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SEPTEMBER 1949

ARCHITECTURAL

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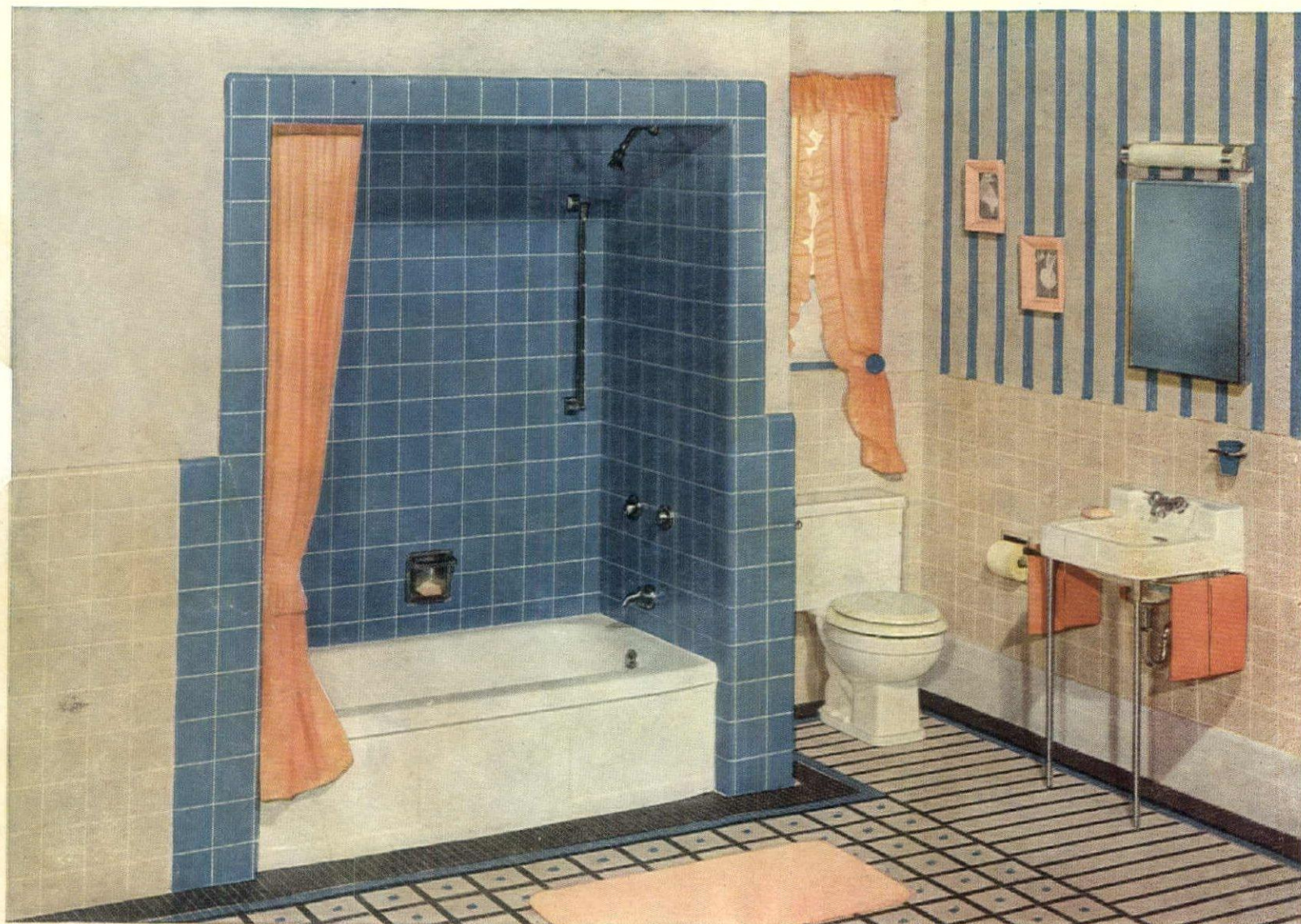
MAGAZINE OF BUILDING



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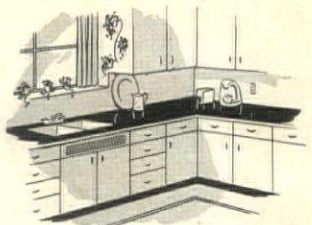
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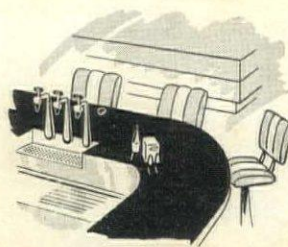
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SEPTEMBER 1949

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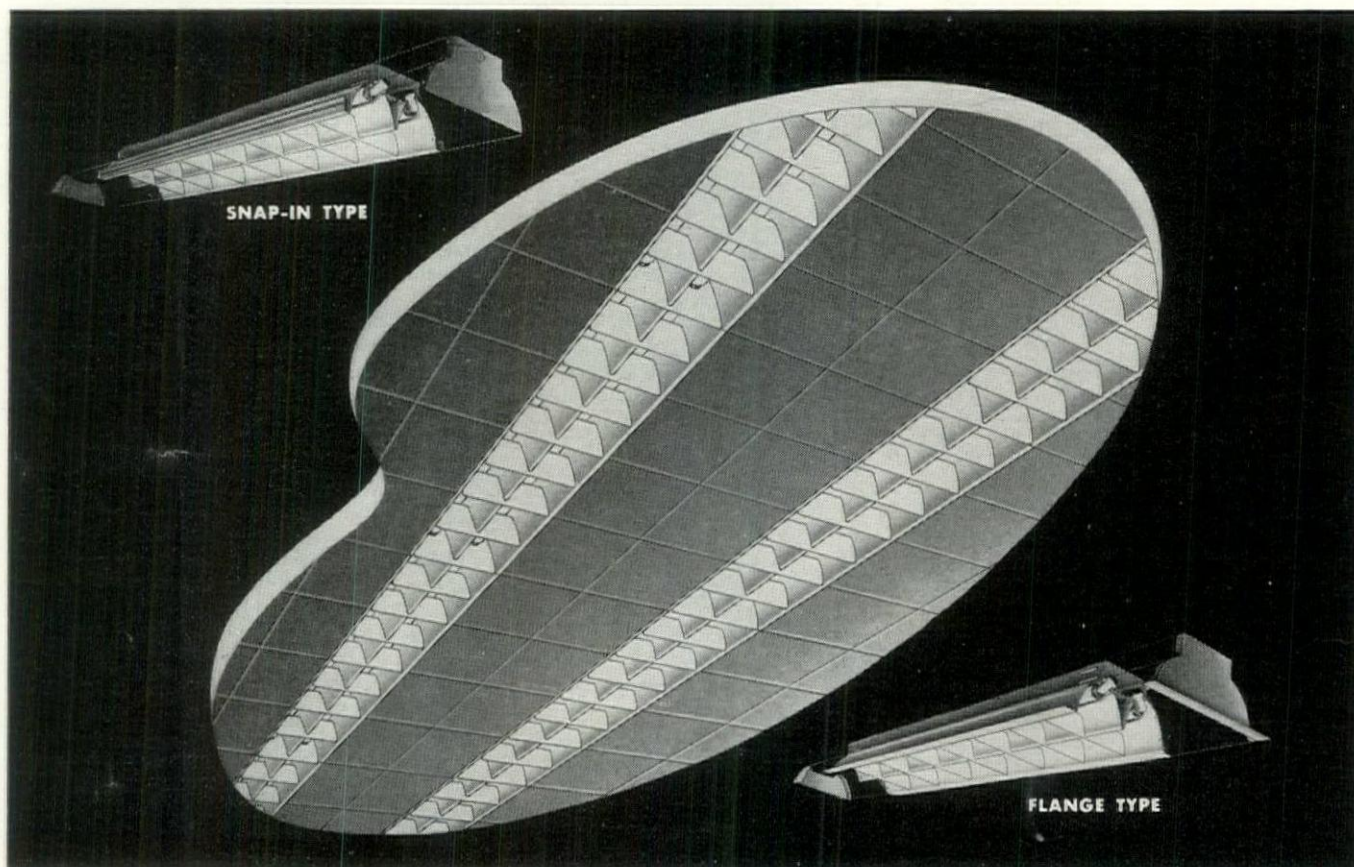
Cover: Terrace of Mario Corbett's California house, p. 59

Cover and color photos pp. 61 and 64, LIFE photos by Charles Steinheimer

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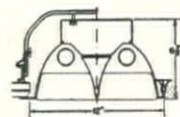
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IT'S EASY TO SEE WHEN IT'S

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SLIM and the FAT FACE

The adventures of a **Roddiscraft** standard thickness face veneer



1 Two plywood characters prepare to compete for your buying favors. Roddiscraft's Slim, with his standard thickness face veneer, pitted against a confident fat-faced number.



2 They're off—through the damp, sweating heat of the jungle. Roddiscraft's Slim isn't bothered. He exposes only a little moisture-absorbing wood outside his waterproof glue line. Fat Face, however, is beginning to bloat.



3 Now, a river to swim! Standard thickness Slim takes it in stride. His glue line is near the surface, and moisture penetration is held to a minimum. Fat Face gets across, but his thick veneer is moisture swollen and checking.



4 And down the cliff they tumble. Slim bounces easily from rock to snag. Roddiscraft's hot press bonding permanently binds his face veneer to his tough hardwood crossbanding. Fat Face barely makes it—and in a shower of splinters.



5 The final test—an arid desert to cross. Slim's in fine shape. Because his veneer face is thin and tight, there's no chance for shrinking or swelling. Fat Face, with his thick veneer, is dried out and warped.



6 The winner—Slim and Roddiscraft's standard thickness face veneers. These veneers, 1/28" thick before sanding for most woods, stand up better to hard use, heat, humidity and dryness.

For better construction in doors and plywood, *Roddiscraft* makes use of *standard thickness face veneers* (as opposed to 1/8" and thicker veneers). Exposure tests made by independent laboratories on all types of plywood construction, with face veneers varying in thickness, prove that the check-

ing pattern on the exposed faces becomes coarser and more conspicuous as the thickness increases. That's why it pays to specify *Roddiscraft standard thickness face veneers* every time. See Sweet's Architectural File 15C-8 and Sweet's Builders File 36-3A for construction details.

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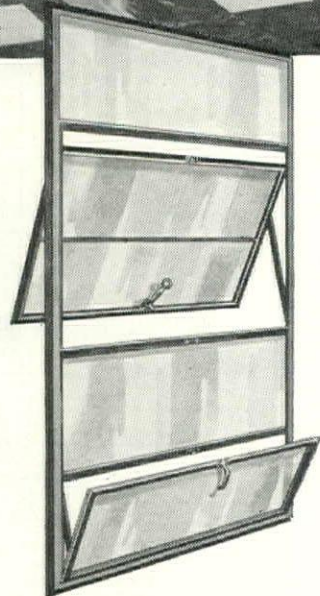
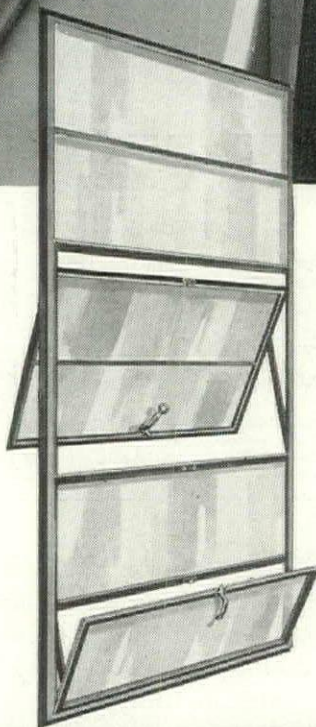


How to Provide

SCHMIDT & PAOLINELLI,
Architects

INTERMEDIATE PROJECTED—1. Built-in weathering is integral with window sections. 2. When glazed, all glass is in same plane. 3. Frame section has $\frac{1}{2}$ " return on inside, permitting plastering and still providing space for attaching blinds and shades. 4. Extra strong—frame section is $1\frac{1}{2}$ " deep and ventilator section is $1\frac{3}{8}$ " deep. 5. Treated with Bond-erite process.

ARCHITECTURAL PROJECTED—1. Same type of controlled ventilation as with Intermediate but more economical. 2. Frame section has similar $\frac{1}{2}$ " return on inside. This provides space for attaching window accessories. 3. Extra strength provided in frame— $1\frac{3}{8}$ " deep. Ventilator is even heavier— $1\frac{1}{2}$ " deep. 4. Treated with Bond-erite process.



In construction products **CECO ENGINEERING**

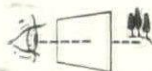
the Best Lighting for Schools



Consider the superiority of natural daylight . . . Our bodies and minds, in the main, evolved outdoors. In the recent dim past, man came inside. But since the eye evolved in natural daylight, it is just common sense that vision is best under daylight environment.



Investigate the availability of daylight in your area . . . It is important to know the amount of available daylight so you can plan for adequate illumination. The United States Weather Bureau records provide information showing the average number of clear days anywhere in the United States. For complete information, consult the United States Weather Bureau.



Explore the importance of distant vision . . . Medical science recognizes the importance of distant vision. Strain on the body, eyes and the mind is relieved through looking at distant views. Consult medical authorities for additional information on this important point.



Find out what type of window lets in the most daylight—assures distant vision . . . As a preliminary aid, consider these facts . . . steel windows admit more daylight than any other type of window design since they employ clear glass. Full height steel windows also provide more distant vision than any other window opening. There is less obstruction since frames and muntins are slender.

Determine what type of window gives the best ventilation . . . Steel windows provide more controlled ventilation than any other type of window opening. In fact, up to 100%. Stray breezes are captured and distributed all over the room. Drafts are controlled. Steel windows assure the greatest amount of life-giving pure fresh air.



Compare costs . . . The cost of steel window daylighting will vary according to localities. But, broadly speaking, comparisons show other types of window design cost from 10% to 200% more. In addition, the cost of artificial illumination is reduced and mechanical ventilation is eliminated.



Write for Ceko data booklet . . . Consider the 6 points above on illuminating schoolrooms. Then, for complete data, write Ceko for FREE descriptive booklet entitled "Better Environment Through Daylighting in Schools." The booklet covers other important subjects such as—Light Reflectance, Seating Arrangement, Light Control, Building Positioning.



