ceilings.

Present techniques for producing smooth concrete ceilings began to be developed more than 20 years ago, about the same time present practices in the fluidity of concrete mixes began to come into use. Today's concrete mix is very dry, with a low water-cement ratio compared with that used generally from 1910 to 1930. Today's forms for concrete are also very tight, compared with older forms, which allowed a great deal of seepage or bleeding from the wet concrete between the boards.

In the Twenties engineers began to emphasize the importance of controlling the ratio of water to cement for strength and durability in the finished concrete. Introduction of vibration was a big advance in this direction. Also in the Twenties engineers began to work for better concrete

finished surfaces, like ceilings, which would be smooth and dense and eliminate the necessity for resurfacing. The first attempts were lining the forms with various materials—among the liners tried were newspapers, roofing paper, linoleum, and metal sheets. The earliest form liner used was plywood, but in those days the right kind of plywood was not in great production, so the choice generally went to composition board.

Composition board is still used widely as form liner to achieve smooth finished concrete, but since the Twenties, plywood's cost and availability has changed considerably, and most forms today for smooth finish are plywood. The most interesting smooth concrete development in the Forties was a resin plastic finish for plywood forms which added an extremely smooth, tough, and re-usable artificial surface. Advantages and economies offered by these plastic finished plywood forms are great, so most of today's precisely finished concrete is placed in them. Steel forms are in use, but most of the big jobs go to plywood, which is easier for workmen to handle.

#### **OTHER FORMS**

Magnesium forms are being developed and have been used on small jobs. Absorptive forms, which "drink" the water from the mix and leave a particularly tough outer coating somewhat similar to vacuum finished concrete, have also been studied and used on projects like dams for years.

The process of making a smooth concrete ceiling starts with the forms, which must be put in place carefully and cleaned thoroughly before the concrete is placed. Careful leveling of formwork on rigidly placed centering is required. Most plywood is available in a maximum size of 4 x 8 ft., so the joining at the edges is very important, because the seam or ridge is sure to show after the forms have been stripped

Photo shows two stages of smooth concrete. Upper ceiling has been completed and painted. Lower ceiling has just been ground, is ready for painting.



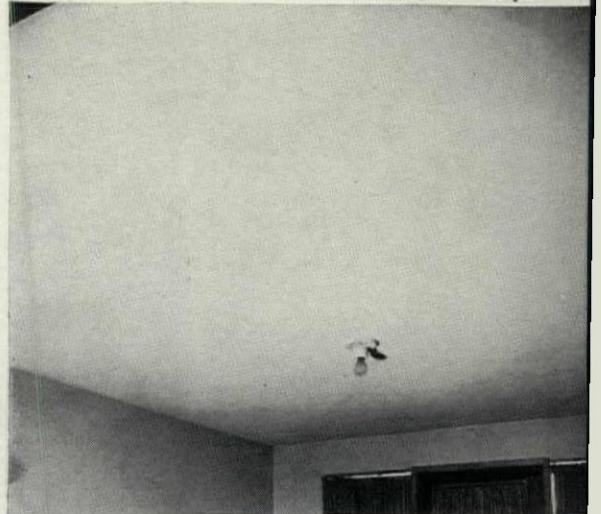
Arranging reinforcing rods before placing concrete in forms of smooth plastic finish plywood.

*John Ebstel*



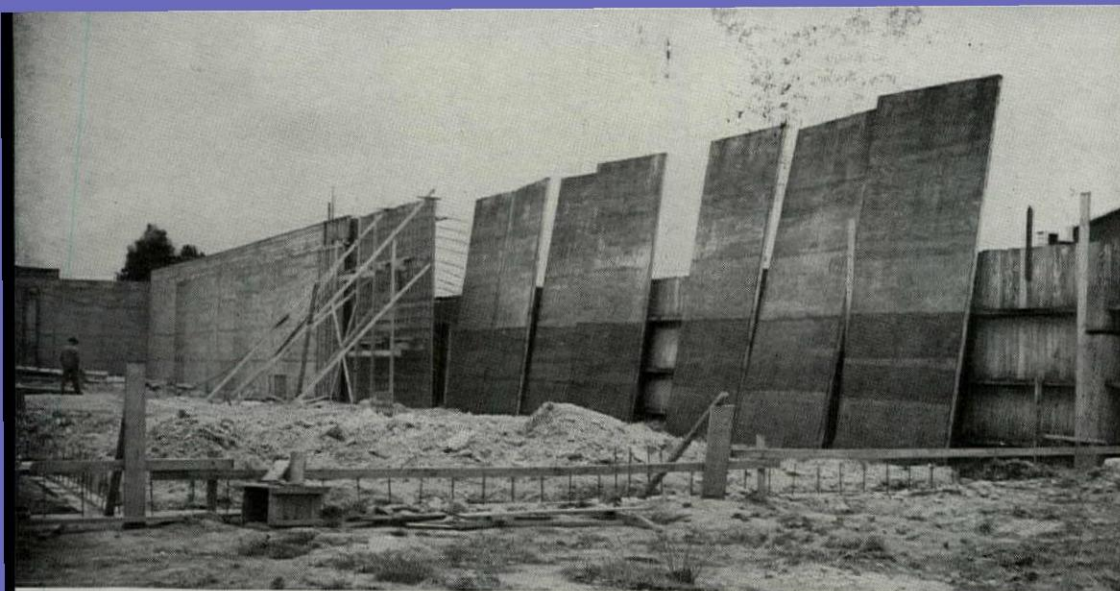
Close-up after removal of slick forms shows fins left on ceiling, to be ground off later.

*McGraw-Hill Service Dept.*

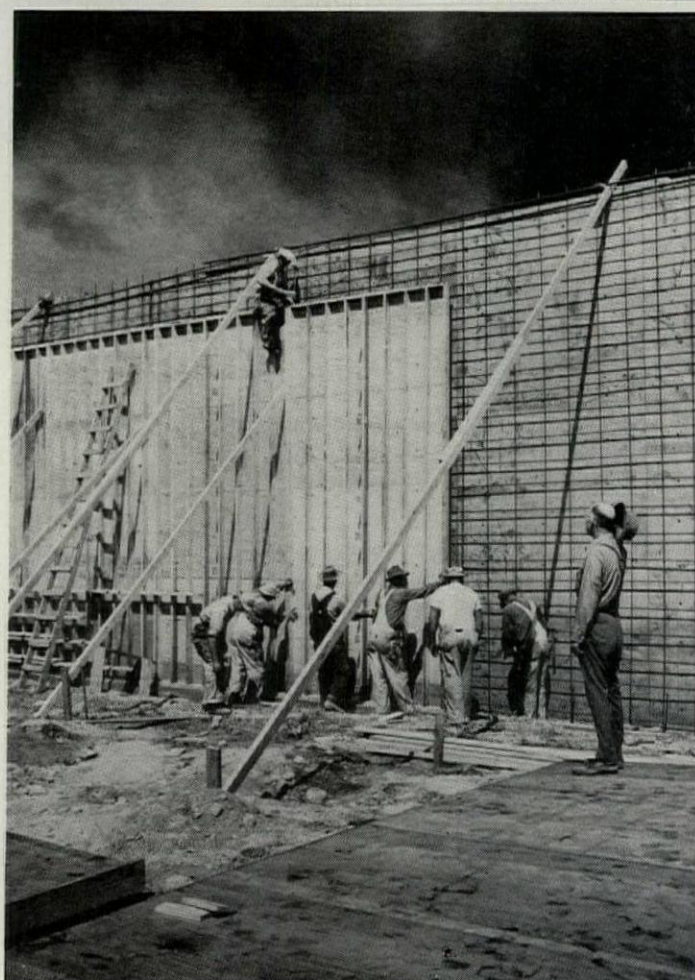


Smooth finish of completed ceiling, after grinding of fins and painting, is shown in photo of ceiling above.





Large sections of smooth forms, made up of 4 x 8 ft. slabs of smooth plywood, are shown above before assembly. In second picture concrete is being placed. Closer picture of form work, right.



from the slab. If the plywood is not coated it must be oiled before the concrete pour; opinion on whether it is necessary to oil plastic coated plywood forms still varies, with most of the big contractors still saying yes. Wetting of the deck to close up joints and to reduce absorption of the water in the formwork is also important.

After the concrete is placed, vibrated, and has set, the forms are removed. The small ridges which show between forms now are the problem, solved by a carborundum grinder or hand rubbing with abrasive. The texture of the concrete strip where the fin between forms is ground off is never the same texture as the rest of the ceiling, but the variation is minimized by a brushing on the entire ceiling of a mixture of Portland cement and finisher. A rub with a plasterer's trowel fills in air voids or "bug holes," and the concrete is ready for paint—at least 28 days later. This period is the minimum time generally recommended for curing, and two coats of paint is the prescription. If the concrete must be painted while still green, it should be treated with a neutralizer (zinc sulphate) first.

#### PREVENTING RUST SPOTS

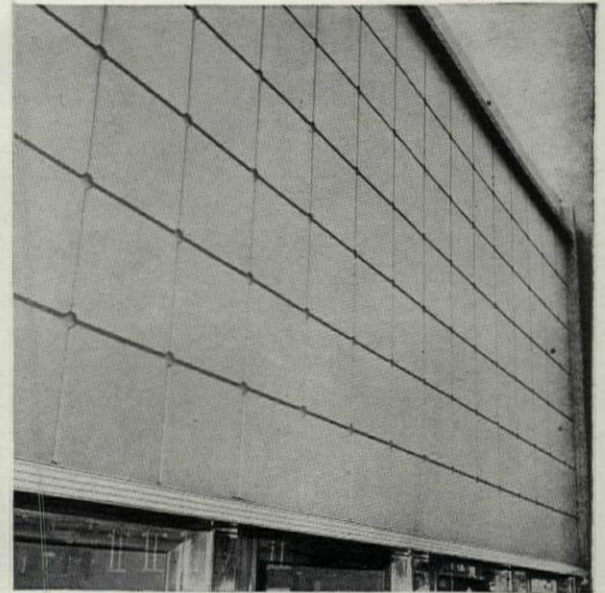
Chicago architects Holabird & Root & Burgee, who have studied smooth concrete carefully, have another caution to advise in planning for exposed concrete areas. They point out the importance of requiring the chairs and supports for the reinforcing steel of beams and slabs to be galvanized or painted for portions which will occur within 1 in. of the formwork. The object is to reduce or eliminate the number and extent of the iron oxide spots in exposed concrete.

Re-use of the forms is an important matter in all concrete work, and the new plastic finished plywood forms are good in this respect too. At the giant Parklabrea housing project in Los Angeles of the Metropolitan Life Insurance Co. (2,754 dwelling units scheduled for completion in 1950) smooth concrete exteriors and ceilings are poured in 13 story buildings using one set of forms repeatedly. Three quarters of a million sq. ft. of plastic overlaid Douglas fir plywood make up these forms; for the less exacting concrete work, 2 million sq. ft. of exterior type fir plywood forms are in use. The floor slabs at Parklabrea are formed by  $\frac{5}{8}$  in. thick panels of plastic finished Douglas fir plywood panels nailed to 2 x 4 ft. joists, 24 in. on center with 4 x 4 in. wales, 4 ft. on center. This framing is braced with 4 x 4 in. T-posts, set 3 ft. apart. The upper surface of the floor slab is hand troweled. The concrete frame and floors are placed in a cycle of two pours: the first is from sill to window head of the outside wall, and from underside of floor slab and





Turner Richards Studio



Leonard Delano Studio

columns to underside of slab on the interior wall. The second pour is from head to sill of window, including the floor slab, in a monolithic pour. As work progresses, the plywood forms are moved up in sections.

Manufacturers say their plastic finished forms are good for 14 uses without exceptional care. When edges wear off they can be cut back, as with untreated plywood forms, which are good for fewer uses. Rental forms with coated plywood liner have been used as many as 50 times on each side, a total of 100 pours. Plastic finished plywood forms in New York are about 35 per sq. ft. against about 25 cents for regular plywood, according to local contractors. On a big job the increased number of uses more than pays for the difference.

The Lester Patterson Houses in New York, a N.Y.H.A. project, is a good example of plastic forms in action. About 1 million sq. ft. of smooth ceiling surface is being placed, using about 150,000 sq. ft. of forms. Willcox - Bein - Fish - McHugh, the builders, use a new set of forms for each building from the first to 13th floors. After completion these forms are used on other jobs, but not on "finish work."

#### QUICK POURING

Here the pouring cycle has been cut down to three days in some cases. On the morning of the first day the pour is made. The second day forms are stripped and raised to be placed on the next floor. The third day engineers snap axis lines; steamfitters, plumbers and electricians place sleeves and inserts; bottom reinforcing steel is placed; electric conduits are placed; top steel is placed. Concrete is poured the fourth day.

The objections to smooth concrete ceilings, unplastered, come first from the plasterers' unions. Union labor will plaster walls in housing, and leave the ceilings un-

plastered—but not in office buildings. Another serious objection raised by architects is the matter of noise control. Many architects are very dubious about the effect on acoustics of bare concrete slab ceilings. These two objections are linked in solution to some degree in the fact that many new office buildings, especially air-conditioned structures, have acoustical hung ceilings anyway, with ducts and piping above.

#### TEXTURED CEILINGS

One creative approach to the problem of the unplastered concrete ceiling is voiced by Walter Shaw, vice president of the Turner Construction Co., an outfit with vast experience in concrete work. Shaw asks *why smooth ceilings* and considers the answers: easy painting; good light reflectivity; easy cleaning. But there is still extra expense in producing a sufficiently slick painted concrete ceiling to take the test of today's low-ceilinged apartments, although the expense of finishing concrete smoothly is far less than that of plastering. It has been suggested, he says, that experimentation be done in the development and acceptance of textured surfaces, rather than the uniformly smooth surface which has long been the objective. This might be even cheaper than smooth concrete, and there is reason to think it might be acceptable—most acoustical ceilings, for example, are of an irregular surface and many people prefer them to smooth surfaces. In the textured surface, the small scars where forms join might be lost, as the panel edges of adjoining sheets of striated plywood are. Some work has been done in the use of grooves and fillets to de-emphasize form fins, but the problem remains to be worked out economically and esthetically. Smooth concrete ceilings, on the other hand, have been well worked out and it looks like this will be a big year for them.

Building smooth forms, left, for concrete slab with joists. Above, pattern achieved in concrete by use of fillets in forms. Below, rapid progress of concrete frame, with brick veneer chasing forms closely.

N. Y. C. Housing Authority





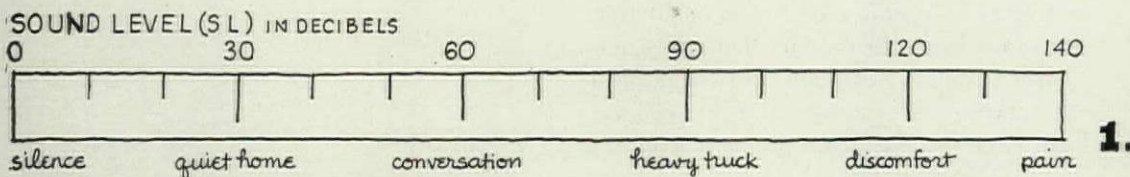
With high costs necessitating rigid economy in apartment construction, acoustics often suffer. Once a building is completed, and occupied, after mistakes have been made, the situation is immediately evident and terribly expensive to correct. True, sound conditions within a room can be improved easily by applying sound absorption material to walls and ceiling, but too few architects and builders realize that this does little to cut down on noise transmission from one apartment to the next.

Noise-stopping measures should be taken in the planning stages. If they are not, the real value and future renting appeal of apartments are hurt measurably. The measure will be economic: noisy apartment buildings fast become notorious—and difficult to rent in a normal market. In this respect, a little economy in construction can be a dangerous thing.

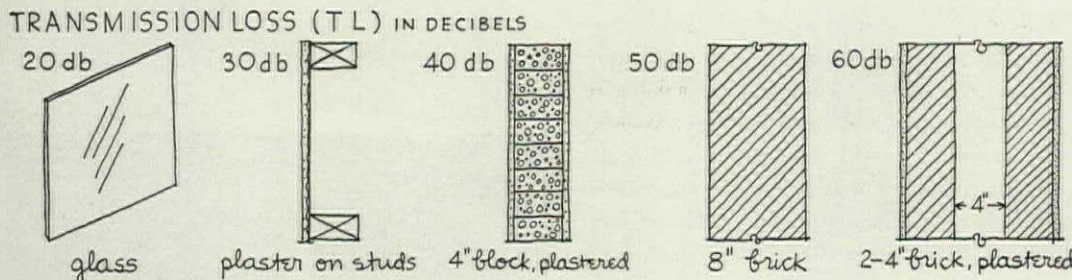
Richard Bolt and Robert Newman both own wide experience in the field of acoustics. They are members of the faculty of Massachusetts Institute of Technology, teaching and conducting research in the M.I.T. Acoustics Laboratory in Cambridge. They are also members of an outstanding acoustical consultant firm, Bolt, Beranek & Newman. In the following article they have picked out some of the commonest acoustical flaws in apartment construction and diagnosed them—with prescriptions.

## THE PROBLEM OF ACOUSTICS IN APARTMENT BUILDINGS

By Richard H. Bolt and Robert B. Newman\*

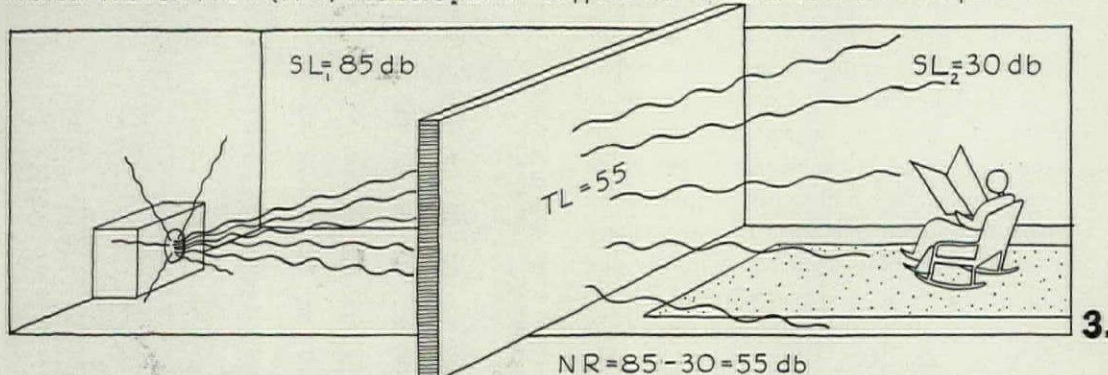


SOUND LEVEL (SL) is a measurement of the actual amount of noise generated, measured in decibels (see examples on scale above)



TRANSMISSION LOSS (TL) is the reduction in decibels experienced by sound in passing through a wall.

**NOISE REDUCTION (NR) IN DECIBELS....** difference in SL between two spaces



NOISE REDUCTION (NR) is difference between level of sound at source and at location of receiver. In these examples the area of the transmitting wall (s) is assumed equal to the number of absorption units in the receiving space (a); only in this special case does noise reduction equal transmission loss. Keeping transmission

loss fixed, noise reduction increases as the ratio of number of absorption units to area of transmitting wall (a/s) increases, and vice versa. Thus, if the rooms on either side of the partition are heavily furnished or otherwise treated with sound absorbing materials the noise reduction may exceed the transmission loss.

Most new apartment buildings are not adjacent to a boiler factory, an elevated train, a noisy super highway, an airport, a turkey farm, or other source of specially annoying external noises. The principal noises are the more usual ones coming from neighboring apartments and from children playing outside. Even these, however, are a serious consideration.

To a considerable extent, trends in contemporary design of dwellings have done much to increase noise control problems. Gone are the old fashioned bearing masonry party walls, the several small rooms for the various household functions, and the many halls and dead spaces separating these elements. The trend toward open planning and thin lightweight walls makes for increased difficulty in confining noises to their places of origin. Since there are many reasons for this trend, however, and since the movement toward lightweight and prefabricated elements will probably increase, we must bring to bear the full knowledge of acoustics on these problems.

Basically, noise isolation requires impervious massive barriers. Sound passes readily through a porous wall or blanket and through cracks around doors, windows, pipes, or outlet boxes. The usual rough 4 in. terra cotta wall, before plastering, has a transmission loss (see figures, 1 2 and 3 for definitions) of less than 20 decibels. When the cracks and openings are completely sealed with plaster on both sides, the transmission loss increases to about 40 decibels. Once the wall has been made impervious, the transmission loss can be raised further by increasing the weight.

\* Acoustics Laboratory, M.I.T.



Thus 4 in. of brick plastered both sides gives about 45 decibels, and its weight is about 45 lbs. per sq. ft. compared to 29 lbs. for the terra cotta tile. In general, doubling the weight adds 4 to 6 decibels to the transmission loss, if other factors are held constant.

If the nearest neighbor lives in a separate house some 20 or 30 ft. away, the probability is *less than 1 in 4* that his noise will be bothersome—but there is some chance. This chance is about the same if, instead, he lives in an adjacent apartment of the same dwelling with a party wall whose transmission loss is 55 decibels. Therefore, why make party walls better than this? In fact a transmission loss this high is not easy to achieve (see fig. 4).

## STANDARDS

The optimum standard (a 55 decibel party wall) is now considered essential in Great Britain, but the American pocket book is not yet adjusted to this price for privacy. Customary American "good practice" employs party walls having transmission loss of 45 to 50 decibels which, survey shows, gives cause for complaint to one out of three or four tenants. At 40 decibels transmission loss, one out of two tenants complains while two out of three are unhappy when a 35 decibel wall separates neighbors. Much statistical evidence is building up—people do not like intruding noise. They dislike both the intrusion on their own privacy and the inhibition which is imposed on them by the fear of intruding on the neighbor's privacy.

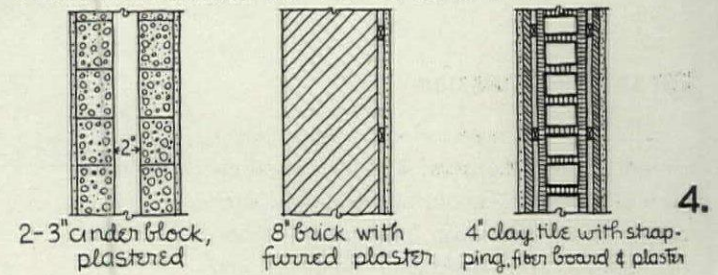
A transmission loss of 45 to 50 decibels can be obtained in walls in figure 5.

To achieve 55 decibels from these walls in practice requires careful detailing to avoid short circuits between the separated elements: no bridging by mortar or rigid metal ties, no tying across by continuous joists or light slabs. A typical mistake is shown in figure 6. Studs are staggered but the plate transmits sound through the wall. Two ways of guarding against this are: breaking the plate, or carrying the partition up through the ceiling to the slab.

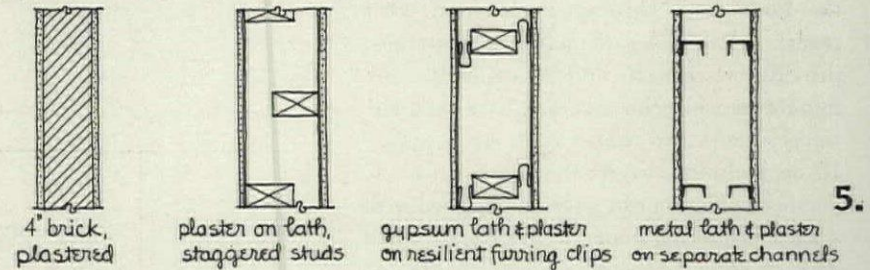
## A COMMON MISTAKE

Beware of medicine cabinets back-to-back in a common wall! In this very common detail, sound passes easily through the light metal backs or past the edges. Some cabinets even provide razor blade slots to make sure that the neighbor can be heard talking under his breath. Although the rest of the wall may have a transmission loss ranging from 35 to 55 decibels, the net effectiveness is reduced to about 25 decibels by this construction. This condition together with several solutions is shown in figure 7.

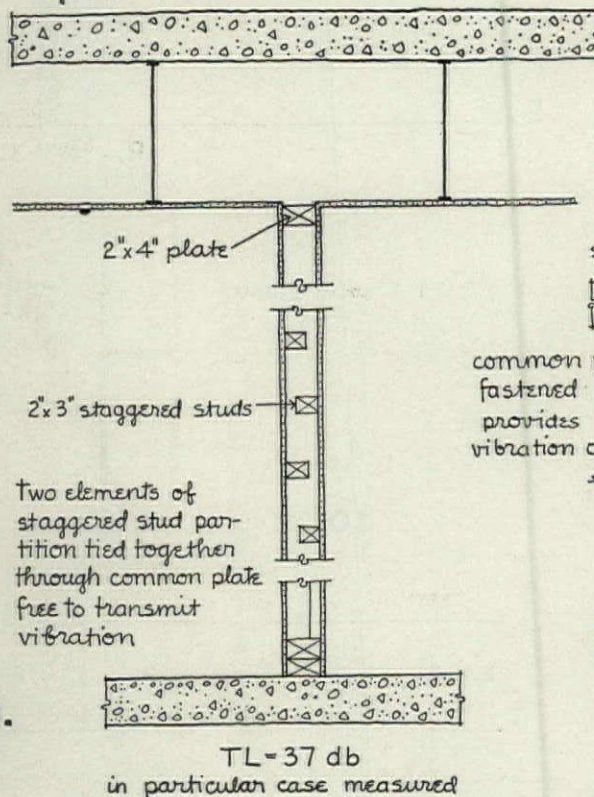
## CONSTRUCTIONS OF TL=55 db or more



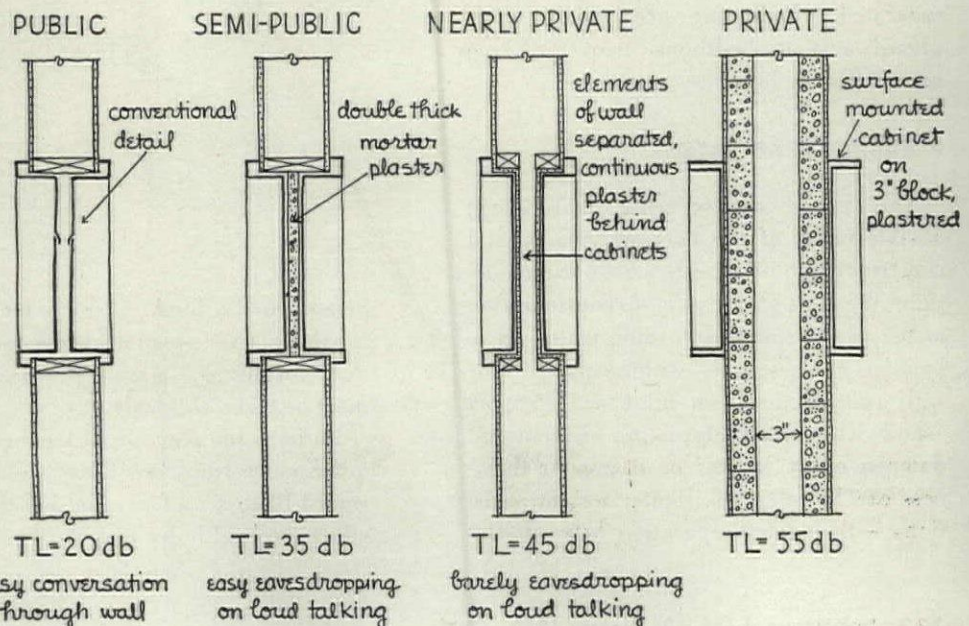
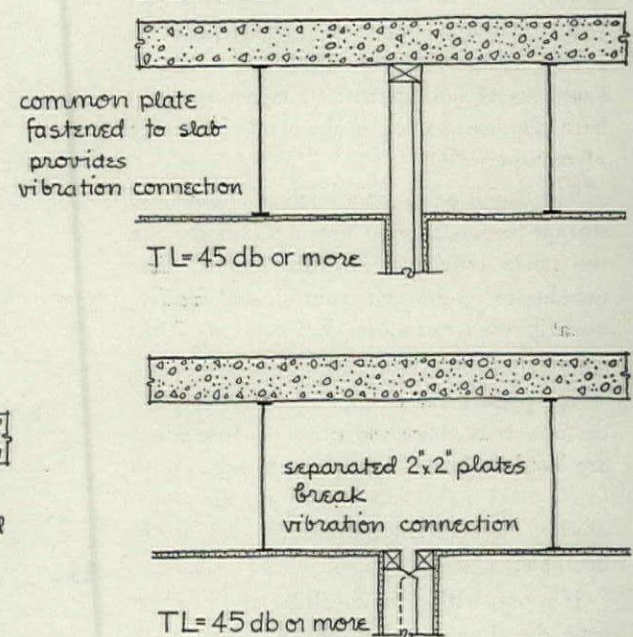
## CONSTRUCTIONS OF TL=45 to 50 db



a typical mistake is:



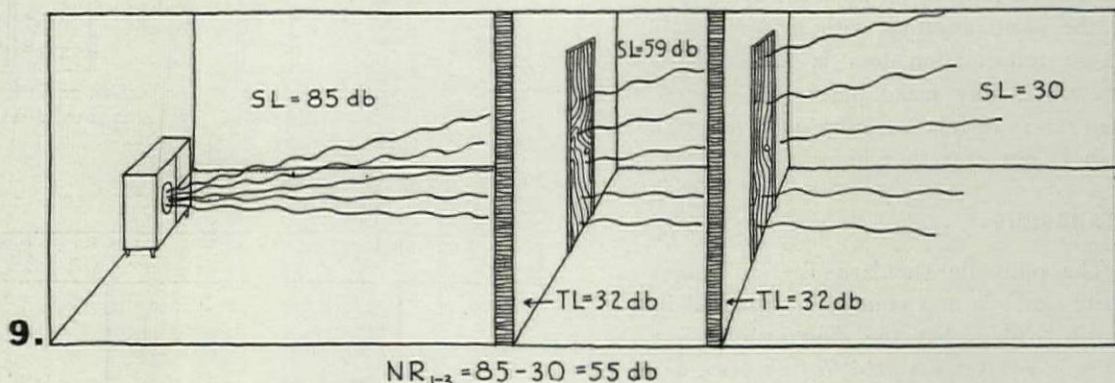
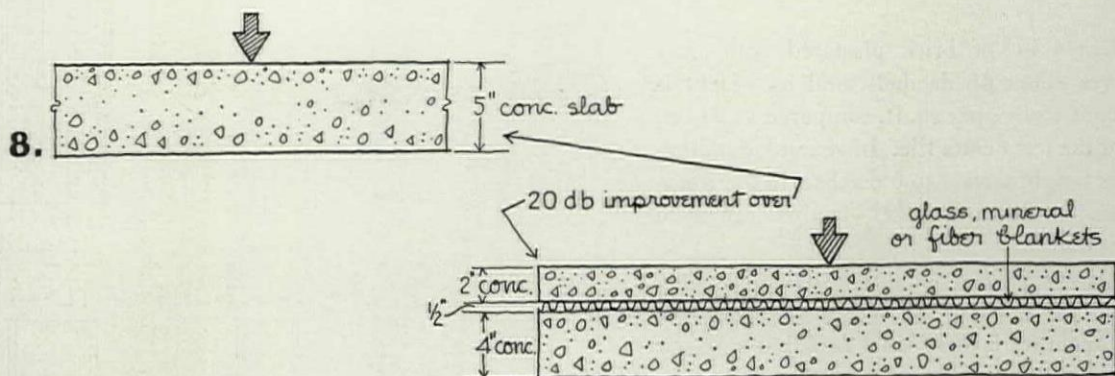
should be:





## IMPACT TRANSMISSION

Although the noise reduction of airborne sound through the usual 4 to 6 in. concrete slab is adequate (about 50 decibels), such construction is almost transparent to impact sounds from overhead. Footsteps and sounds from pianos and radios resting on the floor come through such floors very readily. For real satisfaction a floor must provide between 15 and 20 decibels more impact transmission loss than bare concrete. Carpets, cork and rubber tiles, etc. give 5 to 10 decibels improvement while a 15 to 20 decibel reduction can only be obtained with a special floating floor (figure 8). A wood deck or second concrete slab can be floated on distributed steel or hairfelt pads, or on a continuous blanket of mineral wool or glass fiber. In all these floating constructions, the floor must be kept separated from the rest of the structure.



## NOISE ISOLATION IN THE PLAN

A noise reduction of 55 decibels, hard to achieve in a single wall, is easily obtained through an intervening space such as a hall with ordinary partition construction as shown in figure 9, although total transmission loss of both partitions is not realized here because spacing is close, on either side of narrow wall.

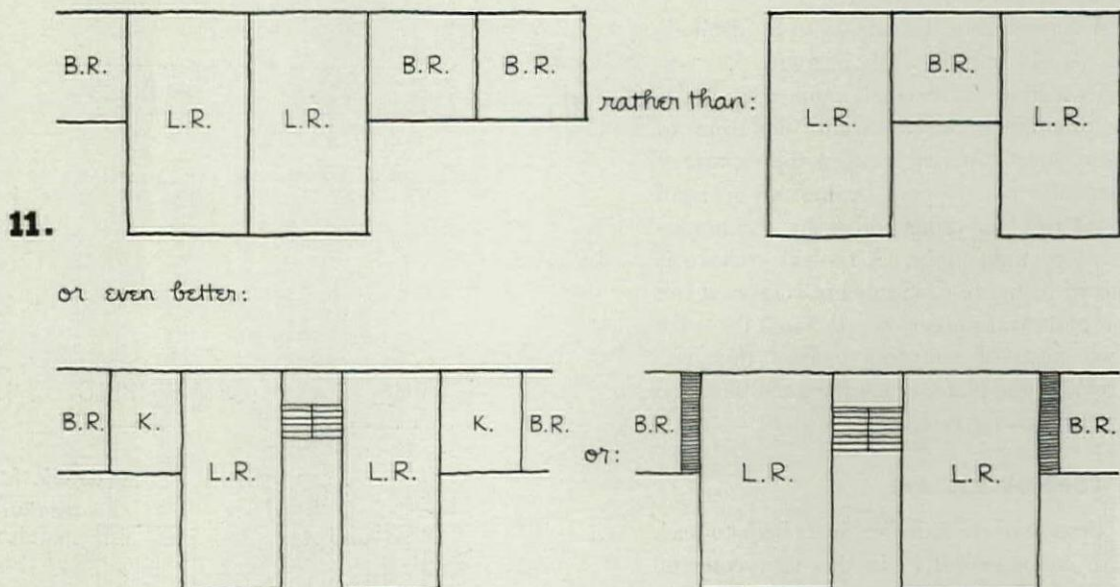
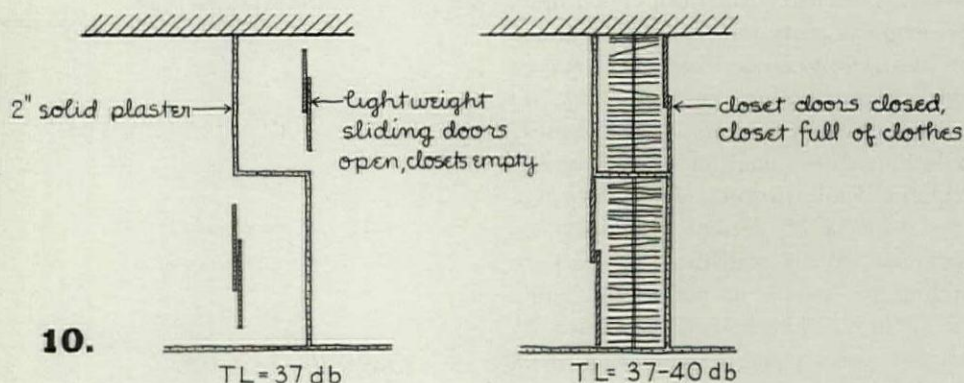
The use of dead space such as closets and storage rooms is also useful in increasing the noise reduction between rooms. The benefits to be derived from closets are frequently over estimated, however, as illustrated in figure 10.

The presence of clothes in closets does little to increase noise reduction because doors are neither heavy nor tight fitting. With fairly heavy, tight fitting doors, the transmission loss might increase to 45 or 50 decibels.

If rooms within the dwelling and in adjacent dwellings cannot be separated with dead spaces, they should be arranged so that inherently noisy and quiet spaces are separated. Bedrooms are much better placed next to bedrooms than to living rooms (figure 11).

## PLANNING THAT PAYS

This type of common sense planning can obviate much of the necessity for special construction to obtain adequate noise reduction. We must also give more consideration to the use of sound absorbing materials to localize noise sources within spaces. For wall constructions we must use complex "sandwiches" with alternating resilient and damped heavy leaves; or if greater thickness can be tolerated, lighter weight partitions with greater separation between ele-



ments can be used. If we want to obtain anything like adequate noise isolation in our dwellings, acoustics considerations must be taken seriously.

Perhaps the reaction of tenants to inadequate noise isolation is less violent than it would be to a roof cave-in, but the adverse effects on health due to lack of privacy, em-

barrassment, and inhibition are probably much greater than is realized. When, as happened in a recent British survey of 2,000 families, one out of three complained when separated from neighbors by only a 45 decibel wall, it is occasion for concern. How long would a new model automobile last with 33 per cent complaints?



## Sponge Rubber gloves for condensation control on pipes

Sponge rubber has a new use in building as condensation insulation on water pipes. Sleeves of the flexible foam material are worn on the pipes which carry cold water to the under-window air-conditioning units from risers in the new office building at 100 Park Avenue, in New York (FORUM, Dec. '49).

Molded to fit, the insulation can be slipped on easily. Besides speed of application and good insulating performance, sponge rubber sleeves have a further advantage in handling: this copper pipe is sweated into place, and the rubber tubing can be pulled back easily while the joint is being braised, then slipped back up on the joint. Jaros, Baum & Bolles were mechanical engineers on the job, Kerby Saunders, Inc. were mechanical contractors, and George A. Fuller Co., general contractors. Architects were Kahn & Jacobs. The tubing is manufactured by Sponge Rubber Products Co., Shelton, Conn.

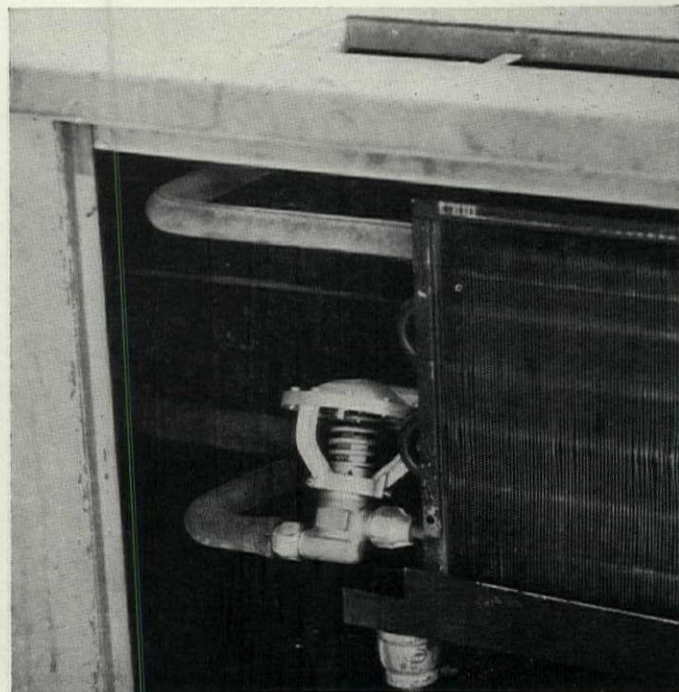


Photo of corner of under window air-conditioning unit shows water pipe sheathed with sponge rubber.

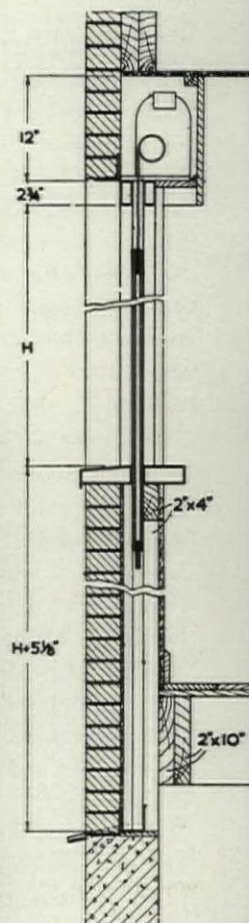
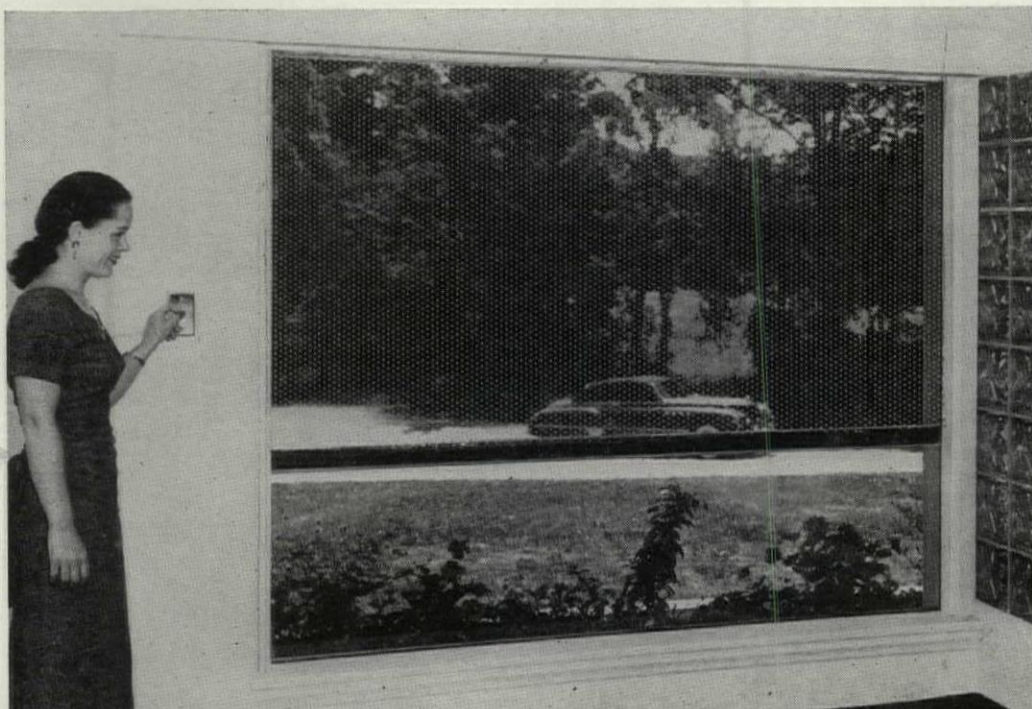
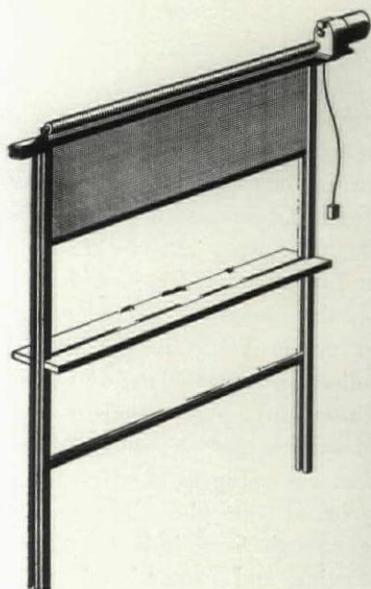
Photos: Dave Rosenfeld, John Ebstel, Schultze-Pender Studio

## AUTOMATIC WINDOW packaged for use in houses

A packaged automatic window for home installation, the Vita window is opened and closed by a  $\frac{1}{4}$  h.p. electric motor built in the window head. The frame is steel, with vertical tracks upon which standard steel channels of double insulating glass ride up and down when the concealed motor is put into operation. The insulating glass is supported by a treated screen which is wound on a roller at the window top, pulling the

glass into closed position when furled and, when unfurled, lowering the glass and replacing it over the opening. The window can be stopped in any position.

The entire mechanical unit is fabricated; the switch can be installed anywhere in the room. Prices are: \$398 for 66 x 42 in. glass size; \$516 for 84 x 66 in.; \$582 for 96 x 72 in. Manufacturer is Vita Automatic Windows, Inc. 101 Park Avenue, N. Y.





## THE FINANCING OF PROMONTORY

(Continued from page 77)

Thirties, then revived by the Holsman organization after the war as an answer to the apartment housing shortage (see page 78). As an apartment-building device, mutual ownership is now a major force in the Chicago area. Total value of postwar trust construction: \$20 million. By year's end, 12 trust projects, totaling 2,828 units, will be built or building. The Holsman organization has a design hand in all of these with 82-year-old Henry K. still taking a lively and patriarchal interest in the development of more projects.

Promontory apartments is a typical example of how mutual ownership works in one project. The building was promoted by sure-footed young (33) Herbert S. Greenwald who got the Mutual Ownership gospel when he went to work for the Holsmans in 1945 as an administrative assistant. After an instructive year of trust promotion, Greenwald decided to do some of his own in the luxury apartment field. As an added filip, he plumped forthrightly for contemporary design. After canvassing the design field, he commissioned Mies van der Rohe to do the building in collaboration with Pace Associates, a firm of young Chicago architects. Later Greenwald added the Holsman office to his already imposing list of architects. In practice, the Promontory design team was Mies for overall design, Pace for working drawings and the Holsmans for special work.

### Admission fee: \$6,500

Having lined up his professional team, Greenwald then concentrated on selling Trust Certificates to prospective tenants under the mutual ownership plan. His assets at the time were the Promontory site, for which he paid \$95,000, and very little else. Under Illinois security laws, he had to sell one-half of his certificates before he could start building. The price of the 122 certificates—one for each apartment was a stiff \$5,000. (The last 61, however, were sold for \$6,500. Rising construction costs accounted for the higher price.) Much to the surprise of the Chicago real-estate fraternity, Greenwald sold more than half the certificates from plans. The rest were gone before the concrete frame was up.

The \$701,500 thus collected represented one-third of Promontory's cost. Getting a mortgage to cover the other two-thirds was not easy. Greenwald peddled his plan to most of the big insurance companies. Says he: "They fell into three groups—those who weren't impressed by Mies van der Rohe's plan, those who weren't impressed by the mutual-ownership idea and then those who didn't like anything about either one." Finally, he got a taker: Cincinnati's Western & Southern Life, which gave the Promontory Trust a \$1,350,000, 25-year mortgage. The loan called for a constant 4 per cent amortization with interest at 4 per cent on the declining balance remaining unpaid.

This sizeable mortgage plus the impressive sale of trust certificates is not so much a tribute to Greenwald's promotional skill as it is to the inherent soundness of the mutual ownership plan. Particularly important are the safeguards which mutual ownership provides against financial failures, over and above the fact that tenant liability is limited to their trust certificate investment. The trustee's obligation to evict defaulting tenants minimizes one of the chief financial headaches of orthodox co-op plans. Management of the building by a group of professional experts is a safeguard against the inefficient management and politicking that characterizes many a co-op tenant-management committee. The trustees for Promontory are a realtor, an architect and a certified public accountant with Greenwald acting as their agent.

Aside from these buffers against fiscal difficulties, Promontory tenants are now enjoying a substantially lower monthly rental for their plush apartments. In signing their leases, Promontory's trust certificate holders agree to pay an "economic rent" for their apartment, i.e.

its median value in the open market. Market rents at Promontory run from \$120 for two-bedroom units to \$207 for three-bedroom, two baths units. Their actual rental is considerably less than their market rent, however, since the trustees charge only the building's total operating budget, prorated equally among all the trust certificate holders. During this first year of operation, the difference between the economic rent and actual rent allowed by the Trustees is \$30. Greenwald thinks that he can get this down another \$24 after seven years. The reason: at that time, more than \$490,000 of the mortgage will have been amortized. As a safety factor Western & Southern Life, the mortgagee, asked for—and got—an additional \$150,000 amortization in the first seven years. Principal payments will drop over \$25,000 a year with a resultant cut in the building's operating expenses.

If a trust certificate holder wants to sublet his apartment, he may do so and keep the trust certificate. Even if he should surrender his lease, he can still keep the certificate as an investment and pocket the difference between the rent he charges and the trust's rent. To keep the building occupied by Trust Certificate holders, however, the Trustees can call in the certificate of a non-leaseholder after two years. He has to surrender it at book value unless he finds a buyer himself. (At the present time, the certificates are worth about \$1,000 more than their book value.) In addition to all these rent-reducing advantages, Promontory's certificate holders get the usual tax benefits accorded co-op owners: deduction of their mortgage interest and real estate taxes from their gross income.

Lake Shore Drive Apartments, the second Mies project sponsored by Greenwald (p. 75), was ordered by him soon after Promontory turned the financial corner in June 1948. Although Architect Mies van der Rohe ignored Chicago's apartment-building convention even further by specifying floor-to-ceiling windows for all the living rooms in Lake Shore, Greenwald and a new associate, Robert H. McCormick, Jr., has had no difficulty in selling Trust Certificates ranging in price from \$6,500 for a 3½ room unit to \$12,000 for a six-room, two-bath unit. With construction just started, he has sold more than one-half of the certificates. He also found it easier, but still no pushover, to get a mortgage. Mutual Benefit Life Insurance Co. of Newark is giving the Lake Shore Trust a \$3,100,000, 20-year permanent mortgage at 4½ per cent and New York's Manufacturers Trust Co. is providing construction money at 5 per cent.

### Little trusts, big trusts

Greenwald, of course, has no qualms about taking the 10 per cent profit allowed the promoter under the trust plan. However, the Holsmans who are themselves sponsoring ten middle-income trust projects in Chicago, have some different and interesting ideas about mutual trust profits. Like Greenwald, they have a separate trust for each apartment, known as the Special Trust. Unlike Greenwald, they also have an overall fund, known as the Community Development Trust which receives all of the 10 per cent profits from their Special Trusts. (However, the Holsmans do collect a separate 10 per cent from each of the Special Trusts as their architectural and service fee.)

The Community Development fund will be used to promote other middle-income trusts. The whole idea, according to the Holsmans, is a natural development of their original trust plan. The special trusts, built separately, are not big enough financially to permit any considerable savings in construction and promotional costs. The Community Development Trust is the overall instrument, in the Holsman scheme of things, which will be able to do this. They have already assigned two main functions to the fund. It will be a research fund to investigate more efficient, less costly apartment construction methods and, secondly, it will be a revolving fund for direct financing of special trusts without hiring outside money.



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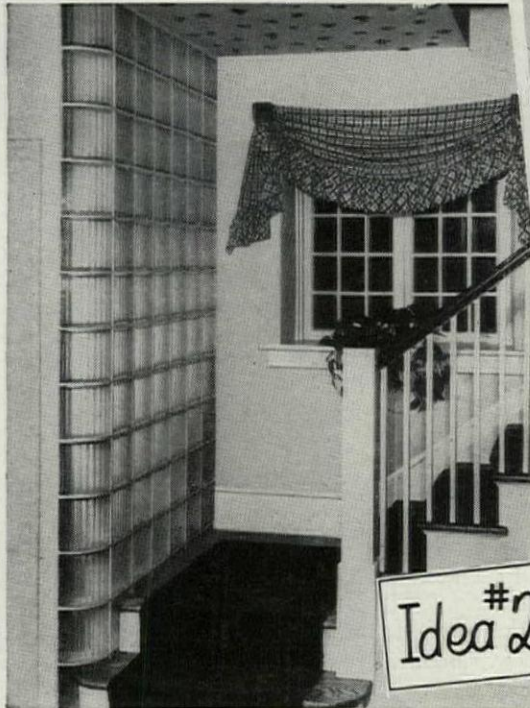
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# Some ideas on the use of Glass in today's residences

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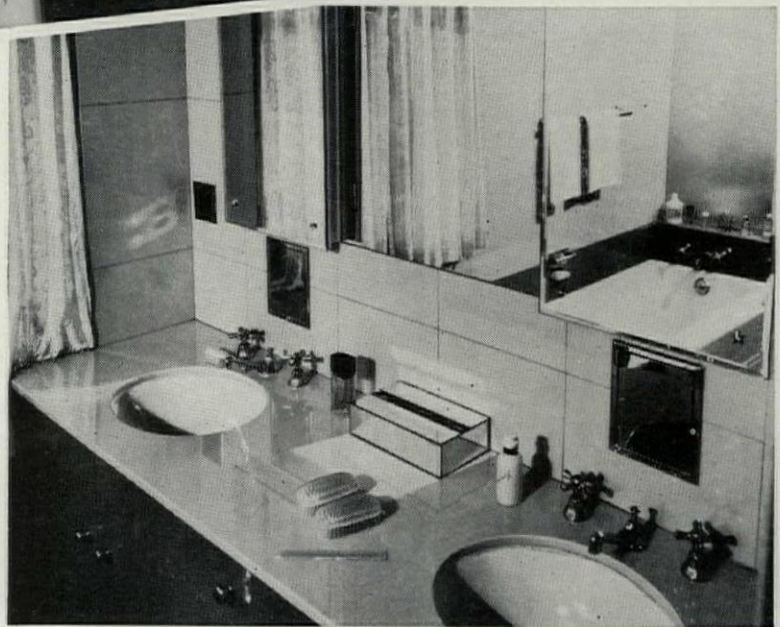
Idea #1



Idea #2

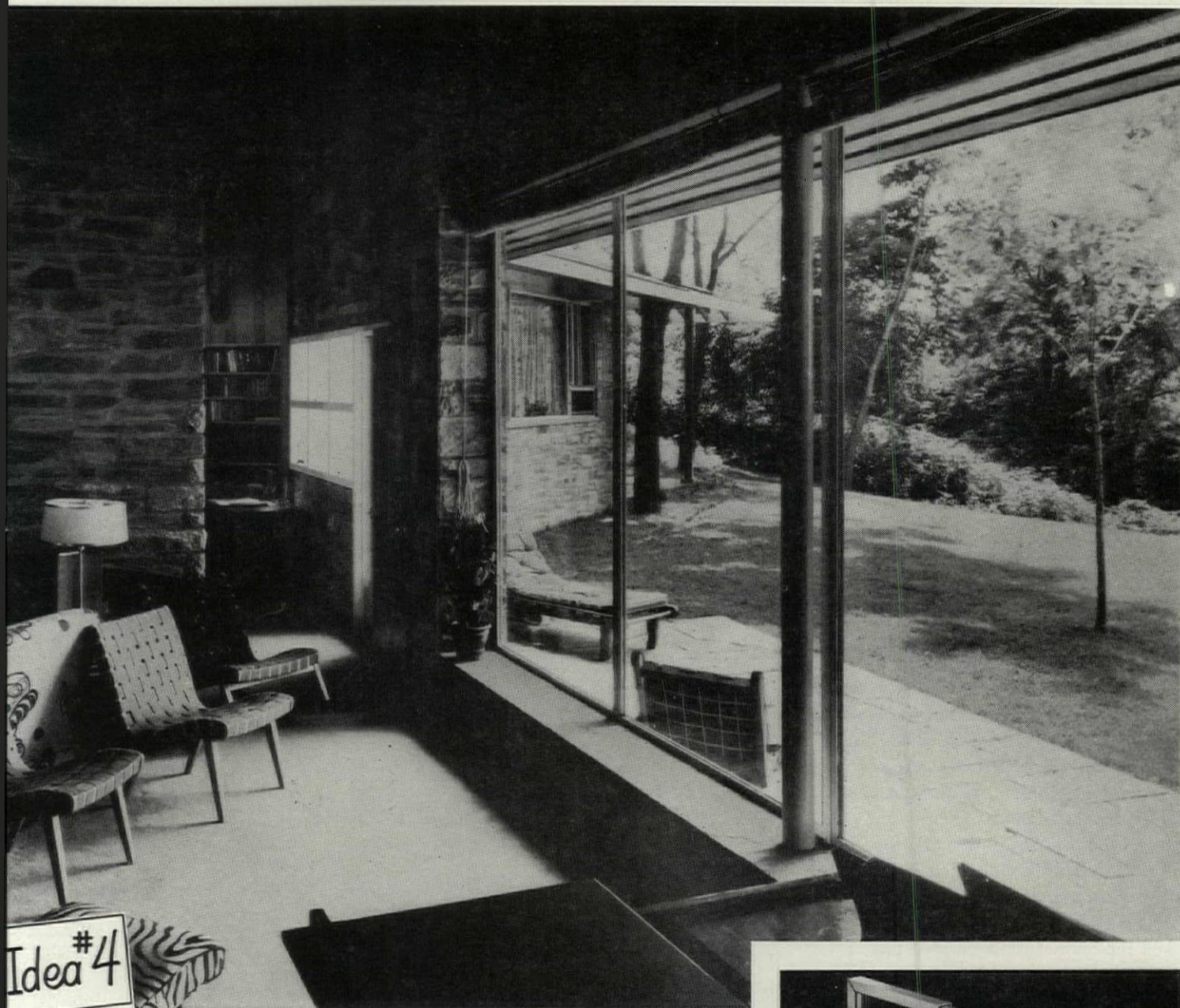
**DAYLIGHT IN ABUNDANCE.** There are some places in the home where this is wanted, but privacy must be assured, too: In bathrooms, entrance-ways and stairwells, for example. Pittsburgh Corning Glass Blocks are ideal here, because they meet these two requirements fully. What's more, they are actual money-savers for your clients. Their insulating properties cut heating bills and they hardly ever need repairs or replacement; never require painting.

Idea #3



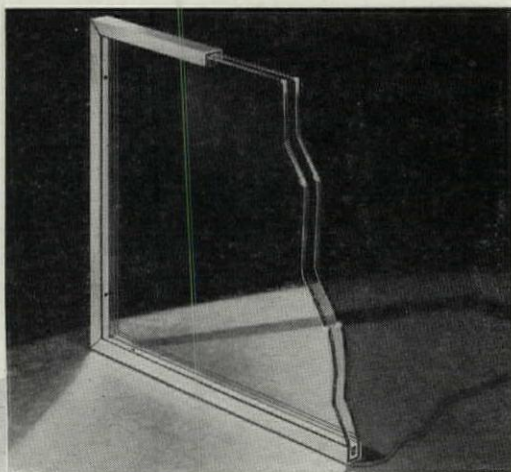
**PERMANENCE AND BEAUTY** are what home owners want. Those are important reasons why so many of the country's foremost architects specify "the *quality* structural glass"—Carrara. It's an ever-lasting product—finely-machined and easily handled. Its joints are true and even. It's adaptable and versatile. It's impervious to moisture, acids, grease and pencil marks—the ideal material for bathroom and kitchen walls. There are ten beautiful Carrara Glass colors to choose from. Architect: Henry W. Johanson, Roslyn, New York.





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**TWINDOW** is made up of two or more panes of Pittsburgh Polished Plate Glass, enclosed in a protective, long-lasting stainless steel frame. The hermetically-sealed air space between the panes offers effective insulation—minimizing downdrafts, cutting heat losses through windows, reducing condensation. Forty-five standard picture window sizes are available and are adaptable for either wood or steel sash. Twindow is another example of the extensive Pittsburgh research which helps to solve architectural problems by supplying materials that will produce better jobs.



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# MINIMUM FINANCING COSTS for a 2,000-unit apartment project are achieved through a packaged building plan which foregoes FHA's construction loan insurance and capitalizes on cost-cutting construction

LOCATION: Alexandria, Va.

ALBERT D. LUEDERS, Architect

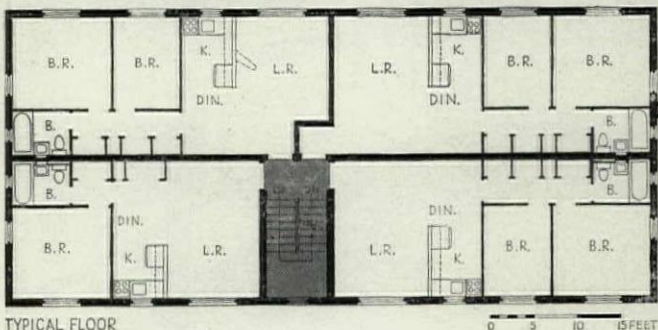
With its present ban on insuring high-rent projects, FHA had set the tune for 1950 apartment-house construction. And many a U. S. builder, as he prepared to fall into line with the new policy, wondered how he could cut costs to meet the new specifications. However, some FHA lower-rental projects were already underway. One is the \$15 million Shirley Duke garden apartments, now being built in Alexandria, Va., on the white-collar outskirts of Washington, D. C. Rents for its 2,100 units: \$59.75 for a one-bedroom unit, \$72.50 for two-bedrooms. While this was still far above FHA's \$45-55 definition of low rent, Shirley Duke's rental schedule was closer to the goal than the average 608 project. (The median rent for new 608 projects last year was around \$80.) Such rents directly reflect the project's low (\$6,600) cost per unit, and its even lower (\$6,500) mortgage per unit.

The credit for keeping the big Virginia project in the lower-rental, lower-cost bracket goes largely to Investors' Diversified Services, Inc., the Minneapolis trust company which is financing the project.\* Shirley Duke was planned and built to Investors' specifications. A shrewd and long time mortgage operator, Investors has begun a long-range program to strengthen its portfolio with well-planned, low cost apartments in areas where it thinks the rental market will continue strong. Washington was selected after Investors' local representative E. M. "Hap" Bros checked the market, then decided that a project with a \$75-rent top would be a good investment. Together with Don Loftus, Investors' building consultant, he planned all phases of the Shirley Duke project, from land buying to the selection of materials. They organized a syndicate of builders who are constructing, and will own, Shirley Duke when it is finished. (The builders, all active in Washington area, are Herman Hutman, Earl Preston, Bryan Gordon.) Throughout the whole planning operation, the emphasis was on low cost construction. To its builders' schedule of cost-cutting devices, Investors added one of its own. It agreed to pay out its construction financing without benefit of FHA insurance. Says Hap Bros: "In a normal project that we were financing, we wouldn't pass up FHA insurance as we did here. But in Shirley Duke we knew just what the costs were and where the money was going. There was no need to insure a sure thing." Investors, of course, charged the going rate for its construction-money payouts—5 per cent plus the current 1.5 premium. It has a firm FHA \$13,346,000 commitment for the final mortgage. Some

\* Better known as Investors' Syndicate. Its name was changed shortly before control of the organization was taken over last year by Railroad Tycoon Robert R. Young's Alleghany Corp.



Frederick Schutz



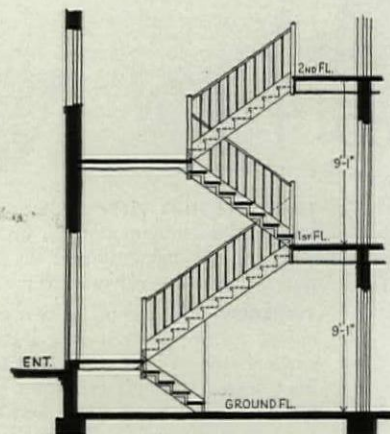
TYPICAL FLOOR

0 3 10 15 FEET

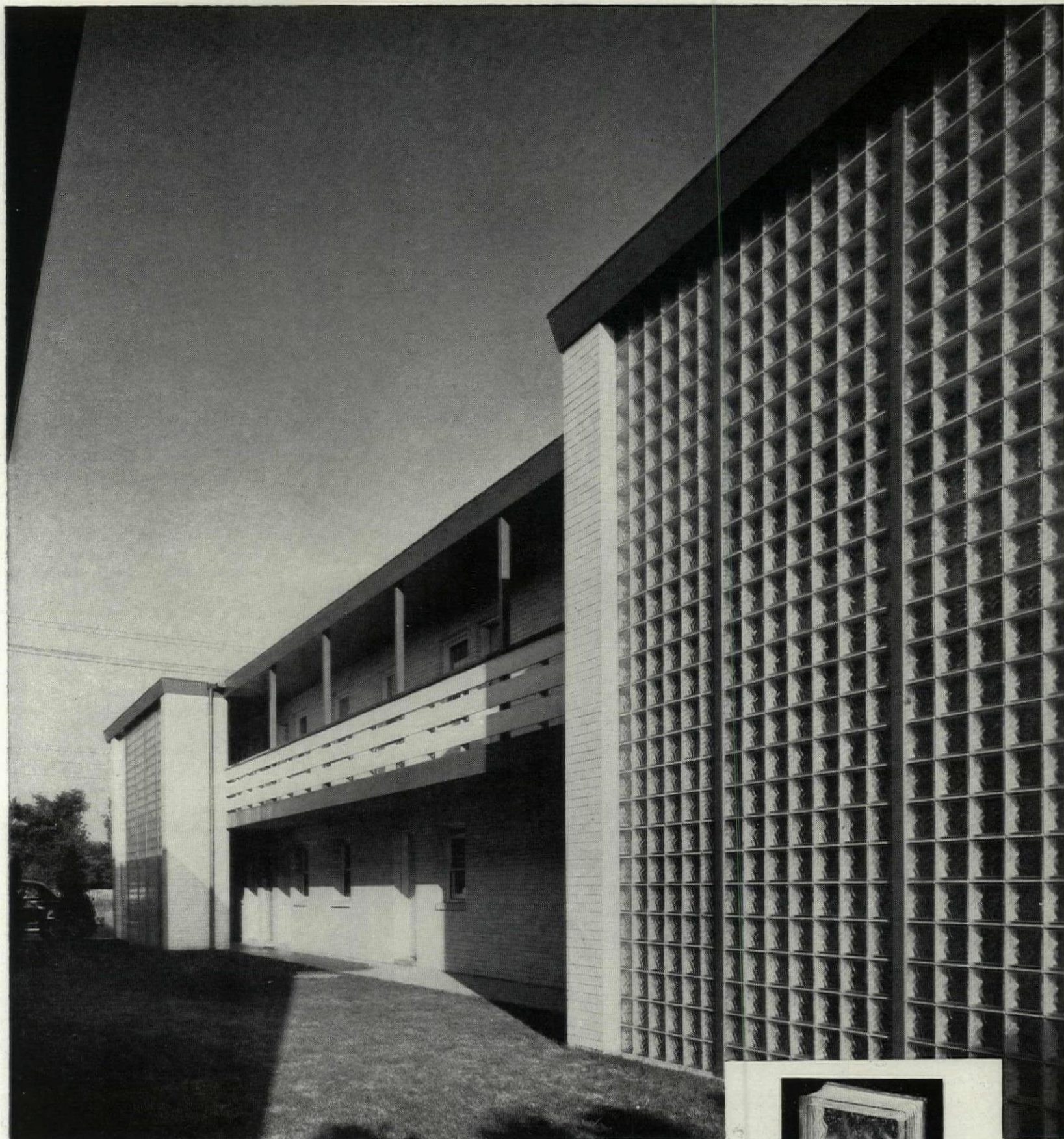
Apartments are small compact units. Three-story stairwell serves four apartments on each landing. Although third story units are often hard to rent because of two-flight climb, the builders think they have solved this by dropping the first floor below grade so that top floor is easier to reach. (see drawing, below).

impressive savings resulted however from its decision to by-pass FHA insurance during the construction period.

Eliminated from Shirley Duke's cost sheets was FHA's 1/2 of one per cent insurance charge—a total of \$69,000. Also eliminated: the escrow funds which FHA requires as part of its construction insurance. At Shirley Duke, about \$1,670,000 would have been tied up in such funds before the completion of the project. Broken down, this amount would include: \$60,000 for the payment of off-site improvements, \$207,000 (11 1/2 per cent of the working capital) held in escrow to guarantee the completion of the project and, finally, about \$1,400,000 in stage construction payments (10 per cent of the total) which are withheld until the mortgage is closed. Freeing these funds resulted in cost-clipping economies all along the line. Unhampered by FHA's strict stage-construction system, Builders Hutman, Gordon and Preston draw their construction money directly from Investors when the construction schedule warrants it. Investors has a C.P.A. and its own engineer on the job to check the requisitions. This ability to tap the till at their convenience permits them the advantage of mass purchasing, prompt-payment discounts. Although these construction-financing savings were significant at Shirley Duke, the main reason for its lower rentals was in careful control over the design and construction.







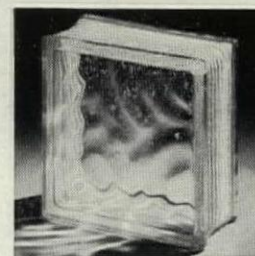
E. L. ANDERSON COMPANY, CHICAGO, DESIGNERS AND BUILDERS

## Another unusual use of Insulux Glass Block:

In this Chicago apartment building, twin screens of Insulux Glass Block effectively conceal the outside service stairway. At the same time, Insulux lets daylight into individual apartments while hiding unwelcome views from the tenants.

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## REVIEWS

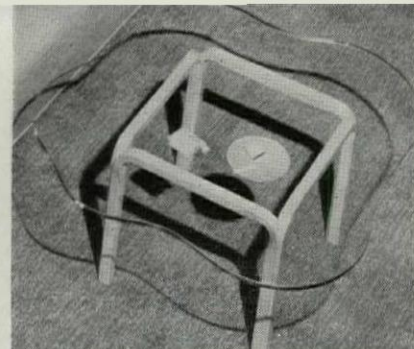
### NEW FURNITURE IS HARDY AND HANDSOME

Lest we forget that all that's modern need not be Eames—here are a number of recent designs which broaden the field of inspection and choice. None of them is revolutionary in materials or cost—all honestly try to combine the useful with the pleasing.

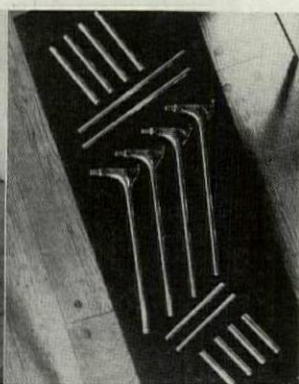
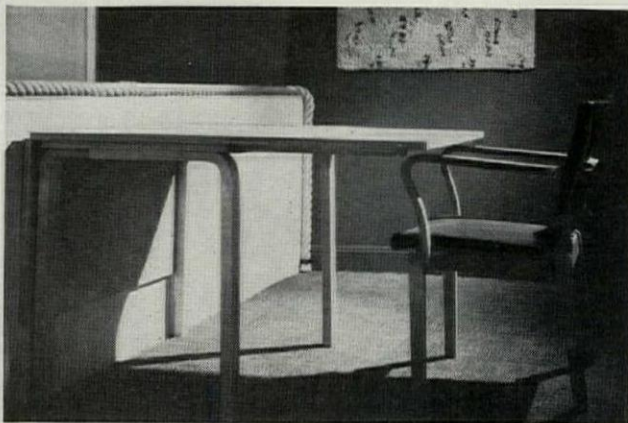
Since metal shortages have disappeared, two designers are using it with especial elegance and precision. The expandable table base offered by Edith Hernandez & Co., New York City, is composed of polished bronze parts. These contrast finely with an impervious slate table top as well as with one of plate glass (which allows its meticulous joinings to be seen). William Armbruster produces solid designs that have earned solid acceptance in years throughout the commercial field. His new chairs, tables and sectional sofas take advantage of metal's durability, using narrow frames of square steel tubing, welded at the joints. These, finished in several mat colors, are unconditionally guaranteed. Nylon upholstery and foam rubber cushions round out a group that is noteworthy for hard wearing qualities.

Traditions in wood and plywood also carry on. Alvar Aalto has joined the free-form throng with a coffee-table whose plate-glass "wobbly" top floats over a neat laminated base. A high backed chair, a sofa and additional cabinet groups make further use of Finnish light-colored woods and tapering curves.

Clayton Lewis, designer in Springfield, Ore. makes the most of the fine stand of wood still left in his native state—maple, ash and chinquapin. His furniture (below) is as handsome as it is reasonably priced.—S.K.



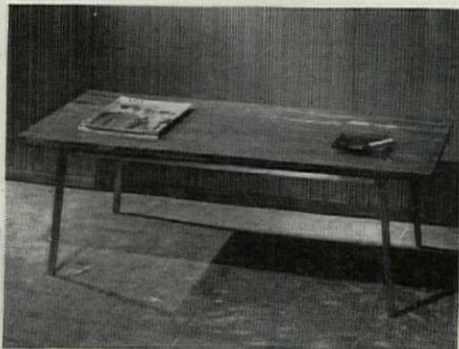
Aalto's free-form table (above) costs \$81.50 retail. His table and chair (right) are \$107 and \$45.50, respectively—at Finsven, New York City.



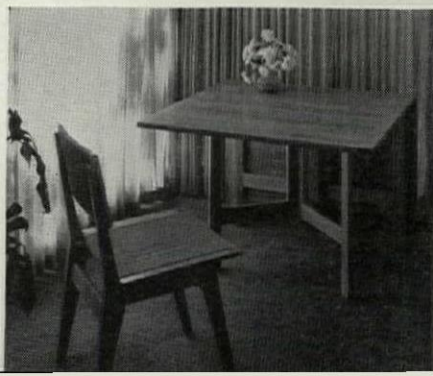
Edith Hernandez' expandable bronze base for a coffee table is completely demountable (upper right). Base parts alone are \$50; with long slate top, \$72; with glass, (right) \$56.



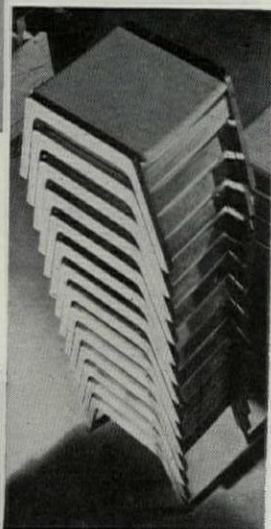
William Armbruster's designs for Edgewood Furniture Corp. (below and right) use frames of square steel tubing. The table with a top of Vermont slate is \$99; the chair, \$89.



Claywood Design Products will be welcomed to the lower cost field. The chair (right) with seat of hard twist cotton cord is \$22.50; the table is \$90.



Claywood stool (above) stacks beautifully, costs \$15.



Photos: Ezra Stoller—Pictor; Ben Schnall; William Armbruster; Philip Lewis; Ronald Partridge



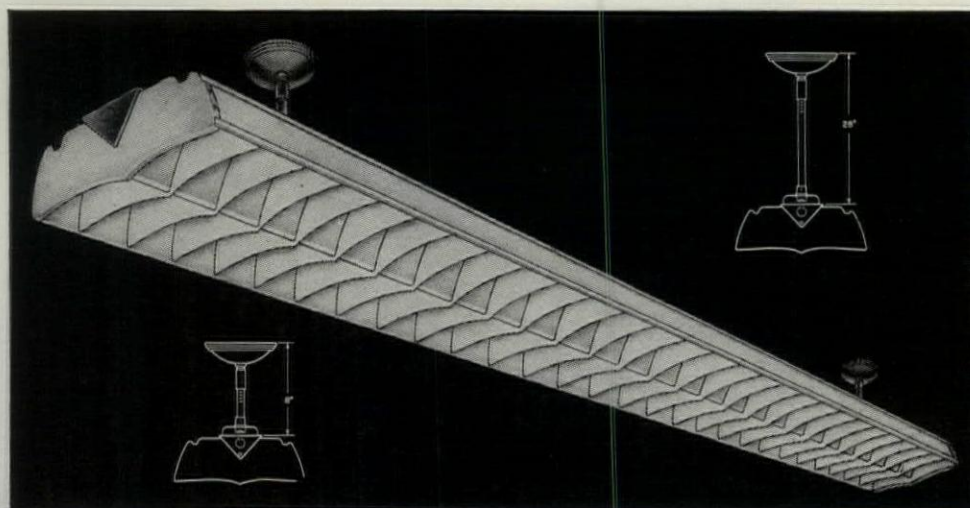
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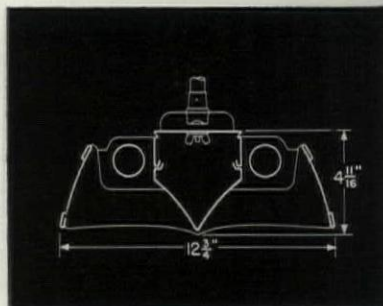
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the "LUVEX" can be relamped and cleaned without disturbing a single part of the fixture—without so much as touching a latch, chain, nut or bolt!

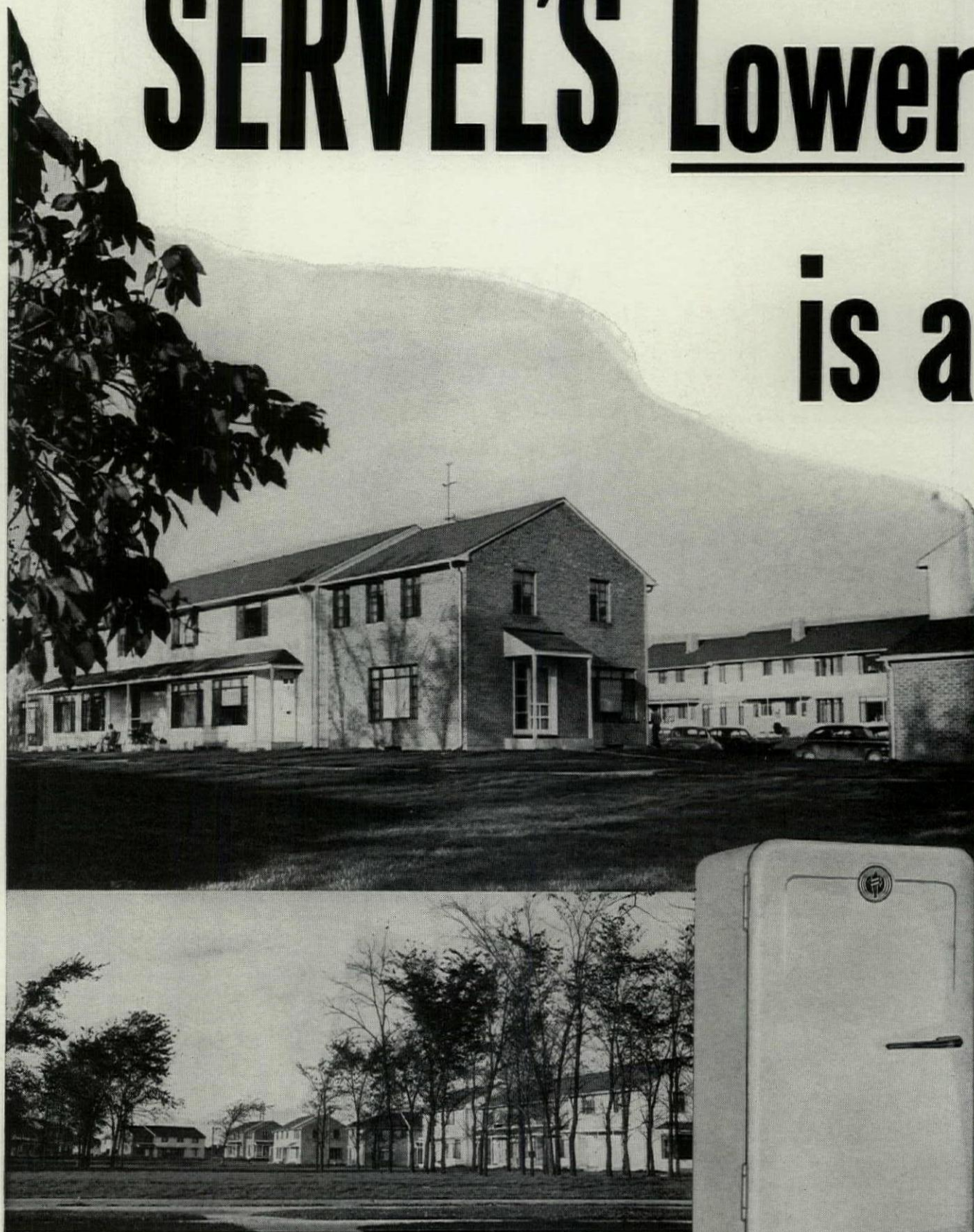
Get the full "LUVEX" story. It will pay you to know all the facts about this remarkable new Day-Brite development. Write today for Bulletin 10-M.