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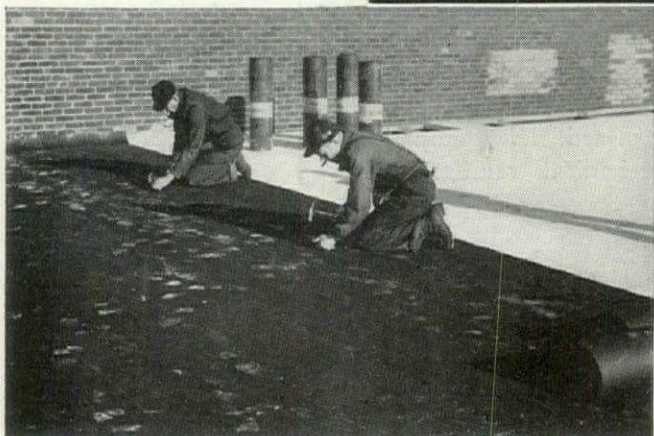
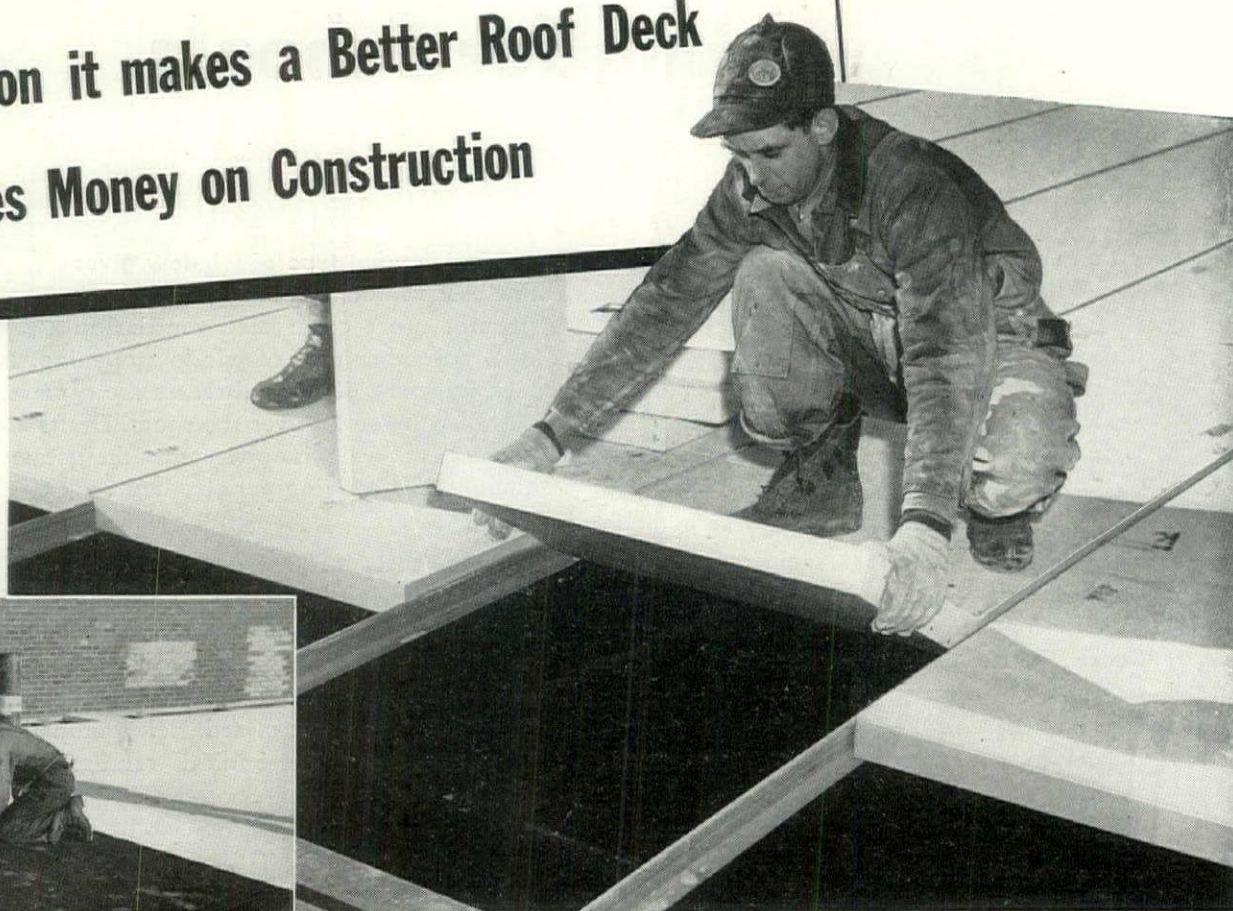
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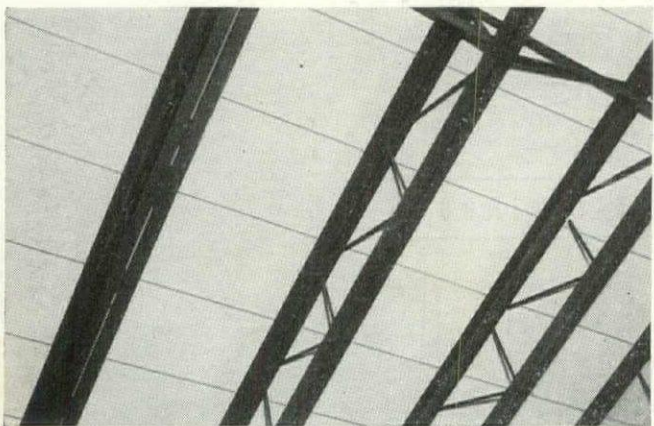
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KAYLO ROOF TILE IS 80% AIR

... One reason it makes a Better Roof Deck
and Saves Money on Construction



SIMPLE CONSTRUCTION—Kaylo Roof Tile are laid on sub-purlins, joints grouted and roofing material is applied. No special skills or tools are required.



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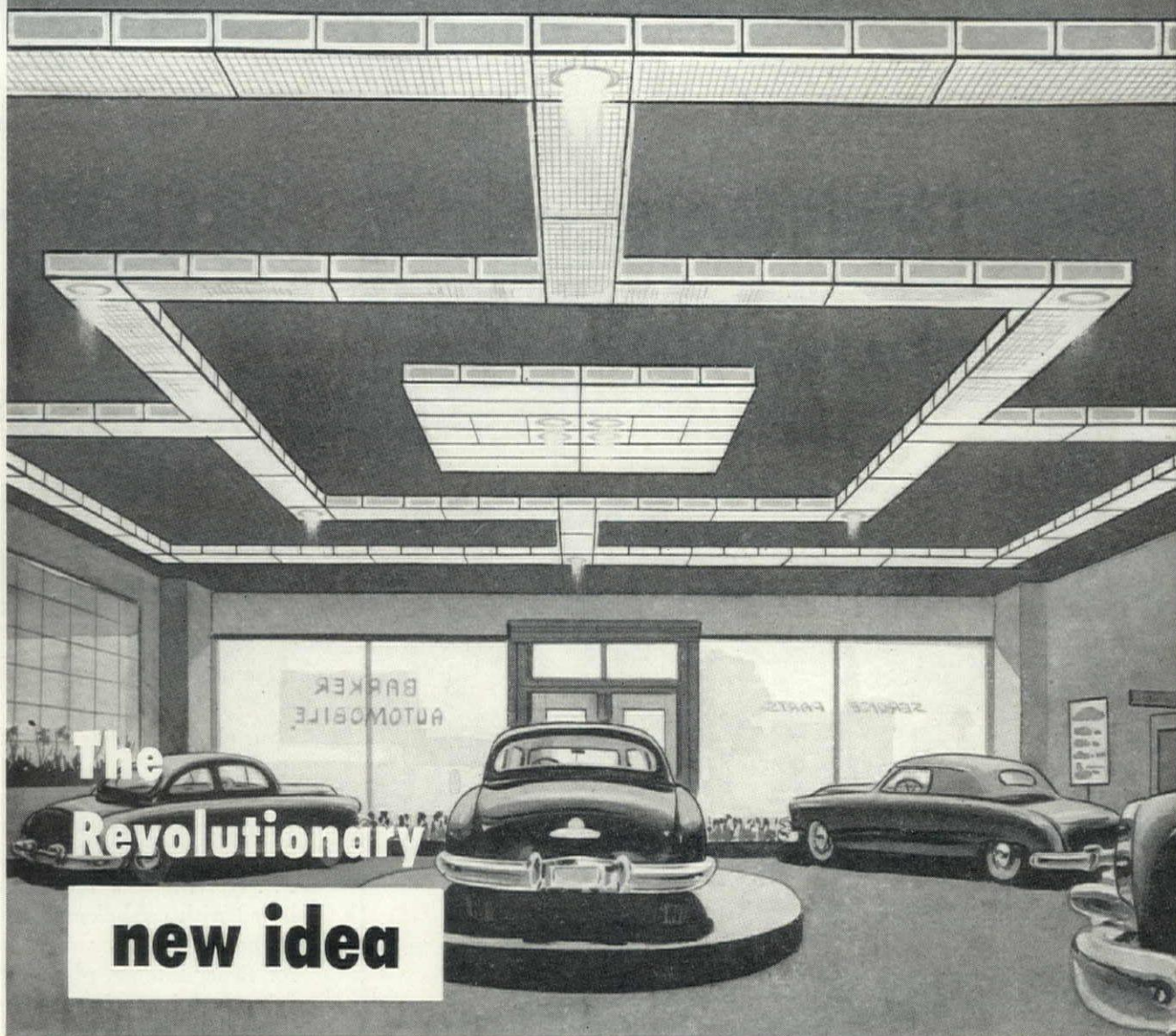
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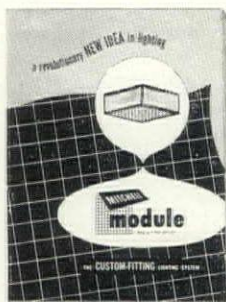
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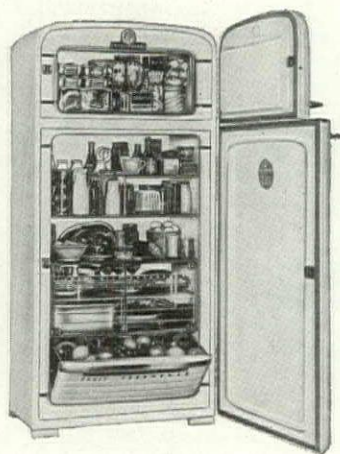
ALL ONE WIDTH—31 $\frac{1}{4}$ in.

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Only Kelvinator offers the flexibility of uniform widths for easier kitchen planning. Simplify and *save*—by specifying Kelvinator!



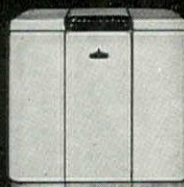
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31 $\frac{1}{4}$ "

CONSTRUCTION LEADS BUSINESS REVIVAL as inventories taper off, wages ease upward, costs reverse their downward trend, and confidence is reborn

As business approached the fourth quarter of 1949, it saw the thrice-heralded postwar depression again quietly slipping away. It was first forecast at the war's end with a prophesied eight million unemployed who, instead, stayed at work; it was again foretold as activity threatened to sag in the spring of 1947; the real thing appeared at hand as 1949 got under way. Production was down in nearly all lines for the first time since the war's end; unemployment was noticeably up; prices began to ease; and cures for deflation sprouted with a fecundity reminiscent of the 1930's. By August, however it was evident to all but confirmed pessimists that catastrophe was neither with us nor just around the corner.

Construction leading. Construction, contrary to its usual behavior, appeared to be leading in the revival. By the end of July, activity for the year was actually slightly above that of the first seven months of 1948. The boom in deferred state and local public works was an important contributor to the year's showing, but private activity, only 5 per cent behind the corresponding point in 1948, was lagging far less than the most sanguine forecaster guessed as late as May or June. The lag, moreover, was pretty well confined to industrial work, and to commercial structures other than office, loft, and warehouse types. Office buildings were mushrooming throughout the country in the greatest volume since the 1920's. Privately owned utilities—railroads, electric power, telephone—were well ahead of a year ago. Noncommercial private building was spectacularly ahead of a year ago—40 per cent; while housing, with an estimated 96,000 new nonfarm units started in July, continued the surprising recovery noted last month and for the first seven months came within 23,500 units of the record volume set by mid 1948.

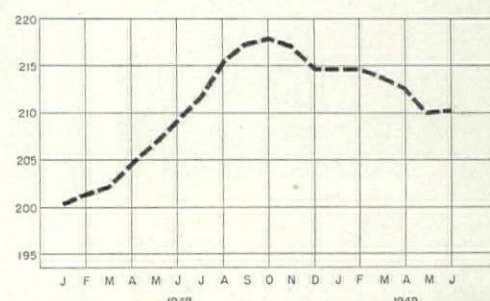
Builders generally were feeling a new confidence. Contract work was again forging ahead. One of the largest New York construction firms, which in May was laying plans to participate strongly in public work, called off the whole idea when it found itself with more advance private jobs than at any time since the war's end. The buyers of construction were becoming tired of waiting for further price cuts.

Distresses cleaned up. The evidence in mid-August was that the distress situations had for the present been pretty well cleaned up. Inventories of most materials were under control and sales in many lines were ahead of production. Materials prices, which on the whole had gone down steadily during the first half of the year, though much less than some of the scare news stories had

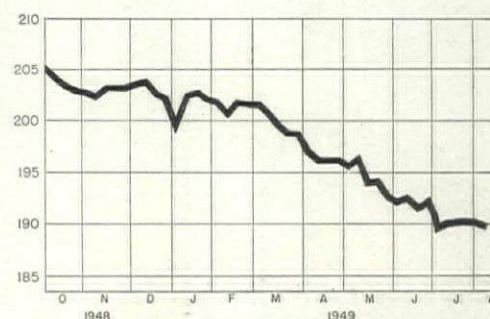
indicated, had definitely steadied—with practically no change since the beginning of July. Lumber prices, the most volatile of all the materials group, offered a good example of the new turn. Dropping from around \$60 a thousand last October, mill prices of No. 2 and better fir 2 x 4's hit \$45 early in August and then leveled. Edge grain western flooring (1 x 4 grade B or better) has fallen from a postwar high of around \$210 and found a bottom at around \$135 a thousand.

Southern pine boards went up in some markets, with sales of 1 x 8, air-dried, No. 2 grade at \$72 and \$73 in Boston near the end of July. Authoritative reports indicated that continued expansion of residential building threatened inventory shortages in pine concentration yards throughout the country and had produced a general increase of \$2.50 to \$4 per thousand board feet on straight car shipments near the end of July. With inventories of retail lumber yards at the end of June scarcely above the figures of a year earlier, the prospect for further substantial cuts during the remainder of the year was decidedly slim.

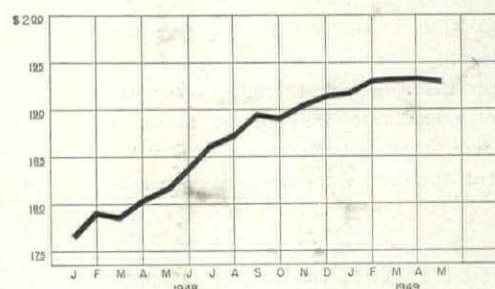
Wages up. While materials prices were finding at least a temporary resting place, construction wages continued an undisturbed upward trend. As a result the downward trend in the total cost of construction, which by wide consensus had come to around 5 to 8 per cent since the



There is no runaway decline in the building cost index (20-city average for all types of buildings; source: E. H. Boeckh & Associates), partly because . . .



... the material price decline is leveling, and . . .



... average construction wages are maintaining their peak. (Source: B.L.S.)

estimated high point last fall, not only had reached a halting point but appeared to be resisting further pressure downward. For example, Boeckh's index of construction for all types of buildings, which had traced a steady, if very moderate decline since October, showed a slight upturn in June.

The only conclusion to be drawn at late summer was that, if construction was to face a major postwar convulsion, its timing was still hidden in the future. For the next several months (aside from a seasonal late-fall slow down) activity was certain to be strong and prices firm.

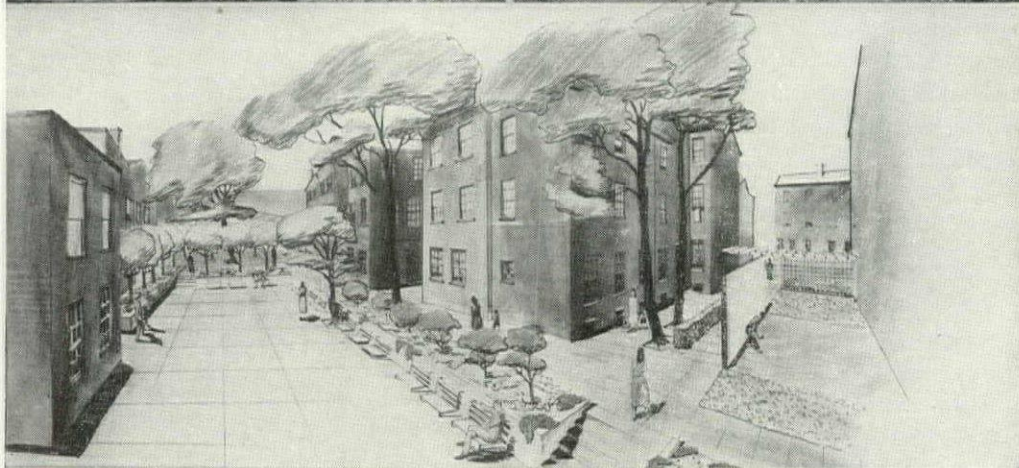
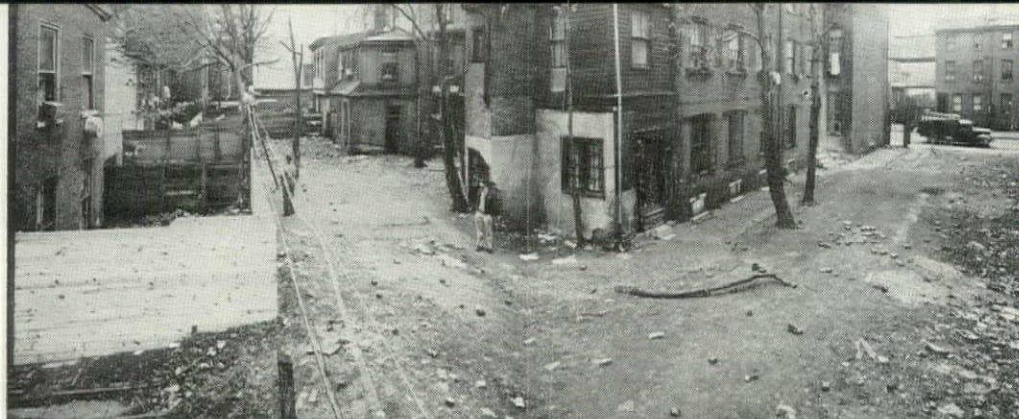
WASHINGTON

PRIVATE ENTERPRISE AID BILL clears House, toned down by opposition

It was harder than ever for a housebuilder to see just what Congress was up to. The long-touted "aid to private enterprise" housing legislation was shaping up—but to many it looked less like "aid" than a final kick in the teeth.