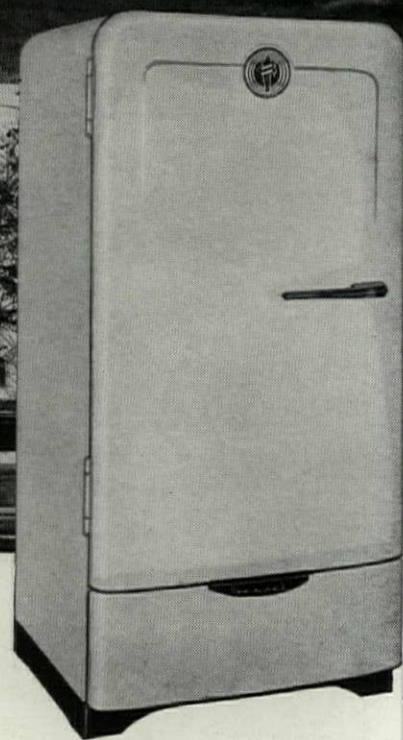
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# SERVE'S Lower is a



**3,010 GAS REFRIGERATORS** were chosen for Park Forest — Chicago's most modern community, now under construction by American Community Builders, Inc., Loeb, Schlossman & Bennett are the designers.





# Maintenance Cost Matter of Record\*

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Consult your Sweet's catalogue for full details, or write to Servel, Inc., Evansville 20, Indiana.

## \* Just Look At The Record

*"After nine years our 398 Servels cost only 1¢ a month per unit for upkeep."*  
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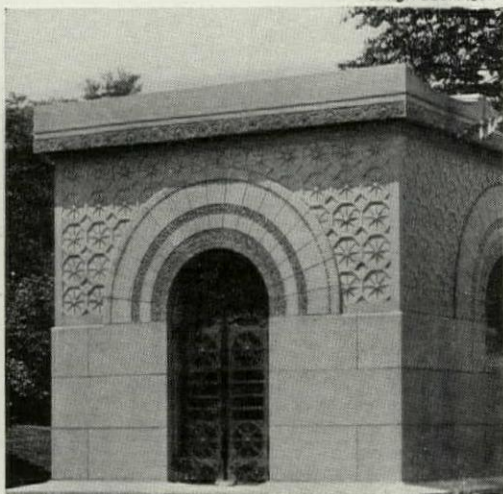
*"In 12 years our Servels have cost us nothing for repairs."*  
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**Servel**  
*The GAS Refrigerator*





"The Getty Tomb was entirely his own—fine sculpture . . . Outside the realm of music, what finer requiem?"—Frank Lloyd Wright

## REVIEWS

**THE AUTOBIOGRAPHY OF AN IDEA.** By Louis H. Sullivan. Peter Smith, publisher, 321 Fifth Avenue, New York, N. Y. 330 pp. 5 x 8. \$3.50.

Louis Sullivan's last testament (now reprinted after almost a quarter-century) is well-titled. It is the story, not primarily of the genius who was acclaimed early, then wasted by 30 years of public neglect, but of the birth and growth of the single *idea*, in which this man, its creator, never lost confidence. Today the world knows Sullivan's idea through his buildings and through those of his more-famous one-time assistant, Frank Lloyd Wright. This book, in its own right a minor American classic, is the story of the development of—"form follows function" or, as he alternately phrased it, "of-the-thing-not-on-it."

From the beginning to the end of his life Sullivan kept an exploring, pioneer mind. The amazing originality and resilience which could establish its own first principles in the midst of early Chicago's hurried materialism is evident on every page of his record—from the alert infant blinking at Donati's comet in 1858 to the sick, ignored artist of the 1920's. His first meeting with destiny is characteristic. The 12-year old boy walking about the streets of Boston heard a workman refer to "the archeetec."

"What is an archeetec," he asked, "the owner?"

"Naw, he's the man what drew the plans for this building."

"What! What's that you say: drew the plans for this building?"

"Sure. He lays out the rooms on paper, then makes a picture of the front, and we do the work under our own boss, but the archeetec's the boss of everybody."

"Louis was incredulous, but if the laborer's statement were true it was glorious news . . . He asked the man how the architect made the outside of the temple. "Why, he made it out of his head; and he had books besides". . .

"How could any man make so beautiful a building out of his head? What a great man he must be; what a wonderful man! . . . Then and there Louis made up his mind to become an architect and make beautiful buildings 'out of his head'."

Sullivan's childhood, as he himself recognized, held the clue to all his later work: "What the child accepts, we accept; what the child rejects, we reject." His parents and grandparents, his schooling, his early architectural jobs—all are the soil from which the final flower, the idea, sprang. He describes them with wit and precision noting justly in himself—"keen accuracy of observation and lively interest in all constructive affairs." Interspersed with these accounts are chapters of rather formless philosophizing ("baying at the moon," Wright once called it); but this, too is part of the development of the man in his time.

Sullivan reveals that his considered thought was far less arrogant and arbitrary than it appeared in everyday life—for instance as it

(Continued on page 140)

**NUTONE ANNOUNCES..**

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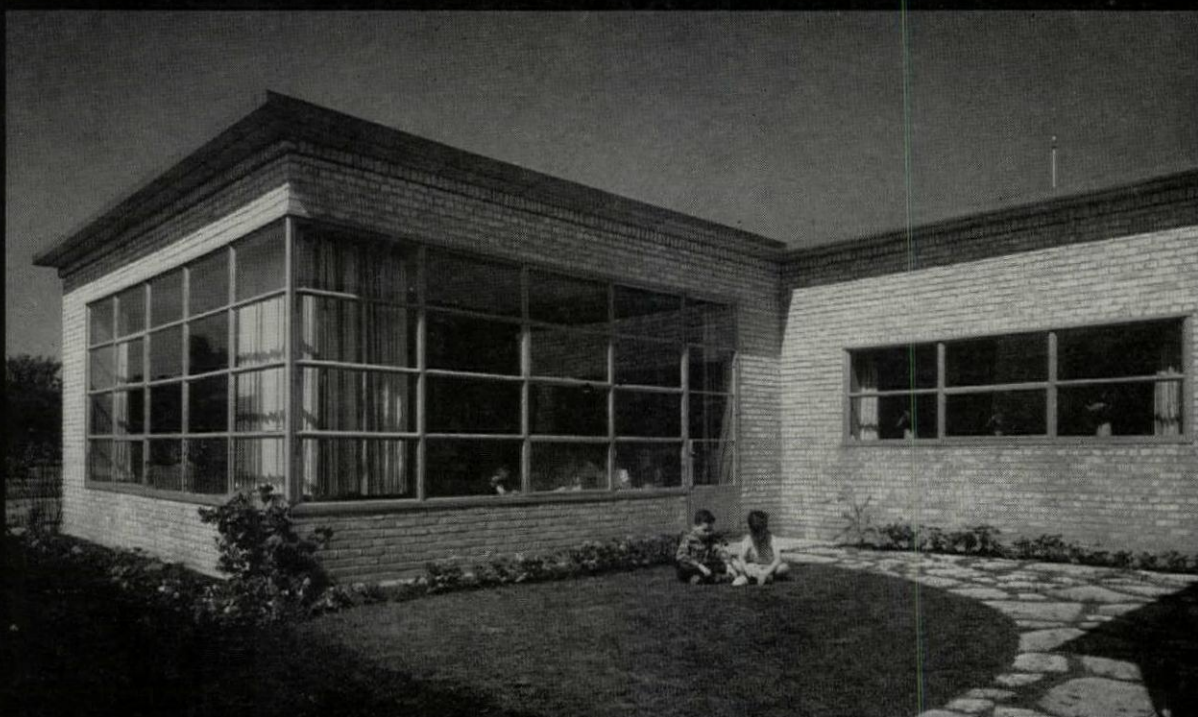
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*Crow Island School, Winnetka, Ill.*

*Eliel Saarinen . . . Eero Saarinen: Perkins, Wheeler & Will, Architects*

● In the plan of this most interesting school a series of class rooms projects from a corridor. The practically complete window-wall on two sides of each room provides full daylight with control of sunlight and ventilation at all times. According to this plan, each class room has a full view of its own private grass and pavement court. The illustration is of the kindergarten wing at the end of the building.

This treatment is enhanced by the harmony between the classroom window-wall and the window at the back of the court. The versatility of Hope's Steel Windows was important to the success of this layout and their substantial construction will prove a lasting satisfaction for the life of the building.

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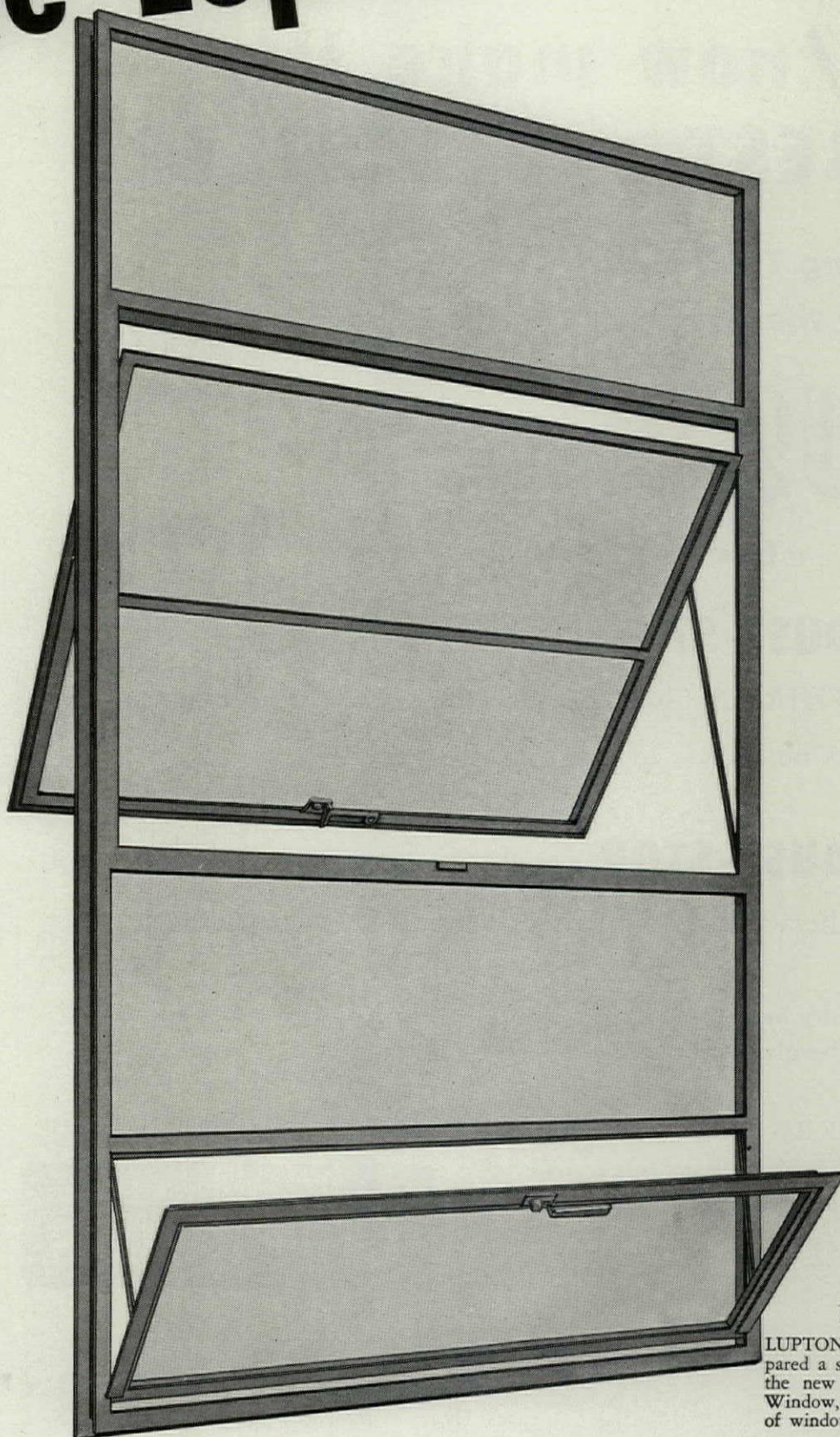
\*DUST-STOP is the trade-mark of Owens-Corning Fiberglas Corporation for impingement type air filters made of glass fibers. FIBERGLAS is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for a variety of products made of or with glass fibers.

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# ANNOUNCING

## The Lupton "Master"



### DATA SHEETS

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# Aluminum Window

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From a design standpoint, it opens up great new opportunities in window planning—better appearance, minimum infiltration and a greater adaptability to modern building design.

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- (1) NEW DEEP SECTIONS — both frames and ventilators 1-5/8 inches — sturdier without sacrificing lightness — added strength in this new Lupton Window.
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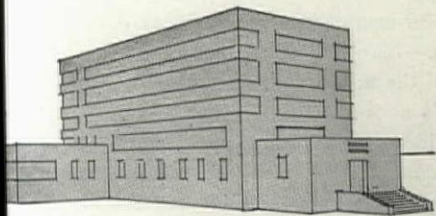
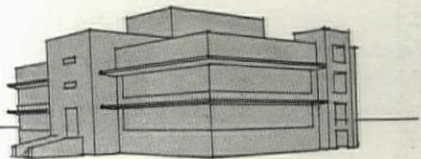
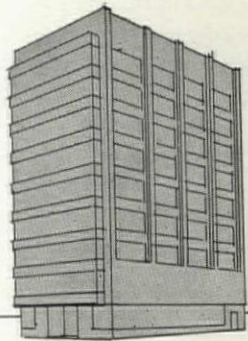
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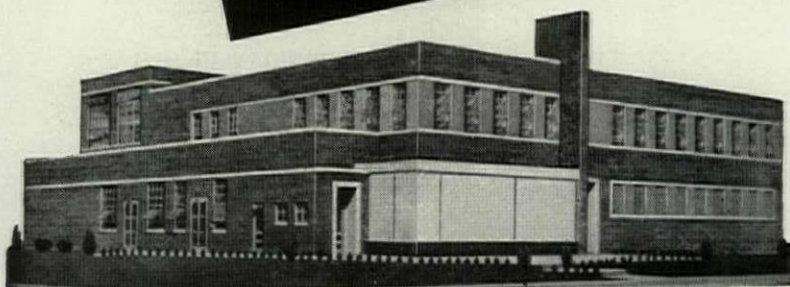
## METAL WINDOWS





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Architects: Ballou & Justice

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## REVIEWS

seemed to Frank Lloyd Wright (*Genius and Mobocracy*, FORUM, September, 1949). He writes with enthusiasm of Henry Richardson—"he of the strong arm and virile mind—sole giant of his day" and for John Root "the man of power," under whose superficial nonsense, Sullivan "had faith in him and took joy in him as a prospective and real stimulant in rivalry." He had other heroes too—all sorts. "All honor therefore to Frederick Baumann (foundation engineer) man of brains, exploiter of a new idea which he made up out of his head." He admired such bridge builders as Captain Eames and C. Shaler Smith.

Most important of all to Sullivan is an early teacher Moses Woolson. To him Sullivan accords much the same reverence as that which Wright now accords to Sullivan. Woolson, "blend of wild man and poet," won from Sullivan "a sense of obligation and of gratitude so heartfelt, so profound that it has remained with him in constancy throughout the years. There may have been teachers and teachers but for Louis Sullivan there was and could be only one. And now, in all too feeble utterance he pleads his token, remembrance, to the memory of the ONE long since passed on."

One finds also in this account the inspiration for Sullivan's wonderful decorative motifs—his "unique efflorescence" as Wright termed it. Through a gap of 60 years Sullivan recalls his happy days on his grandparents' farm and his pleasure in tending his own garden patch: "Had he not reared all these cherished beauties from the very seed? Had he not watched them growing, day by day, from infancy to blossom-time—putting forth tender leaf after leaf, and unfolding their tiny buds into lovely flowers? Had he not watered them and weeded? How often, on hands and knees—close up—had he peered and gazed long, hungrily, minutely at them one by one, absorbed in their translucent intimacy; indeed worshipped them in friendship until he seemed to feel them grow; that they were of his world and yet not his world; that they seemed to live their own lives apart from his life."

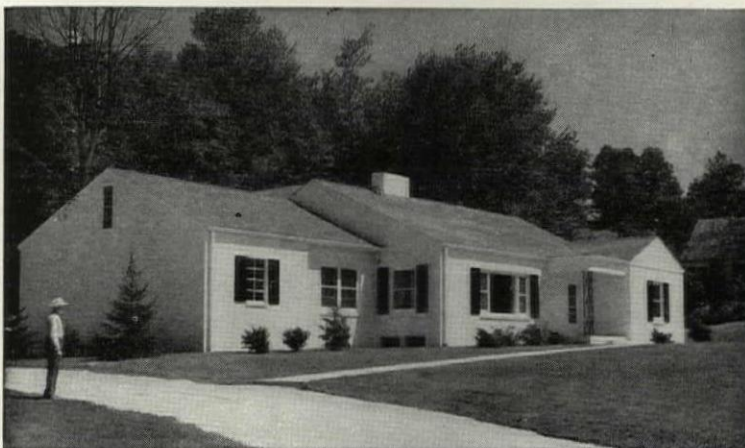
The actual events recorded in his *Autobiography* end with the Columbian Exposition of 1892—that catastrophe to the progress of the *Idea*. Here Sullivan makes his often-quoted prophecy, "the damage wrought by the World's Fair will last for half a century from its date, if not longer." He dismisses without a reference his own 30 disappointed years of existence after that date—the *Idea* was his life.

One of the most admirable qualities shown by Sullivan's account is his entire lack of self-pity. "It requires courage to remain steadfast in faith in the midst of such pollution," he admits at the very end, adding immediately, "Yet it is precisely such courage that marks man in his power as free spirit."

Louis Henry Sullivan is still a man with a message for U. S. architecture.—S.K.

(Continued on page 148)





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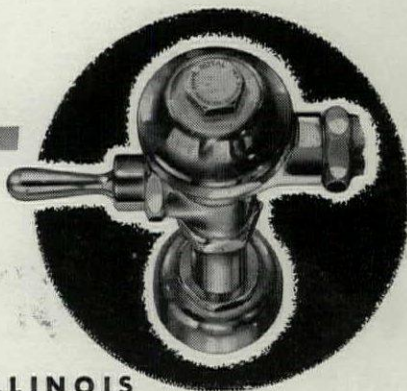
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Facing Tile  
at its best*



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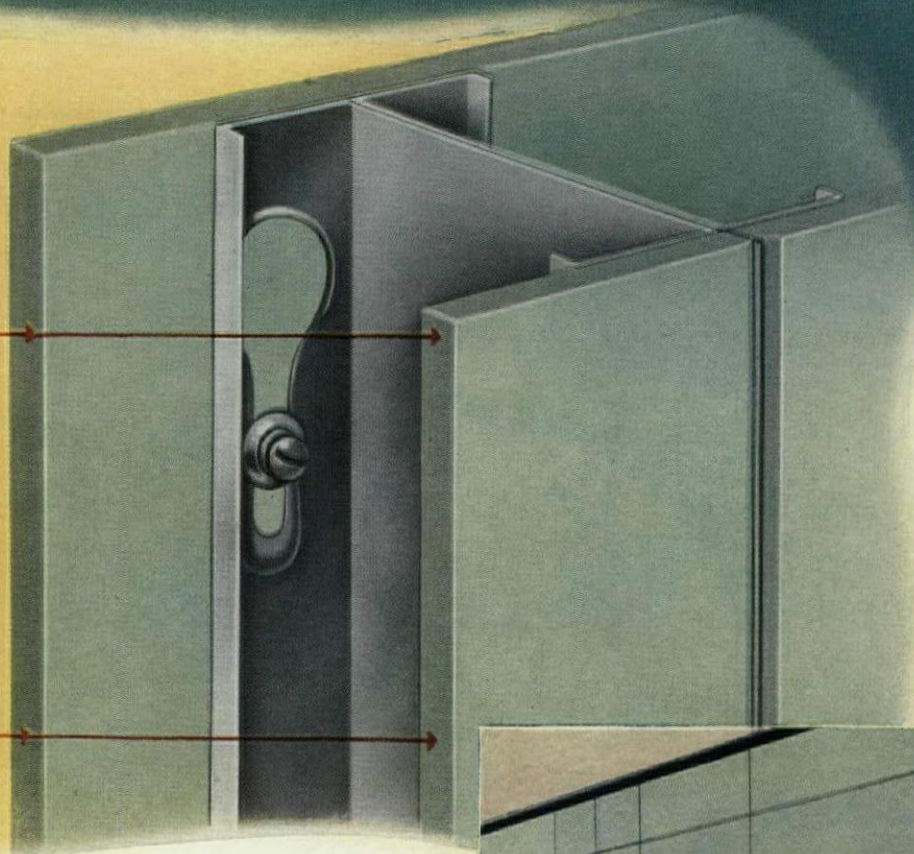


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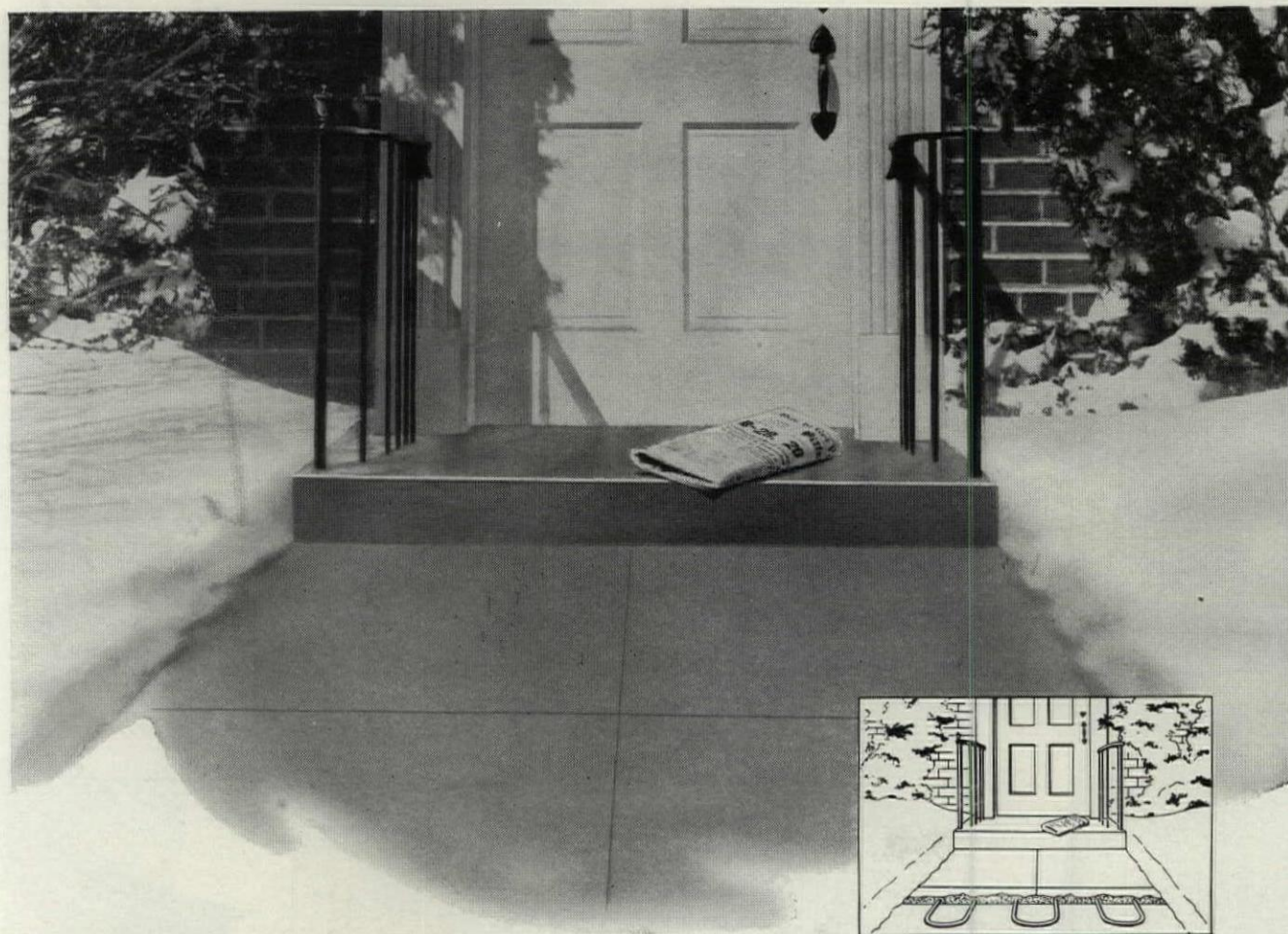


# Transitone

**MOVABLE WALLS** with asbestos panels colored all the way through



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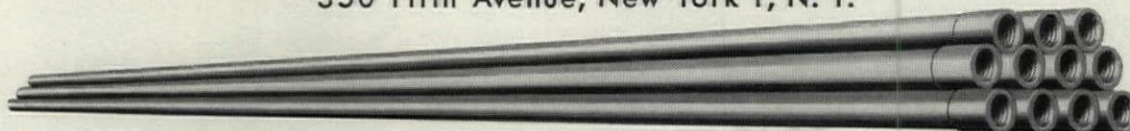
Economical to begin with, easy to form and weld, expansion co-efficient the same as concrete and plaster, durable beyond the life of the structure . . . *steel pipe* embodies all the characteristics necessary to successful installation and operation!



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Trinity 5394

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November 3, 1949

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In 1948 we started developing an area known as "Manchester Square", comprising over 800 dwellings. Our first unit consisted of 119 duplex dwellings. These homes went on sale on Sunday, May 9, 1949, and again we sold out every duplex which was on sale in one weekend, with sales amounting to over \$1,500,000.00. On July 10 we put up for sale the second unit of this tract, consisting of 105 two bedroom homes, and every one of these homes was sold out on that day, with sales amounting to over \$1,185,000.00.

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The reputation of our homes has grown rapidly, and we feel that in a substantial manner your organization has contributed to this growth and to the reputation we have gained.

We are extremely proud of our association with your organization through the use of your equipment and materials and it is our sincere desire that this association will continue throughout the years.

Very truly yours,

LIBERTY BUILDING COMPANY

*Norman Feintech*  
NORMAN FEINTech

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"The use of American-Standard Plumbing Fixtures and Fittings is a source of constant pride to this company and has always received the highest praise from prospective buyers and actual purchasers of Liberty Homes. It has been our endeavor throughout our building career to use the best materials possible, and for that reason we feel that we can find no better plumbing fixtures and fittings than those manufactured by your company."



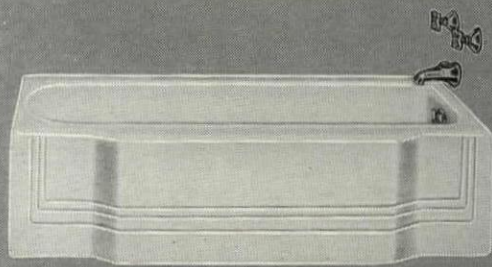
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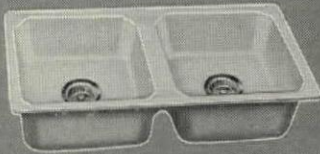
Master Pembroke Bath



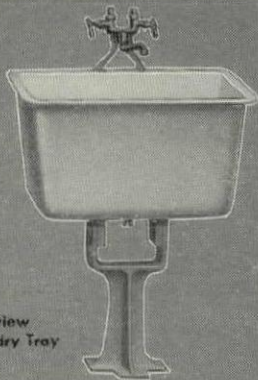
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Hexagon Lavatory



Double Compartment Sink



Lakeview  
Laundry Tray

In 1947, the Liberty Building Company constructed 107 duplex dwellings and 95 two and three bedroom homes . . .

In 1948, started 800 dwellings project. Sold first unit of 119 duplex dwellings in one weekend. Two months later sold second unit of 105 dwellings in a single day . . .

In 1949, sales continued rapidly. Had already sold 735 units by December.

. . . and all these homes had American-Standard Plumbing Fixtures and Fittings!



**B**UILDERS everywhere, like the Liberty Building Company of Los Angeles, have found that American-Standard products help sell the houses they build. No heating equipment and plumbing fixtures are better known . . . none better made. Their outstanding quality, backed by strong, consistent advertising, has created wide public acceptance. It will pay you to take advantage of it!

When you install American-Standard products in the houses you build or remodel, you create satisfied customers. And whatever the type of installation . . . whatever the size of the budget . . . you will find what you need in the American-Standard line. Ask your Heating and Plumbing Contractor for details. American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.



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## REVIEWS

**PIONEERS OF MODERN DESIGN** from William Morris to Walter Gropius. By Nikolaus Pevsner. Museum of Modern Art, 11 West 53rd Street, New York City. 7½ x 10. 152 pp. Illus. \$4.

Twelve years ago the first edition of this book was published in England. Since that time the aims and methods of modern design have been more fully discussed and documented, but later books (notable among them Giedeon's *Mechanization Takes Command* and Fitch's *Building in U. S.*) still supplement this earlier work rather than out-date it.

The new edition carries over the clear judgment and broad vision of the first version and has added to its merits more detailed chapters on the development of modern architecture in England and the U. S. The photographs, too, have been increased—from 84 to 137. It's an important addition to any design bookshelf.

**LAYMAN'S GUIDE TO MODERN ART**—Painting for a Scientific Age. By Mary Chalmers Rathbun and Bartlett H. Hayes, Jr. Oxford University Press, 114 Fifth Ave., New York, N. Y. 6¼ x 9¼. Illus. 17 in full color. Unpaged. \$4.

This is perhaps the simplest and sanest book yet published on what modern art—in its many forms—is all about. Its main hallmarks (abstraction, distortion and emphasis on flat pattern and color) are illustrated for the intelligent on-looker with clarity and common sense. Professionals and businessmen, often among the strongest opponents of "art that doesn't look like something," may be surprised to see how closely today's art is influenced by their own tools and methods. Artists, far from tossing the world out the studio window, have been trying to express "the enlarged world of physical forces, machinery, the life of the unconscious—all of which lie beyond the human eye."

Large type, brief paragraphs, many illustrations of art of all times, clarify point after point. The reader may still "like what he likes" after perusing this, but he will know what the other man likes—and why he likes it.—S.K.

**DECORATIVE ART**—The Studio Year Book—1949. Editors Rathbone Holme & Kathleen M. Frost. The Studio Publications London & N. Y. 130 pp. 11½ x 9. \$7.50.

**U. S. INDUSTRIAL DESIGN 1949-1950**—Society of Industrial Designers, N. Y. The Studio Publications Inc. 12 x 9½. \$10.

Maybe the English in their present austerity are seeking escapism in interior design. Anyway, *Decorative Art* begins with a lush Hollywood pacesetter that seems slightly rich to the American taste: Raymond Loewy's Palm Springs house with "indoor-outdoor" swimming pool. Whether or not the authors are trying to undermine our American architectural reputation, they follow up Loewy with a chaste English example:

(Continued on page 152)





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BUFFALO 2, NEW YORK**



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*Architects:* Backus, Crane & Love  
Buffalo, N. Y.

*Gen'l Contrs.:* Boehm Const. Co., Inc.  
Buffalo, N. Y.

*Plastering Contr.:* Seitz & Mader  
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**You'll build or  
remodel better with**

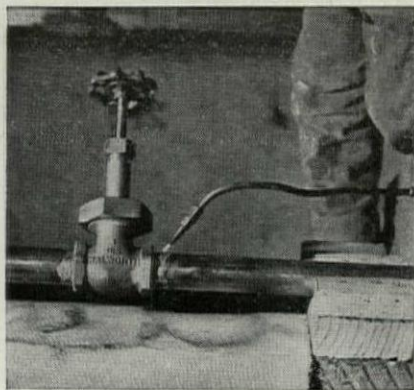
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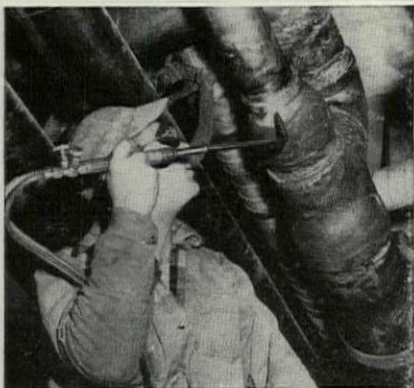


# The UN Secretariat is a **TRULY MODERN** building

**...SILBRAZ<sup>®</sup> joints are installed**



Making a Silbraz joint with a Walseal Gate Valve at UN, work being done at bench.



Installing a Walseal fitting at UN, on location; note operator progressively heats small section of the fitting.

New UN Secretariat Building, N. Y. C.  
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Fuller-Turner-Walsh-Slatery, Inc.,  
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Heating Contractor



Architects and builders know that it takes modern building components to make a modern building. That's why the first skyscraper erected on the site of the United Nations' buildings has brass and copper pipe runs joined with Silbraz joints—the modern way of joining brass or copper pipe or Type B copper tubing. Silbraz joints are silver brazed—not soldered or threaded—and are stronger than the pipe itself. They are leakproof, permanent, and will not creep or pull apart under any condition which the pipe or tubing can withstand. They literally form “one-piece pipelines” that save money by eliminating leaky

connections, costly maintenance, and repairs.

## **Walseal<sup>®</sup> Valves and Fittings for making Silbraz Joints**

The Walworth Company manufactures a complete line of Walseal Valves, Fittings, and Flanges for making Silbraz joints. The Walseal material used in the United Nations building was furnished by Glauber, Inc., and Asco Supply Company, Inc., both of New York City.

For further information regarding Walseal Valves, Fittings, and Flanges for making Silbraz joints, see your nearest Walworth distributor, or write for Circular 84B.

Make it a “one-piece pipeline”  
with Walseal



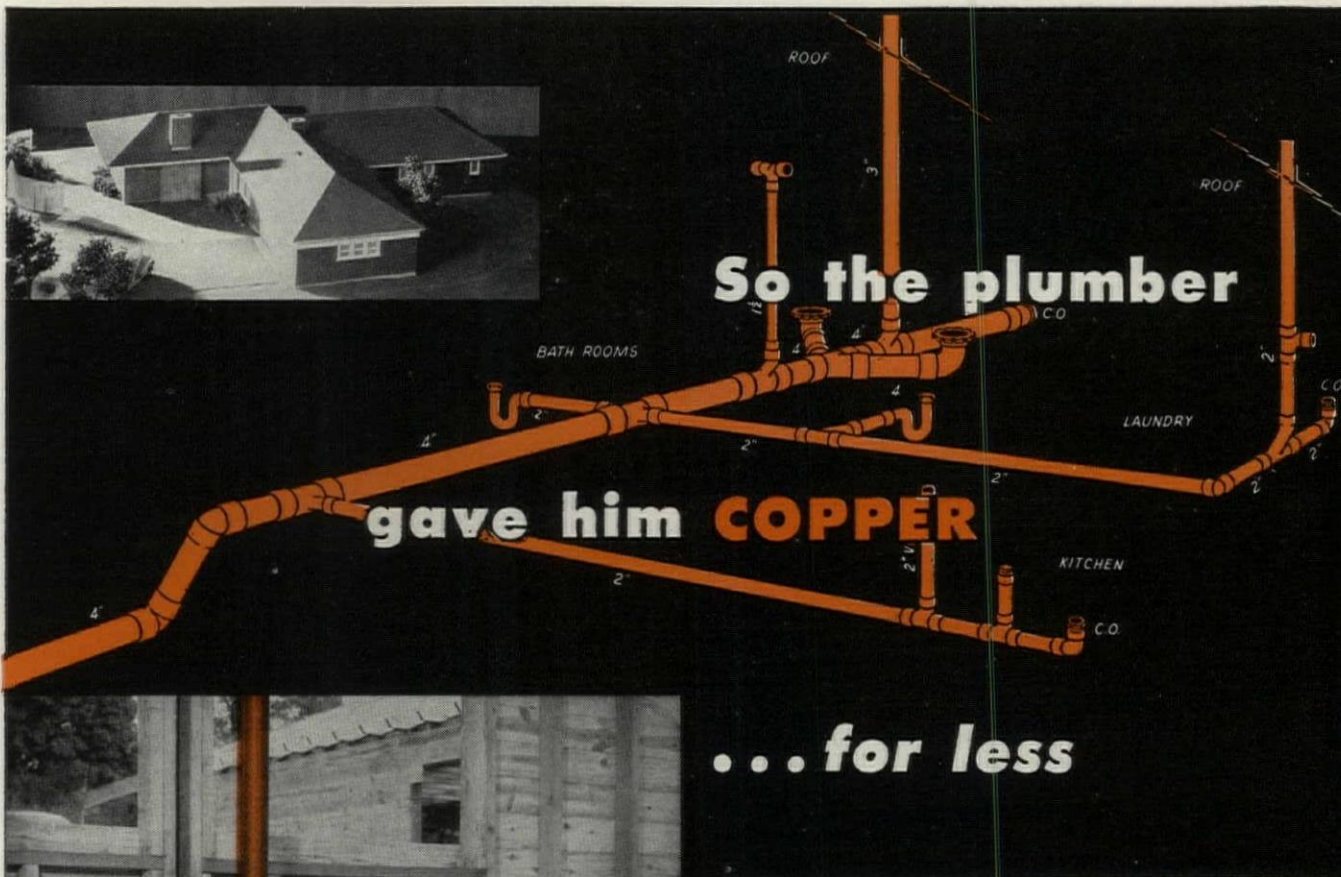
# **WALWORTH**

## **valves and fittings**

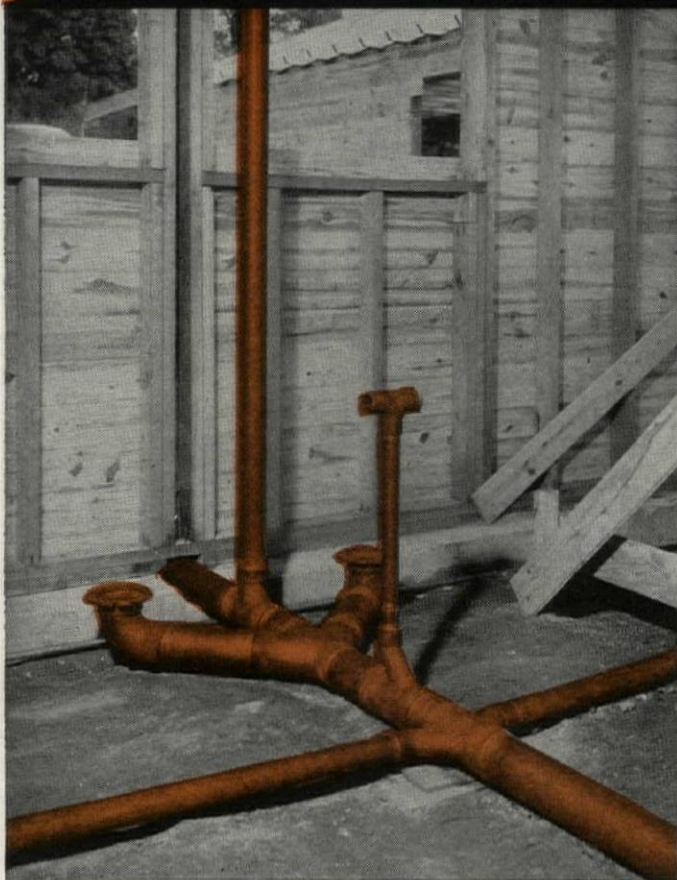
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Schematic drawing for complete drainage system.



**ANACONDA** Type M Copper Tube and Fittings, in ranch-type residence under construction. Layout for two-bathroom arrangement. Includes 4" soil line; 3" vent stack; waste lines from bath tubs; waste line (riser) for lavatories.

Do you hesitate to specify all-copper sanitary plumbing systems for homes because of cost? Here's the case of an owner\* who installed copper for *less* than a conventional cast iron and steel sanitary system would have cost.

The original bid on a cast iron and steel system was \$961.04. The plumber refigured the job in ANACONDA Type M Copper Tube and came up with a bid of \$948.64—or \$12.40 less. The installation involved 105 feet of tube from 1½" to 4" nominal diameters.

You can give your clients a lifetime all-copper plumbing and heating installation at a cost usually comparable to conventional materials by specifying ANACONDA Copper Tubes. Would you like us to send you complete data on ANACONDA Type M Tube for sanitary piping and on ANACONDA Water Tube for plumbing and heating piping? Just write to The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

5018A

\*An actual case. Owner's name on request.

**For better plumbing... use**

**ANACONDA**  
**COPPER TUBES**



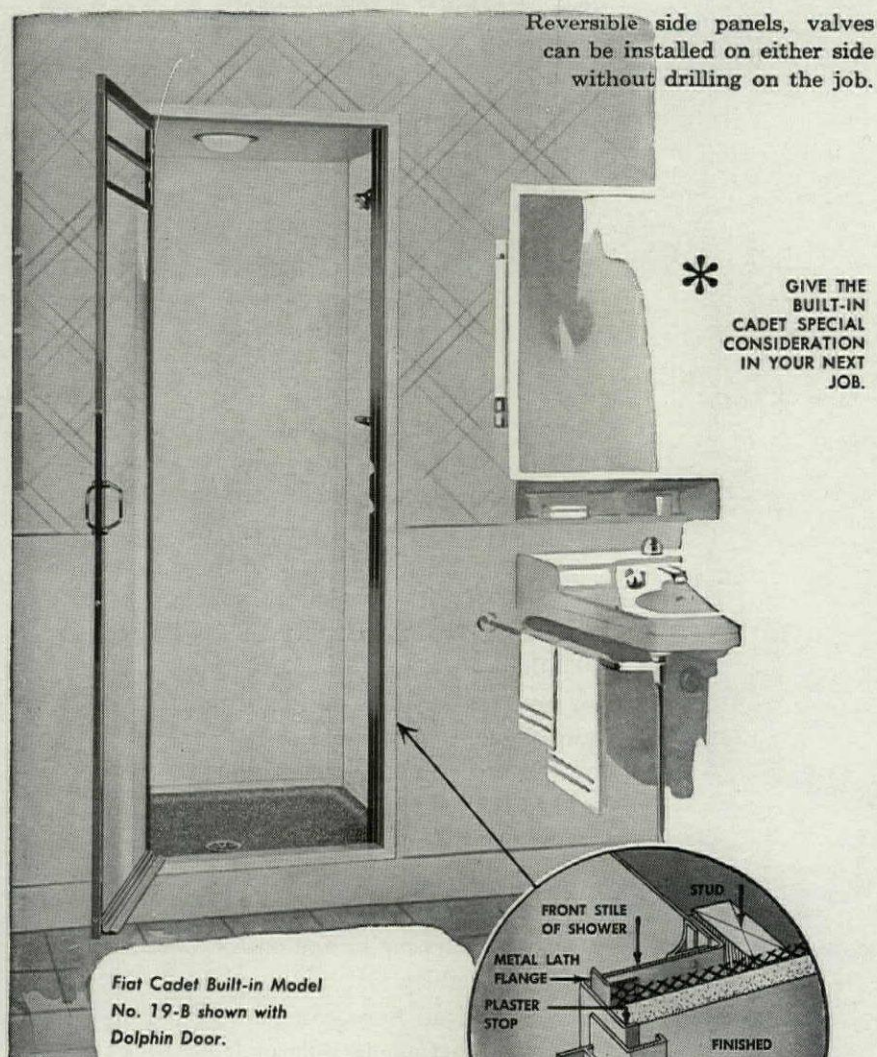
## A shower unit designed for

### 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.



View showing typical construction at door opening.



### FIAT METAL MANUFACTURING COMPANY

Three Manufacturing Plants

Chicago 13, Ill. Long Island City 1, N.Y. Los Angeles 33, Calif.

In Canada: Fiat showers are made by Porcelain and Metal Products, Ltd., Orillia, Ontario

## REVIEWS

a neat, unostentatious Kensington flat by T. Tayler and D. J. Green. But they are honest about the status of design in general: "At the present rate of progress the half-century will be upon us with less contributions to the domestic architecture of our time than the last decade of research and planning has deserved."

The book is on the disappointing side, not only in U. S. examples (people like Pahlmann, Frankl, Aronson, Whalen, Modernage—no mention of Knoll's group, Girard, etc.), but in European interiors (nothing like those seen in *Domus*, *Werk* and such foreign publications). If the Netherlands is the best one from that country—then design standards have fallen far below those wonderful prewar rooms found in *Het Moderne Interieur* and in the many beautiful decorating shops in pre-Nazi Rotterdam.

As *U. S. Industrial Design* represents only the output of the S.I.D., everything—from jelly jars to luxury liner interiors—looks streamlined and rounded-cornered. A multitude of gadgets is illustrated—but not necessarily the best ones of each type.—E.B.

**REAL ESTATE SUBDIVISIONS.** By Stanley L. McMichael, Prentice-Hall Inc., 70 Fifth Avenue, New York City, N. Y. 393 pp. 6 x 9. \$5.75.

Stanley McMichael, a California realtor, has written a handbook on subdivision operations, covering every phase from land-planning to mortgage closing. He points out that the past 15 years have seen radical changes in the nature and scope of subdivision operation, largely because of increasing government participation in the field. "The subdivider is no longer a rugged individualist. He is now in the hands of the government, represented by FHA". Despite the nostalgia implicit in this statement, Mr. McMichael believes that, on the whole, FHA intervention in subdivision affairs has been to the good. In addition to its financial assistance, FHA has been instrumental in raising land-planning and construction standards considerably, with resultant benefits to seller and buyer alike.

In fact, much of this informative book is devoted to outlining FHA's influence on subdivision practise. However, the author also gives full credit to the independent work done by land planners, architects and builders themselves in raising subdivision standards. Present or prospective subdividers will ignore these new techniques only at their economic peril, McMichael warns. "The public has a way of demanding the latest fashions whether it be in clothing, architecture or street planning." In general, he does a good job of outlining "the latest fashions" in such important fields as appraisals, market surveys, preliminary and permanent financing, zoning, shopping centers, selling techniques and the development of resort properties. Several of the chapters are written by experts in these various fields. His contributors follow McMich-

(Continued on page 158)

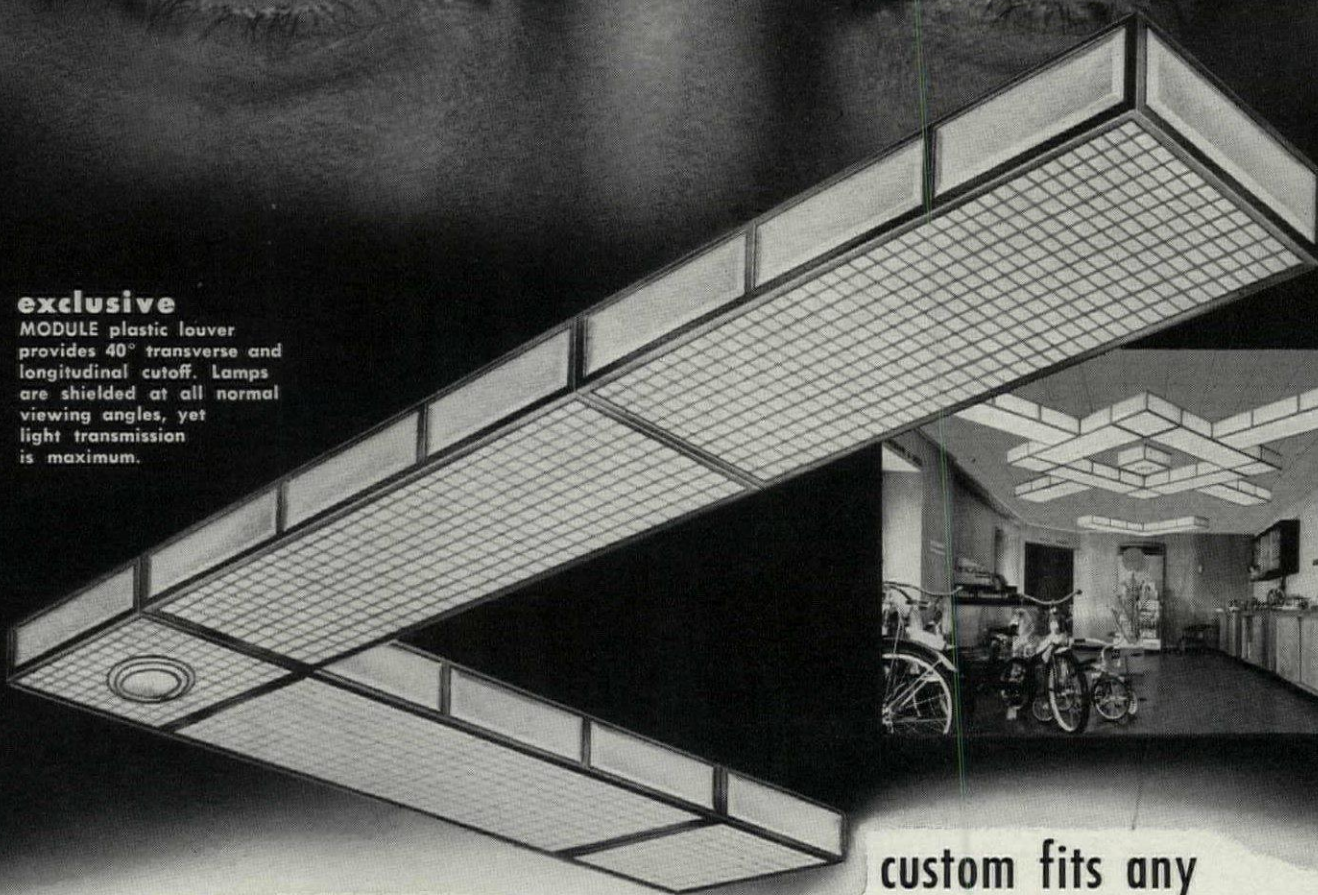


all eyes are on the greatest

# *Lighting Development* since the fluorescent lamp

## exclusive

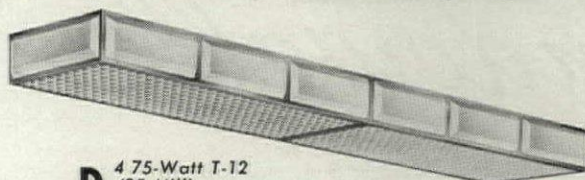
MODULE plastic louver provides 40° transverse and longitudinal cutoff. Lamps are shielded at all normal viewing angles, yet light transmission is maximum.



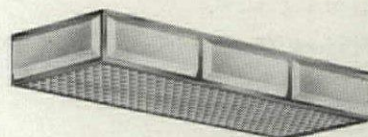
these 4 low-cost modules are the "building blocks" of a perfect custom-fitting lighting installation...

custom fits any commercial interior—at no more than the cost of ordinary fixtures!

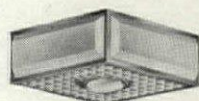
In just a few months, MITCHELL MODULE has won nation-wide approval and acceptance as an entirely new standard of commercial lighting. It is now being widely specified and installed in every type of commercial establishment—supported universally by lighting distributors, contractors, utility men and architects. The verdict of MODULE users is unanimous: "Here is complete lighting satisfaction!" Yes, here is the *first* and *only* lighting system that provides *all* the advantages of custom-fitted lighting at no more than the cost of ordinary fixtures...If you are not yet specifying MODULE, look into its superior possibilities—write for information today.



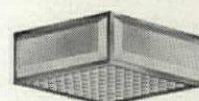
**D** 4 75-Watt T-12  
425 Milliamp  
Slimline Lamps



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



**B** 32-Watt 12" Circline  
Lamp, and 1 PAR Spot  
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**A** 4 14-Watt T-12  
15" Type F Lamps

modules fit together perfectly end to side, end to end, side to side... to form more than 50,000 different lighting patterns...to fit any ceiling shape or size...mixing all light sources in one harmonious system... with equal brightness throughout (no dark sides or ends)...so you can put the light where it is needed!



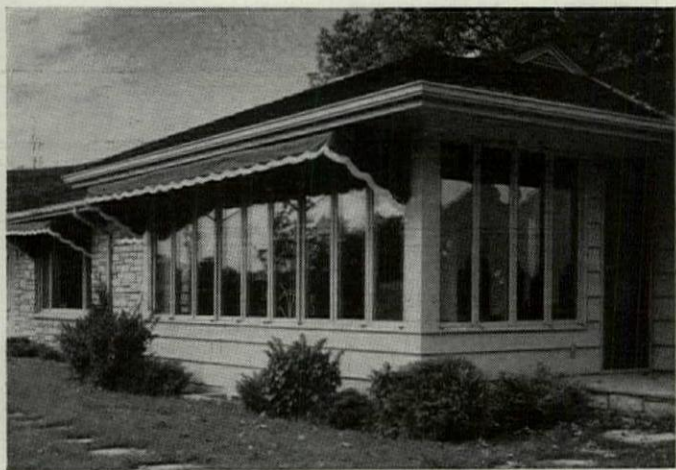
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*Photographs of the home of John Brandt, in Edina, Minnesota. Norman R. Johnson, architect. Carl M. Hansen, builder.*

# *Andersen* **Windowalls**\*

**ON THREE SIDES** of this comfortable den, windows are the walls—adding to the coziness of the room an extra measure of friendly sunlight, an extra portion of the view.

Andersen Complete Casement Window Units with one light glazing make these WINDOWALLS that simultaneously perform the function of windows and walls.

Note the harmonizing effect of using wood windows in a home paneled with wood. Note, too, that this room can be naturally ventilated with sash that operate.

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

\*TRADEMARK OF ANDERSEN CORPORATION

*Andersen Corporation*  
BAYPORT • MINNESOTA



YOU CAN BE **SURE**... IF IT'S  
**Westinghouse**

... the greatest advancement in  
"PLUG IN" control center design

## "TILT POSITION" DISCONNECT

### for unmatched safety

With the new Westinghouse Control Center you can be *sure* about safety ... because it's *the safest control center ever built!*

This important advantage results largely from these two remarkable features:

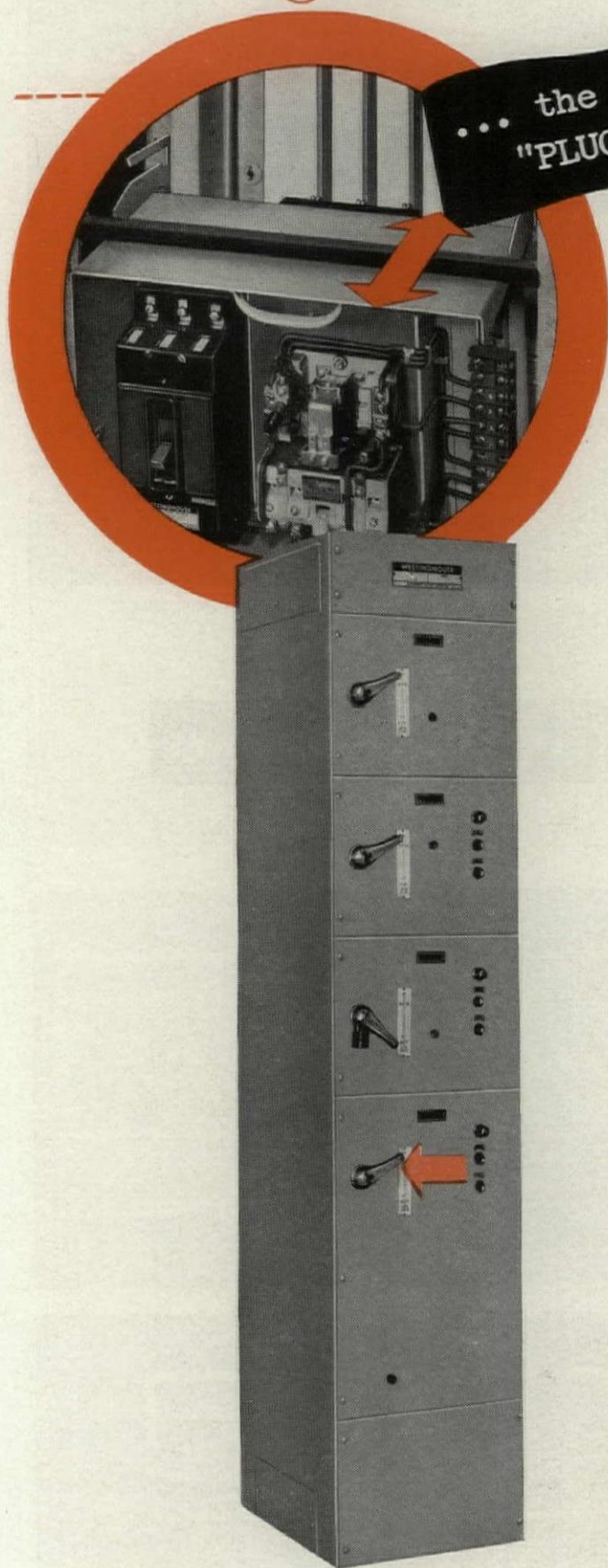
**"Tilt position" disconnect:** Starter units may be withdrawn to a self-supporting "tilt position" which completely disconnects them from the power bus. It is physically impossible to reach the bus when the starter is in this position.

**Safety interlocking handles** prevent opening of the starter doors unless the circuit breaker is in the "Off" position. Starter doors may be "locked safe" with from one to three padlocks to prevent entrance by unauthorized personnel.

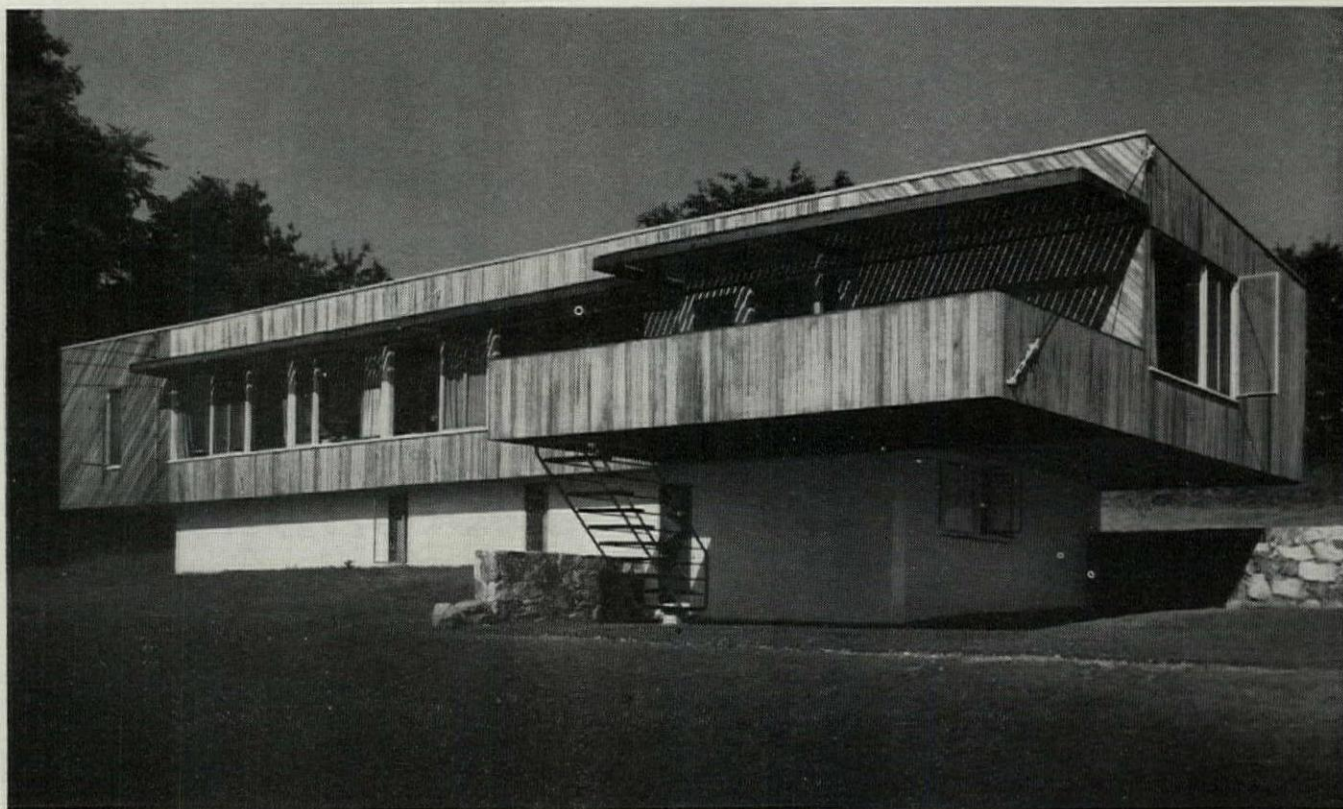
#### Consider all the advantages of this new control center!

New Magna-Grip "plug-in" connectors contribute to greater safety ... and new operating convenience; standardized, modular dimensions for unmatched flexibility; a large vertical wiring trough for easier wiring and maintenance. These are random examples. The complete story is in Booklet B-4213. For your copy, write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-21544

**Westinghouse**   
**CONTROL  
CENTERS**







MARCEL BREUER, Architect

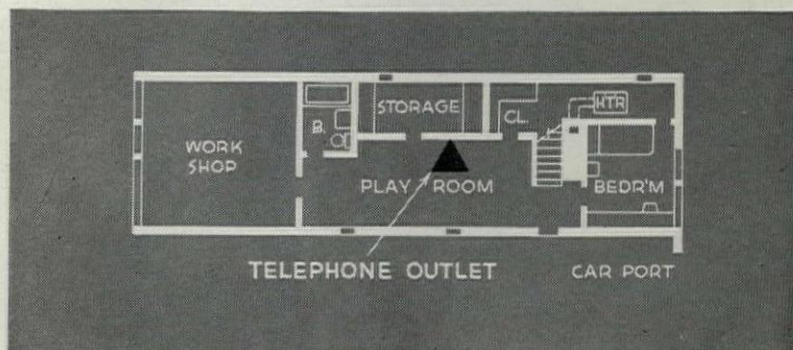
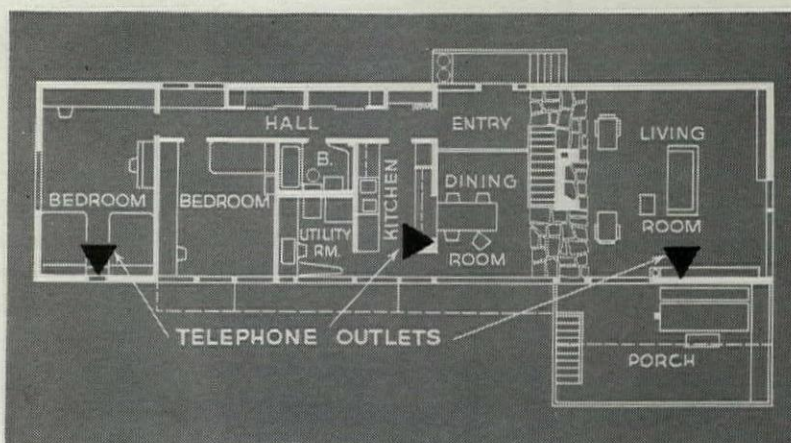
## HOMES WITH A FUTURE HAVE TELEPHONE RACEWAYS

Modern home planning considers the future as well as the present needs of the owner. Telephone raceways conceal telephone wires *within* walls. They also provide for the relocation or addition of telephones later on.

It's easy and inexpensive to provide for telephone facilities during construction. A few lengths of pipe or tubing placed in the walls will carry telephone wires to outlets located at key points throughout the house.

Your Bell Telephone Company will be glad to co-operate in planning telephone raceway systems. Just call your nearest telephone company Business Office and ask for "Architects and Builders Service."

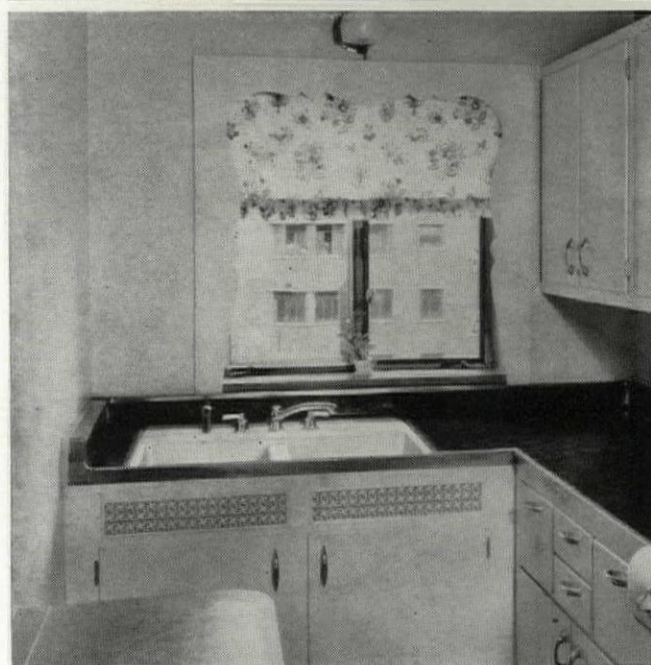
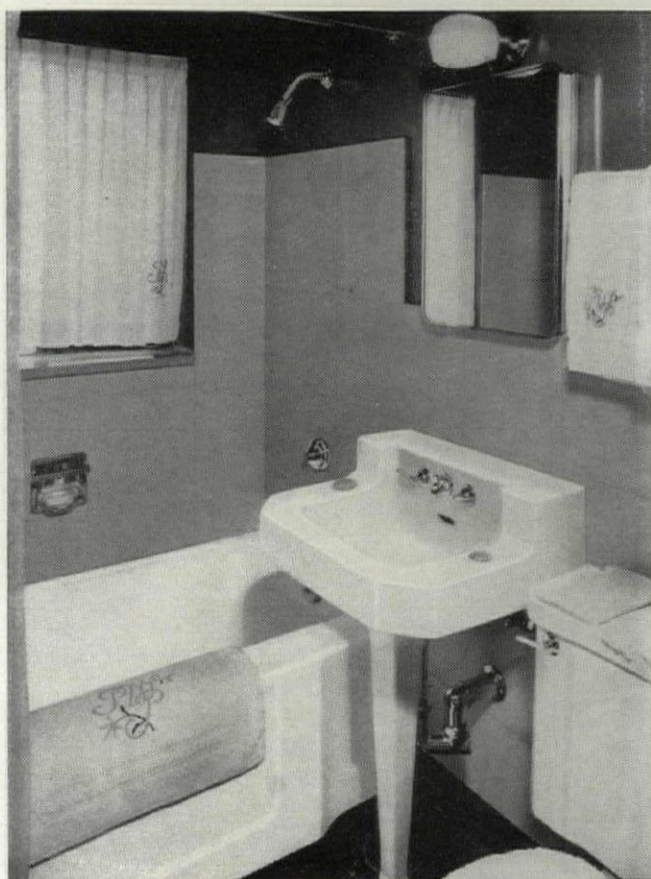
**BELL TELEPHONE SYSTEM**





New, 132-Apartment  
Building has

## KOHLER PLUMBING FIXTURES



SHERMAN Garden Apartments, Evanston, Illinois, is one of the hundreds of new apartment buildings throughout the nation for which Kohler plumbing fixtures have been specified. Architects Holsman, Holsman, Klekamp and Taylor designed the building in two units containing 56 and 76 apartments of various sizes. In 13 apartments there are 2 bathrooms, and 40 have a bathroom and washroom.

All 132 apartments have the Kohler Cosmopolitan Bench Bath. This is a bath of distinctive, modern design, cast of rugged, non-flexing iron which protects the lustrous, glass-hard surface of Kohler enamel. Each bath is equipped with a Triton shower fitting with convenient Niedecken mixer. The attractive vitreous china Gramercy lavatories have a useful shelf and depressed soap dishes. Closets are smooth-functioning K of K Wellworths.

The compact, convenient kitchens are equipped with the Kohler Delafield, flat-rim, ledge sink with two compartments, a handy swing spout and lever-control sprayer.

Kohler chromium-plated brass fittings, which are used throughout, match the Kohler fixtures in beauty of design and efficiency. Kohler Co., Dept. 3-P, Kohler, Wis. Established 1873.

## KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ENGINES AND ELECTRIC PLANTS



For cooler,  
cleaner kitchens that sell...

## Specify EMERSON-ELECTRIC KITCHEN VENTILATORS

to meet your specifications...



### Wall Model:

1. Double-rabbit-sealed outer door prevents inside moisture condensation, gives weather protection.
2. Telescoping adjustable sleeve fits walls 5 1/4" to 13".
3. Square outside frame, easy to brick or frame around.
4. Convenient chain actuates fan switch and outer door.

### Ceiling Model:

1. Adjustable sleeve joint in ceiling housing fits standard 3 1/4" x 10" rectangular duct, for necessary extensions.
2. Outside grille has angle baffles for weather protection.
3. Automatic shutter closes duct when fan is not operating.
4. Can be operated by drop chain from fan or wall switch.

### Both Models:

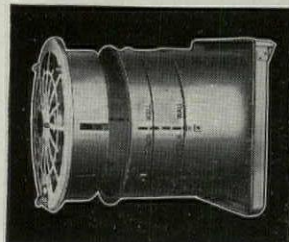
1. Dependable Emerson-Electric induction motors, with thrust bearings.
2. Quiet-type 10" blade moves 470 CFM, a complete air change every 2 minutes for average kitchen.
3. Competitively priced.

...and her specifications!

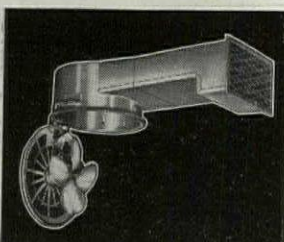


### Both Models:

1. Equipped with attractive grille finished in baked white enamel.
2. Easily cleaned and serviced—fan and grille are hinged to swing down as a unit without disconnecting.
3. Exceptionally quiet operation—built for long, trouble-free service.
4. Designed to quickly whisk out cooking odors, smoke, steam and heat—protects furnishings from greasy vapors.
5. Backed by Emerson-Electric Standard Factory-to-User Guarantee.



Wall-type Ventilator



Ceiling-type Ventilator

Refer to Emerson-Electric  
Catalog in Sweet's Architectural  
or Builder's Files, or write  
for free Folder No. 403.

The Emerson Electric Mfg. Co.  
St. Louis 21, Mo.

**EMERSON**  **ELECTRIC**  
MOTORS • FANS APPLIANCES

## REVIEWS

ael's lead in laying out the general pattern of a particular subdivision problem and then suggesting to the reader that he be careful in applying them to his own situation. The author makes it clear that subdivision planning, like most things, does not depend on sure-fire formulas.

In addition to illustrating his points with maps and charts, he provides his readers a unique—if doubtful—service in the back of the book. It is a list of 250 suggested subdivision names, presumably for the reader who can't, or doesn't want to, think up his own. Included are such old Anglo-Saxon standbys as Cynwed, Sherwood Forest, Wilryk, Rugby Manor; also diverse themes like Yvonne Gardens, Cherokee Hills, Electric Highway Park, Hacienda del Ora and Cornbelt Heights.—W.D.

**A HISTORY OF THE ENGLISH HOUSE.** By Nathaniel Lloyd. Architectural Press Ltd., 9-13 Queen Anne's Gate, Westminster, S. W. 1, London, England. 487 pp. Illus. 9 1/4 x 12 1/2. £3 13s. 6 d. net.

This enormous, handsome, scholarly volume is again available—there's little wonder that it went out of print during the war. Its 888 clear and apt illustrations give an excellent record of the ins and outs of British dwellings from Saxon through the Victorian days—from castle to cottage. It admirably keeps its focus on organization and construction rather than antiquity worship, combining humor and human interest with good taste and an alert eye. The jacket flap says no more than the truth:—"No other book unfolds with such completeness, both explanatory and visual, the story of the great inheritance of English domestic architecture."—S.K.

**PEN, BRUSH AND INK.** By Henry C. Pitz. Watson-Guption Publications, Inc., New York, N. Y. 176 pp. 9 x 12. Illus. \$8.

**PENCIL DRAWING—Step by Step.** By Arthur L. Guption. Reinhold Publishing Co., 330 West 42nd Street, New York, N. Y. 201 pp. 8 3/4 x 12. Illus. \$7.50.

These two how-to-do-it books are a pleasure to read and see. *Pen, Brush and Ink* is not only competent and clear in its instruction, but pleasantly written. Henry Pitz is an enthusiastic craftsman who manages to get his enthusiasm into words as well as pictures. "Pen-and-ink has its own personality," he says. "All media do, but pen and ink's is brighter than most. The clear-cut directness of it, its sparkle, the miracles of suggestions it performs!" He also keeps a steady eye on the qualities of pen and ink for reproduction printing.

*Pencil Drawing* is equally handsome and helpful. In addition to a generous "Gallery of Professional Examples," Author Guption visibly practices every lesson he preaches—from quick sketches to meticulously detailed renderings.

Both books fully cover various grades of materials, and a variety of special usages as well as basic techniques and effective composition.



Redfield Village Garden Apartments  
Erwin Gerber, Architect



## Superior Steam Generators

at Redfield Village Apartments  
in Metuchen, New Jersey

provide

**HEAT**

AND  
HOT  
WATER

for 312 families

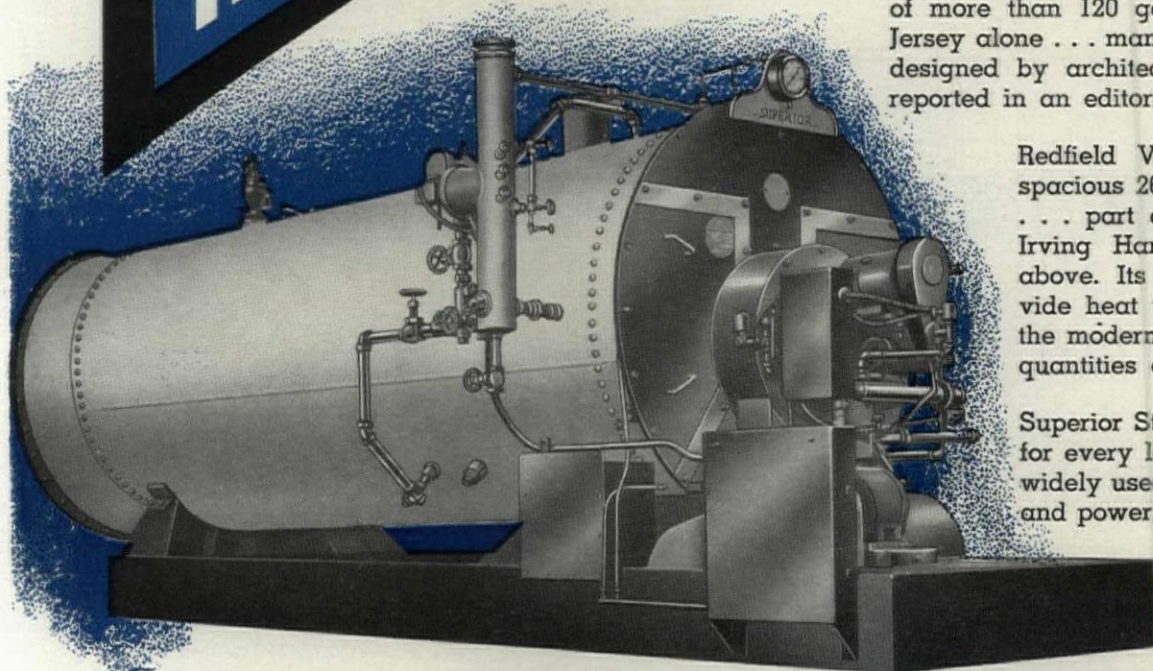
@ 75¢ per room per month

Modern living demands economical heating . . . and this is particularly true of housing projects built as investments. The selection of Superior Steam Generators for Redfield Village was based upon performance . . . the performance of more than 120 garden apartment installations in New Jersey alone . . . many of which, like Redfield Village, were designed by architect Erwin Gerber whose activities are reported in an editorial feature of this issue.

Redfield Village's 312 families sprawl over a spacious 26 acres of beautiful rolling countryside . . . part of the Hansen Estate, now owned by Irving Hansen who supplied the cost figures above. Its five Superior Steam Generators provide heat through a forced hot water system of the modern type . . . and in addition, heat ample quantities of domestic hot water.

Superior Steam Generators are the logical choice for every large scale heating project . . . and are widely used throughout industry for process steam and power, as well as for heating.

Easily installed, fully automatic, burn gas or oil, sizes from 20 to 500 b.h.p. for pressures up to 250 p.s.i. Write for Catalog 212.

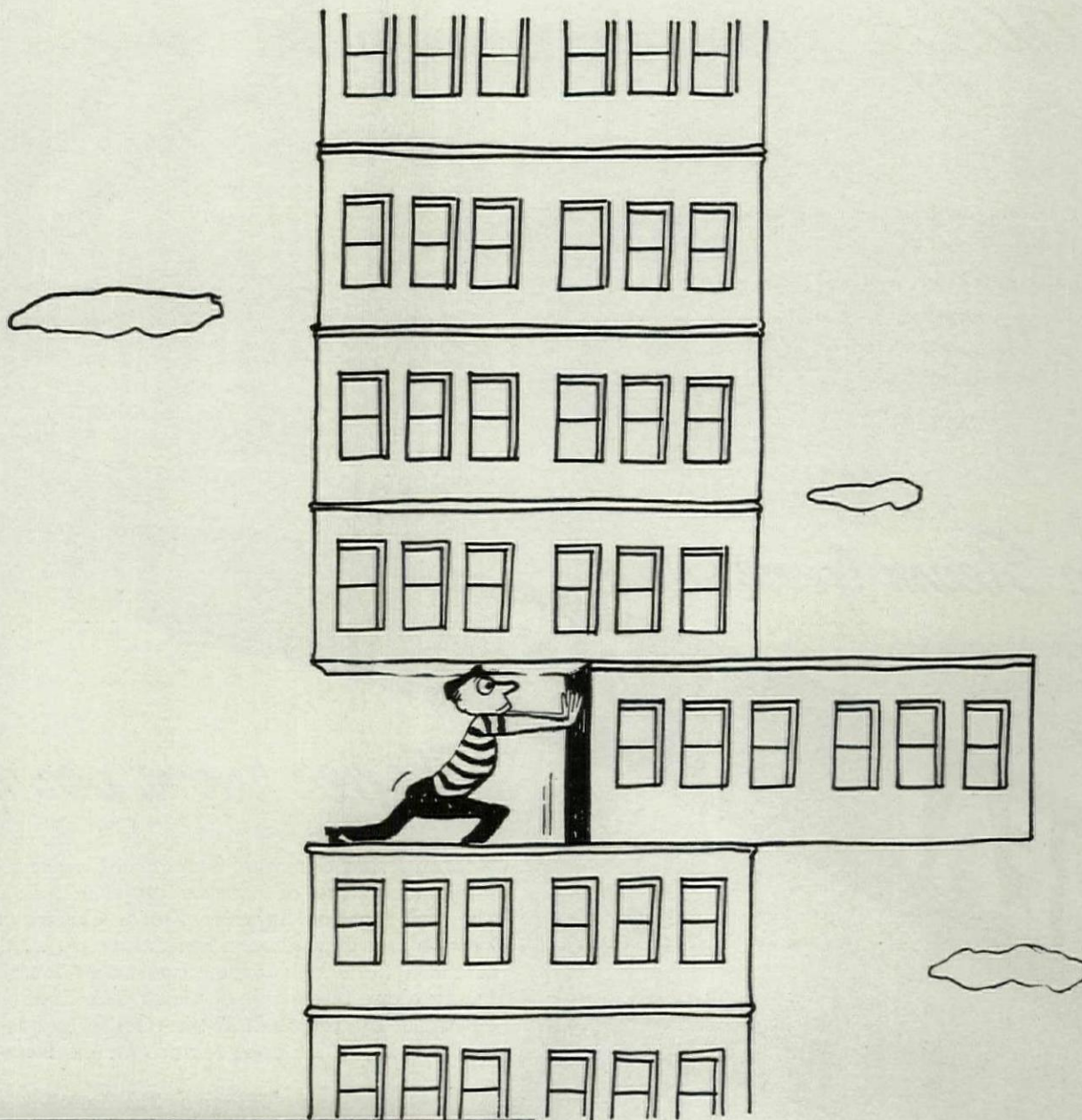


# Superior Combustion Industries, inc.

Factory: Emmaus, Pa.