Last month the Senate Banking Commit-

tee, over the vigorous opposition of every branch of the housebuilding industry, approved a bill which would, on the one hand, destroy two of the housebuilder's most important financing tools and, on the other, offer \$1.3 billion of government money as loans to house buyers. This, of course, was not the last word. The House passed a bill which reflected a somewhat



RENOVATION OF A PHILADELPHIA BLOCK brings city and Friends together

As a start on its project to redevelop a 50-block blighted area of north central Philadelphia, the Philadelphia City Planning Commission is cooperating with the American Friends to renovate and rehabilitate one specific block, as shown above. Philadelphia Redevelopment Authority will purchase and acquire

all property in the block, resell to the Friends who will redevelop the area with courts and apartments carved from existing structures. Future residents will help with renovation. Eventually Friends will turn property over to housing corporation composed of block occupants and go on to the redevelopment of another block.

FIRST PUBLIC HOUSING commitment is signed over to Galveston

Galveston, Tex., was the first city to receive an allotment of public housing units (see story, Washington.) At right, L. Walter Henslee, executive director of Galveston Housing Authority, signs contract while Public Housing Administrator John Taylor Egan, HHFA Administrator Raymond Foley, and Texas Rep. Clark Thompson look on.



Reni Photos

SIDEWALK RADIANT HEATING is installed by life insurance company

John Hancock, like the Romans, has both columns and radiant heating. In the 720-ft. stretch of pavement surrounding its new home office building in Boston, the mutual life insurance company is installing one of the largest snow melting systems to date. Water, running through a continuous grid of wrought iron pipe, will warm the sidewalk as soon as snow falls or ice begins to form. The water enters each cross line of pipe from a supply line on one side of the pavement, and re-enters the building for reheating through a return line on the opposite side.



A. M. Byers

different view of what should be done.

The House Banking Committee had decided that there was plenty of low cost housebuilding money to be had and that direct government loans to veterans and to cooperative housing associations were not necessary. A last minute attempt to add this direct loan provision on the House floor failed, as did an attempt to add a "non-segregation" or civil rights amendment. The House bill also authorized continued 90 per cent insurance coverage under FHA's Title VI rental housing program (the Senate bill would cut coverage to 80 per cent, thereby killing off, building men said, what private rental building is now going on.) But the House did agree with the Senators that the combination VA-FHA loan program should be folded up—thus ending veterans' opportunity to buy a house without a down payment. (See *Money*.)

Few thought that the Senate as a whole could be convinced of the need for direct government housebuilding loans. Many Senators seemed to agree with realtor Alexander Summer of Teaneck, N. J., who told Congress that such a program "would overshadow and destroy the companies which made us the best-housed nation in the world." But if, as seemed likely, Congress ends the combined VA-FHA loan program, there will be less private building money available to veterans, and pressure for direct government loans will be renewed.

Private enterprise could look forward to one small plum from this legislative muddle. Both House and Senate are currently in agreement that price limits on the FHA 95 per cent mortgage insurance program should be raised. According to the Senate bill, 95 per cent insurance coverage would be permitted on a sliding scale depending on the size of the house. Thus on a two-bedroom house the price could go up to \$7,000; on a three-bedroom, \$8,000; on a four-bedroom, \$9,000. The House bill would boost these price tags by \$1,000 in high-cost areas.

Congress was also expected to raise the ceiling on FHA Title I "bargain basement" houses to \$5,000 and to bolster the secondary mortgage market by authorizing the Federal National Mortgage Association to buy 100 per cent (now 50 per cent) of a lender's portfolio of eligible VA and FHA mortgages.

Congress last month also:

►Received the recommendation of a six-member joint commission to reconstruct the White House, preserving the outside walls, rather than to build an entirely new struc-

ture. The commission was made up of four members of Congress and two technical men—Douglas William Orr, former A.I.A. president, and Richard E. Dougherty, president of the American Society of Civil Engineers. Sen. Kenneth McKellar (D., Tenn.), chairman of the commission, said that "a number of architects had been consulted and all said that reconstruction was desirable and feasible." Public Buildings Administrator W. E. Reynolds, who has charge of the project, said that work would begin "very soon" and would be a pick and shovel job. Retention of the outside walls will make it difficult to use modern equipment.

Quietly paved the way (some believed) to send some members of the House Banking Committee on a junket to Sweden. Tipoff came when the House committee sought an appropriation of \$60,000 to study, inside or outside the U.S., such items as cooperative housing. House committee members were visibly impressed when a spokesman for cooperatives, testifying at the committee's hearings on the aid-to-private-enterprise bill, described Sweden, which goes in heavily for cooperatives, as the "best housed nation in the world."

FHA'S NEW PROGRAM aids military rental units

FHA added a new title to its multi-titled program last month: Title VIII. It will govern mortgage insurance on rental units built for members of the armed forces, on land leased from the military.

The new program provides a maximum mortgage of \$5 million, representing not more than 90 per cent of project replacement cost. The guarantee is limited to \$8,100 per family unit in apartment buildings.

On single-family dwellings, however, a last minute congressional provision raised the mortgage guarantee to \$9,000. Some wondered if this was done to provide an outlet for the Lustron house (which was getting in deeper with the government all the time—see below), in the event that the general public does not take to them and RFC gets stuck with the prefab houses. A 90 per cent mortgage of \$9,000 added up in a lot of minds to something pretty close to the \$10,000 Lustron house.

LUSTRON CROSS-EXAMINATION reveals \$5,700 price, need for more help

Every time Lustron Corp. asked for and received a loan from RFC, Ohio's Representative "Doc" Smith seethed. He objected to the basic idea of the government setting up a firm in business. More than that, he

thought Lustron was getting far too much money from the U.S. He was sure that Lustron would try to hog most of the additional \$75 million lending authority to aid prefab housing manufacturers which the new housing bill proposed giving RFC, so he demanded that the House Banking Committee (of which he is a member) call Lustron on the carpet.

Doc Smith had to turn in at the hospital for a while, so he turned over his quiz to Kansas' Rep. Cole, a man who shared many of his suspicions. Cole promptly summoned RFC's Housing Branch Chief Richard Dias and Lustron President Carl Strandlund.

New facts. For the most part, the committee succeeded in extracting information already widely known: RFC has no doubts—no official doubts, anyway—about the wisdom of its loans (Said Dias: "The question. . . is whether or not the experiment is worth while and whether the experiment is progressing. Beyond that I do not believe that anyone in the RFC—or anyone anywhere—could say that it is satisfactory or unsatisfactory"); the experiment has so far been something less than a success in production (by late July Lustron had put out 1,253 units). Said President Strandlund: "There

is nothing wrong but the timetable."

Two new facts did emerge from the testimony, however: Lustron's heretofore carefully guarded secret that its price to dealers is \$5,700, and its contention that on a 1,500-unit a month schedule, it could amortize its debt after taxes in six years.

New objection. Even Rep. Cole seemed convinced that the Lustron experiment might yet be a success. As a matter of fact he conceded that with further government help Lustron might one day soon be able to offer its product, land included, for as little as \$6,000. But that did not quiet his objections. It just pointed up a new one. He wondered whether "the government itself is creating a monopoly in the prefabricated house field because, if it keeps financing Lustron up to the point where large scale production and distribution can be achieved, the volume and resulting price may well be such to drive other prefabricators off the market."

As the testimony was being recorded, RFC was rumored to be greasing the skids for another \$14 million loan to Lustron. It would raise RFC's total stake in Lustron to \$50 million—the figure Lustron had first asked back in the Wyatt days.

LAW

PUBLIC HOUSING gets started with 600 units for Galveston

It was a momentous occasion, so, naturally, everybody got a thrill watching the document being signed. The chairman of The Galveston Housing Authority got more than that. According to the historic document he had just signed (see picture, p. 12), he got a federal allocation for 600 public housing units. At any rate, he got a definite commitment that the Public Housing Administration considered that Galveston needed 600 units. Now Galveston would have to come back with plans for a definite project, and show that it had the land and was willing to do its share (such as extending tax exemption). As soon as the President approved, Galveston would also get \$130,000 for planning and surveys.

Everybody wanted to celebrate. As soon as they had posed for pictures and made a little speech, everybody sat down to a victory dinner staged by the National Housing Conference in Washington's Hotel Statler, sprinkled liberally with congressmen, and lots of entertainment.

After the celebration, another allocation was made—3,000 units for Norfolk over the next two years. And there were lots more applications coming in.

Private builders and other opponents were going ahead with their announced plans of fighting public housing programs on the local levels. In some places, such as Detroit, real estate and builder groups seemed to be making headway in their attempts to block local projects. But the public housers at their victory dinner did not appear worried. They already had applications in prospect for 94,000 units for the first two years. (PHA is approaching the program on a two-year basis.) It seemed likely enough that they could dispose of their 135,000 unit quota for the first year and a like amount for the second without much trouble.

RENT CONTROL weathers a stormy month, chalks up a new victory

As soon as Housing Expediter Tighe Woods announced that a congressional slash in his operating funds (from \$24,075,000 to \$17,500,000) would compel him to decontrol rents over one-third of the country Rent Control's advocates set up their wails of pain. All the advocates were sure that with the end of controls rents would skyrocket.

But by now the country had had an opportunity to tell whether or not rents skyrocketed in decontrolled cities. Con-



Above: Peter Eller, B.T.E.A. board chairman, Robert Owen Lloyd, leader of the British team, President Fred J. Driscoll of the George F. Driscoll Construction Co., and President H. C. Turner of the Turner Construction Co.

BRITISH BUILDERS visit U. S.

At the invitation of the Economic Cooperation Administration, a team of British builders and architects visited the U. S. last month to soak-up American construction know-how as a means of stepping up British building productivity. Above, at a luncheon given by the Building Trades Employers' Assn. of New York City, Michael T. Waterhouse (l.), president of the Royal Institute of British Architects, and Wilfred Horsfall, English contractor (r.), exchange ideas with A.I.A. President Ralph Walker and President Thomas Holden, of F. W. Dodge Corp.

(UN)LUCKY Supermarket burns

Fire demolished the unlucky Lucky Supermarket in San Bruno, Calif., one of the seven much-publicized stores produced for the Lucky chain by Industrial Designer Raymond Loewy Associates (FORUM, May '48, p. 134). Apparently the only fire-proof element of the building was the sign—a wooden frame sheathed in porcelain enameled steel panels. The sign requires only cleaning, the rest of the store, complete rebuilding.



Schribble's Art Studio

"ARCHITECTURAL FORUM" is sponsored by Macy's in San Francisco

Macy's San Francisco department store conducted an "Architectural Forum" for home planners last month, at which such topics as "Bay Area style" and a good \$10,000 house were discussed by Architects Henry Hill, Fred Langhorst, Donn Emmons, Ernest Kump, Mario Corbett, and Moderator Hal Cruzan (pictured l. to r. in photograph at left). To build a good \$10,000 house, Hill advised group to be content with minimal space and skimp on gadgets. Cracked Kump: "The first gadget they usually cut off is the architect." To the question, "What is the best way to achieve economy?" Langhorst answered: "Cut out the client." This, he added quickly, is exactly what the mass production of homes does. Macy's "Architectural Forum" is no relation to this Architectural Forum.



trols had already been removed in more than 250 localities, either by state or federal action, and there were still no shooting meteors in the sky.

Moderate increases. The *Wall Street Journal* surveyed six of the larger decontrolled cities—Knoxville, Dallas, Salt Lake City, Spokane, Boise and Little Rock. Its report: "Many landlords have not boosted rents at all; the average increase has been moderate."

Expediter Woods pooh-poohed the *Journal's* survey. It was made "too soon" after decontrol, Woods contended; decontrol's "delayed action" effect could not be measured for several months. (The NAREB caustically reminded Woods that his previous visions of chaos had not been tempered by talk of delayed action.)

Increases by half. Woods made a flat prediction that "in large cities like Dallas and Knoxville where studies indicated that decontrol action would be premature, rents will be 50 per cent higher by the end of the year." (Two months after decontrol, Knoxville's average increase was only 7.1 per cent; in Dallas it ranged from 5 to 15 per cent, according to chairman Roy Eastas of the 15-year-old Profiteering Board, which keeps a strict eye on rent action and punishes gougers as it would any other profiteer.)

Rent Control's friends in Congress joined in the general hubbub by insisting that OHE's budget cuts be restored. In the midst of it all, just as the confusion reached its highest pitch of frenzy, popped a team of OHE lawyers, like the police squad in a Mack Sennett comedy, to say that the blanket decontrol Woods proposed would be illegal anyway.

By this time, however, Rent Control's new victory, in what was beginning to look like a ceaseless round of victories, was won. Congress wearily told Woods to go ahead and spend the money he had, come back for more when that ran out.

LABOR

DISPUTE SETTLEMENT PLAN revived as new labor law fades

Along with all the rest of Labor, Building Labor had banked strongly on a substitute for the Taft-Hartley Act. All it got for its pains was a good case of embarrassment.

When Taft-Hartley was initiated, a cooperative venture between the AFL building trades and the contractors resulted in the establishment of the National Joint Board

for the Settlement of Jurisdictional Disputes. The National Labor Relations Board, who thought up the idea in the first place, stayed in the background.

From the first, the plan worked satisfactorily. Management and labor groups solved their jurisdictional disputes with such dispatch that not once did NLRB have to step in, a matter which was, of course, particularly pleasing to Labor. But, sharing the fever which characterized Big Labor's confidence last spring that it could kill T-H, and certain that the new labor act would be more desirable from their standpoint, the building trades early this summer decided to scrap the board.

Then it dawned upon Labor that it was going to be stuck with T-H for an indefinite period; the building trades could see only the undesirable prospect of having the NLRB called into their jurisdictional disputes. Sheepishly they asked the management groups to help them re-establish the agency. After making Labor sweat a little, the contractors agreed. Last month, after a 26-day lapse, the jurisdictional committee was back on the books.

PEOPLE

Connecticut's energetic Governor **Chester Bowles**, onetime OPAdministrator, immediately after his inauguration last winter tried to initiate a program of subsidizing the builders of rental units (FORUM, Jan. '49). Now he has a new idea, which his legislature last month approved. It will make Connecticut the first state in the U.S. to build houses for direct sale. The state will use \$30 million for the construction of 3,000 FHA-insured units, which will be designed and built by private architects and builders for the state to sell to the public. It will also loan \$65 million to local housing authorities for the construction of 7,000 rental units in the \$40 bracket.

The works of **Frank Lloyd Wright** will go on exhibit next year in Florence, Italy, under the sponsorship of **Arthur C. Kaufmann**, executive head of Gimbels Department Stores. Kaufmann last month received permission to stage the exhibit from Assistant Secretary of State George V. Allen, who wrote that the Wright exhibition would be evidence of appreciation of Italy's generous loans of works of art to the U.S. Philadelphia architect **Oscar Stonorov**, who will be in charge of the design of the exhibition, left last month for Florence.



Associated Press Photo

Housing Expediter **Tighe Woods** had a busy month. He had to fight off critics of his "rambelerette" house (see page 80), his rent control proposals (see *Law*), and his position in Washington's much-dis-

cussed "5-per center" society. To a Senate expenditures subcommittee, Woods admitted that a week before the owners of a race track near San Francisco received permission to obtain scarce building materials for construction work in January, 1948,

Woods had been asked to "hurry" by Maj. Gen. Harry H. Vaughan, President Truman's military aide, who added: "Some friends of mine are interested. . ." He also acknowledged that James V. Hunt, Washington management counselor who has been the subject of the "5 per cent" investigation "sort of inferred that he had a hand in" Woods appointment to the post of Housing Expediter.

Harold D. Hauf, chairman of the department of architecture at Yale University, was named editor of the *Architectural Record*, succeeding **Kenneth K. Stowell**, who resigned to become a vice president in the architectural firm of Giffels & Vallet.

MONEY

SAVINGS AND LOANS put on trial under new regulations

In mid-August the revised code of regulations for federal savings and loan associations over which the Federal Home Loan Bank Board has been worrying for the last six months finally went into effect. Since the Board published this code last March, it has been relentlessly attacked by the American Bankers Assn. (FORUM, June, '49).

Territory invasion. The bankers' linguistic objections were based on the belief that the Board's terms would accelerate the "growing trend of savings and loan associations to represent themselves as savings banks and to conduct their business as such." The section on branch offices, the bankers thought, would enable the savings and loans to invade new territory without anything more than a blessing from the sympathetic Federal Home Loan Bank Board. This would not only be unfair to banks, the bankers sagely pointed out, but also to state-chartered savings and loans. Since federally chartered institutions would be permitted to ignore state regulations, state savings and loans would be encouraged to convert to federal charters, thus undermining the dual system.

The Board had listened to the bankers' fears. Finally it had modified its proposed new code in some "35 to 40 ways." These modifications included changing the term "federal savings association" to "federal association" and retaining the "restrictions of the old rules on branch offices." But the bankers let it be known that this did little to cheer them up. They made enough of a fuss to excite Senator Burnet May-

bank, chairman of the Senate Banking Committee. Just four days before the effective date set for the new code, Senator Maybank asked the Federal Home Loan Bank Board to postpone its adoption.

Ninety-day watch. The Board politely refused to consider further delay. But the Senate Banking Committee did get a promise from FHLBB to watch the operation of the new regulations carefully for 90 days. At the end of that time, the Senate Banking Committee and FHLBB would jointly confer on whether the new operations seemed in any way unfair to banks.

For the banks, this was far from the end of the matter. They decided to shift their efforts toward the enactment of new laws to restrict what they regard as unfair competition from the associations. Said one New York banker, preparing to strip off his old school tie: "We thought the fight was under the Queensbury rules, but it's turned out to be a 'Donnybrook.'"

Upset aplomb. On their part, savings and loan men were unperturbed. "Much ado about nothing," said George L. Bliss, president of New York's powerful Century Federal Savings & Loan Association. "The typical banker regards himself as a monopolist in the financial field. The steady rise of cooperative financial savings institutions in recent years has upset his aplomb."

"The promulgation of the revised regulations will have no material effect on the operation of federal savings and loan associations or on their relations with the public. The revised regulations introduce no new material of substance, nor do they increase the powers of federal savings and loan associations in any manner."

FHA-VA MORTGAGES, favored by all, face extinction

To builders hoping for a 1949 housebuilding year which would come close to the record 1948, it seemed incredible that Congress would eliminate provisions for 505-A financing from its omnibus housing bill (see *Washington*). This combination FHA-VA mortgage financing helped to make 1948 as big as it was. Frank Cortright, executive secretary of the NAHB puts the number of houses built for sale last year with 505-A financing at "at least one-third" of the total.

Something for everybody. Section 505-A, providing a 4½ per cent first mortgage of 80 per cent of property value insured by FHA and a 4 per cent second mortgage of 20 per cent (but for not more than \$2,000) guaranteed by VA, was included in the GI benefits program late in 1945. It contained something for everybody, and everybody was happy.

The builders, perplexed and harrassed by the vagaries of the new VA set-up, liked 505-A, for it meant working in the more familiar routine of the FHA; the lenders liked it because they could get a 4½ per cent interest rate on the first mortgage; the veterans liked it because they could buy houses without a down payment. Builders saw other advantages: better marketability of an FHA-financed house in the event of resale, freedom from too much reliance on the secondary market facilities of the RFC.

No experimenting. At least one of the substitutes for 505-A offered by Congress—direct lending to veterans—has wilted under the relentless opposition of the industry. The other substitute provisions liberalizing the straight VA loan program—increase in the amount of a GI loan from 50 to 60 per cent of appraised value and in the maximum amount from \$4,000 to \$7,500, and liberalization of FNMA's power to purchase GI loans—are perfectly acceptable to the builders. But they don't think they will take the place of the combination loan. Warned Cortright: If veterans "are cut off from combining GI rights with FHA financing to get homes without down payment, thousands of veterans won't be able to get any homes at all. . . . It is no time to experiment with new and varied methods."

Said another perplexed builder: "Sometimes we wonder if the government is deliberately trying to block us."

ECONOMY

SUMMER UPSWING breaks the fall of prices and employment

Declining real estate bonds in the 30's presaged the greatest real estate bust in the history of the U. S. Therefore, when bonds began to decline earlier this year it put a new wrinkle into the already worried faces of the horizon seekers. The creases have been straightening out for several months. Last month they visibly eased when the Amott-Baker index, covering the prices of 40 representative realty issues, showed a slight but significant increase for July.

There were other reasons for encouragement, not only for the housebuilder, already elated by the summer's heavy record of house starts (see p. 11), and busy with plans for country-wide exhibitions for National Home Week (Sept. 11), but for the entire industry, which had already this year put \$10,353,000,000 worth of construction in place (up from \$10,033,000,000 for the same period last year.)

Factories opening. Factories which had closed down in whole or in part during the confusing birth of the year (when no one could establish the pattern but everyone suspected the worst) continued the heartening trend noted last month (FORUM, Aug. '49): Westinghouse recalled 850 appliance workers at its Mansfield, Ohio, and Springfield, Mass., plants. American radiator and Standard Sanitary Corp. reopened its Buffalo plant, which it had closed in June because of a large inventory of boilers. Frigidaire, which rehired 250 employees in July, took back another 750. Tappan Stove Co. rehired 50.

Builders were enjoying the same experience as the rest of U. S. business, which was watching the American price structure stabilize itself through such maneuvers as a 2 cent rise in margarine prices and a coffee boost of a cent a pound. The Bureau of Labor Statistics recorded a .01 per cent rise in the wholesale commodity price index during one August week. (General prices were still healthily 10 per cent below last year's high, however.)

Timidity dispelled. The stability in building materials prices (see p. 11), which would dispel whatever timidity existed among construction buyers, was recorded on every graph. Those materials which had yet to seek a lower level were doing so quickly. A 7 per cent dip in paint brought it down almost to where it was before last year's

giant increase. Said the president of one big eastern distributor: "I think paint will remain steady now." Unexpected factors forced changes in some materials: lumber was affected by forces other than increased demand—a shortage of freight cars due to heavy grain shipments helped boost the price of Douglas fir 50 cents a thousand board feet; freight rate increases pushed cement up (but not enough to influence the price of cinder block); bad weather in the south cut down the production of sheathing lumber, and consequently raised its price. The variations in the price of prefabricated steel were mostly the doings of smaller producers and did not represent a change in the base price of structural steel.

Outlook steady. These were, for the most part, the exceptions. The great body of building materials—glass, asphalt shingles, plaster, wall board, gypsum board, soil pipe—were steady and no one saw any signs of significant change. Construction to all appearances was one of the "few industries" which Henry Heiman, executive manager of the National Association of Credit Men said had "completed the first phase of the postwar readjustment."

MANUFACTURERS' EARNINGS are down, but improving

The top 29 building materials and equipment companies earned \$39,806,209 during the second quarter of the year, according to a *Wall Street Journal* compilation—4.4 per cent more than they made during the first quarter, but 25.2 per cent less than during the second quarter of 1948. Only the auto, coal, tobacco, and railroad companies showed more of an earning increase over the first part of the year.

Below are recorded the net profits for the first half of the year of 14 of the largest building materials companies:

Company	1949	1948
American Radiator-Standard Sanitary Corp.	\$6,101,000	\$10,053,698
Celotex Corp.*	506,740	3,354,455
Flintkote Co.**	2,346,354	4,033,074
General Electric Co. . .	46,552,842	54,602,339
Johns-Manville Corp. . .	5,765,600	5,607,913
Libbey - Owens - Ford Glass Co.	9,105,831	7,103,850
National Gypsum Co. . .	2,414,462	3,337,537
Owens - Illinois Glass Co.***	13,004,554	7,677,632
Pittsburgh Plate Glass Co.	15,570,288	14,200,693
Republic Steel Corp. . .	25,477,171	16,938,390
U. S. Gypsum Corp. . .	10,326,102	11,705,427
U. S. Plywood***	6,339,100	7,606,900
U. S. Steel	94,052,265	53,443,018
Westinghouse Electric Corp.	28,409,961	27,441,100

* Net income, 6 mos., to 4/30; ** Net profit, 28 wks. to 7/16; *** Net profit, 12 mos. to 6/30; **** Year ending 4/30.



Hauserman Movable Steel Interiors at Foote Bros. Gear and Machine Corp., Chicago, Ill.

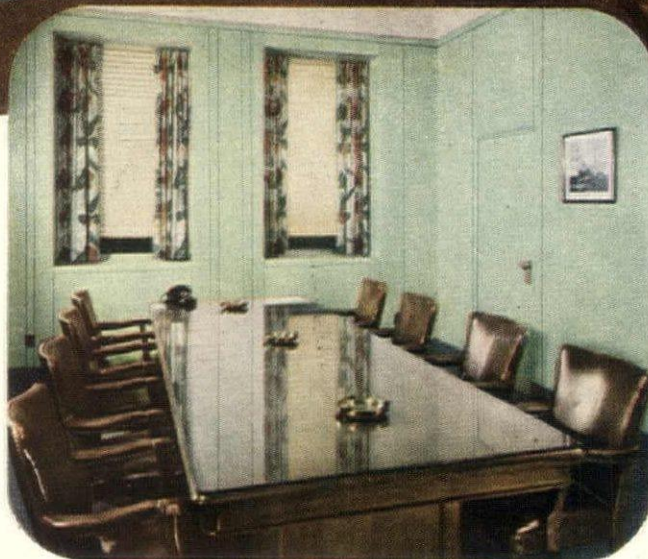
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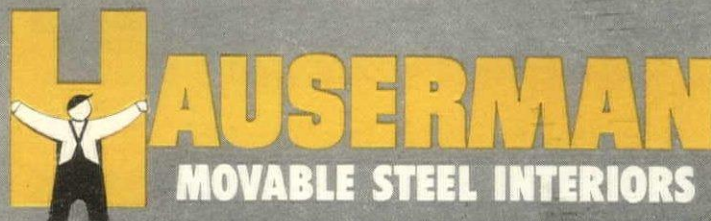
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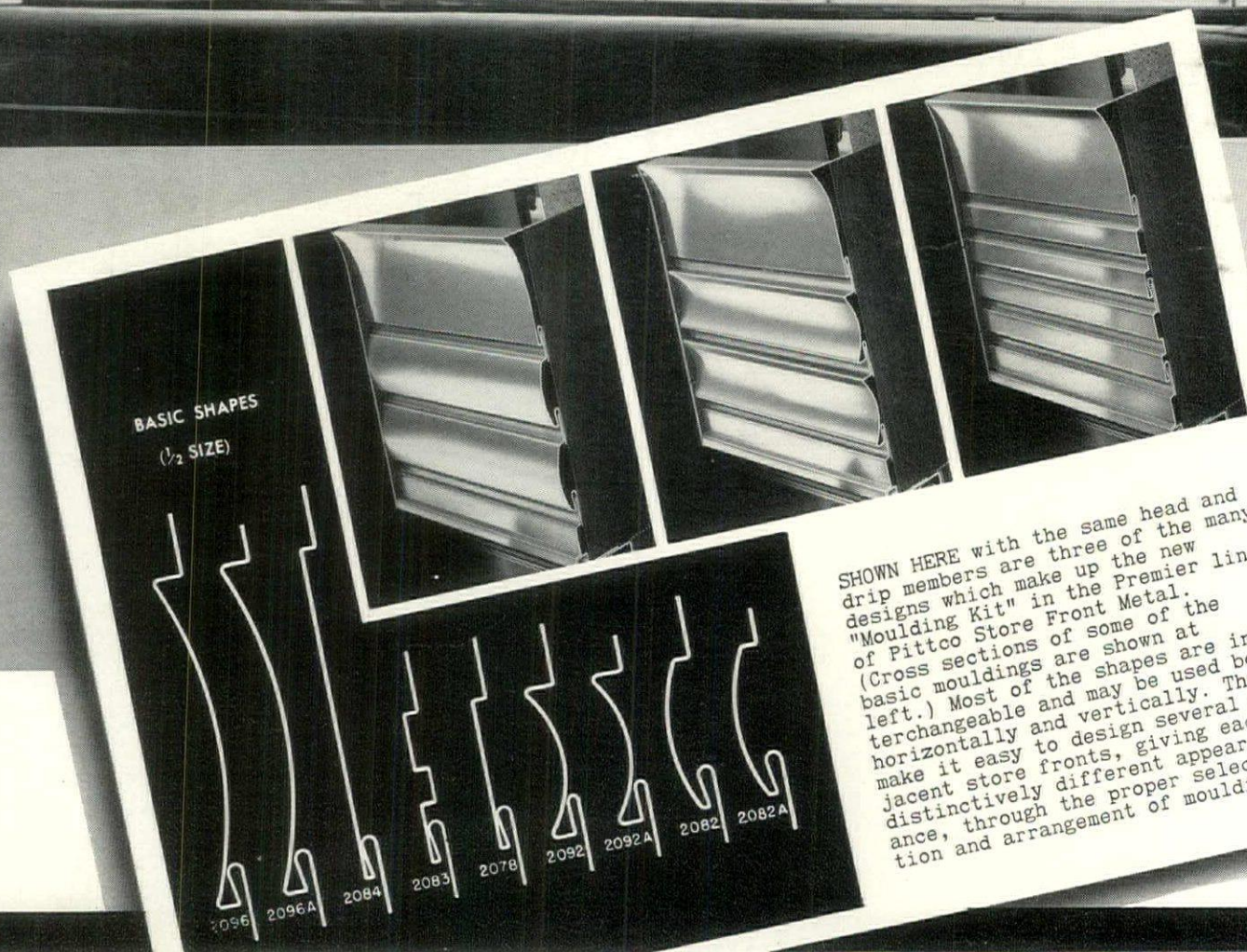


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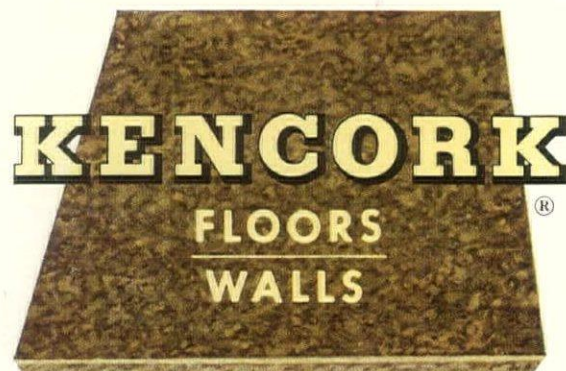
Practical Luxury...

Why no other floor gives all *Kencork's* advantages...

No other floor is so practical... Only Kencork gives this natural beauty plus long wear. And only beautiful Kencork keeps its quiet elegance with so little care. Yes, Kencork floors in use 30 years and more refuse to show signs of wear...even under hardest usage. Its low cost saves money, too.

No other floor is so luxurious... Beautiful Kencork is so comfortable underfoot, so quiet, so safe! It is hard to believe this luxury costs so little! Kencork's beauty mellows into infinite richness with the passing years. The subdued, subtle cork tones blend harmoniously with fabrics and furnishings of every type and color...give every room a lasting look of tasteful elegance!

David E. Kennedy, Inc., 58 2nd Ave., Brooklyn 15, N. Y....**RESILIENT TILE FLOORING FOR FIFTY YEARS**
Originators of beautiful Cork Tile Flooring—Also Makers of famous Guaranteed Kentile Flooring



DAVID E. KENNEDY, INC., 58 Second Ave., Brooklyn 15, N. Y. • 1211 NBC Bldg., Cleveland 14, Ohio • Bona Allen Bldg., Atlanta 3, Ga. • 452 Statler Bldg., Boston 16, Mass. • 17th and Sansom St., Philadelphia, Pa. • 4532 So. Kolin Ave., Chicago 32, Ill. • 350 Fifth Ave., New York 1, N. Y. • 1440 11th St., Denver 4, Colo. • 2205 Grand Ave., Kansas City 8, Mo. • 1855 Industrial St., Los Angeles 21, Calif.



NOW IT'S WARMER IN THE COOLER

Officials of a large southwestern county jail called in an air engineer. They explained that the cell blocks were constantly damp and chilly. That was how Trane equipment came into the picture.