Executive Offices: Times Tower, Times Square, New York 18, N. Y.





## DON'T THROW THAT FLOOR AWAY!

You may think this cartoon's ridiculous. But it's a fact that you can save one floor out of ten by specifying the Carrier Conduit Weathermaster System for air conditioning new buildings. Using small conduits instead of bulky ducts, this system saves up to 85% of the rentable space taken up by other systems. In terms of extra income, that's mighty important to an owner.

Invented by and exclusive with Carrier, the Conduit Weathermaster System is suited to hospitals, hotels, office buildings and apartments. It can be installed in existing multi-room buildings without extensive alterations or interruptions to normal

service. A year-round system, it allows individual regulation of temperature in each room at the twist of a dial. It also provides every other air conditioning benefit—the proper control of humidity, ventilation, draft-free circulation and the cleaning and filtering of air.

Pioneer in air conditioning, Carrier has contributed every major advance in the field. Its experience is world-wide and on every type of structure. This know-how is at your disposal through our representatives, who will be glad to co-operate with you on any undertaking. Carrier Corporation, Syracuse, New York.



**AIR CONDITIONING  
REFRIGERATION  
INDUSTRIAL HEATING**



# Beauty

## THAT IS WELL-NIGH INDESTRUCTIBLE

Yes, this installation will stay beautiful and new-looking for years and years, thanks to the use of prize-winning\* Kalistron at points of greatest wear. Kalistron starts as transparent vinyl sheeting; by the exclusive *Blanchardizing* process color is fused to the *underside* of the sheeting, then backed up with a suede-like flocking which permits easy bonding to wall surfaces. Thus nothing can touch Kalistron color—its guarded beauty lasts on and

on, is well-nigh indestructible.

Kalistron is scuff-proof, scratch-proof, water-proof; cannot chip, crack or peel; cleans with a damp cloth.

Send for **FREE Nail-File test card**—a piece of Kalistron plus a triple-cut nail file; see if you can injure Kalistron!

. . .

\*Winner of latest Modern Plastics award for furniture and interior decorating material.

*People's First National Bank, Pittsburgh, strikingly displays Kalistron in column bases and counter front, this a continuous piece 40 feet long. Architect, Franklin, Douden & Associates, Contractor, General Interiors Corp., Pittsburgh.*



# Kalistron

PAT. APPLIED FOR  
← COLOR FUSED TO UNDERSIDE  
PLASTIC COVERING MATERIAL

Distributed by: UNITED STATES PLYWOOD CORPORATION, Dept. F, 55 West 44th St., New York 18  
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# FLUSH WALL

## Built-in Radios are in the kitchens of Gerholz Community Homes

*"The outstanding home value in Michigan," say competent insurance company and bank appraisers*

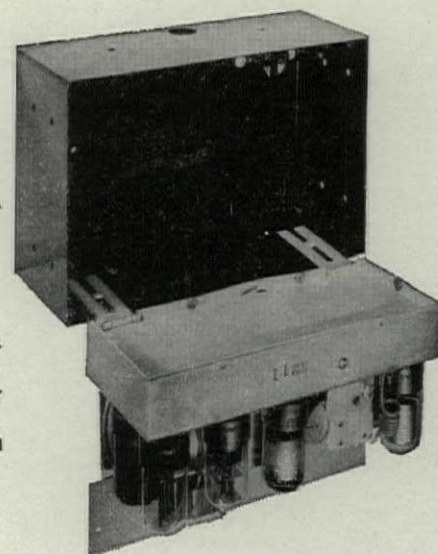
Says ROBERT P. GERHOLZ (President Elect of the National Association of Real Estate Boards and Past President of the National Association of Home Builders), "We use built-in radios to please prospective clients and to help sell our houses because we feel that the conventional radio has no more place on the work benches of our ultra-modern kitchens than it would have on the front seat of our automobiles." And there are many other applications for these top-quality space-savers... not only in homes, but in *apartments, offices, schools, hospitals, etc.*

## A RADIO BUILT IN THE WALL!

- CONVENIENT TO OPERATE.
- RADIO IS 5-TUBE AC-DC.
- PANELS TO MATCH COLOR SCHEME OF ROOM.
- WALL BECOMES PART OF SPEAKER-BAFFLE, GIVING CONSIDERABLE IMPROVEMENT IN TONE.
- FOR KITCHEN, BATHROOM, PLAYROOM, BEDROOM, ETC.
- FOR ARCHITECTS TO SPECIFY IN NEW HOMES.
- FOR ELECTRICIANS TO INSTALL.
- FOR BUILDERS...A NEW CONVENIENCE.
- APPROVED BY UNDERWRITERS LABORATORIES.

- 5 Tube AC-DC Superheterodyne with
- Patented adjustable slotted hinges attached.
- Steel box with single receptacle 1/2" K.O. Furnished.
- Size of steel box 6 1/2" x 9 5/8" x 3 7/8" deep.
- Antenna wire 20' included.
- Licensed by R.C.A. & Hazeltine.
- Approved by Underwriters' for "Built-in Installation".
- Patented for adjustable built-in Flush Wall Mounting.
- Panels in Plastic and Plain Masonite.
- Plastic Panels sold separately in following colors:
 

|              |                     |
|--------------|---------------------|
| Ivory        | Shell Pink          |
| White        | Burnt Amber Mottled |
| Royal Blue   | Emerald Green       |
| Mandarin Red |                     |
- Panel size 7-13/16" x 11-7/16".

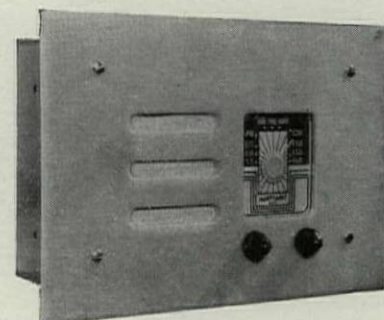


**LOW COST...retail price only \$34<sup>95</sup>** plus installation

Panels Extra: Plain Masonite \$2.45...Plastic Colors \$4.45

Special Trade Net Prices on Request

*Your electrician will install FLUSH WALL for the same cost as a Regular Outlet!*



|  |                                     |       |  |
|--|-------------------------------------|-------|--|
| Please Send Detailed Particulars on<br>FLUSH WALL Radios To... |                                     |       |  |
| Name   | Title                               |       |  |
| Co.  | Architect <input type="checkbox"/>  |       |  |
| Street   | Builder <input type="checkbox"/>    |       |  |
|  | Contractor <input type="checkbox"/> |       |  |
|  | Dealer <input type="checkbox"/>     |       |  |
| City   | Zone                                | State |  |



# FLUSH WALL

RADIO COMPANY  
7 WEST PARK STREET  
NEWARK 2, NEW JERSEY



# Presenting The New and Beautiful Double-Duty INSULITE\*

## INTERIOR FINISH BOARD PRODUCTS

### A Colorful New Line for Imaginative Design

#### Mr. Faber Birren

— nationally known consultant on color preferences of the buying public, selected these new consumer approved Insulite colors. He is retained by many of the world's largest manufacturers strictly for his experience in the vital field of consumer color preference and its relation to consumer buying habits. You profit by his two decades of research in the color wants and buying motives of the American public.



#### No Guessing Against Human Taste — These are Colors the Public Wants

Why gamble in selecting colors? Since color is vital to the success of your projects, every possible avenue of fact and scientific analysis was assessed and judged for its selling value before these new Insulite colors were chosen.

This was neither guesswork nor private opinion. Choice was based upon market research to accurately measure the desires of today's buying public. You can be sure these new Insulite colors are keyed to buying opinion.

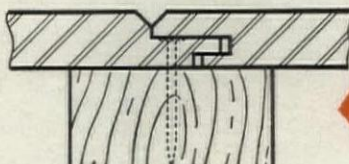
#### Exceptional Sales Advantages

Rarely has there been a line of new products as rich in variety and flexible in adaptation as these new Insulite Interior Finish Products! Singly or in combination, they can be employed in a stimulating variety of striking and original effects. The finished result is beautiful... attention-getting... and exceedingly flattering.

Best of all (from the builder's point of view), these new products can be applied fast and easy... without special preparation or the use of special clips. No skill required — anyone can do it. Just use nails or staples direct to framework. Saves time, cuts application costs. This line was designed as a practical material for doing better interior jobs at economical cost.

#### New Insulite Joint

Assures a trim, neat, tight joint that defies dust infiltration and stays securely in position. Concealed fastening without using special clips. Application is fast and easy with nails or staples.



#### LUSTERLITE TileBoard and Interior Board

Colors: White, Ivory White. Texture: Smooth... high light-reflecting. Joint: TileBoard employs new Insulite Joint (illustrated below); Interior Board has square edged joint. Sizes: TileBoard, 12"x12", 16"x16", 16"x32"; Interior Board, 4' width by 6', 7', 8', 9', 10', and 12' lengths.

#### DUROLITE Plank and Interior Board

Colors: Ivory, Pale Green, Woodtone Light, Woodtone Dark. (The two Woodtones in the Plank are cartoned, half light and half dark, to provide variegated effect in application.) Texture: Rough... highly durable. Joint: Plank employs new Insulite Joint (illustrated below); Interior Board has square edged joint. Sizes: Plank widths are 8", 10", 12" and 16" — Lengths 8', 10', and 12'. Interior Board — 4' width by 6', 7', 8', 9', 10', and 12' lengths.

#### WEVELITE Interior Board

Color: Ivory White. Texture: Rough surface. Joint: Square edged. Sizes: 4' width by 6', 7', 8', 9', 10' and 12' lengths.

#### SMOOTHLITE Interior Board

(Formerly SMOOTHCOTE). Color: Natural. Texture: Smooth. Joint: Square edged. Sizes: 4' width by 6', 7', 8', 9', 10' and 12' lengths.

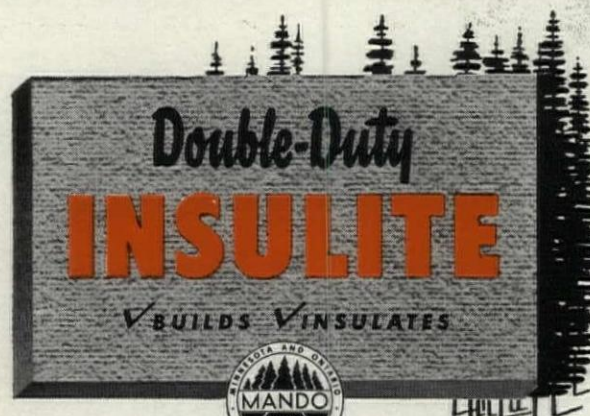
#### ACOUSTILITE ¾" and FIBERLITE ½"

Colors: White. Texture: Porous, giving a travertine stone effect. Joint: Butt Joint Edges Beveled and Kerfed. Applied with: Cement. Sizes: 12"x12", 16" x16", 16"x32".

\*Reg. U. S. T. M.

Refer to Sweet's File, Architectural Section 10a-9

1-50



INSULITE DIVISION  
PAPER COMPANY  
MINNEAPOLIS 2, MINNESOTA  
MINNESOTA AND ONTARIO  
COMPANY

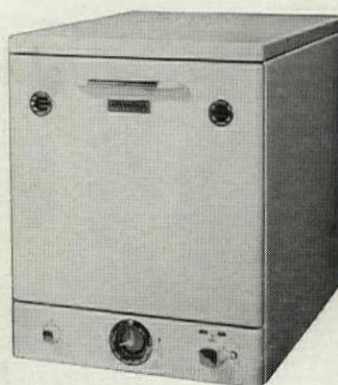


## PRODUCT NEWS

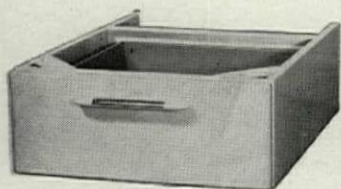
Three basic interchangeable elements make up Universal's Select-a-Range:



a surface cooking unit . . .



a convenience-level oven, and . . .



. . . a spacious storage drawer



Select-a-Range's flexibility is demonstrated in these four renderings by Consulting Architect Royal Barry Wills.



### MODULAR ELECTRIC RANGE AND STORAGE DRAWERS offer convenience-level cooking, unlimited flexibility

A welcome new development in kitchen appliance design, the Select-a-Range should have tremendous appeal to both the architect and homeowner. Custom requirements of almost any kitchen—for studio apartment, suburban home or grade school—can be met with combinations of these separate cooking and storage units, and at very reasonable prices.

Not only has Universal exploded the standard combination arrangement of oven-boiler and platform surface burners but it has progressed several steps further, adding matching white enameled steel drawers and work top, and manufacturing all parts on an adaptable 20 in. module. Components may be stacked in conventional or inventive patterns, or may be spread throughout the room to meet the particular needs and pocket-book of the purchaser. Only the imagination of the kitchen planner limits the variations possible.

A homemaker of any height, from diminutive to Junoesque, can have an oven—or ovens—placed at her most comfortable working level by the addition or subtraction of storage drawers beneath. The oven may be placed either to the right or left of the surface unit, adjacent to it or separated by a section of drawers and work top. When the two cooking sections are joined at different levels a triangular chromium filler strip is inserted to eliminate dirt catching crevices. Because of their Low Underwriters' rating, the well insulated ovens may be set directly in or on wooden cabinets.

Outer dimensions of the oven are 20 in. wide x 25 in. deep x 24 $\frac{1}{4}$  in. high. Included in standard equipment are the baking and broiling compartments, a counter-balanced door with dual hinge spring lock and automatic broiling stop, a pre-heat push button and thermostat control. Complete with a precision timer and Minute Minder (for food preparation taking less than 60 seconds), the oven unit will retail for about \$130, including federal excise tax; for somewhat less without these two items.

Measuring 20 in. wide x 25 in. deep x 9 in. high, the platform surface unit contains four fast heating Monotube burners, each with a seven-stage heat control switch. It is priced at \$80.

Storage drawers are 20 in. wide x 25 in. deep x 7 $\frac{5}{8}$  in. high. Suspension on brass runners assures quiet operation. Priced at \$13.50 individually, three of these drawers plus a work top and toe base sell for \$53.50. Each of the basic parts has mounting holes for bolting the pieces together. A back splash and lamp attachment are also available at \$3 and \$10 respectively.

One of the Select-a-Range's most favorable distinctions is its expandability. A growing family on a budget can buy essential elements now, add another oven, surface burner unit, and more drawers, later.

Manufacturer: Landers, Frary & Clark (Universal), New Britain, Conn.

(Continued on page 170)



TO BE TRULY MODERN A BUILDING MUST BE AIR CONDITIONED

# Year 'Round Comfort by Chrysler Airtemp



The Berkshire Apartments, 4201 Massachusetts Avenue, Washington, D. C. Builder: Standard Construction Company, Washington, D. C., Wm. Magazine, President, Charles Kaplan, Secretary. Architects: Corning & Moore. Consultants to Builder: Wm. Bornstein & Son, Inc., Chrysler Airtemp Dealer. Mechanical & Electrical Engineers: General Engineering Associates.

## Chrysler Airtemp Individual Room Air Conditioners Selected for Washington's Largest and Finest Apartment Building

In Washington's new Berkshire Apartments—believed to be the largest single apartment building in the United States—Chrysler Airtemp Air Conditioning units were selected due to their attractive and compact design; their quiet, automatic and dependable operation. Here over 1000 tons of Chrysler Airtemp refrigeration and water cooling equipment—using 1350 individual room units—is now being installed.

Perhaps you, too, are planning new construction or the modernization of an existing building. If you are, Chrysler Airtemp



Individual apartments in this gigantic project are provided with Chrysler Airtemp room air conditioning systems for both heating and cooling.

offers through its nationwide dealer organization or regional offices in principal cities the services of highly-trained field engineers to help select the most efficient air conditioning systems for your specific job. And when desired, Airtemp Construction Corporation—wholly owned subsidiary of Chrysler Corporation—will see the entire job through to completion, including supervision of field operations.

For additional information relative to Chrysler Airtemp's engineering services, send coupon today.

### 3 BASIC SYSTEMS TO MEET EVERY BUILDING NEED

CENTRAL SYSTEMS

"UNITEMP" SYSTEMS

INDIVIDUAL ROOM UNIT SYSTEMS

# Chrysler Airtemp

AIR CONDITIONING • HEATING  
COMMERCIAL REFRIGERATION

AIRTEMP DIVISION OF CHRYSLER CORPORATION, DAYTON 1, OHIO

AIRTEMP DIVISION OF CHRYSLER CORPORATION, Dayton 1, Ohio

We would like to consult one of your field engineers regarding our air conditioning problem.

AF-1-50

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

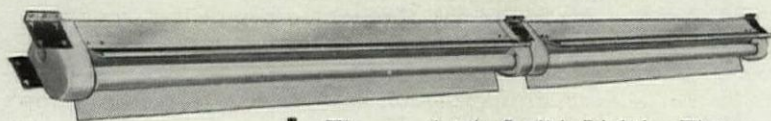


# Most modern lighting

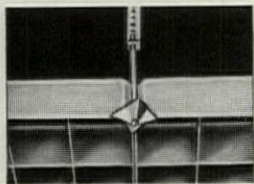


## SYLVANIA "Flexi-Module" LUMINOUS CEILING

**Consists of THREE simple parts—**



1. The completely flexible Lighting Fixture.



2. The adjustable *Hanger Strap* and "star" suspension unit.

3. The non-static *Aluminum Grids* . . . no dusting . . . no repainting.



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



# SYLVANIA

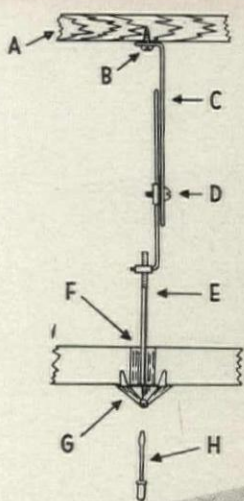
SYLVANIA's modern Flexi-Module Lighting System is not merely a louvered ceiling but a luminous ceiling lighting system composed of conventional type louvers as well as opaque panels, luminous panels, plastic panels.

Extremely flexible in application, this louveral system is ideal for stores, offices, and schools. As indicated by the photograph above—a portion of the interior of Jordan Marsh, Boston—a wonderful "open" feeling is achieved . . . as well as a clean-cut look brought about by complete concealment of wiring, air conditioning ducts, sprinkler systems, and other utilities!

Sylvania's Flexi-Module system is a new approach to lighting—one that architects will want to know all about . . . one that their clients will want to carefully consider, particularly in respect to its amazing low cost.



# system *ever* devised!



## EASY TO INSTALL!

Here's what happens: First the Sylvania lighting fixtures are hung; then to the upper ceiling or other overhead support (A) you screw or bolt (B) the supporting strap. This perforated strapping (C) has holes on  $1\frac{1}{2}$ " centers for rough length adjustment. Approximate maximum extended length using positive binding speed nut (D) is 38". (Standard pipe strapping can be added for longer length.)

A 10" long bolt (E) is for final length adjustment. And finally to support the louver sections (F) you have the exclusive Sylvania Star Suspension (G)—that interlocks adjoining sections yet allows independent removal of each one!

No leveling of supporting ceiling or framework is necessary! All leveling is done from below... right on the louver sections!!

## VERSATILE AS WELL AS FLEXIBLE!

Colored sections may be used to create effects desired. For example, four sections colored red were used for the Christmas display shown left—a novel, attractive effect employed by the great, new Jordan Marsh store.

Further contributing to the Flexi-Module system's flexibility is the fact that the lightweight grids may be cut to fit any desired shape with a pair of tinsnips!

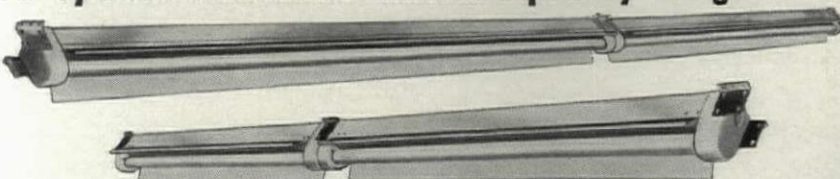
As for the lighting fixtures, they may be mounted in tandem 18" above the louvers, with power supplied by a standard plug-in duct or trolley busway wiring system. Any fixture may be easily relocated to meet changing light requirements! Any part of the lighting equipment may be easily serviced without damage to remainder of ceiling. Each fixture may be turned on and off individually!

## AMAZINGLY LOW IN COST!

Unlike conventional plaster or concrete ceilings, none of the utilities such as telephone ducts, air-conditioning ducts and vents, sprinkler and electrical systems need be buried. In fact telephone and service wiring can be suspended in the "dead" space between the actual and false ceilings, doing away with expensive

conduits! Not only is expensive, buried-in-concrete construction avoided, but all utility systems are readily available without chopping to get at them. All in all, the Sylvania Flexi-Module System compares favorably with conventional lighting in plaster ceilings... and is lower in cost than other types of systems!

## New Sylvania Fluorescent Fixtures Especially Designed for Flexi-Module



The CR-150—simple, easy to install, efficient—uses 16-foot chassis with two 4-foot reflectors. Complete with two instant 8-foot Start 75-watt T-12 Sylvania Triple-Life Lamps. Can be hung on chains, surface or pendant mounted. (C-150 unit without reflector.)

CR-80—similar to above unit except uses an 8-foot chassis with two 4-foot reflectors. Two 4-foot Slimline lamps are mounted in tandem for long lines of light. (C-80 unit without reflector.)

**SEND FOR**  
complete information about Sylvania's  
Flexi-Module Lighting System.

Sylvania Electric Products Inc.  
Advertising Dept. L-1101  
500 Fifth Ave., New York 18, N. Y.

Forward full details on new  
Sylvania Flexi-Module Lighting  
System.

Name \_\_\_\_\_

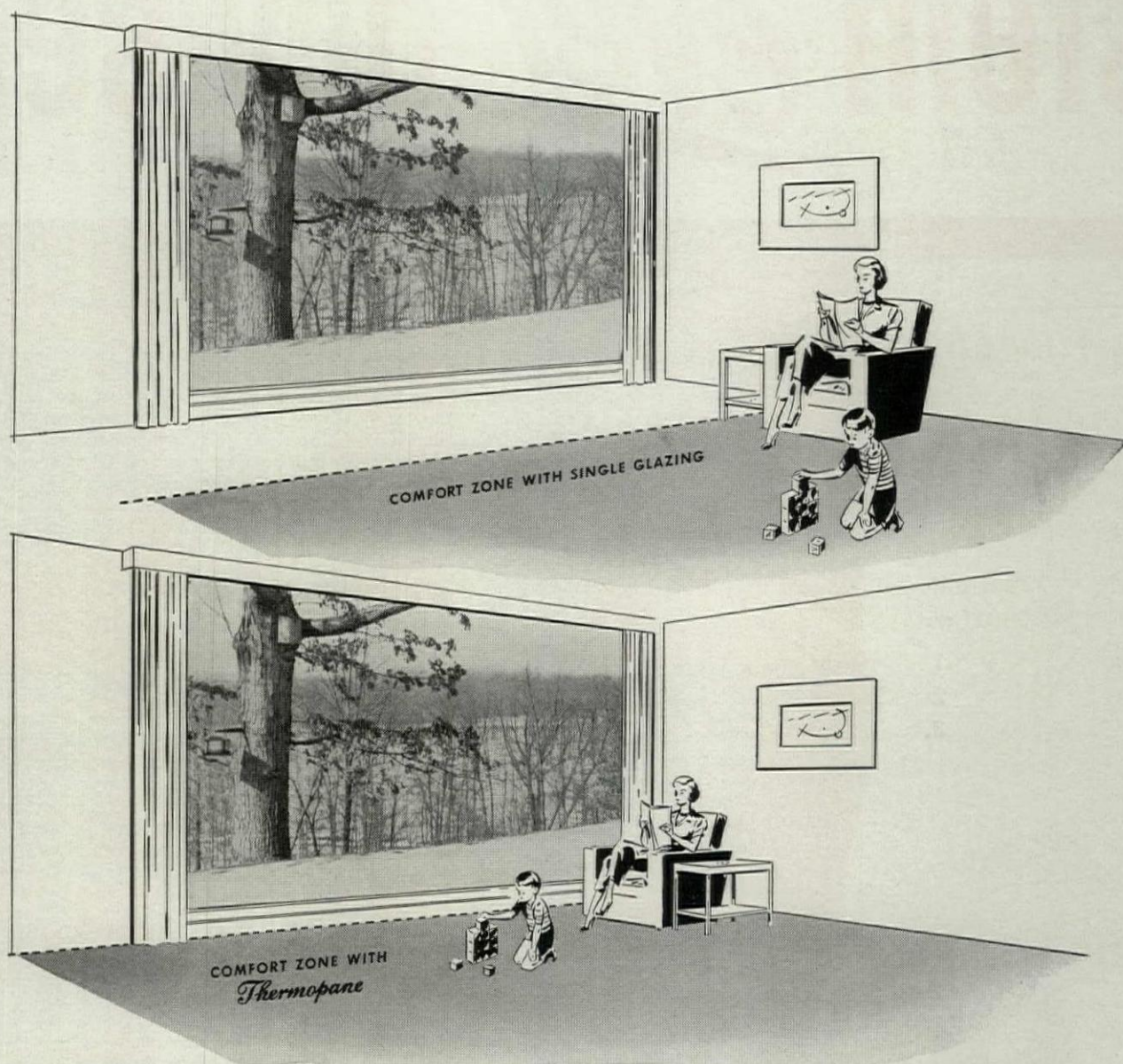
Address \_\_\_\_\_

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

State \_\_\_\_\_

# ELECTRIC





## *1/2 inch* ADDS *feet* TO A ROOM

Where building budgets restrict floor space, *Thermopane*\* insulating glass in the windows becomes doubly important. *All* of the room is usable because the inner pane stays warmer in winter and downdrafts are minimized.

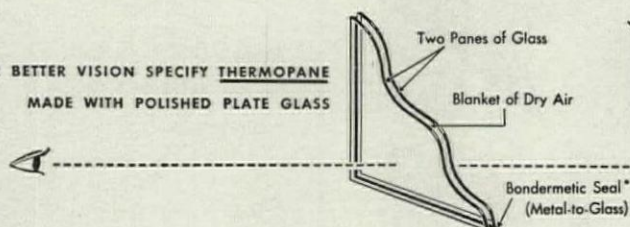
Areas next to windows stay comfortable and furniture can be placed for maximum convenience. An unused "low-comfort zone" is expensive to build. A window wall of *Thermopane*

to give the feeling of spaciousness and to allow full use of the room is the economical solution.

The 1/2-inch insulating blanket of dehydrated air sealed between the panes of *Thermopane* does the trick. Builders now are erecting *Thermopane* window walls at little or no advance in cost over conventional wall construction. For design flexibility and building economy, *Thermopane* is made in over 80 standard sizes. For details, write for our *Thermopane* book.

\*®

FOR BETTER VISION SPECIFY **THERMOPANE**  
MADE WITH POLISHED PLATE GLASS



# *Thermopane*

MADE ONLY BY **LIBBEY-OWENS-FORD GLASS COMPANY**  
3715 Nicholas Building, Toledo 3, Ohio



# Check the specifications on these WELDWOOD FLUSH DOORS

You'll find many applications where one of these types is just what the client ordered

## WELDWOOD FIRE DOORS

are the only wood-faced doors that carry the Underwriters' Label for Class "B" openings. Special construction with fire-proofed edge-banding and mineral composition core gives you absolute fire protection in approved installations. Cross

bandings and facings are bonded with waterproof phenolic glue that enables this door to withstand moisture indefinitely.

Standard faces are selected Birch veneers. However, the Fire Door can be supplied with a wide variety of other handsome hardwood faces on special order. Thickness 1 $\frac{3}{4}$ ". Standard sizes.

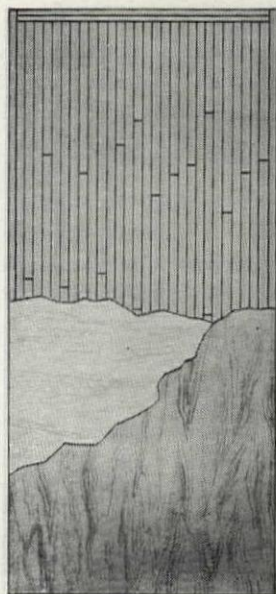


And only WELDWOOD FIRE DOORS can give you all these important advantages:

1. Increased Safety.
2. Striking Beauty.
3. Durability.
4. Dimensional Stability.
5. Lightweight.
6. Vermin and Decay Proof.
7. Moderate Cost.

## THE STANDARD WELDWOOD MINERAL CORE DOOR

Utilizes the same core material as the Weldwood Fire Door but edge bandings are not fireproofed. Recommended for locations where a labeled door is not required. Standard thickness: 1 $\frac{3}{4}$ ". Also available in 2 $\frac{1}{4}$ ", 2" and 1 $\frac{1}{2}$ ".



## THIS ATTRACTIVE WELDWOOD DOOR HAS A SOLID LUMBER CORE!

For convenience, ease of working and durable, trouble-free beauty, clients will appreciate your specification of this new all hardwood flush veneer door.

The specially designed lumber staved core gives exceptional dimensional stability, enables you to hang the door from either side and makes it especially adaptable to custom-cut lights or louvres. Hardware goes in quickly, easily and permanently.

The waterproof phenolic bonds means

you can specify this door for interior or exterior use.

The Weldwood Lumber Staved Core Door is made with richly figured veneer faces in all the popular hardwoods. Standard sizes in 1 $\frac{3}{4}$ " and 1 $\frac{1}{2}$ " thicknesses. Also available in 2" and 2 $\frac{1}{4}$ ".

Check the complete specifications and data on all these popular Weldwood Doors. Your nearest Weldwood dealer can supply you with literature. Or, write us today. We'll rush complete information.

## UNITED STATES PLYWOOD CORPORATION

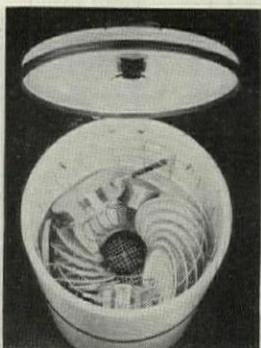
55 West 44th Street, New York 18, N. Y.

Distributing units in Albany, Baltimore, Boston, Brooklyn, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Fresno, Glendale, Hartford, High Point, Indianapolis, New Hyde Park (L.I., N.Y.), Los Angeles, Milwaukee, Newark, New York, Oakland, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, San Francisco, Seattle, Spokane, St. Paul,

Washington, D.C. Also U.S.-Mengle Plywoods, Inc., distributing units in Atlanta, Birmingham, Dallas, Houston, Jacksonville, Kansas City, Kans., Louisville, Memphis, New Orleans, San Antonio, St. Louis, Tampa. In Canada: United States Plywood of Canada, Limited, Toronto. Send inquiries to nearest point.



## PRODUCT NEWS



### PORTABLE ELECTRIC DISHWASHER needs no special plumbing or electrical connections.

Installation of General Electric's new dishwasher involves merely connecting a rubber inlet hose to the hot water faucet and plugging in the electric cord. Manually controlled the dishwasher performs the same job as a deluxe fully automatic machine and has the same capacity, holding up to 100 pieces of china, glassware, silver, pots and pans.

The washing is done by streams of hot detergent solution sprayed by a high speed impeller on all surfaces of the tableware. Washing cycle recommended by the manufacturer includes a five minute wash and two short rinses. Less than 5 gal. of hot water are used in the entire operation. Drainage is accomplished automatically through a separate hose by a pumping action of the motor. When the process is completed, the lid is raised to allow the dishes to dry. The dishwasher measures 36 in. high and 23½ in. in diameter. Acid resistant white porcelain enamel lines the tub; skirt and top opening lid are finished in baked enamel. All trays are made of stainless steel and may be removed. Casters are rubber tired and ball-bearing mounted for easy movement of the machine. A faucet adapter permits connection of the water inlet hose to almost any tap. The model sells for \$170.

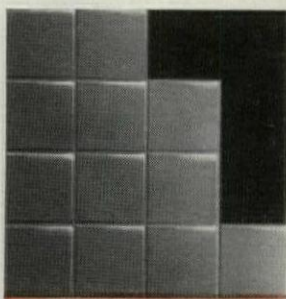
Manufacturer: General Electric, Appliance & Merchandise Dept., Bridgeport, Conn.

LOW IN COST • LIGHT IN WEIGHT

Enduring Beauty!

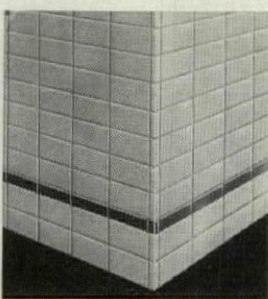
**HASTINGS** AIRCRAFT ALUMINUM **alumitile**

Guaranteed by Good Housekeeping



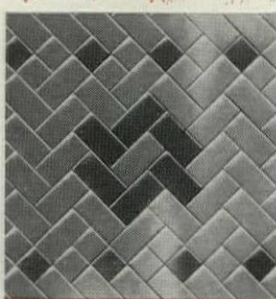
#### INSIDE FINISH

Attractive, smooth, lustrous enamel finish permanently bonded to sturdy aircraft aluminum... 14 vital colors... will not crack, peel or chip. Easy to clean.



#### OUTSIDE FINISH

A choice of 7 beautiful exterior colors in regular or embossed finish, applied by an exclusive process that insures a maximum of color control, density and uniformity.



#### SELF-DECORATING

A variety of sizes and colors permits modern decorative designs on interior or exterior walls... each job tailored to individual requirements for distinctive, lasting beauty.

#### FIREPROOF...

#### RUSTPROOF... WEATHERPROOF

HASTINGS alumitile is impervious to fire, rust and water, and cannot corrode. May be used anywhere indoors or outdoors with gratifying results. It has a gleaming bone-hard enamel finish... the lifetime colors are baked on. This amazing wall facing is enjoying ever increasing popularity in the construction of new buildings and the modernization of old. It strikes a modern tone which has brought enthusiastic endorsement from leading decorators, architects and contractors. Yet its cost is surprisingly low, its strength and adaptability almost unbelievable.

#### SCORES OF USES

The wide versatility of HASTINGS alumitile is expressed in its countless uses for homes, institutions, business buildings. It is ideally suited for bathrooms, kitchens, laundries, utility rooms; for dairies, bottling plants, breweries, bakeries, pharmacies, hotels, hospitals, dental offices; for store and theatre fronts, lobbies, service stations.

#### METAL TILE PRODUCTS, INC. HASTINGS, MICHIGAN

Makers of Hastings alumitile, alumi-SHIELD awnings, doorhoods, mouldings and flashings

AN UNUSUAL PROFIT OPPORTUNITY  
FOR LIVE DEALERS AND DISTRIBUTORS  
USE THIS COUPON



#### EASY TO APPLY— EASY TO SELL

Offers consistent quality, sanitary sealing, insulation value, handling flexibility, scope for design, uniformity of workmanship—all at a marked saving in labor hours.



#### STRENGTH WITHOUT BULK

Save on bulk; save on shipping and handling costs; save on storage space. Lightweight HASTINGS alumitile is packaged compactly for convenience and economy. Well adapted to large wall areas where weight and square-foot costs are important factors.

#### METAL TILE PRODUCTS, INC. DEPARTMENT 103, HASTINGS, MICHIGAN

I should like to know more about your products.

I am a ☐ Distributor ☐ Dealer ☐ Architect ☐ Contractor

Name \_\_\_\_\_

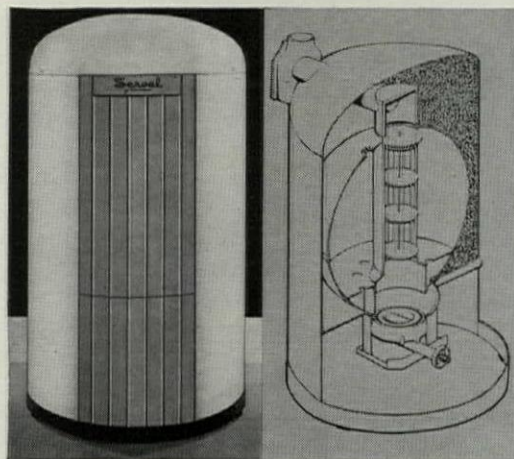
Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

### HOT WATER HEATER WITH SPHERICAL TANK has high thermal efficiency.

Recent independent research has established the Serval hot water heater to be one of the most economical on the market. Operating costs are lowered about 10 per cent as a result of high efficiency Btu absorption and heat transfer and reduction of radiation losses. Common-sense engineering of the heater's internal design is the key to this fuel saving. An alloyed copper ball-type tank is contained within the white baked enameled cylinder. Not only is the sphere a strong shape but it also offers less external surface than other three dimensional forms and consequently loses less heat by radiation. For quick heating of the water a steel heat exchanger



runs vertically through the center of the ball tank. Rapid heat transfer is insured by means of channel fins extending the entire length of the exchanger, and a series of suspended baffles.

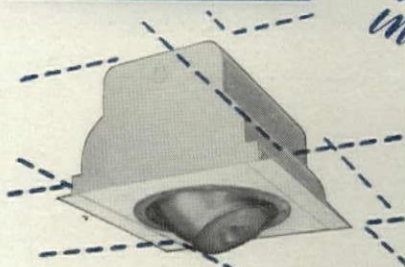
(Continued on page 176)



# Long, Light and Handsome



## *Leader* Slimline-Troffer NHT-280 in various one-piece lengths up to 8 ft.



### LEADER Troffer DIRECLITE

This incandescent spotlight may be used between Troffer units in continuous runs or at ends of run, or as individual units. Unique ball and ring assembly provides vertical light adjustment of 45° and horizontal adjustment of 360° for flexible high-lighting . . . Also furnished as incandescent unit with flat diffusing glass or (Holographic Controls\*).



\*TRADE MARK REGISTERED

- beauty through simplicity
- flexible light volume
- lower installation cost
- lower maintenance cost

Here is a long, symmetrical fixture that "cooperates" enthusiastically with architects and contractors who want to achieve the present-ultimate in lighting beauty and economy. Recessed lighting in extra-long fixtures with a shielding-choice of louvers, baffles, glass enclosures and various special type lenses. Extra length means fewer lamps . . . reduced maintenance cost. Ask us for full details!

**SPECIFICATIONS:** The LEADER SLIMLINE-TROFFER is wired for 1, 2 or 3 slimline tubes, in 42" to 96" length. Housing and channel of 18 gauge steel. Exterior and end cap finished in rich silver-gray enamel, with high-reflecting white chip-proof baked enamel interior. Extra-sturdy one-piece construction. Instant-start 100, 200, 300 or 425 milliamperes operation.