Trane Convactor-radiators were installed in corridors adjoining the cells. A complete Trane system, including valves and traps, carries welcome warmth to every dank corner.

The dampness and chill disappeared . . . thanks to

Trane equipment—the same equipment that makes air more efficient, more comfortable, more usable, in thousands of stores, offices, plants.

Perhaps atmospheric discomforts are problems which may rise to plague you on a job you're doing. If so, remember that Trane engineers know air. How to cool it, warm it, dry it, humidify it, clean it or move it. Your local Trane office will be glad to work closely with you on any of your projects.

THE TRANE COMPANY • LA CROSSE, WISCONSIN

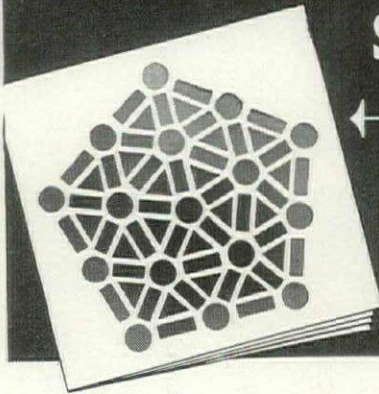
TRANE COMPANY OF CANADA, LTD., TORONTO

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

TRANE

THE HOUSE OF WEATHER MAGIC

SENSATIONAL NEW Martin-Senour COLOR COORDINATOR SYSTEM



*Ready
Now!*

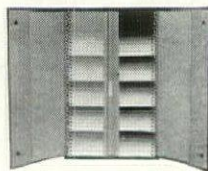
Martin-Senour brings architects, designers and decorators a completely new, accurate and versatile tool for paint color selection and specification to solve any requirement!

UNLIKE ANYTHING EVER KNOWN BEFORE, this amazing new Color Coordinator System is the most helpful, practical color tool ever developed for professional use. Designed for maximum utility, this completely new system provides you with the most versatile range of easy-to-mix colors ever created. One spiral-bound set of Color Coordinator Charts gives you complete color command of a comprehensive color range that will solve every color requirement, satisfy every color desire!

PAINTED SAMPLES of all 497 colors are systematically "laid out" at 7 different value levels on the Color Coordinator Charts. Instantly, you can select a single color or an entire, balanced color scheme. And the "name" of each color is its own mixing formula!

SIMPLIFIED AND ACCURATE, this astonishing new system gives you hundreds of beautiful paint colors for any color harmony, contrast, or scheme you want to specify or use. From only 16 basic tinting colors in the simplest combinations, you get 497 different colors at 7 different value levels. And every beautiful color is quickly, accurately mixed by adding equal parts of only 1, 2, or 3 basic colors to the proper amount of white. No guesswork. No disappointments. Complete set of Coordinator Charts now \$7.75 pre-paid. Satisfaction guaranteed.

THE COLOR COORDINATOR DIRECTORY is a companion piece to the Coordinator Charts. Contains painted 3" x 5" cards of every Coordinator Color. \$18.85 per Directory.



MAIL THIS HANDY COUPON NOW for your key to quick, easy and accurate color satisfaction. This amazing new Color Coordinator System is created and sold exclusively by the

MARTIN-SENOUR COMPANY
2520 S. Quarry St., Chicago 8, Illinois

**MAIL
COUPON**

Martin-Senour Company
Dept. AF99, 2520 S. Quarry St., Chicago 8, Illinois
☐ Am enclosing my check for \$7.75 for a set of Color Coordinator Charts.
☐ Am enclosing my check for \$18.85 for a Color Coordinator Directory.
I understand that complete satisfaction is guaranteed, or else I will receive a full cash refund upon request.

Name.....
Address.....
City.....Zone.....State.....

BETTER THAN A CALIFORNIA TRIP

Forum:

I sincerely believe that most department store executives would actually learn more from the FORUM's June report on the "Milliron" store than they could learn from going all the way out to California to see the actual building. The FORUM's report takes the reader backstage and shows him the inner workings of the "Milliron" store—a privilege that store visitors seldom enjoy.

MORRIS KETCHUM, JR.
Architect
New York, N. Y.

• For a back-stage show of two of Reader Ketchum's department stores see p. 81.—Ed.

PUMICE BUST

Forum:

I seriously protest the decrease in the size of Venus' bust (FORUM, July '49, p. 10) and suggest that these be made of pumice which will weigh less than one half of stone or marble. Pumice has withstood the test of time in the Coliseum of Rome.

I will contribute the pumice and pay up to \$500 to the sculptor.

T. JACK FOSTER, President
Pumice Aggregate Sales Corp.
Albuquerque, N. M.

HOW TO SELL HOUSES

Forum:

"How to Sell Houses" (FORUM, July '49) is most interesting and well written. It is comprehensive and will be of much service to the industry. So much so, that I ask that you send 50 printed copies for distribution to our members.

FRANK STEUDLEIN
Executive Vice President
Memphis Home Builders Assn.

Forum:

The article on "How to Sell Houses" is one of the most highly informative ones I have ever read in so far as merchant builders are concerned. I would appreciate 125 reprints, if available, for distribution at the next regular meeting.

MRS. GEORGE WILDER
Executive Secretary
Tulsa Home Builders Assn.

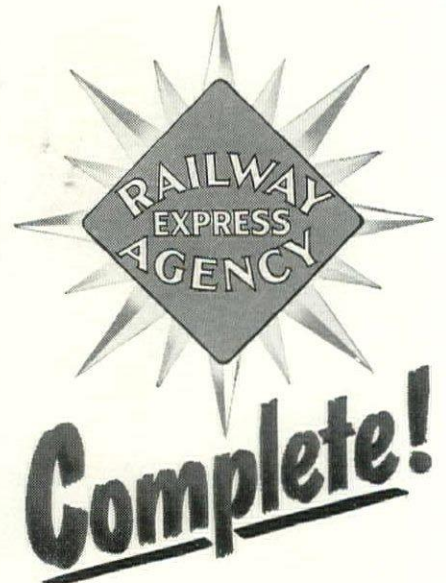
Forum:

The article is very impressive, and we hope it reaches the eyes of a multitude of home builders who can use such information in large doses.

We could use 50 extra copies of this reprint to mail out to our larger builders.

G. A. GODFREY
Executive Vice President
Dallas Home Builders Assn.

(Continued on page 24)



"ANYTHING—ANYWHERE"
for a single charge!

RAILWAY EXPRESS provides dependable, uniform shipping facilities through 23,000 offices from coast to coast. Here's fast, complete service, by rail or air, designed to meet your every shipping need—for a single, all-inclusive charge!

For really economical, "anything—anywhere" shipping, specify RAILWAY EXPRESS.



"Let's look ahead" is the watchword of the 60,000 Railway Express employees. They work and plan together to serve you and your community by meeting your exact shipping and distribution requirements.



NATION-WIDE RAIL-AIR SERVICE

Raymond



Pattern >>>>> FOR Permanence

RAYMOND CONCRETE PILE CO.

Branch Offices in Principal Cities

Of United States and Latin America

140 CEDAR STREET • NEW YORK 6, N. Y.



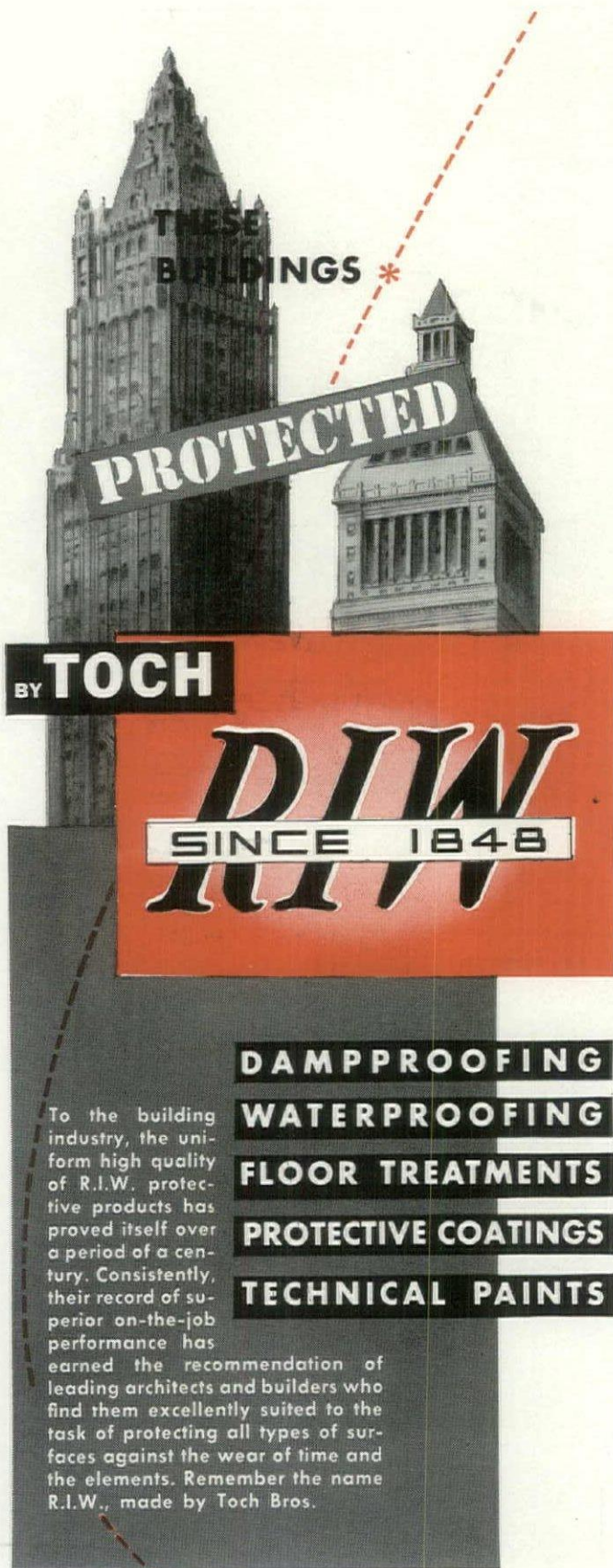
JOBS that call for a permanent pile foundation call for Raymond equipment, Raymond experience and Raymond skill. From preliminary soil investigation to completed foundation, you can be sure that the Raymond organization will work swiftly, accurately and at minimum cost.

Raymond cast-in-place concrete piles cannot be excelled for permanence and carrying capacity. Many types are available to meet any subsoil condition. With Raymond on the job, full compliance with job requirements is assured.

Pictured above is Raymond's 1300-pile foundation for the new Caterpillar Tractor Company Building LL at Peoria, Ill.

THE SCOPE OF RAYMOND'S ACTIVITIES includes every recognized type of foundation construction—concrete, composite, precast, steel, pipe and wood piles. Also caissons, underpinning, construction involving shore protection, shipbuilding facilities, harbor and river improvements and borings for soil investigation.

LETTERS



THESE BUILDINGS * **PROTECTED**

BY TOCH

R.I.W.
SINCE 1848

DAMPPROOFING
WATERPROOFING
FLOOR TREATMENTS
PROTECTIVE COATINGS
TECHNICAL PAINTS

To the building industry, the uniform high quality of R.I.W. protective products has proved itself over a period of a century. Consistently, their record of superior on-the-job performance has earned the recommendation of leading architects and builders who find them excellently suited to the task of protecting all types of surfaces against the wear of time and the elements. Remember the name R.I.W., made by Toch Bros.

* The buildings shown are only two of the many outstanding structures which comprise Toch City. Numerous such buildings have been protected through the years by R.I.W. products.

TOCH BROTHERS, INC.
NEW YORK CHICAGO

Forum:

We feel that this excellent story on "How to Sell Houses" would be of great interest to our members and would like to have 60 additional copies to send out to them.

C. B. LILJEDAHN
Executive Secretary
Hartford Home Builders Assn.

Forum:

We are very interested in the article in your July issue, *How to Sell Houses*.

The article is of such general interest to persons in all phases of the industry and is so timely that we feel our members will receive it as we did.

GEORGE S. ALEXANDER
Executive Vice President
Boston Home Builders Assn.

Forum:

We were all extremely interested. . . .

J. J. CERMAK, Secretary
Structural Clay Products Inst.
Washington, D. C.

CONGLOMERATION

Forum:

I honestly fail to see how people can be enticed to live in some of the housing estates illustrated in your April issue, except of course for the acute housing shortage. They appear to have neither open spaces, interest nor originality, being just a series of long, straight or curving streets.

Why can't we see estates laid out with an eye to beauty? A road or avenue must have a sense of proportion or else it just becomes an undefined space with a conglomeration of huts on either side, where even the architectural merit of the individual houses is lost.

It seems that land is bought and split up into as many housing lots as possible so that the quickest and largest return on rents, etc., can be made. Must this be allowed to take preference over good, well-thought-out planning. If my assumption is not correct, then what has happened?

This type of planning belongs to years gone by and . . . is considered bad and undesirable. Why is it being done now?

B. L. LEICESTER, A.R.I.B.A.
Georgetown, British Guiana

• Had Reader Leicester visited the same scene 20, or even 10, years ago, he would now note the improvement in today's merchant building. FORUM agrees, however, that there are still acres and miles of room for more improvement.—Ed.

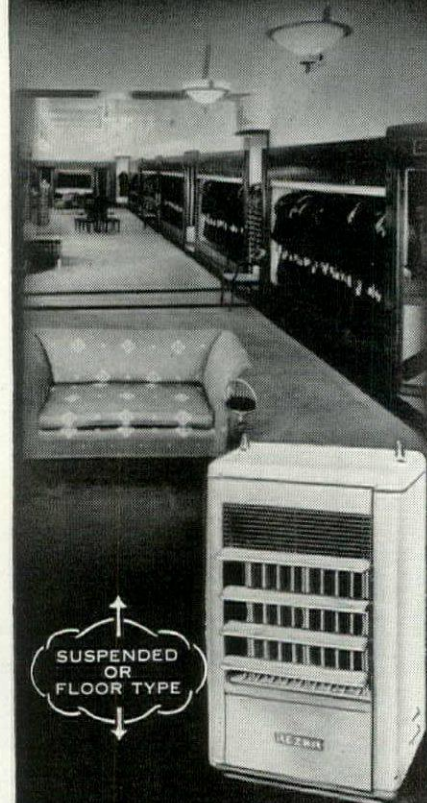
MODERN FOR SALE

Forum:

Since you people are realists about construction costs and sales, I shall state that, despite the FORUM article (Apr. '49, p.

(Continued on page 26)

Automatic
REZNOR
gas fired unit heaters



SUSPENDED
OR
FLOOR TYPE

WHY MORE STORES BUY REZNOR UNIT HEATERS

You'll find it easier to sell the leading unit heater, and Reznors are far out front in sales to stores or any other classification you can name. And why not? Reznors have the best heat exchanger in the business. Write today for catalog.

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

Gas Heaters Since 1888

REZNOR MANUFACTURING CO.

20 UNION ST. • MERCER, PENNA.

For Your Next Job Specify...

WELDWOOD FIRE DOORS

the *ONLY* wood-faced fire doors
that bear this label!

**ONLY WELDWOOD FIRE
DOORS GIVE YOU
THESE 8 UNIQUE ADVANTAGES**

1. Increased Safety

The *only* wood-faced fire door which bears the Underwriters' label. All Weldwood Fire Doors are approved for class B openings.

2. Beauty

Because of their beautiful wood faces, Weldwood Fire Doors harmonize perfectly with any decorative scheme.

3. Durability

The Underwriters' Laboratories tested a Weldwood Fire Door for durability by mechanically opening and closing it 200,000 times. At the end of the test, the door was unaffected and still opened and closed perfectly.

4. Dimensional Stability

Weldwood Fire Doors are so dimensionally stable that we guarantee them against sticking in summer or rattling in winter due to any dimensional changes in the door.

5. Light Weight

At last... a real fire door that is *not* heavy or unwieldy. A standard 3 x 7 door weighs approximately 80 lbs.

6. Vermin and Decay Proof

The mineral composition core used in Weldwood Fire Doors is permanently resistant to fungus, decay, and termites.

7. High Insulating Qualities

Another noteworthy characteristic of the core is its high insulating value over a wide range of temperatures. It is efficient against temperatures from freezing up to that of superheated steam.

8. Moderate Cost

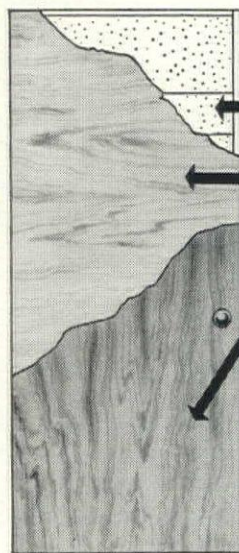
Investigate these doors for use on your next job. You will be pleasantly surprised at the low initial cost, and the minimum of maintenance required.



NOW... plan on permanent fire protection *plus* the rich beauty of real wood! Here at last is an absolutely fire-safe door that is also a decorator's delight.

Thanks to the handsome hardwood facing that distinguishes this unique Weldwood door, you can plan on bringing extra beauty to every room. Yes, these beautiful new Weldwood Doors help you to carry your decorative theme throughout the building... while giving you lasting fireproof construction!

Write today for complete information. You'll also want full details about the *Weldwood Standard Flush Veneer Door* with incombustible mineral core for use where a labeled door is not required.



EDGE BANDING
Of fireproofed Birch hardwood matches the faces.

MINERAL CORE
Strong, light, fireproof material. Great dimensional stability.

CROSS BANDING
Of 1-16" veneer is bonded to core with waterproof Tego-Film glue.

FACE VENEER
Is birch. Other decorative woods available on special order.

SIZES AND THICKNESSES:
Made in wider range of sizes; 1 3/4" thick.

**MAIL
COUPON
FOR
DETAILS**



United States Plywood Corporation (Dept. 482)
55 West 44th Street, New York 18, N. Y.

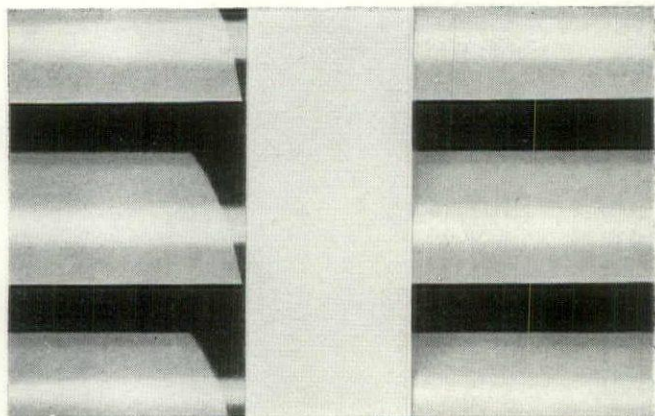
Please send literature giving complete details of new Weldwood Fire Doors and matching Weldwood Standard Flush Veneer Doors.

NAME _____
COMPANY _____
ADDRESS _____

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, East Hartford, High Point, Indianapolis, Los Angeles, Milwaukee, Newark, New Hyde Park, N. Y., New York, Oakland, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, San Francisco, Seattle, St. Paul, Toronto. Also

U.S.-Mengel Plywoods, Inc., distributing units in Atlanta, Birmingham, Dallas, Houston, Jacksonville, Kansas City, Louisville, New Orleans, San Antonio, St. Louis, Tampa.
In Canada: United States Plywood of Canada, Limited, Toronto. Send inquiries to nearest point.



NOW two great Venetian blind inventions cut maintenance costs and add new beauty

Both new **FLEXALUM** vinyl plastic tape and famous **FLEXALUM** spring-tempered slats can be washed...exposed to the elements...subjected to hardest wear...without fading or losing their shape! Replacements and refinishing costs are practically eliminated!

New **FLEXALUM** vinyl plastic tape* lasts as long as the blind itself! It won't sag or shrink...never fades or discolors! A damp cloth keeps it clean-as-new.

FLEXALUM slats are spring-tempered to lie straight across the widest windows...heat-treated to snap back to shape when bent...plastic-finished to stay bright and shed dust. They can't rust or chip!

Convince yourself! Send for free samples of both great **FLEXALUM** inventions for Venetian blinds—vinyl plastic tape and spring-tempered slats.

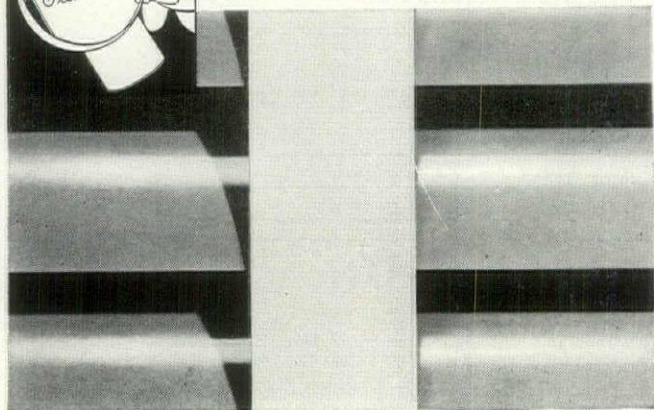


*U. S. Pat. No. 2,405,579;
other patents pending

Flexalum®

HUNTER DOUGLAS CORPORATION
150 Broadway, New York 7, N. Y.
Riverside, California

Flexalum's "Visible-Invisible"
trademark is your assurance of quality



130), these houses (of contemporary design—Ed.) have been difficult to sell. The two most obvious reasons are unsympathetic mortgage appraisers, and location.

However, I explain the sales resistance in another way, which may interest you: the relatively small portion of the potential home-buying public which is "well-read" in terms of contemporary architecture likes to play midwife to their homes, and does not want an entirely ready-made product. They like to participate in the design and progress of construction, and usually have their own pet ideas about conveniences and finish.

In support of this, I have been kept busy building solar houses for clients on a contract basis, on their own sites. They are glad to accept the overall design, and even most of the detailing. But even though they usually accept the architect's advice on minor points, they like to argue or discuss these things with him, and become convinced of the good sense behind his reasoning.

Another point which may amuse, but which should flatter you: before appearance of the April FORUM many of my sub-contractors considered me a "screwball" builder, because I inclined towards flat-tops; now they practically roll out the carpet. You have helped to educate them.

WILLIS FOSTER
General Contractor
El Cerrito, Calif.

FILLING THE GAP

Forum:

I have just seen a story in the newspapers where a local subscriber to your magazine canceled his subscription because of your stand on the question of public housing.

Although this gentleman and I belong to many similar organizations, we have never quite agreed on this question. In order to let you know that there is some support in your attitude among others on this question, I will be most happy to undertake to replace any cancellations you may receive from San Antonio. If you will advise me how many cancellations you receive, I think that we can find others who will fill the gap, although I know you will not lose sleep over the few cancellations from San Antonio.

It is just the principle of the thing.

WILLIAM SINKIN
San Antonio, Tex.

F.L.L.W. AT CARNEGIE TECH

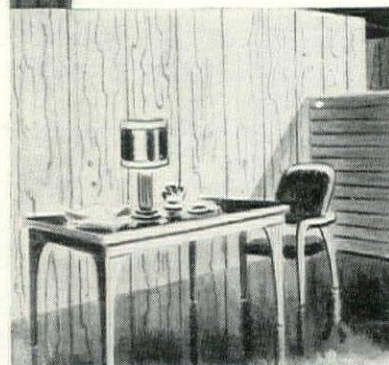
Forum:

Your note in the July issue of Frank Lloyd Wright's advice to students: "leave
(Continued on page 28)

WHEN CLIENTS WANT
COSTS LOW...

specify...

CABOT'S STAIN WAX!



Stains and waxes interior
woodwork in one operation

—a distinctive finish at minimum cost! Attractive colors... penetrates deeply... wax enhances the full beauty of grain and texture with a soft lustre! Excellent for plywood and wood paneling... sash... trim... doors!

A wide range of colors, including unusual light shades such as Ivory, Long Island Gray and Seashore Gray.

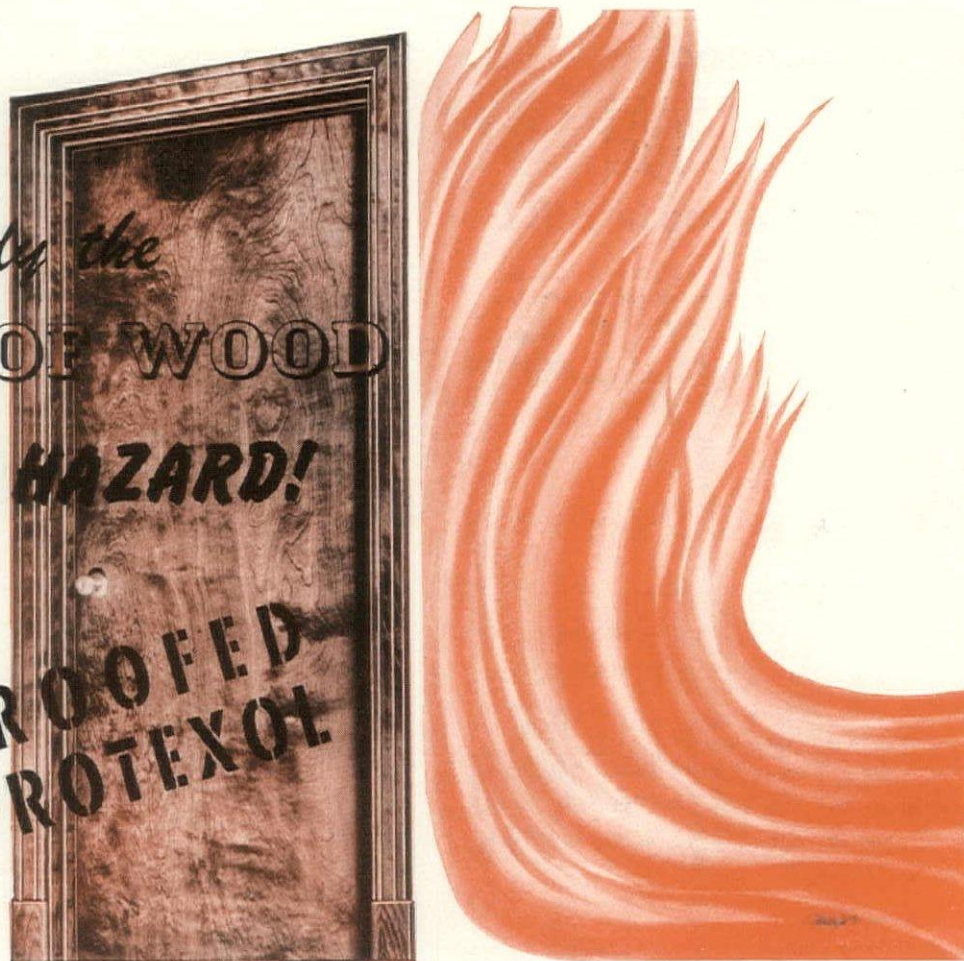
Write today for color
card and complete information!

Samuel Cabot, Inc.

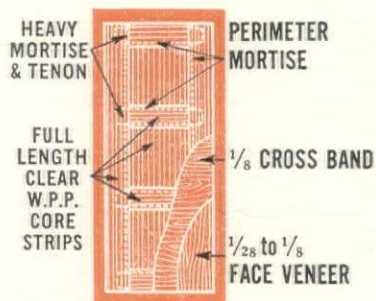
923 OLIVER BUILDING
BOSTON 9, MASS.

Embody the
BEAUTY OF WOOD
 without the **HAZARD!**

FIREPROOFED
 with **PROTEXOL**



Unmatched as an architectural medium for beauty — wood offers even greater advantages when impregnated by the approved *Protexol process. The natural charm and greater attractiveness of wood . . . combined with the safety and strength added by the Protexol treatment creates an entirely new concept of wood as a construction material.



Sectional view of the Protexol-impregnated Fox-Made Wood Fire Door, approved for 60 and 90-minute fire exposures by the New York Board of Standards and Appeals, and Factory Mutual Laboratories.

*Accepted by national fire authorities.

- **FIREPROOFED** . . . Wood can't burn when Protexol-impregnated . . . eliminating fire hazards . . . assuring safer, better construction.
- **ROTPROOFED** . . . Protexol-impregnated wood is protected against decay, mold, mildew and stain.
- **VERMINPROOFED** . . . Prevention of termites, powder post beetles, wood borers and other vermin helps wood retain structural strength and beauty.
- **DIMENSION-CONTROLLED** . . . Protexol-impregnation reduces shrinkage and warping to a minimum, stops grain raising and checking.

Write for colorful brochure A.I.A. No. 19
 19:A:33. Covers Fox-Made Wood Fire Door
 test and approval.



FOX BROS. MFG. CO. ☆ 75 Years
 Experience

MANUFACTURERS OF ARCHITECTURAL WOODWORK

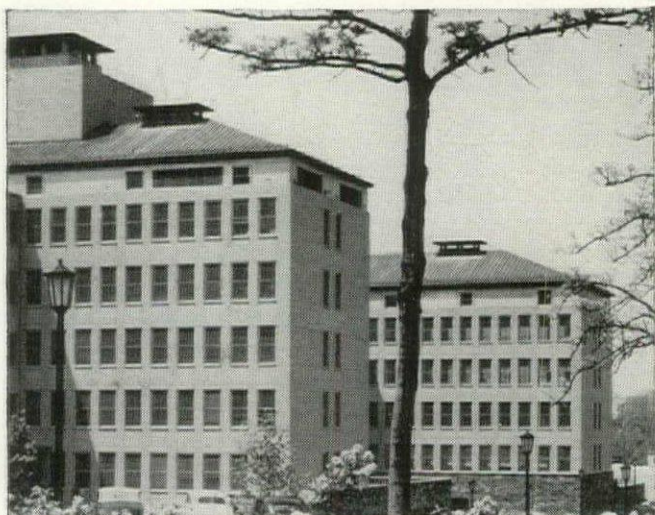
Custom-built Millwork

● 2713 SIDNEY STREET

ST. LOUIS 4, MISSOURI

**"We recommended
LUMITE
as ideal for the new BELL
plant."**

RAY C. ORAM, General Manager,
Watson Manufacturing Company, Inc.
"Screen Specialists since 1889"



New Bell Laboratories Building at Murray Hill, N. J.
—completely screened with LUMITE the year around

"Its non-rusting, non-staining attributes and its resistance to severe weathering," continues Mr. Oram, "make Lumite a highly desirable installation . . . where the screens are expected to remain on the buildings all year 'round."

LUMITE is "highly desirable" for all installations, large or small. Not only is it guaranteed rustproof and stainproof, but it is unaffected by humidity, salt air or acid smoke. It never needs painting to prevent rust. It will never sag or bulge. Yet, with all these advantages, LUMITE gives something more—maximum screening efficiency and satisfaction at a saving. Lumite costs only 11½ to 12¢ per square foot, retail. Check on LUMITE today!

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

FACTS FOR ARCHITECTS AND BUILDERS

Effects of acids, alkalis and solvents—essentially none.

Non-inflammable—LUMITE will not support combustion . . . is self-extinguishing. Softening point 240°F.

Tensile strength, ultimate (of filament)—up to 40,000 lbs. per square inch.

Impact strength—Greater than conventional screening.

Installation—Cut with ordinary scissors. Fold cut edges under ½". Tack or staple the screening smoothly and evenly every 1½". Because of inherent characteristics, LUMITE will gradually draw itself into a snug, firm fit.

For further information consult
Sweet's File or write Dept. AF-5.

LUMITE DIVISION, CHICOPEE MFG. CORP. OF GEORGIA
47 Worth Street, New York 13, N. Y.

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LUMITE

woven saran screening

the University; go home and make something of yourselves" is a little stale. FORUM could do a more profitable service by reporting a realistic, positive, helpful bit of advice from Mr. Wright on the subject. Endless negative criticism from him is deadly to the progressive young men who are trying to do something about architectural education today.

Incidentally, it was unfair of FORUM to point out the particular school of architecture where this statement was made. It has been made many times before and could have occurred at any school in the nation, but your approach will have placed Carnegie Tech in an unfortunate light to many who are uninformed.

G. A. DOWNS

School of Architecture
University of California
Berkeley, Calif.

• Wright's comments were not directed specifically at Carnegie Tech, but at all universities and education in general. ("A university is not buildings or teachers or a curriculum—it is only you . . . let us educate ourselves." . . . and—from Louis Sullivan, Wright's hero—"Throw away the books! Never consult an authority on anything.") His impromptu talk contained no bits of advice of a more "realistic, positive, helpful" nature. Significantly, Wright had been invited to Carnegie Tech by its architectural students, not by its faculty. The university was not even consulted in the planning of the surprise party.—Ed.

OPEN-END MORTGAGE

Forum:

Congratulations! I have read with interest your very interesting and factual article entitled "The Open-End Mortgage" (FORUM, June '49).