*Sold and installed only by the better electrical wholesalers and contractors*

*Manufactured exclusively by*

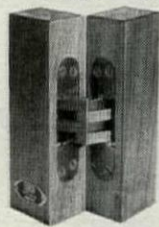
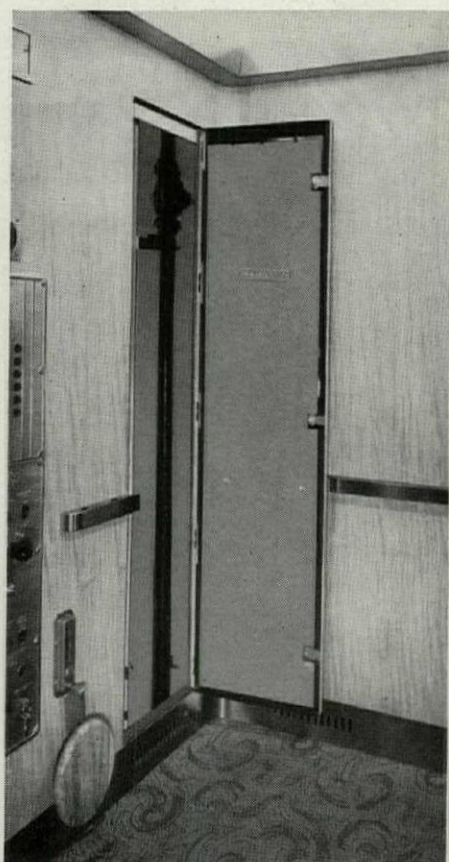
**LEADER ELECTRIC COMPANY**

3500 North Kedzie Avenue, Chicago 18, Illinois

Leader Electric—Western: 800 One Hundredth Ave., Oakland 3, Calif.



## HOW SOSS HINGES HELP *Otis* STREAMLINE AN ELEVATOR



For over 16 years Otis has been using SOSS INVISIBLE HINGES to give their elevators a streamlined, harmonious, gracefully modern appearance. Otis also considers the SOSS HINGE a definite safety factor as it has no protruding hinge butt to bruise people, tear clothes, etc., when elevators are crowded.

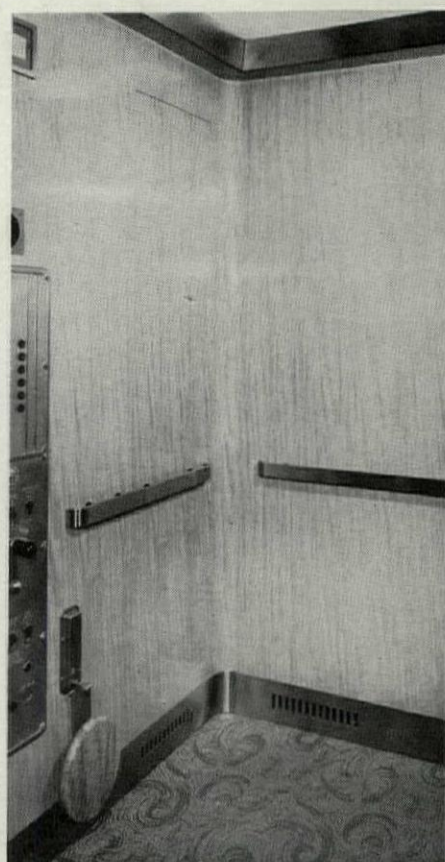
You, like Otis, will find SOSS HINGES ideal for creating unique, streamlined, luxurious, distinctively modern interiors.

There's a weight-rated SOSS HINGE, for every type of installation. They're perfect in every respect for secret panels, cupboards, and doors of all kinds. Your clients, too, will like this "hinge that hides itself."

Write for FREE CATALOGUE that gives complete details, blueprint templates, and the many uses of this modern hinge to—

**SOSS MANUFACTURING COMPANY**  
21779 HOOVER ROAD DETROIT 13, MICHIGAN

**SOSS**  
INVISIBLE  
HINGES



LO-LEVEL  
COOLERS

BATTERY

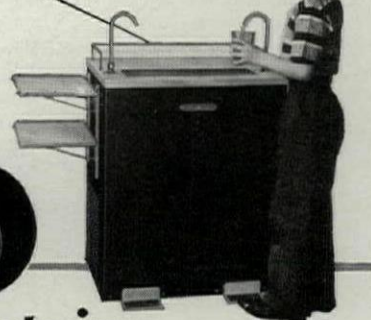
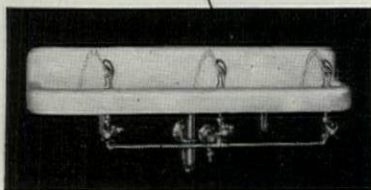
WALL

PEDESTAL

### A COMPLETE LINE for every need

For your 1950 requirements you can choose from a wide variety of Halsey Taylor models for school installations. The new Lo-Level cooler for school cafeterias is but another evidence of Halsey Taylor's continuous development in drinking-water equipment design. Thus you can be sure of the ultimate in economy and service, no matter what your needs!

THE HALSEY W. TAYLOR Co., Warren, Ohio



#### *The Little Cooler for Little People*

This ideal cafeteria cooler is the right height for children. Foot-pedal operation means extra convenience for the child and less confusion in the room, and Halsey Taylor engineering means trouble-proof service!

## HALSEY TAYLOR Drinking Fountains

AS-1



# LET FACTS AND SPECIFICATIONS PROVE THE SUPERIORITY OF MENGEL *Flush* DOORS



## DESIGN AND CONSTRUCTION

The design and the construction of Mengel Hollow-Core Flush Doors are the products of extensive field experience, continual laboratory research, and skilled labor which has made Mengel one of the greatest names in the wood industry.

1. 40% lighter in weight... than standard solid hardwood doors.
2. Patented "Involok" Core... gives stronger bond between core and faces; keeps faces flat; provides flame resistance.
3. Solid Hardwood Siller and Rails... provide maximum screw-holding power.
4. Key-lock Dovetails... keep sills and rails permanently tight.
5. Steam-treated... 25,000 times... proves long life.
6. Extra Guard Against Warpage... provided by special mill-cutting process.
7. Broad Selection of Hardwood Faces... individually hand-sanded to satin smoothness permits wide range of finishes... reduces finishing costs.
8. Engineered Construction... assures maximum dimensional stability.

\*Mengel exclusive.

**GUARANTEE**... All Mengel Hollow-Core Flush Doors meet the standard door guarantee adopted by National Door Manufacturers' Association.

## USAGE

Mengel Hollow-Core Flush Doors are constructed with water-resistant, heat-proof glue, and are ideal for interior use.

Sill edges may be made to match face when so ordered.

Door openings may be cut within 5 inches of the bottom or top edge, and within 5 inches of the sides (see Figure 1). If doors are to be cut down in height, equal margins should be seen from top and bottom, and not to exceed one inch.

## SPECIAL DOORS

Mengel Hollow-Core Flush Doors can be manufactured in other sizes, widths and thicknesses, to your specifications, with circular or rectangular light openings, with louvre openings, or with special faces to suit individual designs. Doors with two lock blocks for installation of mirrors, etc. also can be furnished. Full details upon request.

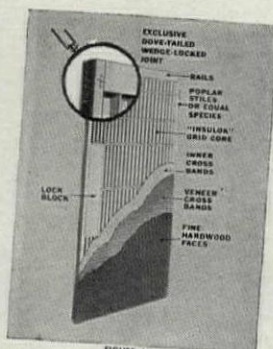


FIGURE 1



## Mengel Solid-Core

Match faces when so ordered. Within 5 inches of top or sides of sides. Louvers used in the same door.

## R DOORS

Doors can be manufactured to your specifications, or with special faces. Edges may be hand rubbed and beveled. Full details upon request.

## 15

and 1-3/4". Yellow Poplar or equal 1-1/2" for 1-3/4" doors. 1-1/2" sills are specially machined for use if necessary.

and bottom, 5-1/8" wide Poplar

equal species stabilized by cloveing cross the grain at regular intervals.

Doors assembled with the grain running at right angles to the grain of the sills (see Figure 2).

Doors are specially fabricated with water-resistant bonding.

Both faces of all Mengel Doors smoothly surfaced for painting, stain, varnish finishes.

If Mengel Doors factory prefer to standard.

**SHIPPED**—Each door individually packaged in a door-tight package when so ordered.

**NOTE**—All Mengel Stabilized Solid-Core Doors meet the standard door guarantee adopted by National Door Manufacturers' Association.

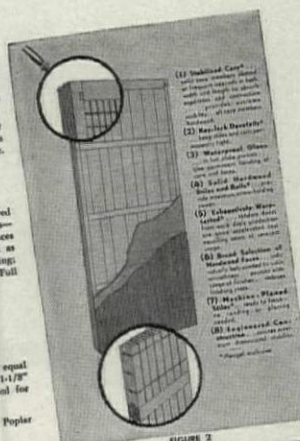


FIGURE 2



You know and we know that "all flush doors are NOT just alike." Door qualities vary as much as the experience, know-how, efficiency and integrity of their makers.

Mengel Flush Doors — Hollow Core and Solid Core — are built the way you'd want them built, of the materials you yourself would choose. Their specifications prove it. Finer or more dependable doors cannot be obtained at comparable prices.

Get the facts and specifications on Mengel Flush Doors, as contained in the A. I. A. Catalog illustrated above. Use the coupon for convenience.

## BETTER DOORS, AT COMPETITIVE PRICES

### THE MENGEL COMPANY

Plywood Division, Dept. AF-5, Louisville 1, Ky.

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

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Firm \_\_\_\_\_

Street \_\_\_\_\_

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





# Raymond

**MAKES 5 TYPES  
OF  
CONCRETE PILES**

1. STANDARD
2. STEP-TAPER
3. PIPE STEP-TAPER
4. COMPOSITE
5. GOW CAISSONS

Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements.

## 1. STANDARD PILES

*The heavy taper cuts costs...*

*Note that the permanent steel shell maintains the soil pressure developed during driving and while the concrete is setting, thus insuring a perfect pile free from distortion with a high load capacity.*

Raymond Standard Concrete Piles have a heavy, uniformly tapered permanent steel shell. On friction piles, this taper acts like a wedge, giving these specific advantages:

1. Driving resistance is maintained.
2. The load is transmitted to the soil through the entire length of the pile.
3. The load can be carried by shorter piles, because of their greater carrying capacity.
4. Since shorter piles cost less to drive, the taper usually results in substantial savings.

Each of these statements has been tested and proved innumerable times. The evidence is at your disposal at any of our offices. Your inquiry is cordially invited.

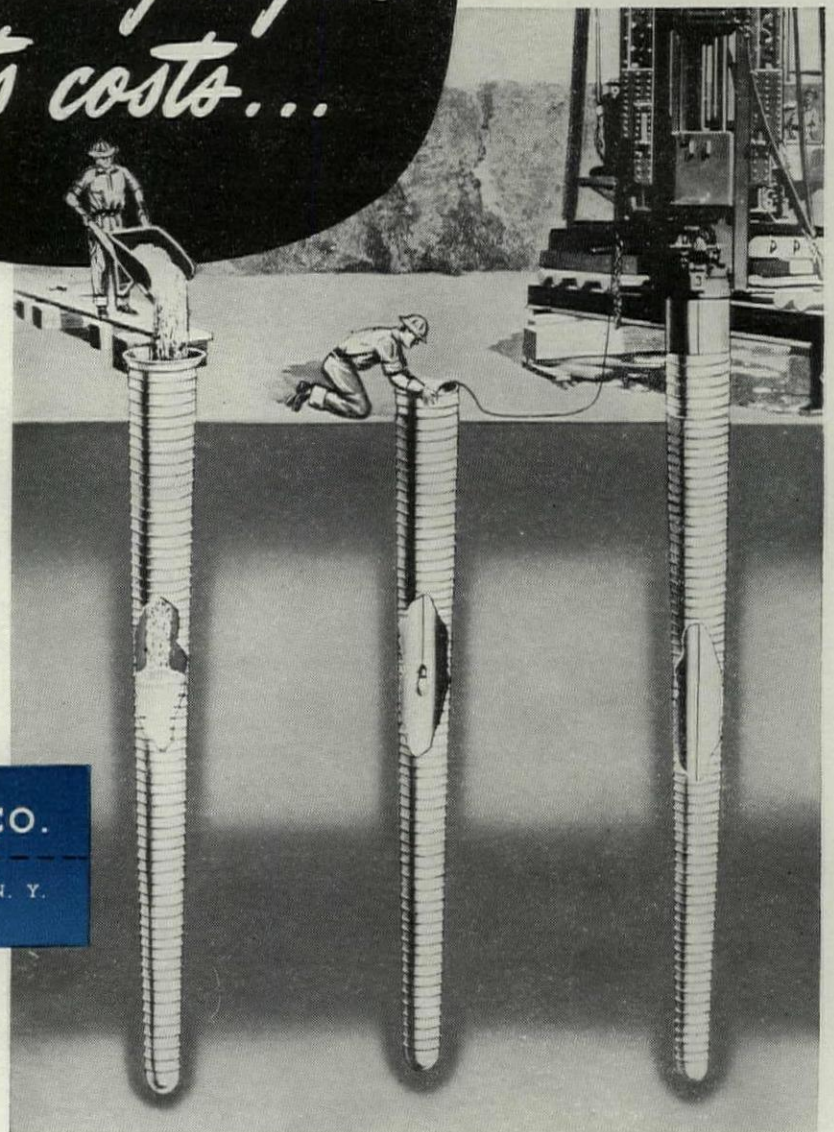


# Raymond

**CONCRETE PILE CO.**

140 CEDAR ST., NEW YORK 6, N. Y.

**BRANCH OFFICES:** Boston, Syracuse, Philadelphia, Baltimore, Washington, Pittsburgh, Atlanta, Miami, Houston, Kansas City, St. Louis, Cleveland, Chicago, Detroit, Portland, San Francisco, Oakland, Los Angeles and principal cities in Latin America.

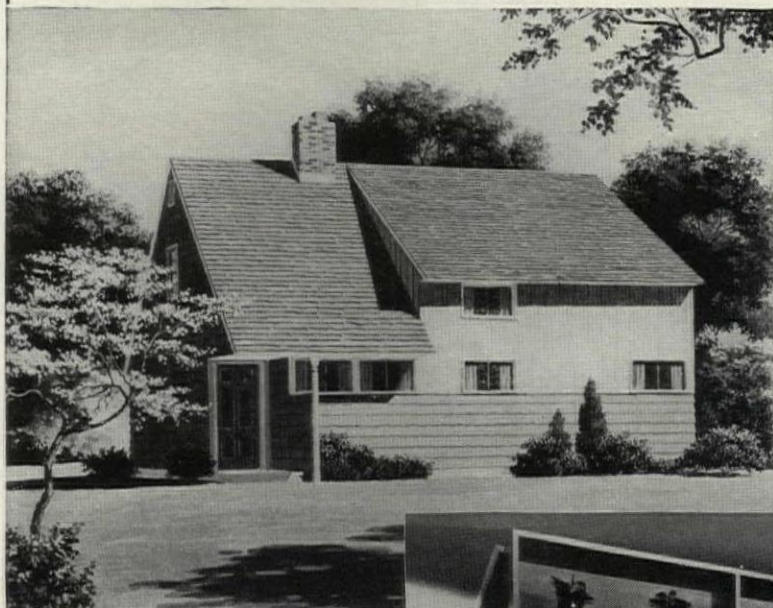




Famous builder, William Levitt, says:

# "Sales come easy

when you give people what they want, and that certainly includes **Electric Ranges.**"



This remarkable 4-room-and-bath Levitt Home on a 60 x 100 plot in Levittown, Long Island, includes a completely equipped kitchen. Mr. Levitt says: "The time to install an Electric Range is when you're building a house. That cuts installation cost, and provides a definite sales feature."

Here is the straight-line kitchen-dinette featured in the Levitt Homes. It's modern, it saves steps, time and work for the homemaker. Equipment includes a modern range with automatic oven control and—OF COURSE ... IT'S ELECTRIC!

*EQUIP*  
YOUR HOUSES WITH  
**ELECTRIC**  
**RANGES**



Successful builders everywhere recognize the public demand for modern cooking equipment. As Mr. William Levitt, President of Levitt & Sons, Inc., says: "When you offer home buyers what they want, at a price they can afford to pay, your selling job is practically done. Among the features that have made Levitt Homes as efficient to live in as they are good to look at is the modern Electric Range in the kitchen. People really go for it."



ELECTRIC RANGE SECTION • National Electrical Manufacturers Association, 155 East 44th Street, New York 17, N. Y.

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KELVINATOR • LEDO • MONARCH • NORGE • QUALITY • UNIVERSAL • WESTINGHOUSE



## PRODUCT NEWS

Water near the outlet at the top of the tank—the water used first—is heated first.

The controls are enclosed in the cylinder but are readily accessible behind a snap-on panel. Unique in water heaters is the Servel's burner: a cast stainless steel ribbon port burner requiring a minimum of outside unheated air for combustion. Each heater is provided with a flushing valve and a gas pressure regulator, features adding to its overall effectiveness. Retail price for the 30 gal. model, measuring just 28 in. high, is

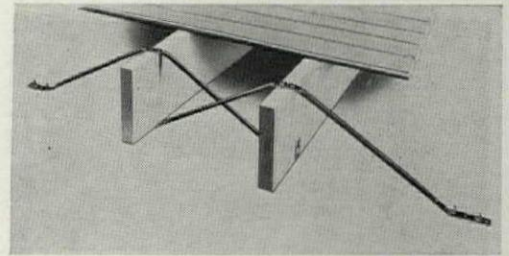
\$188, not installed. This particular model will serve a family of five or six persons. Because of its convenient height and direct heating of water near the outlet, very successful installations have been made in home laundries directly over the automatic washing machine.

*Manufacturer:* Servel, Inc., Evansville 20, Ind.

### **STEEL BRIDGING FOR WOOD JOISTS is ready to use without cutting or fitting.**

Tru-Tye, a new type of steel bridging, is now available in one stock size for wood joists of any standard depth installed on 16 in. centers. Each steel piece is rustproofed and ribbed for extra strength and may be affixed with just two nails. The bridging is first placed in line over the top

of a joist before the flooring is laid and prongs are driven and countersunk with one hammer blow. Laying of the flooring then can proceed before further bridging is done. Next, a nail is



driven through the metal piece into each face of the two adjacent joists, holding the steel taut and assuring a neat application. Each end of the bridging is then bent around the base of the joists and the prongs are driven into place, so that the bridging holds the joists in tension and acts as permanent reinforcement for the building framework. Cartons containing 50 pieces of Tru-Tye are priced at \$8, f.o.b. Toronto, Ohio. Shipping weight is 32 lbs.

*Manufacturer:* Dravo Corp., National Dept., 1203 Dravo Bldg., Pittsburgh 22, Pa.

### **STAINLESS STEEL FASTENER for low density materials automatically clinches itself.**

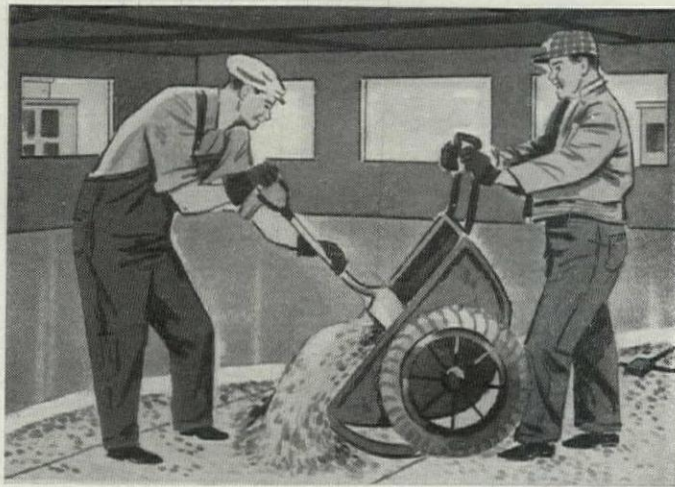
Loc-Nails are ideal for use on gypsum sheathing, asbestos or wood shingles. Driven in like ordinary nails, these ingeniously devised fasteners automatically clamp themselves behind materials at different thickness by means of radial bending. If a stud is encountered, only the fine point will penetrate it; the double metal folds and clinches itself in back of sheathing but in front of the stud. This fine point also prevents material displacement. Packed in tin cans containing 2,500, the fasteners sell for \$3.50 per 1,000, f.o.b. Hartford, Conn. Retail price to applicators on the job is \$4.40 per 1,000. Ultimate cost is about the same as other self clinchers on the market sold by weight.

*Manufacturer:* E. G. Building Fasteners Corp., 101 Park Ave., New York 17, N. Y.

### **VERTICAL SLIDE WINDOW is completely assembled, set in wood surround at factory.**

Offering many advantages to both the builder and building occupant, Rusco Prime Window is an adaptation of the best features of the company's combination window altered to meet requirements of today's construction methods. A trim, efficient window unit that is practical, durable and trouble-free is the net result. Simple to install, the Prime Window includes glass and Lumite screen panels, felt weatherstripping, and toxic-treated wood surround. Units with self storing storm sash are also available. The panels, set in quality Armco hot-dipped galvanized steel sash and frame, are finished with baked outdoor aluminum enamel; only the wood surround re-

(Continued on page 184)



**for lightweight concrete... use**

## WAYLITE AGGREGATE

**Save up to 35% in deadweight...  
design up to 4,000 psi**

When you want lightweight structural concrete with adequate strength, specify the use of Waylite aggregate.

Waylite is a cellular aggregate made by processing molten slag. Its air cells are completely sealed giving lightness and strength. Design for strength with Waylite as in ordinary plain or reinforced concrete. Handles similarly. Approved by Board of Standards and Appeals, New York City. Waylite Concrete 2,000 psi weighs 100 pounds per cubic foot... 4,000 psi Waylite weighs 108 pounds.

Waylite offers many important economies and advantages in structural design. Also widely used as floor and roof fills. See data in Sweet's—for additional information and quotations write The Waylite Co., 105 W. Madison St., Chicago 2, or Box 30, Bethlehem, Pa.

**WAYLITE  
AGGREGATE**



into a new decade  
and a new year...  
an amazingly  
perfect window!

ALUMINUM MONUMENTAL  
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*Artisans in Aluminum Fenestration*

LABORATORIES INC.

FOR AIR CONDITIONED STRUCTURES EXCLUSIVELY

ELIMINATES OUTSIDE WINDOW WASHING

WILL ACCOMMODATE UP TO 1 INCH DOUBLE GLAZING

NO SIZE LIMITATIONS

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an innovation in fenestration for the functional modern building that is in design stage today  
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No commercial building metal on the market today has as much to offer as Stainless Steel. Unlike non-ferrous metals, Stainless will not corrode, pit, mark or discolor. And it will not rust, chip, peel, or bleed off onto adjoining surfaces.

Stainless virtually remains "new" forever—and, more important, requires practically no maintenance. Stainless is the strongest, longest lasting, best looking, and, considering life span, the most inexpensive building metal available today. Specify Stainless and you can be certain of complete satisfaction in every way.



IF IT HAS TO BE WEATHERPROOF — IT SHOULD BE STAINLESS!

**SHARONSTEEL**

**MANUFACTURERS ROLL FORM SECTIONS OF STAINLESS**



Sharon Stainless Steel is being cold roll formed into an endless number of forms and shapes. In most cases manufacturers find they can easily work Sharon Stainless on machines normally used for regular steel fabrication.

### SHARON STEEL CORPORATION *Sharon, Pennsylvania*

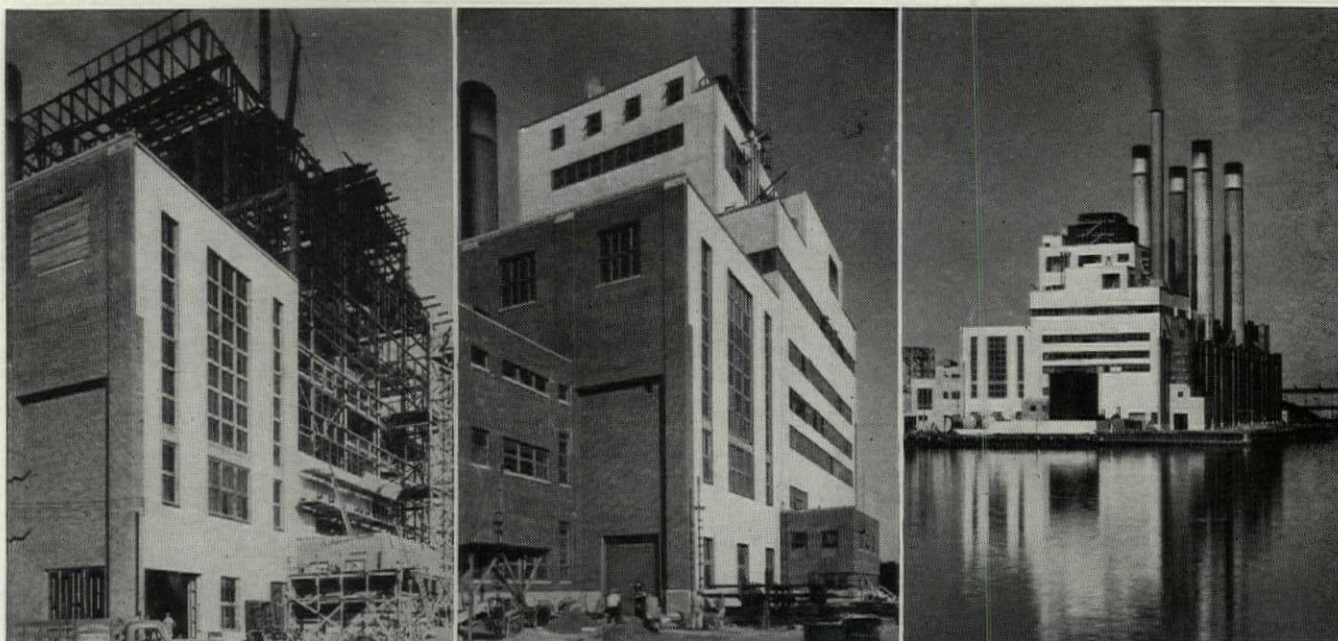
PRODUCTS OF SHARON STEEL CORPORATION AND SUBSIDIARIES: THE NILES ROLLING MILL COMPANY, NILES, OHIO; DETROIT TUBE AND STEEL DIVISION, DETROIT, MICHIGAN; BRAINARD STEEL COMPANY, WARREN, OHIO; SHARONSTEEL PRODUCTS COMPANY, DETROIT, MICHIGAN, AND FARRELL, PENNA.; CARPENTERTOWN COAL & COKE CO., MT. PLEASANT,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

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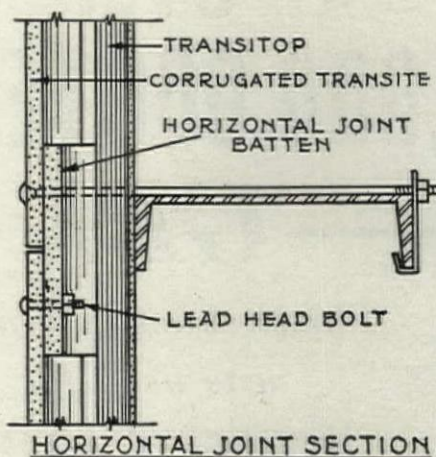
# CORRUGATED TRANSITE\* ... for Curtain Walls

\*Transite is a registered Johns-Manville trade mark



*The United Illuminating Co., New Haven, Conn.; Westcott and Mapes, architects and engineers*

**Asbestos Corrugated Transite reduces load-bearing factor 83% on new power plant addition! Transite sheets give attractive, streamlined appearance ... and they can't rot, rust, or burn.**



● Here's a case in which a unique form of asbestos wall construction solved a tough building problem.

The addition planned was to be almost twice the height of the original building, yet where the two joined, existing foundations were to be used. This meant that the new bearing wall with all its extra height should weigh no more than the old wall.

After careful study, it was decided to use the Johns-Manville Industrial Curtain Wall, a system of dry wall construction which combines J-M Corrugated Asbestos Transite with J-M Transitop (Insulating Board faced with Flexboard).

This type of construction, compared with solid masonry, reduced the load-bearing factor from 120 to 20 pounds per square foot! It also provided fire protection, insulation, and permitted the use of less extensive pilings and foundations for the rest of the building.

Architects and engineers are constantly discovering new uses for J-M Corrugated Asbestos Transite, not the least of which is its surprisingly effective function in attractive, modern design.

Send for new brochure which may help you on your next project. Johns-Manville, Box 290, New York 16, N. Y.



EASY TO BOLT TO STEEL



EASY TO SAW



EASY TO DRILL



EASY TO NAIL TO WOOD



**Johns-Manville**

*Asbestos*

**CORRUGATED TRANSITE**





For **PERMANENT Beauty**  
*Radiiluxe*  
**STAINLESS STEEL SINKS**  
**ARE FIRST CHOICE**

Architects and Builders of Quality Homes know that

*Radiiluxe* **STAINLESS STEEL SINKS**  
 by *Just* meet the most exacting requirements of  
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Custom built of heavy gauge solid stainless steel  
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not only add a final touch of charm and beauty to  
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Write today for Illustrated Literature  
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## IN-SINK-ERATOR



is the **ONLY** food waste disposer  
 conceived and engineered by  
 an Architect\* to meet the  
 exacting requirements of the  
 building professional.

*Note compact streamlined  
 smoothness—no projections  
 —so easy to keep clean.*

### *Unlimited Capacity*

Safe continuous feeding, during operation eliminates  
 stop-and-start nuisance where capacity is restricted  
 in units which operate only when cover is locked.

### *Alternating Shredder*

Exerts two-way cleansing, overcomes clogging,  
 doubles life of shredder and provides self-sharpen-  
 ing action.

Write for catalog or see Sweet's files—  
 24a/16 Architectural—6b/13 Builders

\*John W. Hammes, Registered Architect... President, In-Sink-Erator (founded 1938).

**IN-SINK-ERATOR MANUFACTURING CO.**  
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**OVER**  
**2,000,000 FEET OF**  
**GPX**

*Plastic-Faced Plywood*  
*was used for*  
**CONCRETE FORMS**

*in the New York Area Alone*  
*as Described in This Issue*  
*in 1949*

WRITE FOR LITERATURE AND SAMPLES



**GEORGIA—PACIFIC**  
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Floor of Northern Hard Maple, 80 x 100 feet, a dual-purpose innovation which combines gymnasium and roller-skating rink at Archbishop Stepinac High School, White Plains, N. Y.—an interesting development in supervised recreation. Eggers & Higgins, Architects, New York, N. Y.



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*in the bright beauty, endurance and economy of*

# NORTHERN HARD MAPLE

Formed to conserve the natural supply and to raise and stabilize the mill standards of genuine Northern Hard Maple Flooring, the **MFMA** has, naturally, watched and recorded for many years the performance of the thousands of fine Maple Floors that have been laid in American institutions, residences, stores, offices and factories.

**MFMA** records prove that true economy and thorough satisfaction are assured by a well-laid, properly-finished floor of Northern Hard Maple. *It reflects good judgment.* Northern Hard Maple is close-grained, tough, strong, rigid. It is truly resilient. It is amazingly resistant to denting by pointed impact or pressure, and to abrasion by scuffing. It is

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Second Grade, Second-and-Better Grade and Third Grade Northern Hard Maple, **MFMA**-marked, provide very appreciable economies, too, at no sacrifice of performance characteristics.

For full data, see Sweet's, Arch., 13/g/6—Eng., 4/5/22. Write for latest listing of **MFMA**-approved finishing products and processes. Address—

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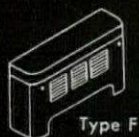
..... **FLOOR WITH** ***NORTHERN*** **HARD MAPLE** .....  
*BEECH AND BIRCH*



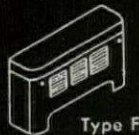


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# CONVECTOR-RADIATORS



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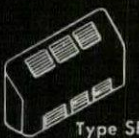
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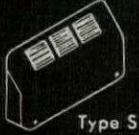
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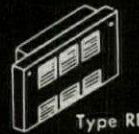
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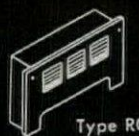
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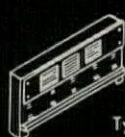
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Type RC



Type RCB



Type P



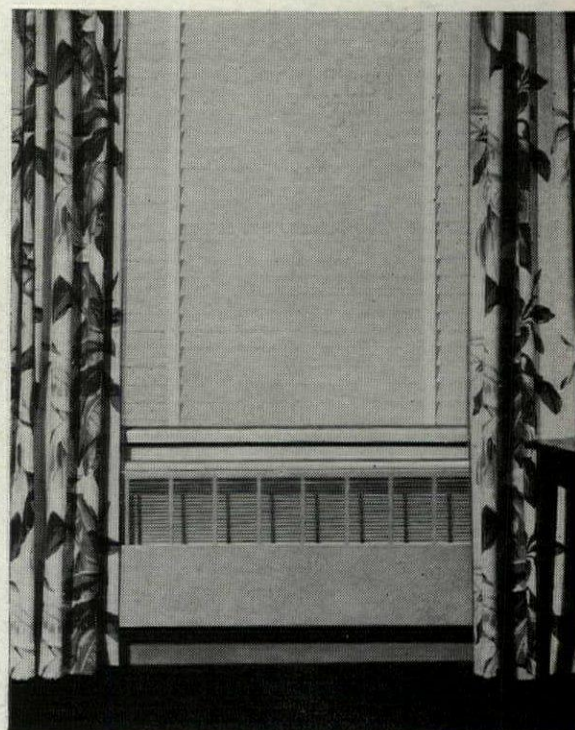
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● Fedders Convector-Radiators are made in sizes and types to fit every installation requirement.

They are made in standard Type F free-standing and semi-recessed models available from stock and also a wide range of models for special applications.

Men who design, sell and install heating equipment can take advantage of Fedders wide range of models including flat and sloping top, wall hung and free-standing models with and without base grilles. Other models include semi and completely recessed Convector-Radiators with overlapping and plaster fronts to conform to any decorative scheme.

Fedders heating elements also available for use with individually designed concealed systems. Heating elements provide quick response to manual and thermostatic control. Write for data sheets. Consult yellow section of phone book for your local Fedders representative.



*Also manufacturers of Fedders Unit Heaters, Wall Radiation, Unit Coolers, Air Cooled Refrigeration Condensers, Room Air Conditioners, Automotive Radiators and Car Heater Cores.*

**FEDDERS-QUIGAN  
CORPORATION  
BUFFALO 7, N. Y.**



maintenance

costs

drop

like a ball

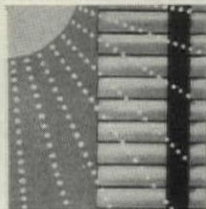
when you specify venetian blinds made of  
new Flexalum slats and vinyl plastic tape

only Flexalum gives all these advantages that cut maintenance costs:



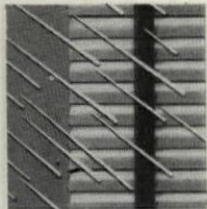
**WIPES CLEAN**

Dust doesn't linger on the non-porous surface of new Flexalum vinyl plastic tape\*. A damp cloth whisks away dirt, grease, grime, sticky spots, stains. *Costly labor hours saved!*



**SUN FAST**

The color is locked into Flexalum tape. Even the sun won't fade or discolor it. This sturdy plastic tape will look new for years. *No more constant re-taping!*



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Flexalum vinyl plastic tape won't shrink or stretch. Flexalum slats won't rust. *Costly moisture damage is eliminated!*



**SLATS SNAP BACK**

Bend them, abuse them, bear down with a vacuum tool . . . these spring-tempered aluminum slats keep their shape. *Replacement costs are cut drastically!*



**WON'T CHIP OR CRACK**

The permanent baked-on finish won't chip, crack or peel. Flexing won't harm it, either. *Blinds of Flexalum stay new-looking!*



**LOOK FOR THIS MARK**

Be sure the blinds you buy carry the Flexalum "visible-invisible" trade mark. Write for sample tape and slats. Make your own test of Flexalum's cost-saving features.

120 color combinations . . .  
custom-made into venetian blinds  
by quality manufacturers and  
sold by leading retailers.

*Flexalum*®  
spring-tempered aluminum slats • vinyl plastic tape

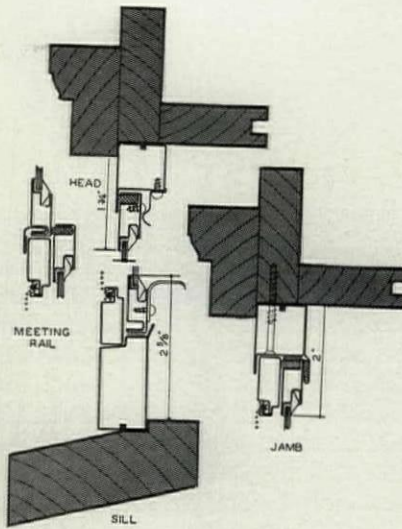
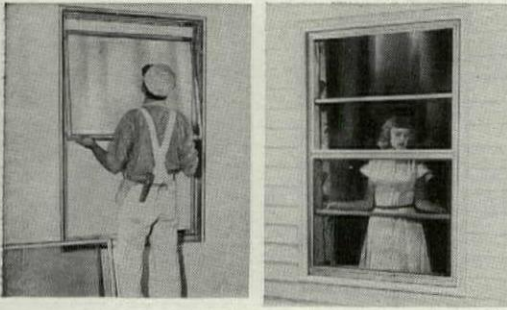
\*Patented

HUNTER DOUGLAS CORPORATION, RIVERSIDE, CALIF. AND 150 BROADWAY, NEW YORK 7, N. Y.





## PRODUCT NEWS



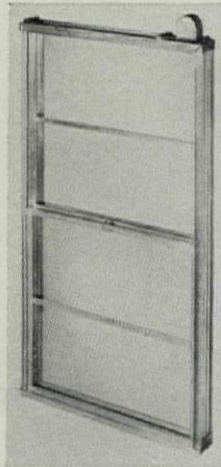
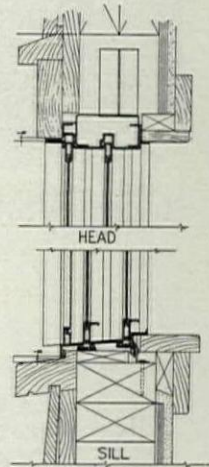
quires painting in the field. Tubular construction of the units gives maximum strength and rigidity with minimum weight. Glass panes are bedded in mastic and held in place by removable stainless steel splines. Sashes slide freely and automatically lock in any ventilating position. No weights, balances or cords are used. The plastic screen insert may be left in place all year as an air filter. A wipe with a damp cloth will clean it.

Both glass and screen inserts can be removed very easily from inside the home, an aid to the window-washing housewife and to the builder. In installation, frames can be placed in position, lumber materials passed through the wide opening during construction and glass and screen panels inserted when the house is ready for occupancy. Rusco Prime Windows are available in 20 standard slide units. With mullions these can be combined in almost any arrangement of twin, triplet or picture window with flankers. Cost to a purchaser of 100 Rusco units—each complete with storm sash, screen, wood surround and horizontal muntin bar, and having glass panels 24 x 24 in.—would be less than \$40 per unit.

Manufacturer: F. C. Russell Co., Cleveland 1, Ohio.