With your permission, I would like to reproduce this article and send it to our entire membership.

CARTER K. RUGGLES

Executive Vice President

Northeastern Federal Savings League
Boston, Mass.

Forum:

We would like to send reprints of the article "The Open-End Mortgage" to some of our dealers and will require about 500 copies for that purpose.

J. G. KEHOE

Airtemp Div., Chrysler Corp.
Dayton, Ohio.

BANKER'S REBUTTAL

Forum:

Your writer did not point out the fact that the reason building, savings and loan associations can pay a higher rate of dividend to their shareholders than banks can

(Continued on page 32)

8 Basic Models

36

Different Ranges

in

Universal's

BALANCED LINE

OF

GAS RANGES



The separate high broiler
BERKSHIRE

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

With widths of
19"—36"—40"—43"

There is

A Range to fit the specifications

A Range to fit the appropriation

Specify—

Universal
GAS RANGE

write for full details

CRIBBEN & SEXTON CO.

700 North Sacramento Blvd., Chicago 12, Ill.



Corrugated white translucent PLEXIGLAS covers the entire ceiling of the main lobby and elevator foyer in the Central National Bank, Cleveland, Ohio. Specifications, developed by the Buckeye Lighting Division of General Electric, called for 1100 sq. ft. of PLEXIGLAS #122-125, .125" thick.

Man Without a Shadow

A man *can* lose his shadow—under a PLEXIGLAS luminous ceiling. Translucent sheets of this acrylic plastic, installed from wall to wall under fluorescent lights, diffuse illumination so completely that shadows are eliminated.

PLEXIGLAS luminous ceilings do more than eliminate shadows. They eliminate glare—both direct and *reflected*. They provide even illumination throughout a room, and insure a low brightness factor. In both performance and appearance, they are pleasing to the eye.

The economy of PLEXIGLAS luminous ceilings matches their efficiency. Better lighting with lower electrical input results from the maximum transmission and minimum absorption of light by white translucent PLEXIGLAS. Installation of the thin, light-weight, remarkably strong sheets is easy and inexpensive. Maintenance costs are negligible, and replacement of the non-discoloring material is unnecessary.

In banks, drafting rooms, stores, classrooms and control rooms, PLEXIGLAS luminous ceilings have already been installed and are meeting every requirement for truly efficient lighting. Write us about *your* lighting problem. We will be glad to tell you more about this new, highly successful means of large-area illumination.

Canadian Distributor:
Crystal Glass & Plastics, Ltd.
282 St. Helens Ave., Toronto, Ont.

PLEXIGLAS is a trade-mark, Reg. U. S. Pat. Off. and in principal foreign countries.

CHEMICALS



FOR INDUSTRY

**ROHM & HAAS
COMPANY**

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries



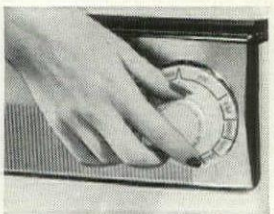
Why it's easier to sell homes equipped with the Frigidaire Automatic Washer



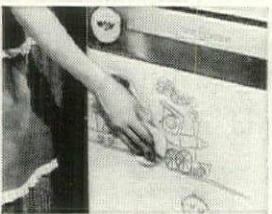
With Live-Water Action, all washing motion is achieved by rolling, penetrating currents of hot, sudsy water—no pulling or yanking.



Only Suds come out of Frigidaire's new-type Under-water Suds Distributor. Clothes never touch undissolved soap or detergent.



Touch the Select-O-Dial—and this washer launders automatically. Yet any operation can be lengthened, shortened, repeated or skipped.



All-Porcelain inside and out! Self-cleaning interior *never* needs attention! A whisk of a damp cloth keeps the exterior finish gleaming.

Because of the widespread acceptance of Frigidaire products as the *best* in home appliances, the beautiful Raymond Loewy-styled Frigidaire Washer is definitely a sales-clincher. You can get the jump on competition by including a Frigidaire Automatic Washer—or a complete automatic laundry—in your new homes. And when prospective buyers find that the cost can be included in their long-term mortgage—you've added another sales feature to your appliance-equipped new home package.

SPECIFICATIONS

Height.....	36¾"
With top open.....	58¾"
Width.....	25"
Installed depth.....	28½"
Weight (approx.).....	250 lbs. net
Load.....	8 lbs. clothes (dry) or less
Current Requirements.....	110-120 Volts, 60 cycle, AC



Facts about these Frigidaire Products— yours for the asking

Check this list of Frigidaire products you want to know about—sign your name and address and mail to Frigidaire Division of General Motors, Dayton (1), Ohio. (In Canada, Leaside 12, Ontario), or see your Frigidaire Dealer—find his name in Classified Telephone Directory.

Household Refrigerators

☐ 3 types—14 models from apartment house size to 17 cu. ft.



Electric Ranges

☐ 8 models from apartment house size to deluxe twin oven model.



Electric Water Heaters

☐ 30 to 80 gals. Round or cabinet models with Lifetime Porcelain top.



Automatic Washer

☐ Live-Water action; all porcelain; one-piece, sealed, Unimatic mechanism; warranted.



Electric Ironer

☐ Full, 30-inch, open-end roll, Prestoe-Matic foot operation.



Automatic Electric Dryer

☐ Dries washer-load of clothes in 15 to 25 minutes automatically.



Home Freezer

☐ 8 cu. ft. size has Meter-Miser mechanism. Others up to 26.5 cu. ft.



☐ Electric Dehumidifier

☐ Air Conditioners

☐ Water Coolers

☐ Commercial Refrigeration



FRIGIDAIRE

Makes a Good
Building Better

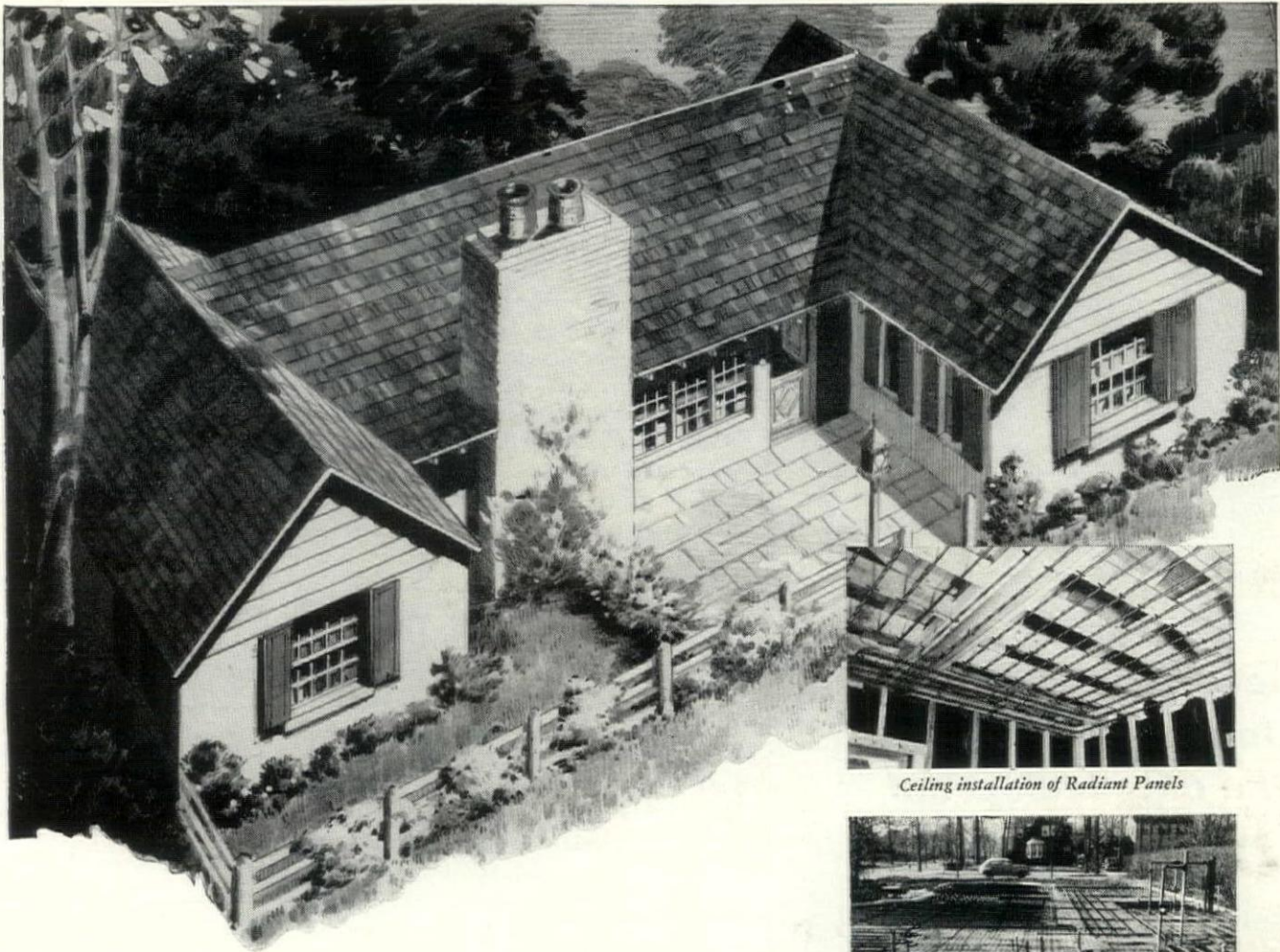
VISIT THESE FRIGIDAIRE EXHIBITS: National Apartment Owners Association Convention, Boston, Oct. 10-12.
National Association of Housing Officials Meeting, Boston, Nov. 13-16.

Name.....

Firm Name.....

Street & No.....

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



Ceiling installation of Radiant Panels



Radiant Panels installed in floor

HOW TO HEAT A MODERN HOME . . .

the Modern Way



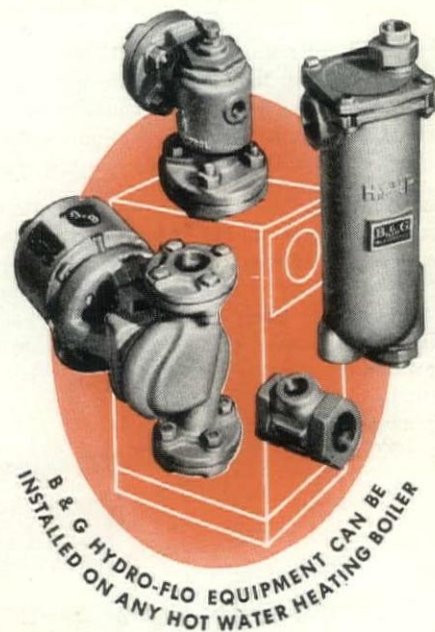
It's easy to understand the swing to B & G Hydro-Flo Radiant Panel Heating . . . it offers exclusive advantages with instant appeal to both the man and woman of the house.

This heating system is hidden away in the floor or ceiling—nothing visible—nothing to prevent complete freedom of furniture and drapery arrangement. It spreads an overall blanket of radiant warmth—draftless—soft and soothing as Spring sunshine.

All this luxurious comfort and convenience is provided at low operating cost. B & G Hydro-Flo Heating automatically adjusts itself to every change in the weather—never overheats—never burns fuel needlessly.

And not least, B & G Hydro-Flo Heating furnishes an all year 'round supply of hot water—24 hours a day—plenty for automatic washers, showers, every household use.

For the complete story, send for free booklet, "Capture the Sun with B & G Hydro-Flo Heating."



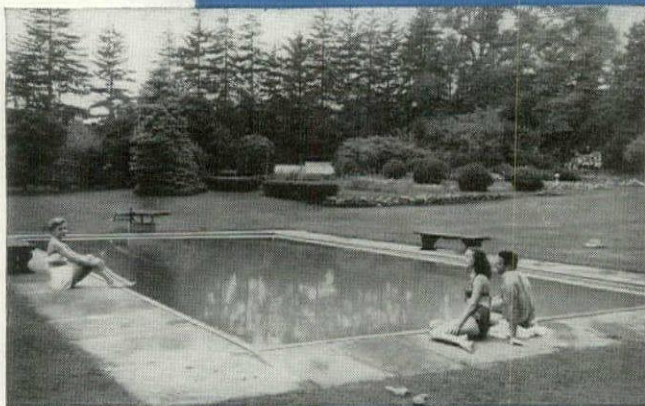
Hydro-Flo Radiant Panel Heating

BELL & GOSSETT CO., Dept. BD-10 Morton Grove, Illinois

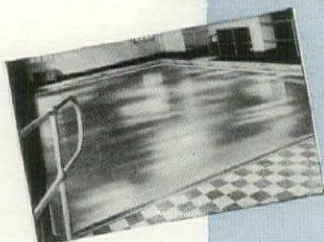
*Reg. U. S. Pat. Off.

ALL STEEL SWIMMING POOLS

BY **Koven**



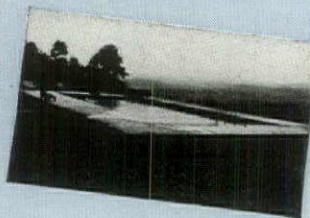
- low initial cost
- lower upkeep
- the only leak-proof type of pool built



Modern, trouble-free welded steel pools by KOVEN have demonstrated their superiority over all other type pools through

the years — on hotel and club grounds, at private estates, in hospitals, at municipal projects. Architects and builders, recognizing the dependable quality of KOVEN all steel swimming pools, recommend them for indoor as well as outdoor installations. Not only is their initial price low, but maintenance costs are low, too.

KOVEN steel pools are built of heavy steel plate, shipped knocked down, then field welded and erected with suitable structural reinforcing and bracing. Scuppers, which are designed to maintain water level at 2½" below top edge of pool, can be plugged if top water level is desired. Ladder at diving area and stairway at shallow end are supplied. Filtration, chlorination and lighting can be furnished by KOVEN at added cost.



ANY SIZE, STYLE OR SHAPE POOL CAN BE ORDERED
Free informative booklet sent on request. Write or call KOVEN now—no obligation.

KOVEN STEEL SWIMMING POOLS, INC.
A DIVISION OF L. O. KOVEN & BRO., INC.
154 OGDEN AVENUE, JERSEY CITY 7, N. J.
Plants: Jersey City, N. J. Dover, N. J.

pay to their depositors (FORUM, June '49, p. 15) is because . . . associations invest the public's money in long-term real estate mortgages while banks must invest . . . in a more liquid type of asset. . .

However, what the bankers complain about is the fact that the associations are misleading the public . . . to believe that these institutions are practically the same as banks, which is not true. . .

Your writer leaves the impression that only building, savings and loan associations which are federally-chartered are insured, and such is not the case. State-chartered building, savings and loan associations which are members of the Home Loan Bank can also be insured.

Your writer then goes into a song and dance about what a great job the associations have done on housing projects. The banks in America have loaned more money on housing projects and more money on real estate mortgages for home building purposes than have the associations.

Yes, it is true that bankers do not like the way the associations are operating, and we do not like the arbitrary rulings which have been made by the Federal Home Loan Bank Board in Washington. . . The Home Loan Bank recently granted permission to the Union Federal Savings & Loan Association of Evansville, Ind., to establish a branch in the state of Kentucky—across the river in Henderson. Now, our Indiana banks can have branches within the confines of the county where the parent bank is located, but they are restricted from going beyond that boundary.

Therefore, we are maintaining that the Federal Home Loan Bank Board in Washington does not respect the state laws, and we are going to seek a remedy for this in Congress.

Another difference . . . is the fact that while banks pay federal income taxes, both federally and state-chartered associations pay no federal income taxes as they are exempt under Section 101 of the Internal Revenue Code.

DON E. WARRICK
Executive Manager
Indiana Bankers Assn.
Indianapolis, Ind.

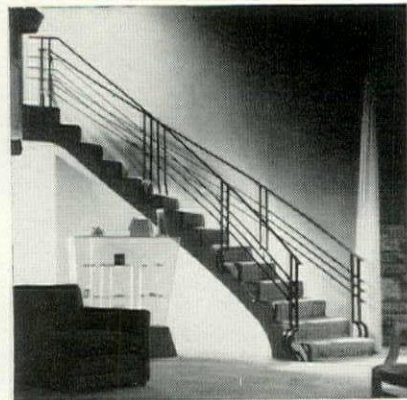
COVER CRITICS

Forum:

We could not resist the temptation to compliment you on the very fine cover which FORUM presented on the July issue. It is a masterpiece of cover-work. We enjoy reading your magazine very much.