### DOUBLE HUNG ALUMINUM WINDOW comes packaged with storm sash and screen.

Fleetlites are factory precision windows with double hung sash, storm sash and screen. Thin and graceful in line yet rigid in construction, these extruded aluminum windows are completed at the factory, including glass held tightly



in Koroseal mounts and velon screen set below the upper storm sash. Both frame and sash sections are accurate to extremely close tolerances, and so obviate the problems of weather tightness, sticking and rattling. When a builder receives a Fleetlite window he simply takes it out of its carton, sets it in place in the concrete block or brick structure and uses it as a form for the masonry. If he is working with a frame wall he just nails the anchor lugs to the studs. Many man hours spent in assembling, fitting, glazing are thus eliminated. Cost of a standard residential Fleetlite window (24 x 24 in. glass sections) to a builder of ten or more houses is less than \$40 each. The ultimate cost to the home owner is no more than that of a good quality wood window, separate storm sash and screen.

Manufacturer: Fleet of America, Inc., 411 Dur Bldg., Buffalo, N. Y. (Continued on page 183)

# LUDOWICI

## ROOFING TILE

*The outstanding name in roofing*

Economical in price, permanent as brick or stone, Ludowici Tile covers many of the nation's largest public and private housing projects.

Here the architects' specifications and selections of permanent hard burned shale Ludowici Tile, provide hundreds of these functional buildings with roofs of beauty as well as years of service at lowest cost of maintenance.

For housing, whether it be large or small, public or private, institutional, ecclesiastical or educational, Ludowici Roofing Tile offers a wide variety of authentic architectural designs of many textures and colors that faithfully answer the requirements of both the traditional and modern designs.

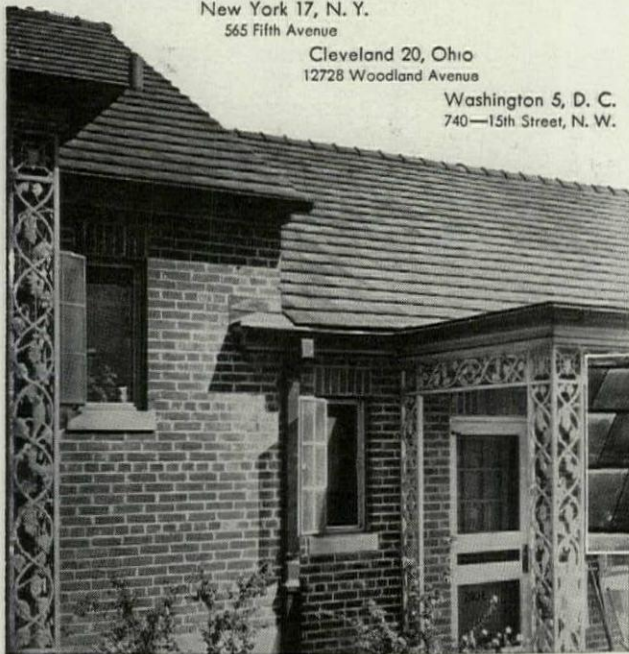
### LUDOWICI-CELADON Company

104 So. Michigan Ave., Chicago 3, Ill.

New York 17, N. Y.  
565 Fifth Avenue

Cleveland 20, Ohio  
12728 Woodland Avenue

Washington 5, D. C.  
740—15th Street, N. W.



### HOUSING PROJECTS

Greendale Resettlement  
Milwaukee, Wisconsin

Altgeld Gardens  
Chicago, Illinois

St. James Herman Gardens  
Detroit, Michigan

Valley View Project  
Cleveland, Ohio

Fairfax Project  
Alexandria, Virginia

Brentwood Park Project  
Jacksonville, Florida

LaFitte Project  
New Orleans, Louisiana

Lucas Hunt Village  
St. Louis County, Missouri

Metropolitan  
Life Insurance Co. Housing  
San Francisco, California

See our Catalog in Sweet's

Typical Unit U. S. Government  
Lauderdale Courts Housing  
Project at Memphis, Tenn.

Detail of Ludowici Lightweight  
Interlocking Weathered Tile.



We also invite your consideration  
of Ludowici Shale Slabs,  
a beautiful quarry  
tile for floor and walls.





# Why 10,264 Nesbitt Convectors are going into this apartment project

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



*Lynnewood Gardens, on the outskirts of Philadelphia, embraces 126 acres. When completed, its 127 Colonial type buildings will contain 1,798 apartment units.*

LOCATION: Elkins Park, Pa. ARCHITECT: James Ludwig.  
BUILDERS: Orleans Construction Co., Tyson Construction Co.  
HEATING: Plumbing & Heating Service Co.

The owners, architect, and heating contractor of Lynnewood Gardens — largest apartment project in Pennsylvania and one of the largest in the United States — chose Nesbitt Model U Convectors. They chose Nesbitts over the next most favored convectors after a point-by-point comparison.

What was involved in this comparison? Construction? Appearance? Capacity? Convenience? Price? Efficiency? — Yes. Not one, but all of these things. And Nesbitts won hands down on the *sum total of every point of advantage*.

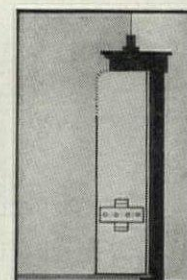
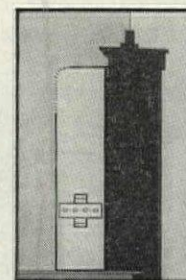
Because, you see, Nesbitt Convectors are made by a house that has been known for quality manufacture since 1912 . . . Nesbitt Convectors are styled to fit naturally into modern interior design. . . .

Nesbitt Convectors have a curved-top grille which increases stack height for maximum capacity and economy. . . .

Nesbitt Convectors are universal — one cabinet, for free-standing or semi-recessed installation; one heating element for steam or hot water; one style headers for every practical piping arrangement. Two simple connections which can be made without removing the element from the casing means valuable manhours of labor saving. . . .

Nesbitt Convectors are mass-produced for lowest possible pricing of a quality product.

All in all — protectively packaged as a complete assembly — Nesbitt Convectors offer the completely satisfying answer to the question of heating comfort for the designer of homes and apartments who knows the superiority of clean, convected heat. Send for Publication 252.



FREE-STANDING ONE CABINET SEMI-RECESSED

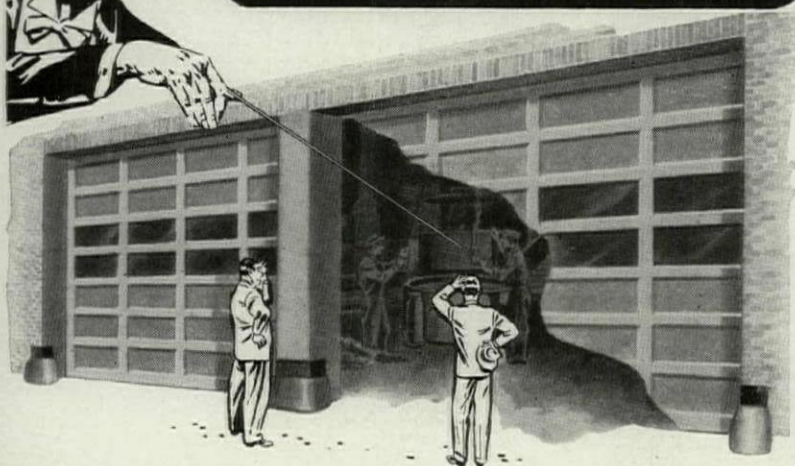
Made in 21 stock sizes: Heights, 20" and 24". Lengths, 16" to 64". Capacities, 14.5 to 71 e.d.r. In floor and wall-hung types.

*Nesbitt Convectors are sold exclusively through Plumbing and Heating Wholesalers*  
John J. Nesbitt, Inc., State Road and Rhawn St., Philadelphia 36, Pa.





**WOULDN'T YOU BE  
SURPRISED IF YOU GOT  
ONLY "HALF-A-DOOR"?**



## It CAN happen if you forget to check into AFTER-SERVICE

Getting an industrial door from an organization without a real service set-up is just like getting half-a-door. The package isn't complete without the service.

And, service is what counts when door troubles crop up—as when a truck caves in a couple of panels or nudges the track a little too hard.

These things happen all the time to industrial doors and, all too often, somebody has the bright idea of calling the architect—TO FIND OUT WHAT TO DO ABOUT SERVICE!

This is a nuisance to the architect and, to prevent it from happening with Crawford Doors, we have done three things:

1. Built a product about as service-free as can be made.
2. Set up a nation-wide organization to service ANY make of door, day or night, week-ends or holidays.
3. Provided a legible sticker for the lock bar of every door telling the user to Call the Local Authorized Crawford Dealer for Service.

So, when you specify Crawford industrial doors and operators your client gets the full package—a good product; the finest door service in the country; instructions on how to connect with it—fast (without bothering YOU).

Incidentally, do you know that Crawford industrial doors come in sizes up to 30' x 16'? And that heavy-duty hardware is available on sizes 8' x 8' and up?

Why don't you call the local Crawford Door Sales Company listed in your Yellow Pages and get them to send you the dope on these recent developments—or, write us direct.

Visit Booth 39 NAHB Show at the Hotel Stevens

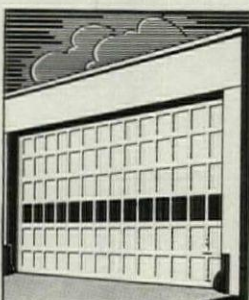
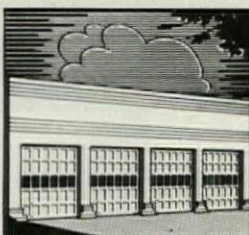
## Crawford Door Co.

MAIN PLANT: 2-401 St. Jean Ave., Detroit 14, Michigan

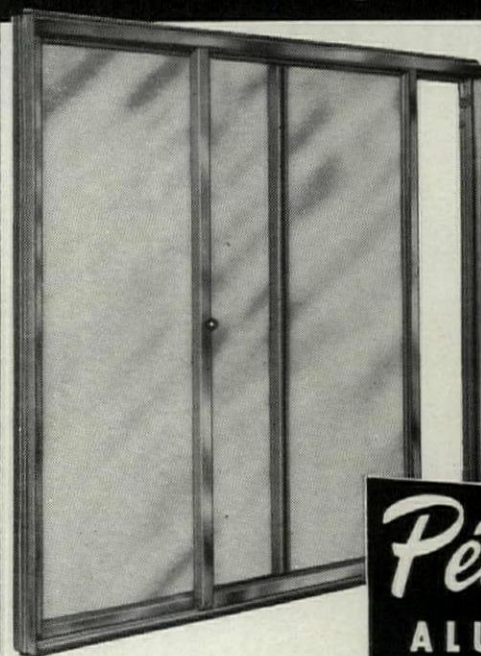
FABRICATING PLANTS in Portland, Tacoma, Los Angeles, San Francisco, Dallas, Kansas City, Chattanooga, Milwaukee, Hudson, Mass., Cadillac, Ottawa, Canada.

DISTRIBUTING WAREHOUSES in 67 major cities.

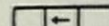
SALES AND SERVICE companies everywhere.



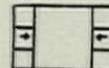
## ideal for apartments...



Permanent, sturdy aluminum frames—Horizontal sliding



Completely weather stripped. No putty—No painting



Sash removes inside for easy washing by occupants



Simple installation of screens and storm windows from inside



Available in wide range of shapes, sizes, designs

**Peterson**  
ALUMINUM  
*Windows*

• The window that lends distinction and interest to economically designed modern buildings with wide glass areas.

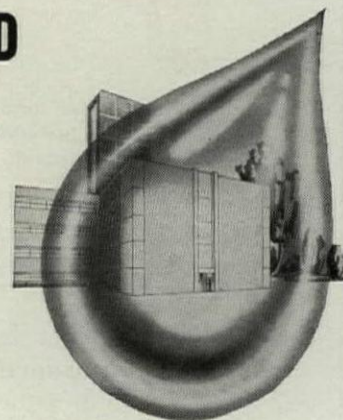
Consult SWEETS or write for our catalog sheet

PETERSON WINDOW CORP. • 20502 Mound Rd. • Detroit 34

## SAFEGUARD STRUCTURAL BEAUTY...

specify

## CRYSTAL Silicone Water Repellent



Amazing new exterior water-repellent actually *penetrates* to prevent moisture and water damage . . . gives you two important benefits:

1. ORIGINAL BEAUTY RETAINED — Invisible after application, Crystal does not change the color or surface texture . . . makes surfaces stainproof and prevents efflorescence.
2. MATERIALS LAST LONGER — Crystal *repels* water throughout entire depth of penetration . . . provides lasting protection to all man-made masonry and most natural stones.

ONE COAT OF CRYSTAL is all that's needed, applied at any temperature . . . saves money . . . saves time on the job!

Send for your free copy of "Exterior Masonry Waterproofing Manual."



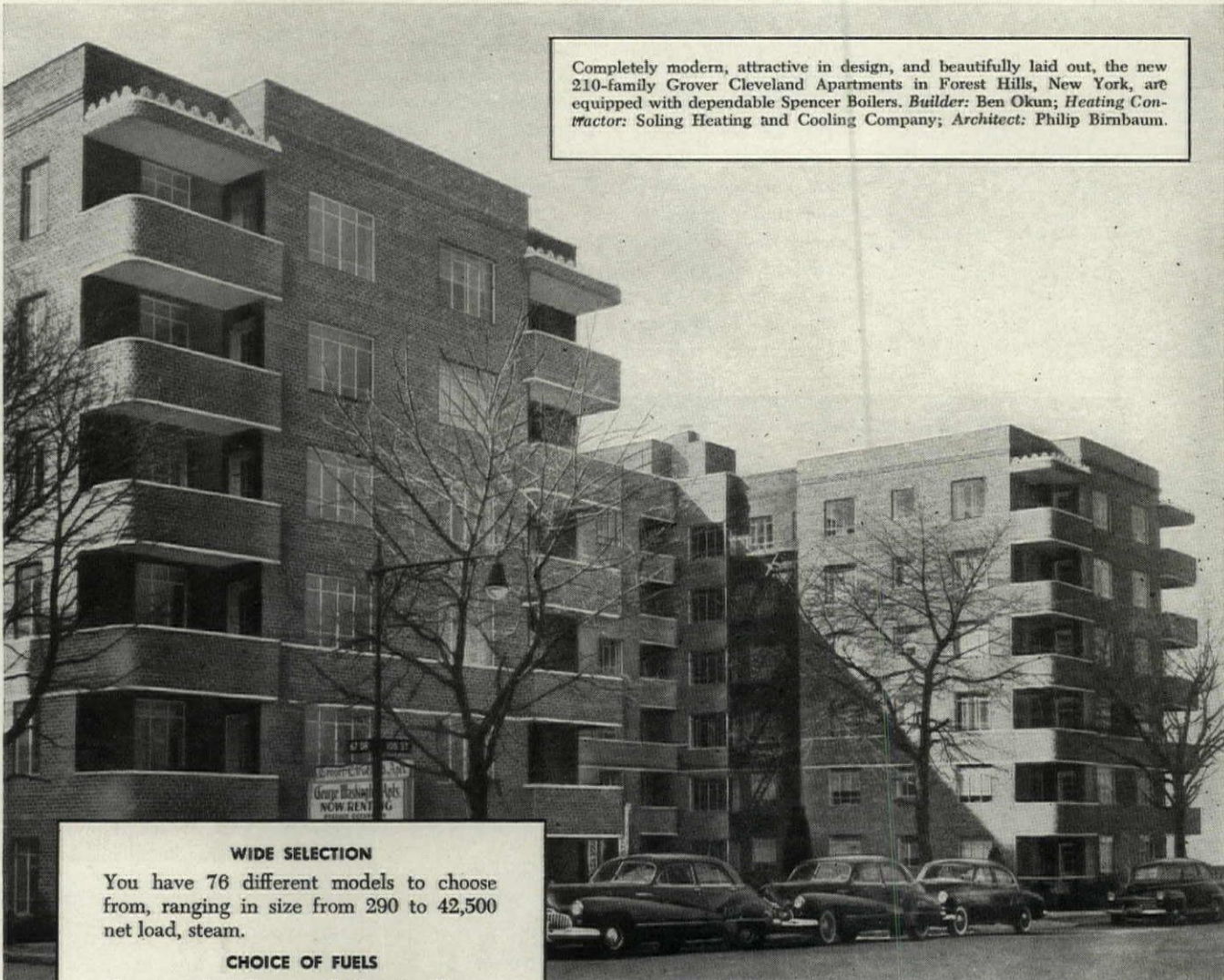
**CHEMICAL COMPANY**

4951 FYLER AVENUE

ST. LOUIS 9, MO.



Completely modern, attractive in design, and beautifully laid out, the new 210-family Grover Cleveland Apartments in Forest Hills, New York, are equipped with dependable Spencer Boilers. *Builder:* Ben Okun; *Heating Contractor:* Soling Heating and Cooling Company; *Architect:* Philip Bimbaum.



#### WIDE SELECTION

You have 76 different models to choose from, ranging in size from 290 to 42,500 net load, steam.

#### CHOICE OF FUELS

You can adapt Spencer Boilers to all common fuels—oil, gas, coke, and anthracite or bituminous coal.

#### EASY INSTALLATION

You will appreciate the *flexibility* that Spencer offers. All models are adaptable to either front, rear, or side installation when automatic firing is used.

#### QUICK STEAMING

You can assure owners of immediate heat whenever they need it. Special built-in coils provide instantaneous service hot water.

#### MINIMUM REPAIRS

You can be sure that Spencer heavy-duty construction throughout means extra dependability, extra trouble-free service.

#### EASY CLEANING

You can easily explain to owners that all Spencer Boilers are designed for easy cleaning.

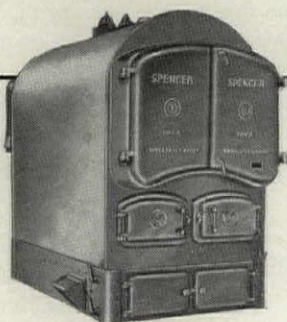
## For better apartment heating, specify Spencer

When planning apartments—and other types of residential or commercial structures—you'll find many advantages to specifying Spencer for heat and hot water. Note (*at left*) just a few of the many reasons why Spencer has earned an outstanding name among professional men and owners alike.

**For further details** on the complete line of Spencer Boilers, write, wire, or telephone today.



Constructed in accordance with ASME requirements. Fully approved by the Steel Boiler Institute.

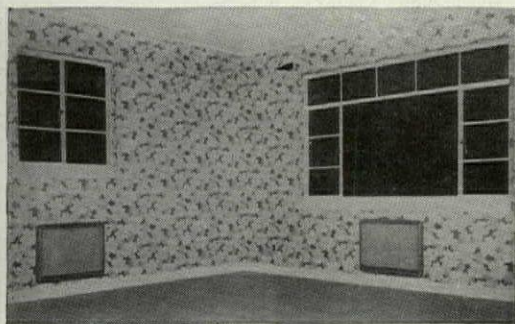


**THERE IS A SPENCER for every building, for every fuel**

For homes, small buildings.....29 models  
For small apartments, light commercial uses.....13 models  
For large apartments, heavy commercial uses.....34 models



## PRODUCT NEWS

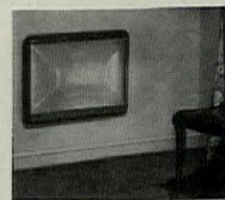


### ELECTRIC GLASS RADIANT HEAT PANELS have curved surface for greater efficiency.

The clean, healthy, odorless heat of Electriglas panels now may be obtained at an operating cost which, according to the manufacturer, compares favorably with other heating systems. Attributing this increased efficiency to the convex shape and prismatic composition of the extremely durable Temprex glass, the manufacturer states that the new panels consume 25 per cent less electricity than those previously designed. Because they have no moving parts to wear out or replace, the panels require no maintenance. Another feature of the system is thermostatic control which makes it possible, by fingertip switch, to heat every room in the house equally or to vary the temperature

in each room as desired. Cost per panel to the consumer is approximately \$90, installed. Since no furnace, piping, duct system, chimney or storage tank is necessary, a sizeable saving is afforded in the initial building and installation costs. Panels, measuring 16 in. by 30 in., are mounted on the wall in a metal frame, and wired into the regular AC or DC 110 v. or 220 v. circuit. They warm up immediately, and one will heat a small room, yet may be touched safely.

*Manufacturer:* Appleman Glass Works, Bergenfield, N. J.



### 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*

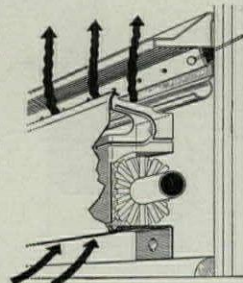
For your sample and descriptive folder, write to manufacturer, Davidson Plywood and Lumber Co., 3136 E. Washington Boulevard, Los Angeles 23, California

### NEW BASEBOARD has sponge rubber seal to prevent dirt streaking from circulating air.

Webster's new baseboard, designed for use with forced hot water systems, incorporates several improvements in appearance and operation. The baseboard is narrower and lower, projecting only  $2\frac{1}{8}$  in. from the wall and standing but  $8\frac{1}{4}$  in. high. Both molding and baseboard enclosure are metal for increased strength. To insure absolute tightness, even on irregular walls, the molding is provided with a sponge rubber seal. A  $\frac{3}{4}$  in. copper tube and copper fin construction with flattened front and back edges to reduce depth makes up the heating element. All parts are supported or positioned on sturdy wall brackets, thus simplifying installation of the baseboard.

An optional feature of the new design is a manually operated damper made of extruded magnesium alloy. By means of this device, heat delivery may be reduced in bedrooms at night or in rooms used only occasionally. A control knob and connector complete the assembly. Cost of the baseboard for two exposed walls, each measuring 12 ft. long, would be \$60, based on the list price of \$2.50 per lineal foot. With the damper and damper handles the price would be about \$69.

*Manufacturer:* Warren Webster & Co., Camden, N. J.



### SURVEYING AID eliminates guess by sight.

By projecting a pin point of light through its tip this new plumb bob allows no margin for guess work and consequent error. The bob retails at \$3, less the 3 v. magnifying lens bulb and two pin-type batteries.

*Manufacturer:* Illuminated Plumb Bob Co., 2521 Third St., N. E., Washington, D. C.

### TEMPLATE facilitates isometric drawing.

Sixty perfectly concentric ellipses are formed in this notebook-size template. Axes and sizes are indelibly printed on the matte finished face of the template. Price is \$2.50.

*Manufacturer:* Rapidesign, Inc., Box 592, Glendale, Calif.

(Technical Literature, page 194)



# modern *Personalized* heating for modern apartments

IN AKRON

## PARKVIEW APARTMENTS, South Hawkins Ave.

The Hendrich Hall Harter Company, Builders and Operators

Photograph shows part of Parkview Manor consisting of 17 buildings housing 98 suites. Last

word in modern conveniences, individual Gas-Fired Janitrol Winter Air Conditioners provide personalized heating for each family unit.

Basement installations of Janitrol units are extremely compact, clean and easily accessible. Same type units are often installed in closets or hallways immediately adjacent to individual apartments.

IN BUFFALO

## HIGHLAND COURT APARTMENTS,

Typical of Several Multiple Units built by R. C. Dewey, Inc.

Janitrol Triple Service Systems are exclusive equipment with this builder. Efficient operation and low maintenance costs influenced Mr. R. C. Dewey's choice of

Janitrol for servicing 200 family units. Providing convector radiation with forced hot water circulation, the Janitrol units also supply hot water for all domestic uses.

One compact Janitrol Unit supplies hot water for heating as well as for daily household hot water needs. Units are also widely used for radiant panel heating systems, either gas or oil fired.

IN CHICAGO

## 27 APARTMENT UNITS, North Cicero Ave.

E. L. Anderson and Company, Builders and Contractors

These ultra modern apartments reflect typical Swedish architecture. Each building containing nine apartments is serviced by a Janitrol boiler providing a forced

flow of 200° hot water. Each apartment is provided with a thermostat control for both the convectors in living quarters and small cast iron radiators in bathroom and kitchen.

Janitrol Cast Iron Boiler with gross output of 486,000 b.t.u./hr. Forced hot water system is maintained by continuous pump operation.

TIME-TESTED

TIME-PROVEN

# Janitrol

GAS FIRED WINTER AIR CONDITIONERS • UNIT HEATERS  
GRAVITY FURNACES • BOILERS • GAS AND OIL FIRED  
TRIPLE SERVICE HOT WATER SYSTEMS



*Write today!*

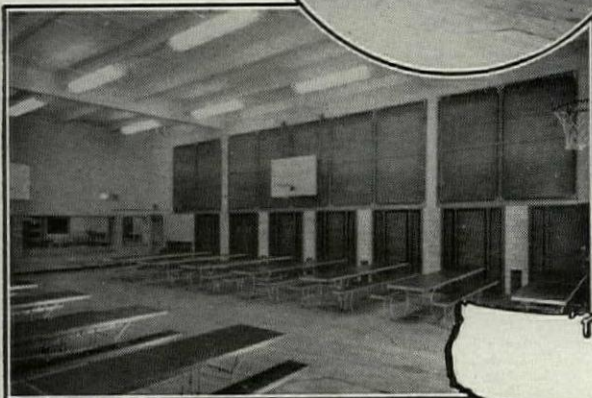
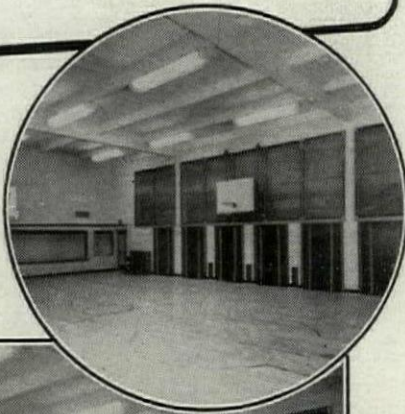
Complete specifications on typical Janitrol installations for apartments, industrial and commercial buildings and homes are available in A.I.A. file folders. Send for your copies today, there's no obligation, address—

Architectural Service  
SURFACE COMBUSTION CORPORATION,  
TOLEDO, OHIO.



# Save Space

**Gymnasium  
To Lunchroom  
in 8 minutes**



## FROM COAST to COAST IN-WALL TABLES and BENCHES CUT SCHOOL BUILDING COSTS

Multiple use of space means economy. Hundreds of schools in cities from coast to coast now use and testify to the practical advantages of In-Wall installations—seat more students in less space, maintain better discipline, eliminate storage area.

Sturdy, welded, long-life metal construction, sanitary composition surfaces, oil-less bearing rubber casters.



Against wall models also available for re-modeling projects.

Consult Sweet's Catalog or write direct for complete details and name of nearest representative.

**SCHIEBER  
Manufacturing Co.**

12738 Burt Road  
Detroit 23, Michigan

**SCHIEBER  
In-wall**

**FOLDING TABLES & BENCHES**

# SHEPARD



**HIGH DEPENDABILITY  
GREATER ECONOMY  
LESS MAINTENANCE**

Built up to a quality—not down to a price. SHEPARD Elevators offer you high dependable service at low maintenance costs. For that new elevator you're planning or the old one you're modernizing—consult SHEPARD Engineers. Write for 58 page Elevator Planning Book.

THE SHEPARD ELEVATOR CO.

2440A Colerain Ave.,  
Cincinnati 14, Ohio

# ELEVATORS

DISCOVER

## BEAUTEX

...THE

# COLORED PLASTER

*of Permanent Beauty*

BEAUTEX is easy to apply. Painting, papering and other decorating costs are saved!

BEAUTEX walls can be cleaned easily with a rubber bath sponge or soap and water.

BEAUTEX can be papered or painted over if future re-decoration is desired.

BEAUTEX is applied over a dry gypsum wall, thereby eliminating wet floors and scaffolds. No scaffold or work joints appear. This is due to controlled suction. No soaking of BEAUTEX plaster necessary to give a high degree of plasticity.

BEAUTEX can be floated in 5 minutes or 4 hours after it is run on without wetting down the walls.

BEAUTEX can be retempered without any loss of life or working quality.

BEAUTEX contains lime and alkali proof color pigments. BEAUTEX has earned the acceptance of architects, contractors, plasterers and ultimate users for fine residences, offices, showrooms and public buildings.

Write today for free Color Chart and Data Sheets.

**BEAUTEX PLASTER COMPANY • Lebanon 7, Pa.**





# TRUSCON *Residential* INTERIOR DOORS

sharp *modern* beauty...



The lasting beauty of Truscon Residential Doors will grace any home.



Truscon Sliding Closet Doors provide greater availability of storage and room space.

## long *timeless* service...

New progress in steel

...new opportunities for extra quality at lower cost!

Truscon Residential Steel Interior Doors and Frames are attractive in design. Handsomely modern in appearance. Precision engineered and manufactured, these doors assure smooth, quiet and trouble-free operation. Outstanding economy of labor and material for installation is a major feature. Steel construction protects against warping, shrinking or sagging during the life of the structure. Efficiency of space and operating convenience are special advantages of the sliding closet doors. Truscon

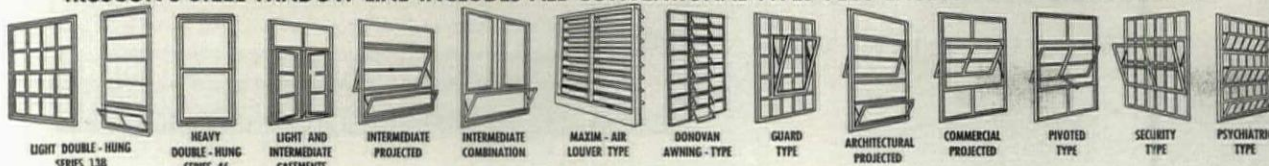
Residential Interior Doors are steel...are strong...are sensible.

Write for the new Residential door catalogue giving complete range of sizes and full details.



Talk to Truscon at  
**NATIONAL HOME BUILDERS SHOW**  
Space 67 and 68  
Chicago—Feb. 19 through 23

TRUSCON'S STEEL WINDOW LINE INCLUDES ALL CONVENTIONAL TYPES PLUS EXCLUSIVE TRUSCON DESIGNS



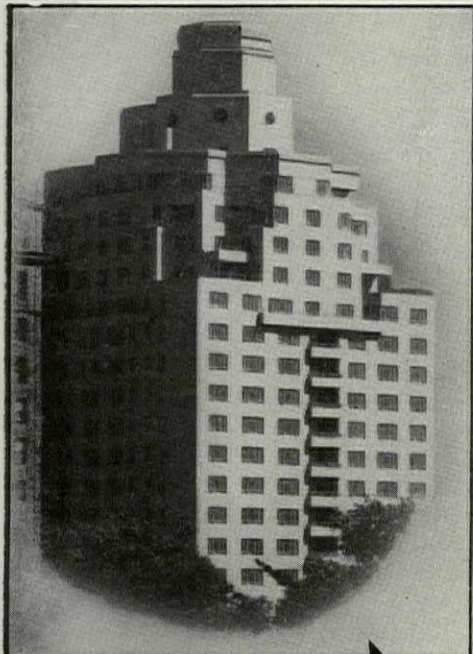
**TRUSCON**  
**STEEL COMPANY**

Subsidiary of Republic Steel Corporation  
YOUNGSTOWN 1, OHIO  
Warehouses and sales offices  
in principal cities



# GRANT Sliding Door Hangers

Save  
Apartment  
Space!



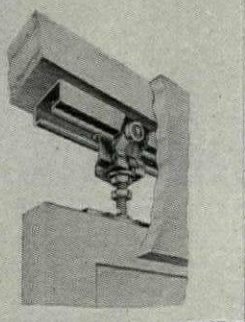
Adaptable to interior, wardrobe and cabinet doors, Grant Sliding Door Hangers greatly increase the 'usable space' in apartments—space otherwise lost with ordinary hinged doors.

Operating at the flick of a finger, doors can now slide smoothly, effortlessly. All Grant Hangers are center hung, all glide on ball bearing carriers and only Grant Hangers are equipped with the 'self-aligning' pendant bolt.

945 5th Av., N.Y.C.  
Architect:  
Emery Roth & Sons  
Builder:  
Mr. Samuel Rudin  
Note: Closet doors  
equipped with  
Grant No. 15  
Hanger.

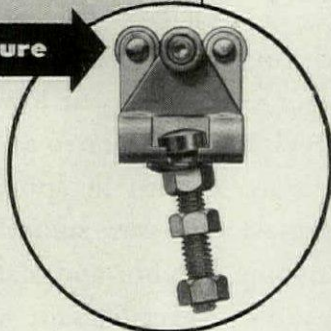
## GRANT No15 HANGER

The Grant No. 15 Hanger is adaptable to a wide variety of doors, up to 75 lbs. in weight. It requires but 2 1/8" headroom, is simple to install. Can be supplied with apron, reducing headroom to an absolute minimum.



## Exclusive 'self aligning' feature

Operating on the principle of the ball and socket, Grant's self aligning feature offsets header irregularities. The pendant bolt permits lateral and vertical adjustments which take care of possible header sag and chafing doors. Thus any door warpage can be easily corrected.



Grant also manufactures:

Sheaves and Track  
Drawer Slides  
Sash Pulleys

Curtain Hardware  
Stage Curtain Hardware  
Accordion Door Hardware

Write to Dep't. BA for complete information  
on Grant Hardware.

## GRANT PULLEY & HARDWARE Co.

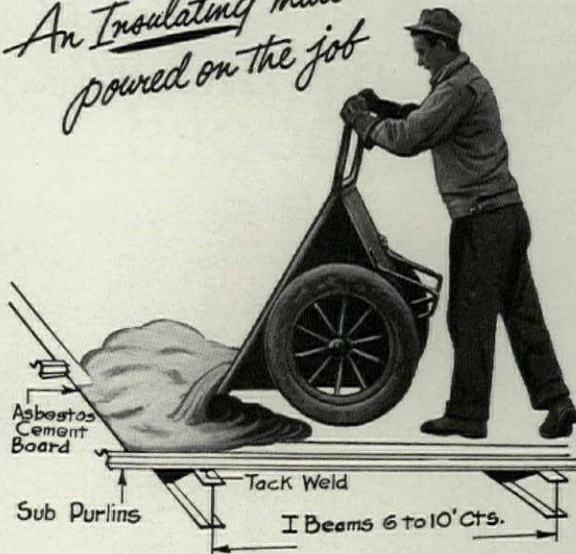
Broadway at 57th St. • Woodside, L. I., N. Y.



Representatives in all major cities

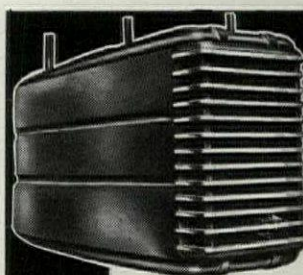
# POREATHERM

*An Insulating material  
poured on the job*



Poretherm, a high-grade, permanent insulating cellular concrete is poured on top of asbestos cement boards, laid on Sub Purlins. This makes a fire-proof roof deck—weight, only 10 lbs. per sq. ft., provides the same heat insulation as 1 1/2 inches of cork, at lower cost. Write today for complete information.

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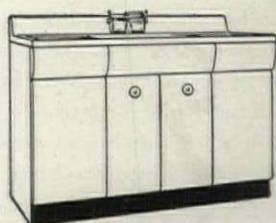
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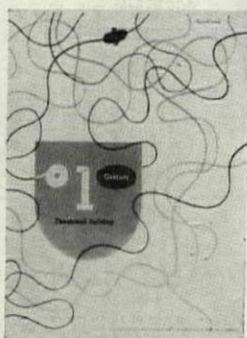
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**LIGHTING.** Theatrical Lighting. Catalogue No. 1. Century Lighting, Inc., 419 W. 55th St., New York 19, N. Y. 46 pp. 8 1/2 x 11 in.

Here is a choice example of what product literature can look and read like when thoughtful and artistic effort goes into its conception. *Theatrical Lighting* (*Architectural Lighting* and *Television Lighting* are in preparation) covers not only stage and night club requirements but also lighting for pageants, fairs and window displays. Tastefully executed in two colors, the book can rest comfortably on the most fastidious architectural library shelf, i.e., when its useful pages are not being well thumbed. Lucid presentation and text go hand in hand. Spot drawings and definition work together to give the lay lighting engineer—and the professional—a clear concept of the workings and functions of the different kinds of spot and floodlights, of special equipment and accessories.

**FURNITURE.** FFM, Functional Furniture Manufacturers, 40-17 22nd St., Long Island City 1, N. Y. 30 pp. 10 x 12 in.

Prepared primarily for architects and decorators this new catalogue contains an inclusive group of furniture designed by Allan Gould. The photos, featuring many of the items in informal settings, and price list are encased within a richly textured folder. Several items stand out as being especially versatile. One of these, a right angle desk with both typing and writing levels and an under-shelf for a portable typewriter, may be used in combination with storage sections. It can be set in a corner or with one wing extending into the room. The "lift up footboard" bed has a dropleaf

(Continued on page 200)



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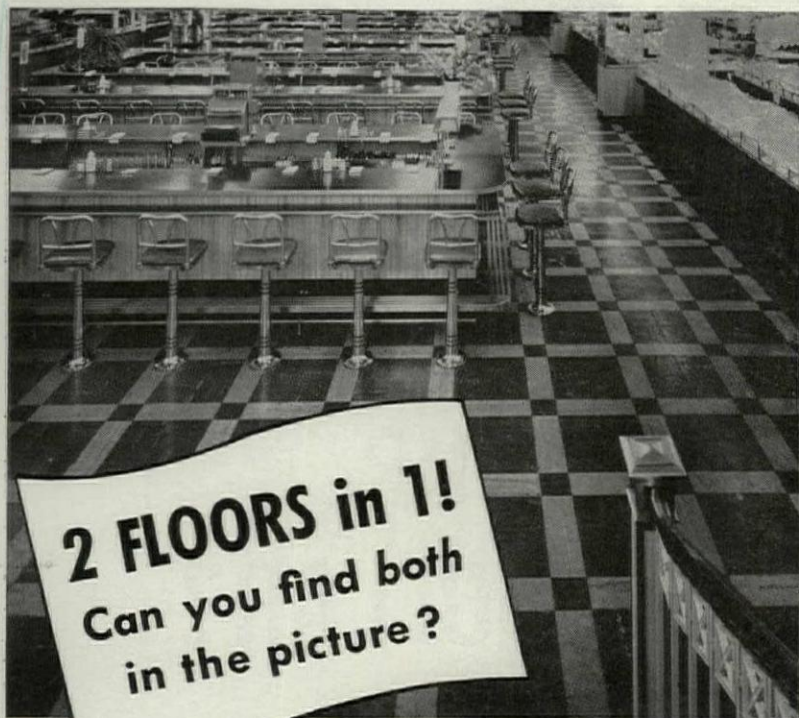


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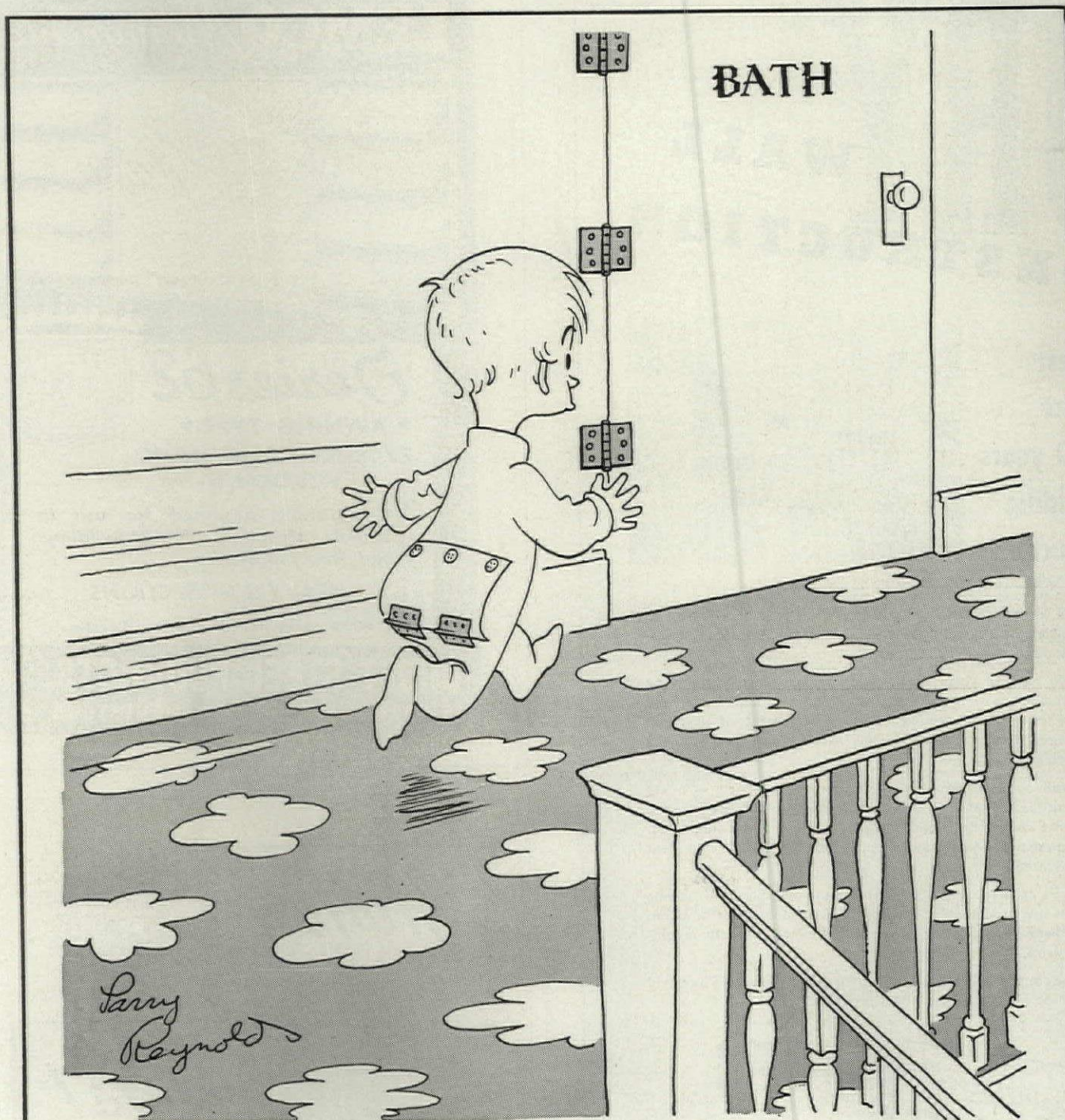
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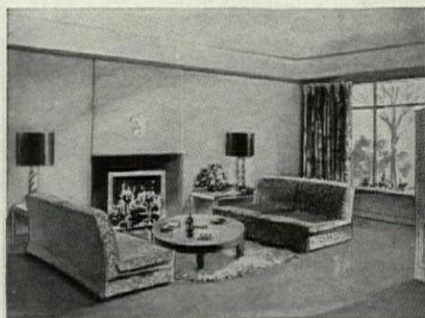
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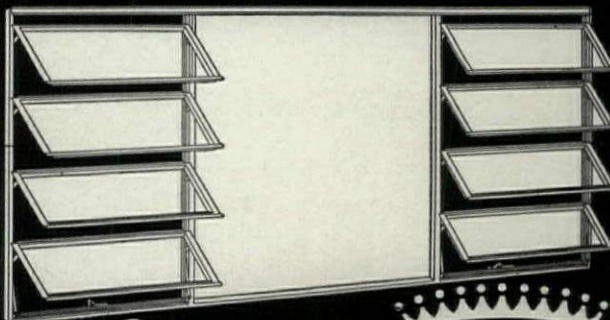
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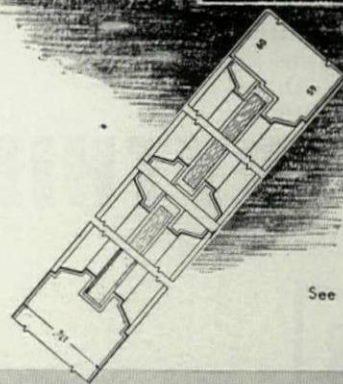
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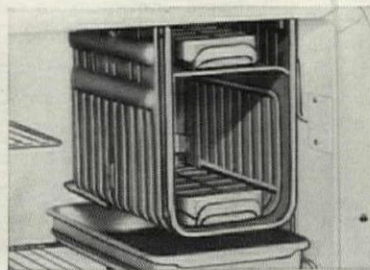
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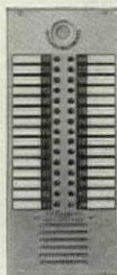


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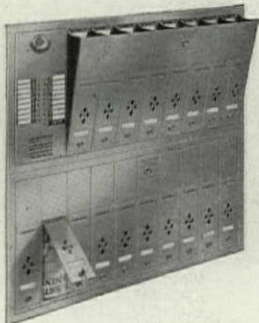
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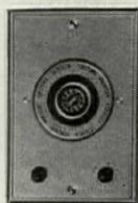
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## TECHNICAL LITERATURE

attachment to provide a place for bedding, luggage or Sunday brunch.

**TABLES.** Sterling Contemporary. Sterling Furniture, Inc., 1611 W. Cortland St., Chicago 22, Ill. 12 pp. 8½ x 11 in.

The manufacturer's complete line of Formica real-wood topped occasional tables is presented in this file folder. Designed by Forest Wilson, the pieces are available in a variety of wood finishes and combinations. Functional features, such as the hinged top on the corner table for storage, give them added utility. Another model, the attractive Hi Lo, serves either as a card or lamp table of standard height or, with its tapered legs crossed, as a cocktail table.

**RADIANT HEATING.** Radiant Heating Simplified Design and Installation. Copper & Brass Research Association, 420 Lexington Ave., New York 17, N. Y. 20 pp. 8½ x 11 in.

Easy to work and highly corrosion resistant, copper tube is being used in a great number of radiant heating installations. In answer to inquiries regarding its application the Copper & Brass Research Association has published this handbook. It provides the architect or heating engineer with a simplified method of designing copper tube low temperature radiant heating systems for small buildings that do not warrant the time and expense involved in creating extremely refined systems. The book possibly will be helpful, however, in the planning of more complicated systems. Full page plates show typical ceiling, wall and floor panel plans. A step-by-step procedure for determining the various factors to be considered in choice of design is presented, with suggestions for fabrication and hints for testing the system once it is installed. Some of the pictures show work in progress and a number of tables provide invaluable reference material. One of these is the Heat Loss Table. Engineer consultant J. M. van Nieuwerkerken, who prepared the handbook, was assisted by engineers of member companies manufacturing copper tubing.

**LIGHTING.** Better Environment Through Daylighting in Schools. Ceco Steel Products Corp., 5701 W. 26th St., Chicago 50, Ill. 14 pp. 8½ x 11 in.

To counterbalance the stress in current school design literature on all kinds of artificial illumination which simulate natural light, Ceco has published this booklet on daylighting of schools through metal windows. The primary source of illumination is treated not as a whimsical unmanageable force but rather as a tool to be directed, reflected, diffused as desired. Containing valuable data on potential daylight throughout the U. S. as well as methods of light control, this booklet will be helpful to the school architect who wishes to incorporate large areas of clear glass metal-framed windows in his plans.

(Continued on page 206)

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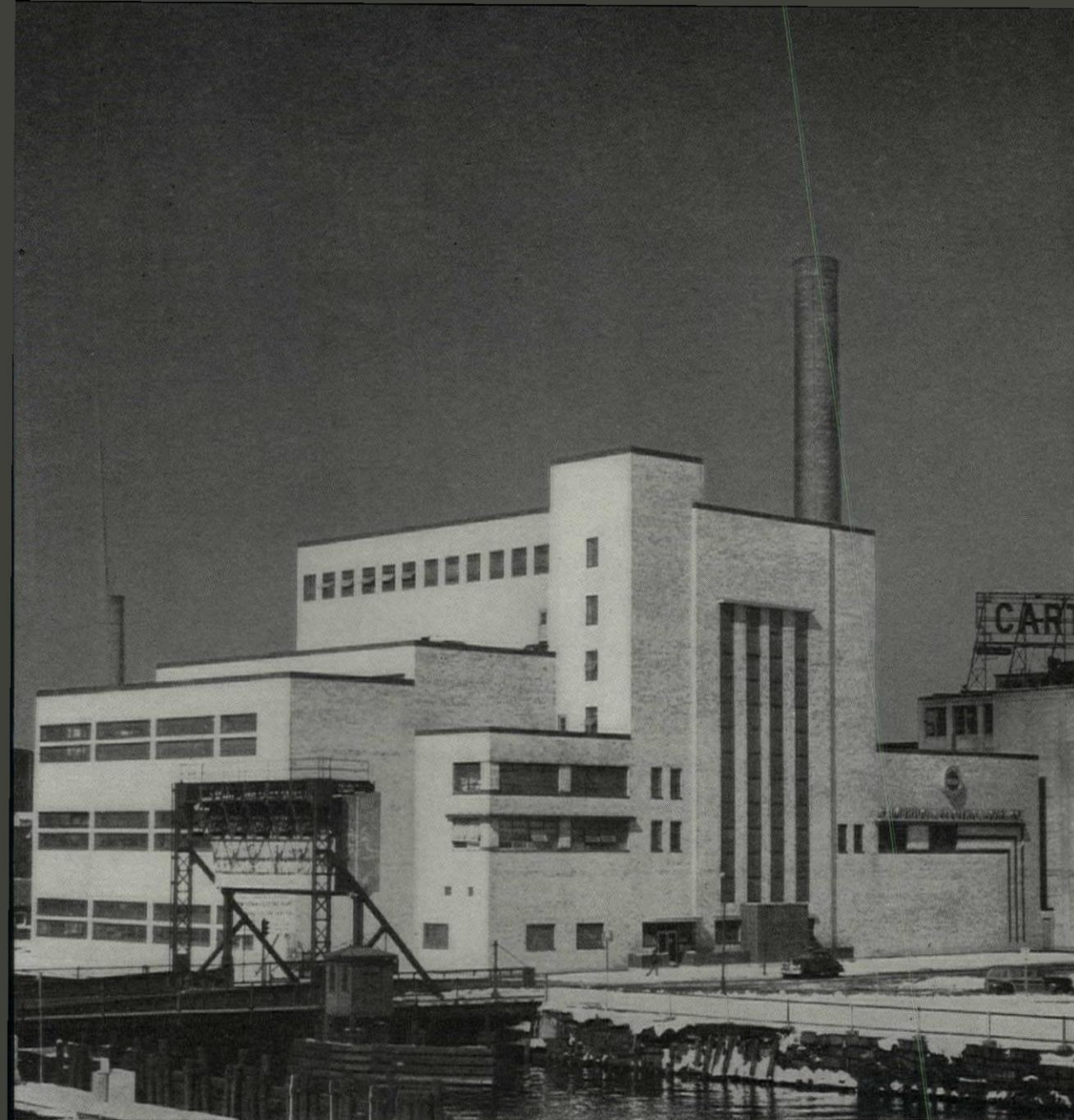
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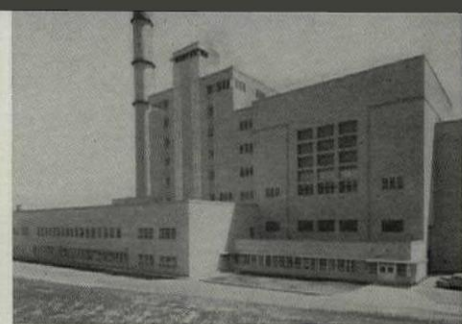
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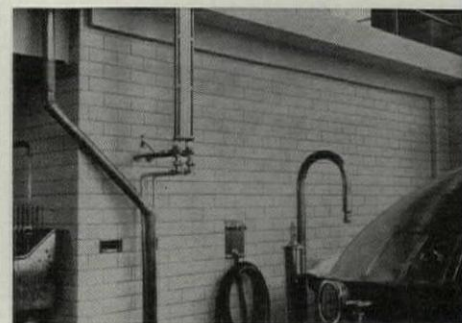




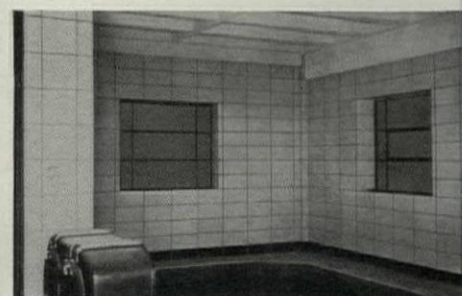
Exterior view of Cambridge Gas & Electric Company Building in Cambridge, Mass. Natco Buff Unglazed Dri-Speedwall Tile used for exterior walls. Architects and Engineers, Gilbert Associates Inc., Reading, Pa. Contractor, Thompson & Sterrett, New York.



Exterior view of Rochester Gas & Electric Corporation plant at Rochester, N.Y. Exterior walls of Natco Buff and Manganese Spot Dri-Speed Wall Tile. Interior walls of Natco 6T Series Ceramic Glazed Vitritile . . . Gilbert Associates Inc., Architects and Engineers, A. Friederich & Sons, General Contractors.



Natco 6T Series Ceramic Glazed Vitritile used for interior walls of Dawson's Brewery, New Bedford, Mass. Architects—Tallman, Salrode and Rounseville. Contractors, Theodore Loranger & Sons.



Natco "8W" Series Ceramic Glazed Vitritile set in block bond used throughout for interior walls of the Water Plant in Port Washington, Wis. Joseph J. Duffy Co. of Chicago, General Contractors.

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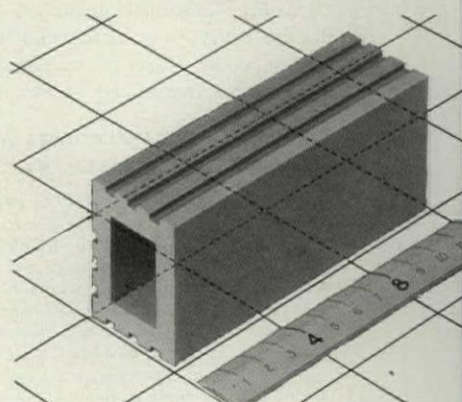
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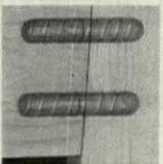
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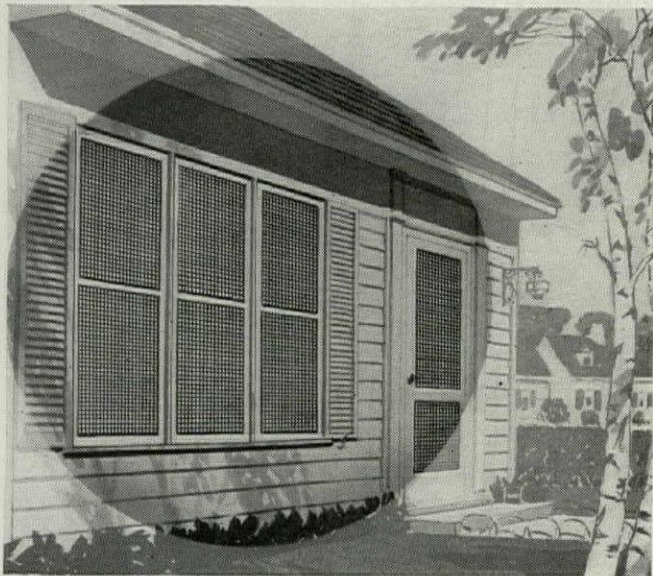
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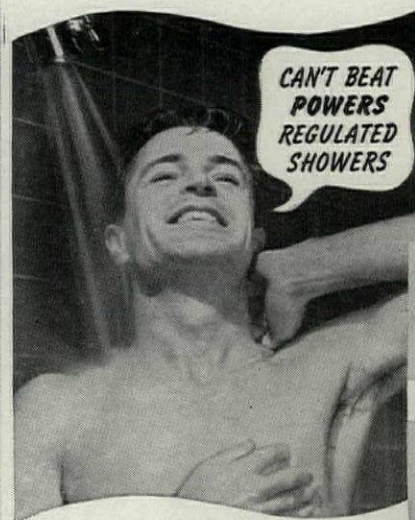
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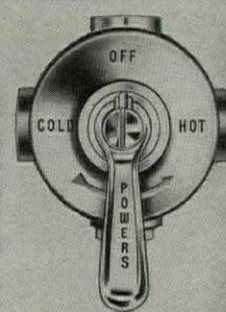
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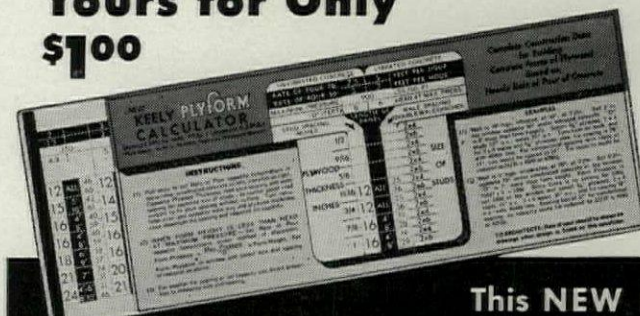
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## TECHNICAL LITERATURE

**GLASS BLOCK.** New Idea in Fenestration. American Structural Products Co., Toledo 1, Ohio. 4 pp. 8½ x 11 in.

A method of fenestration combining the advantages of light directional glass block and the conventional double hung window in a single unit is discussed in this pamphlet. Sketches illustrate the unit in single ribbon applications. In addition to its light bending properties (prismatic glass block bends light rays toward the ceiling

to be redirected into the room, thus measurably reducing glare and contrast) the publication points out that glass block has the same thermal insulating value as 8 in. of solid brick. The entire outside surface of block and clear sash may be cleaned as easily as a regular double hung window, a feature which makes the unit especially desirable in multi-story buildings.

**INDUSTRIAL LIGHTING.** Benjamin Lighting Equipment for Industry and Commerce. Benjamin Electric Mfg. Co., Des Plaines, Ill. 39 pp. 8½ x 11 in.

This bulletin offers current information on the wide range of Benjamin units for factory and commercial lighting systems. It contains detailed

descriptions of fixtures for lighting factory yards, platforms, entrances and sport areas; explosion-proof and dust-tight units for hazardous locations; and fluorescent lamps for work areas. Specifications and list prices on the Sky-Glo luminous louvered system for inconspicuous, high intensity lighting are also included.

**SPACE HEATERS.** Markel Heetaires. Markel Electric Products, Inc., Buffalo 3, N. Y. 12 pp. 8½ x 11 in.

Markel's complete line of wall attachable, wall recessed and portable electric space heaters are described in this catalogue. Heetaire models for many applications—including farms, factories, service stations, roadside stands and offices—are pictured and their particular advantages explained. Serving as buyer's guide as well as installation manual, the catalogue lists five points for consideration in the selection of an electrical space heater: size, exposure and type of room; climate of the area; and general purpose for which the heater is to be used. Architects and builders should find the information concerning layout of various heating jobs useful as well.

**AIR DIFFUSION.** Anemostat Turnotrol. Bulletin 30. Anemostat Corp. of America, 10 E. 39th St., New York 16, N. Y. 4 pp. 8½ x 11 in.

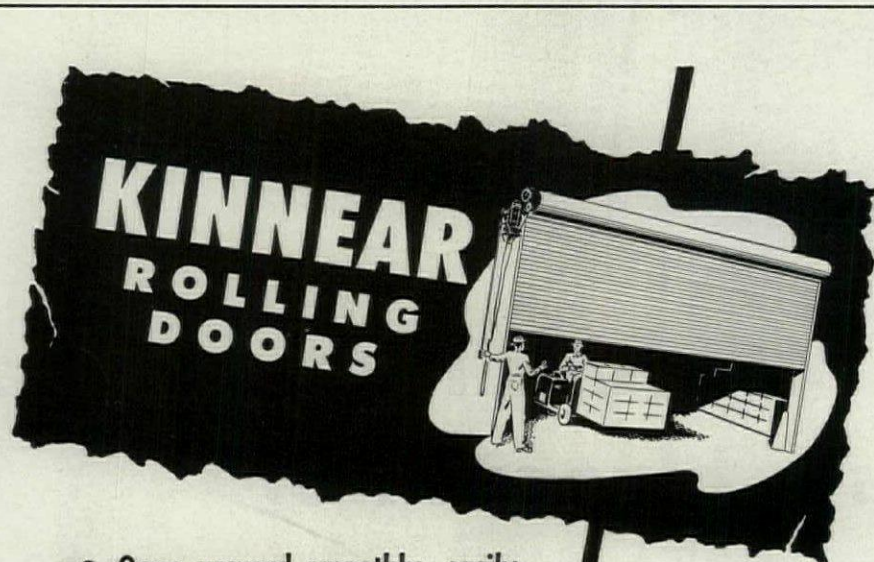
A turning vane and volume control device for balancing heating, ventilating and air-conditioning systems is fully described in this folder. Photographs, diagrams and tables supplement the text on construction, installation and operation of the Turnotrol. How this mechanism eliminates one sided air flow is explained, and smoke test photos show the control of the air stream by simple adjustment of the regulating rod. Dimensions and installation data are given for 7 sizes of the unit ranging 12½ to 30 in. in diameter.

**INTERCOMMUNICATIONS.** The New Executone. Executone, Inc., 415 Lexington Ave., New York 17, N. Y. 4 pp. 8½ x 11 in.

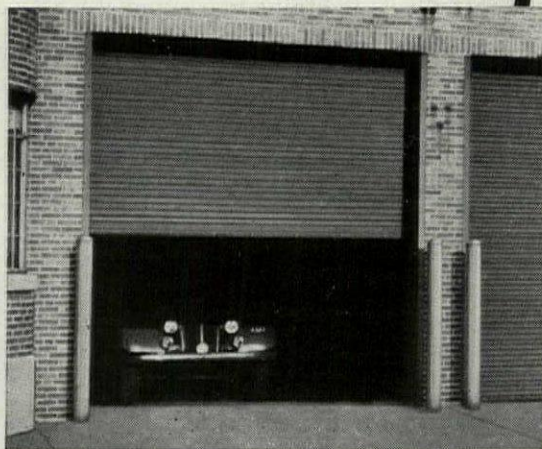
This brochure, outlining the manufacturer's new line of intercommunication equipment in a readable manner, should be interesting to factory and office planners. It describes such items as the Chime-Matic, a signaling system which indicates calls by a mellow chime and signal light.

**ENGINEERING RESEARCH.** 1949 Review of Current Research and Directory of Member Institutions. Engineering College Research Council of the American Society for Engineering Education. F. W. Dawson, College of Engineering, State University of Iowa, Iowa City, Iowa. \$1.75. 6 x 9 in. 186 pp.

Over 4,000 current college and university research projects in engineering, representing outlays of more than \$35 million, are listed by title in this review. Administrative policies of 82 member institutions of the Council are described; responsible personnel and expenditures are listed as well as short courses, conferences of special interest and titles of all current research studies at each school. Use of the book is facilitated by a complete subject index and a breakdown of projects according to the department involved.



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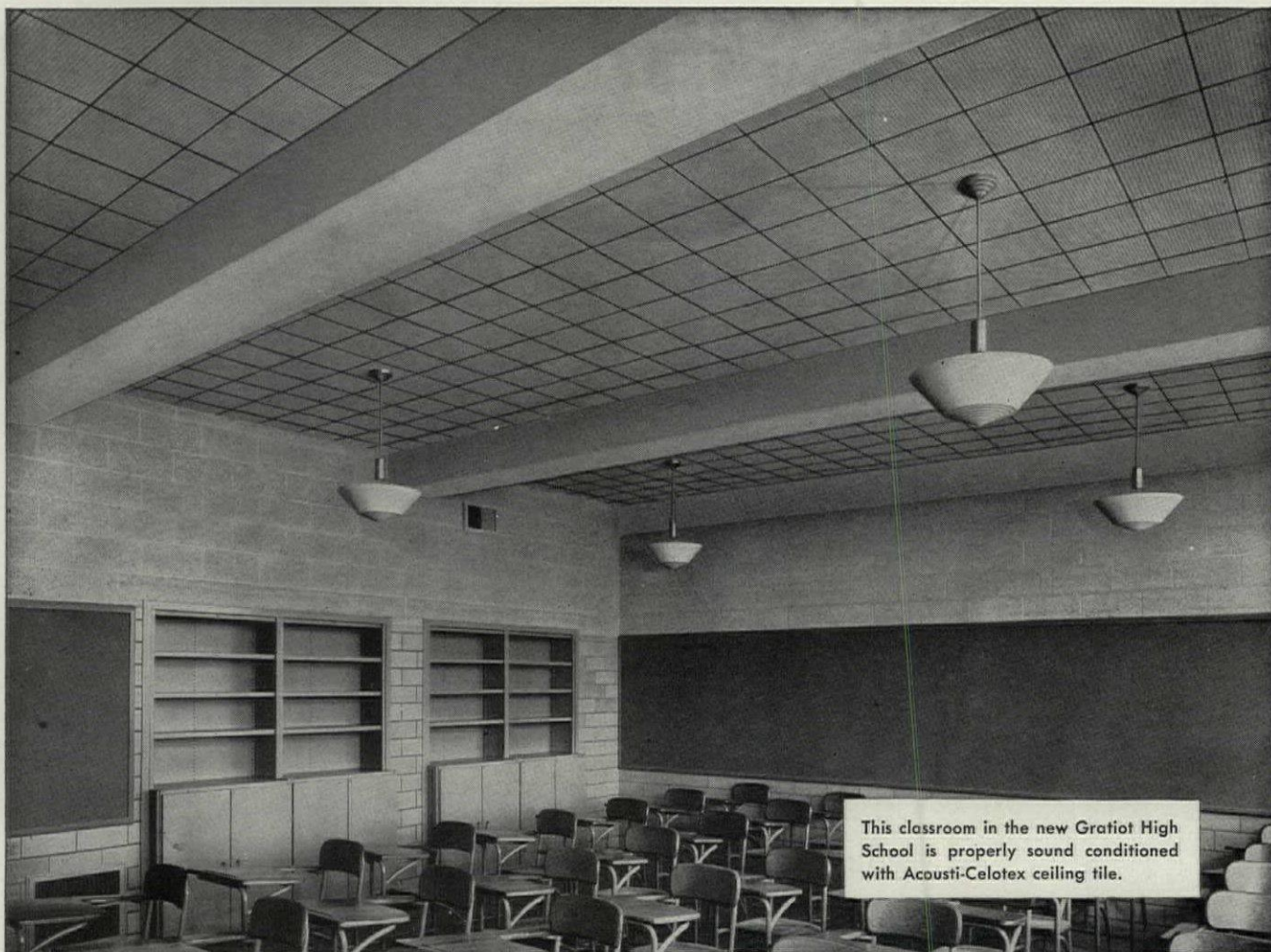
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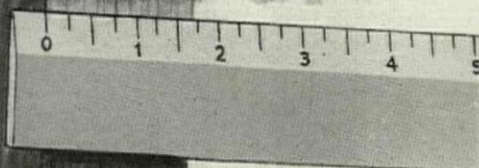
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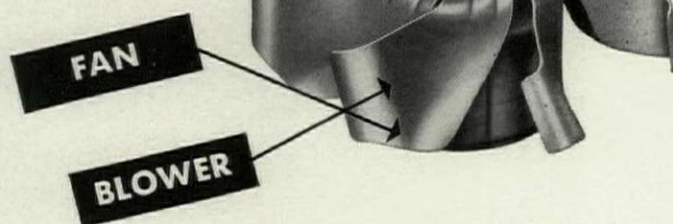
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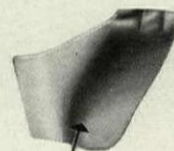
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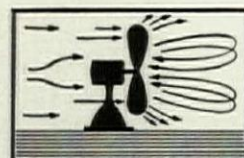


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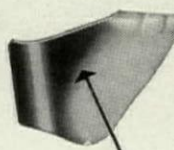


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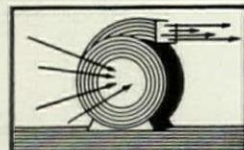


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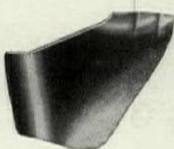


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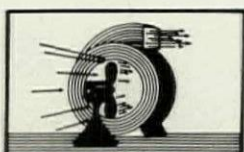


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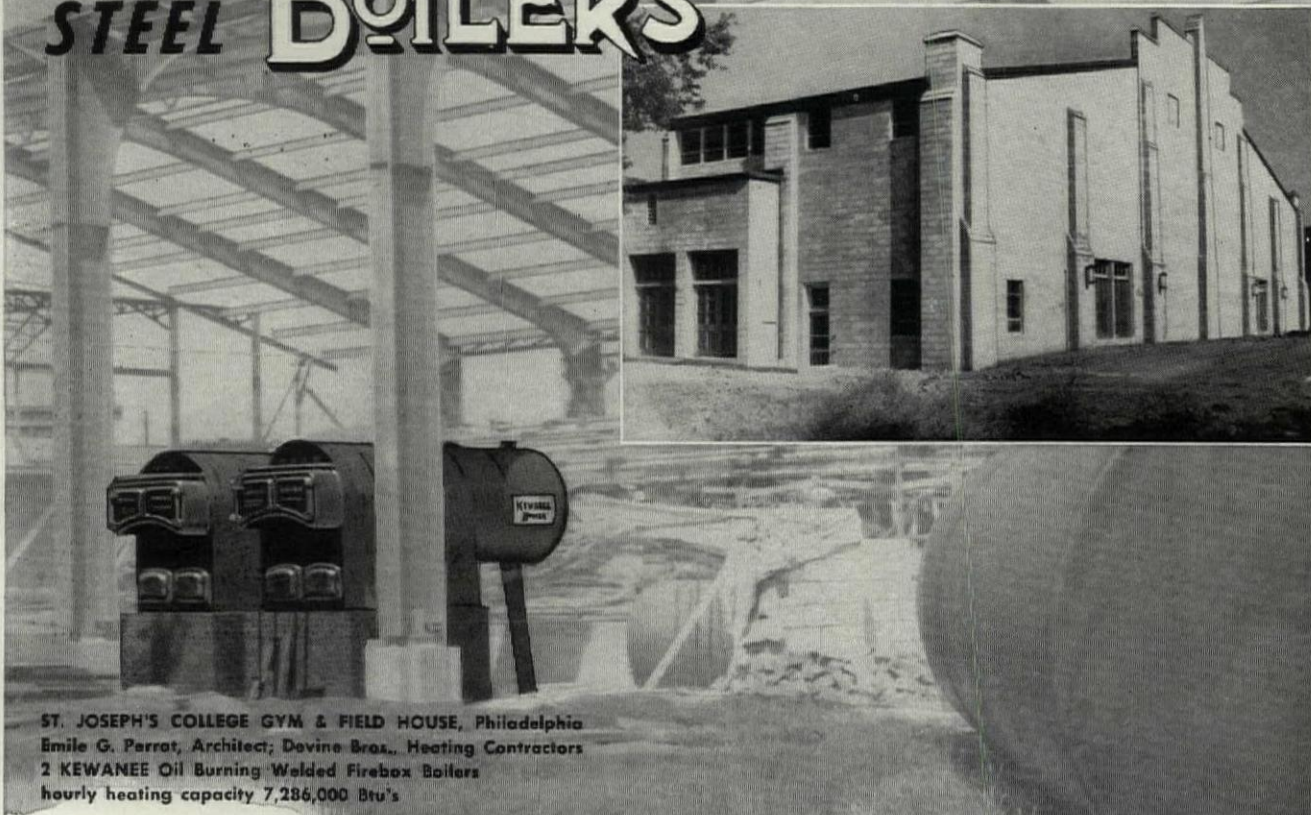
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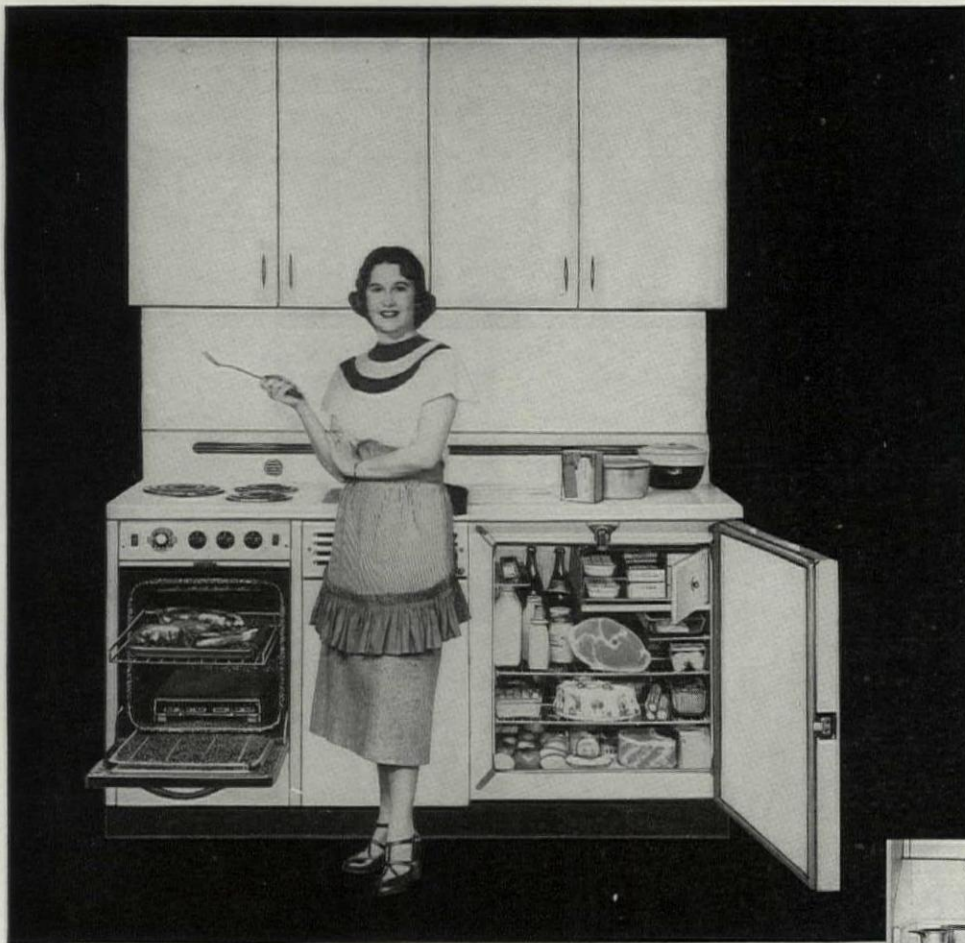
# SPECIFICATION AND BUYING INDEX

The advertising pages of FORUM are the recognized market place for those engaged in building. A house or any building could be built completely of products advertised in THE FORUM. While it is not possible to certify building products, it is possible to open these pages only to those manufacturers whose reputation merits confidence. This THE FORUM does.

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kitchens  
with fronts  
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vitreous  
porcelain

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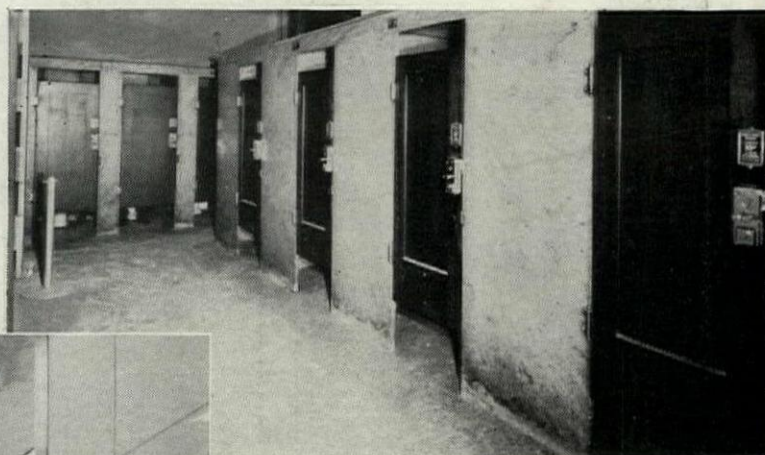
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| ● Light Gray   | ● Mahogany  |
| ● Dark Gray    | ● Red       |
| ● Jade         | ● Black     |
| ● Cactus Green | ● White     |

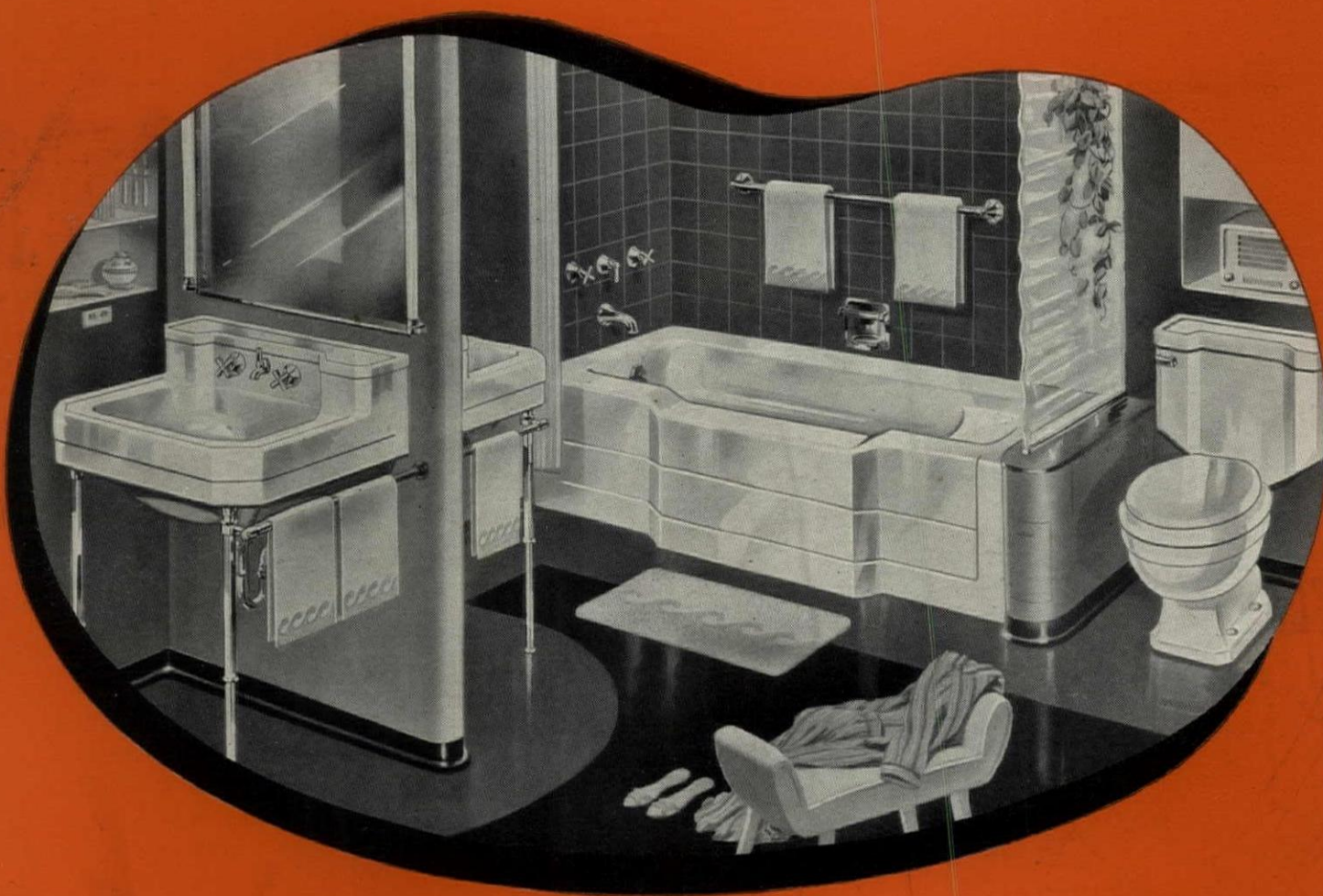
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