W. S. HOPWOOD
Gate City Sash & Door Co.
Fort Lauderdale, Fla.

(Continued on page 36)



The ornamental iron railing above is a sample of the fine craftsmanship of Artcraft. You'd be surprised at the low cost. Send in your specifications for custom-made work, or order stock items direct from our catalog.

**FREE-WRITE FOR OUR
NEW 40 - PAGE CATALOG
"ART in IRON"**

Artcraft Ornamental Iron Co.
714 E. Hudson St., Columbus 11, Ohio

Be sure to attend...

**34th NATIONAL HOTEL
EXPOSITION**
CHAIRMAN:
FRANK A. PAGET

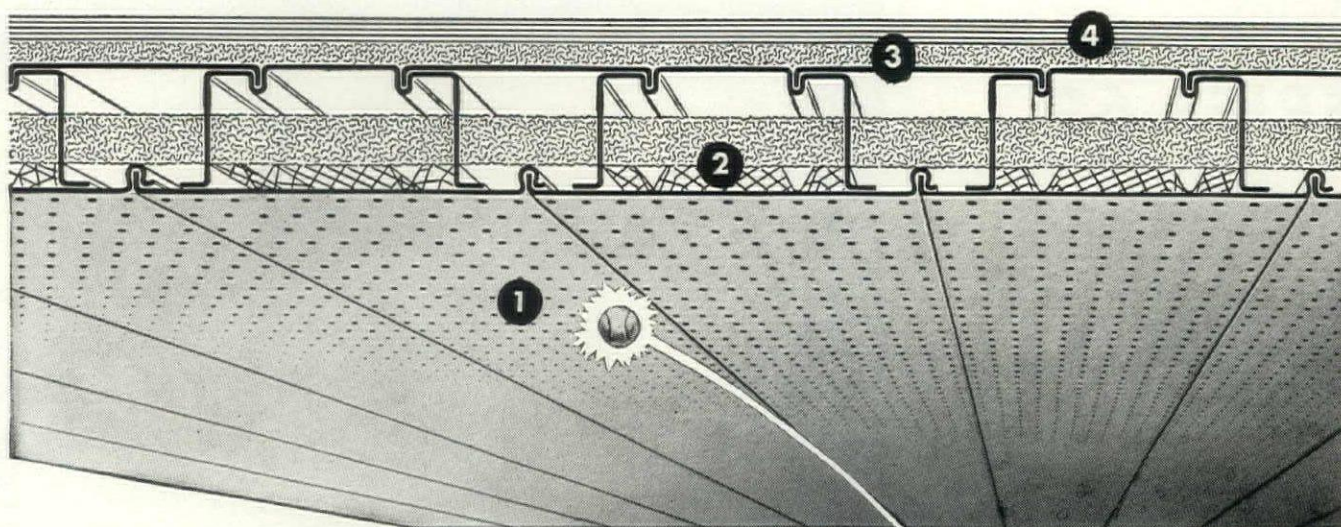
what's
new?

Join the crowd—see what's new in services, goods and equipment for hotels, hospitals, restaurants, clubs, transportation lines and allied fields. Four floors of interesting exhibits—the world's largest showing of its kind!

**Grand Central Palace, N. Y.
Nov. 7-11, 1949**

REGISTER NOW! Send the names and titles of those in your firm who wish to receive invitations. No registration fee. Address Arthur L. Lee, General Manager, 221 West 57th Street, New York 19, N. Y.





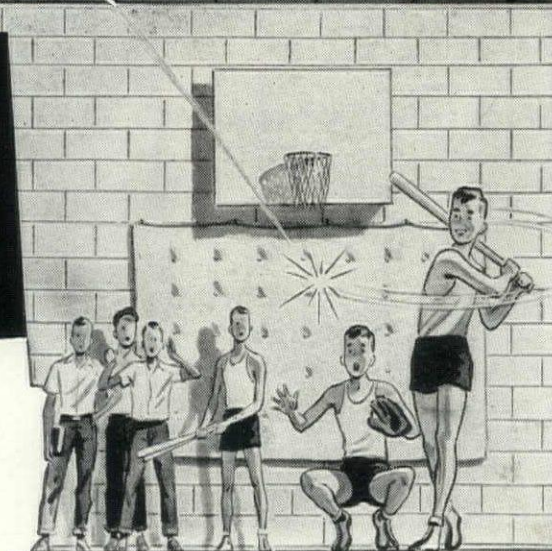
How to combine a silent ceiling with a strong roof ...and save money

Now you may have a two-in-one, moneysaving combination of a beautiful, sound-absorbing ceiling, and a strong roof (or floor).

As illustrated above, supporting beams are minimized by the use of sturdy, long-span, Fenestra* AD Panels, enhancing the ceiling's appearance and durability (flying baseballs won't dent it). Note that the Panels are steel box beams with perforated under-surface, backed by a sound-absorbing element, to provide both a strong roof (or floor) and a noise-blotting ceiling, all furnished by Fenestra.

Important savings obviously result from this unique structural combination, in time, in materials and in labor. For example, the ceiling is fully completed merely by the application of a finish coat of paint.

How the moneysaving Fenestra Ceiling and Roof (or Floor) Combination is installed:



- 1 Acoustically-treated AD Panels supplied by Fenestra are laid directly on supporting beams, and are interlocked into a flat ceiling. Ends of Panels are welded to the supporting steel structure.
- 2 Wire supports lift a two-inch sound-absorbing element above the perforated ceiling surface. Both are furnished by Fenestra.
- 3 The installer covers the Panels with roof insulation (or, if a floor, with concrete).
- 4 Roof waterproofing (or finished flooring) is applied by the installer, completing the installation.

* * * * *

Result: A modern, sound-absorbing ceiling and a strong, durable roof for gymnasiums, auditoriums and other schoolrooms, at surprisingly low cost... Ask a local Fenestra engineering representative about this new method and for other information on Fenestra Panels and Holorib Steel Roof Deck, or see Sweet's—Section 3c/3. Or mail coupon.

Use our 25 years' experience in Metal Panel Engineering

*Trademark

Fenestra
METAL BUILDING PANELS
ROOFS • WALLS • FLOORS

DETROIT STEEL PRODUCTS COMPANY
Building Panels Division
Dept. AF-9, 2251 E. Grand Boulevard
Detroit 11, Michigan

☐ Please have an engineering representative call.

☐ Please send me, without obligation, information on Fenestra Building Panels.

Name _____

Company _____

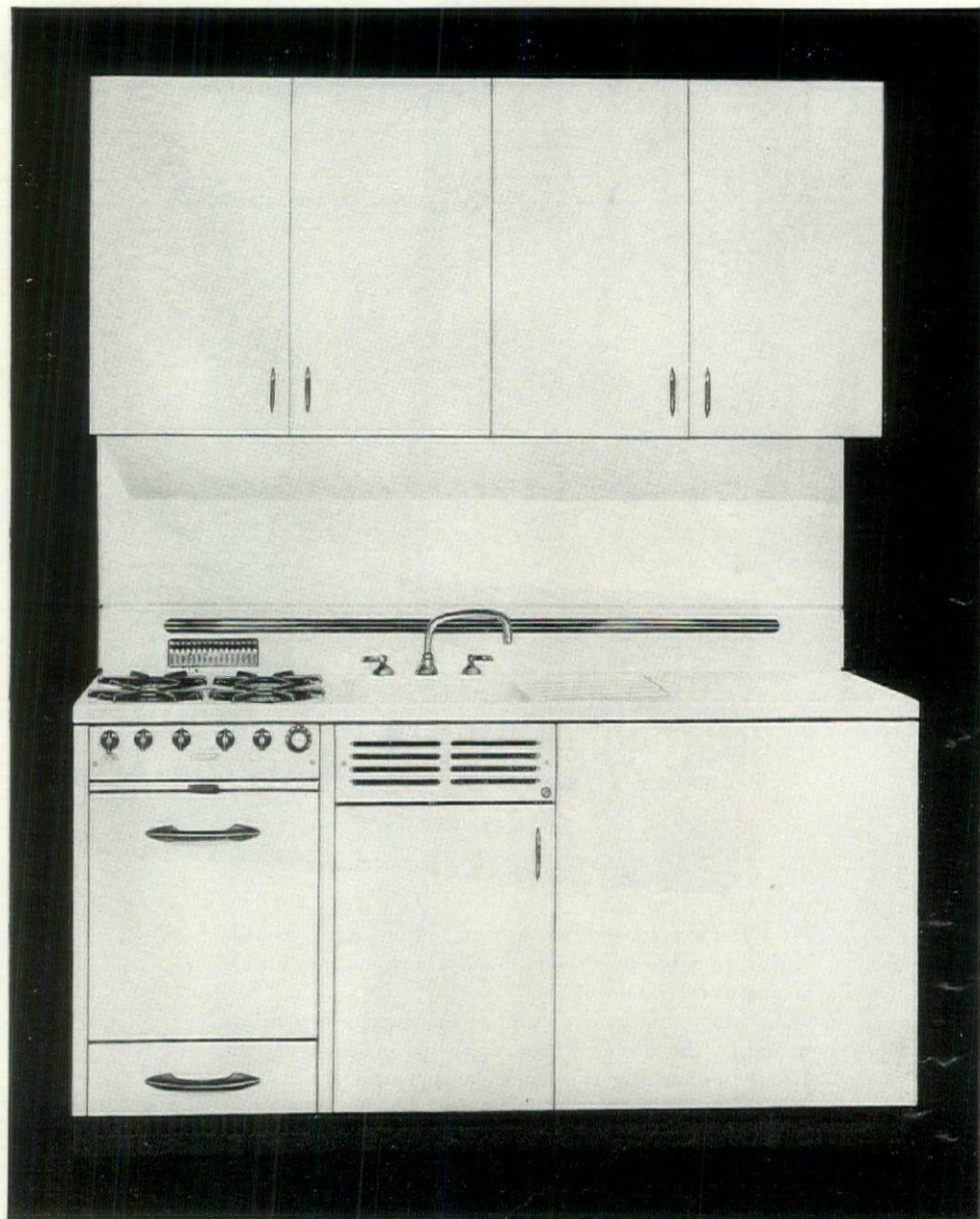
Address _____

A new and larger Murphy - Cabranette Kitchen

the **SERIES 69** for larger apartments and small homes

- 1 - Entire front in genuine vitreous porcelain.
- 2 - 6 cubic foot (net) Refrigerator.
- 3 - Range — gas or electric — with full-size oven and broiler.
- 4 - One-piece sink and range top.

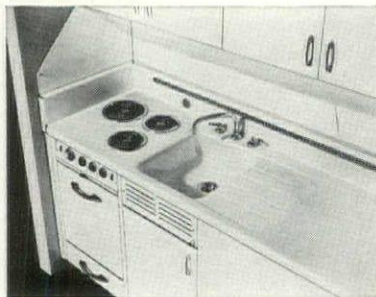
Here are all the requirements of a modern kitchen . . . streamlined into compact assembly only 69 inches wide. No single facility is featured . . . no requirement has been skimped. Cooking . . . refrigeration . . . storage . . . work space . . . all are ample and in balance. Minimum maintenance costs have been *proven* in more than 25 years of trouble-free service in rental properties. Other models available . . . 39 to 69 inches wide.



Full-size gas or electric range. Convenient waist-high broiler. Fiber-glas insulation.



6 cu.ft. (net) of efficient refrigeration. Stainless steel frozen food locker. Push-button door. Fiber-glas insulation.



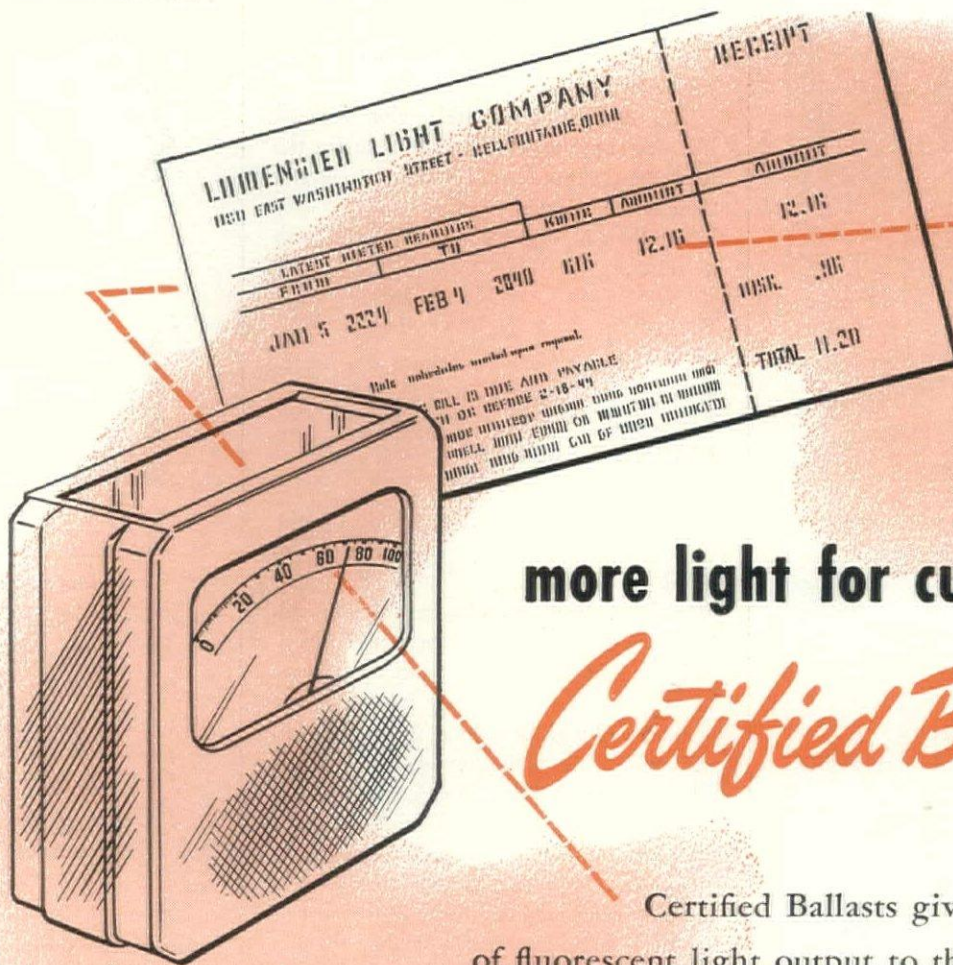
Genuine acid-resistant vitreous porcelain sink-and-range top in one piece. No cracks or crevices to collect dirt. Integral ends optional for recess installation.

Enamel? No!
Porcelain? Yes!

Entire front is genuine *vitreous porcelain*. Vitreous porcelain is not an "enamel" or "baked enamel" or any other paint-like finish. It is mineral, fused to the steel in the intense heat of 1600-degree kilns . . . just like the porcelain of your bathtub and other bath fixtures. It never requires repainting, cleanses with soap and water, keeps its gleaming whiteness forever.

WRITE FOR COMPLETE BULLETINS

DWYER PRODUCTS CORPORATION - Dept. F9 - Michigan City, Indiana



more light for current used!

Certified Ballasts

Certified Ballasts give a high ratio
of fluorescent light output to the input of power
—deliver more light for the electricity used.

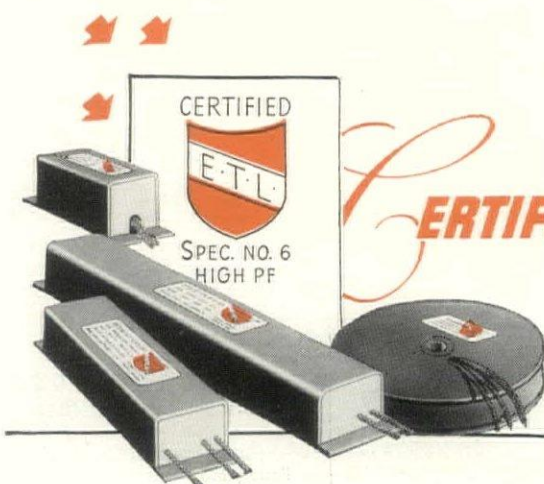
When you specify Certified Ballasts, your customers
are assured of:

Rated light output

Full lamp life

Dependable performance

Because Certified Ballasts are made to exacting specifications,
then tested and checked by Electrical Testing Laboratories, Inc.,
an impartial authority, they assure customer
satisfaction—and proved economy.

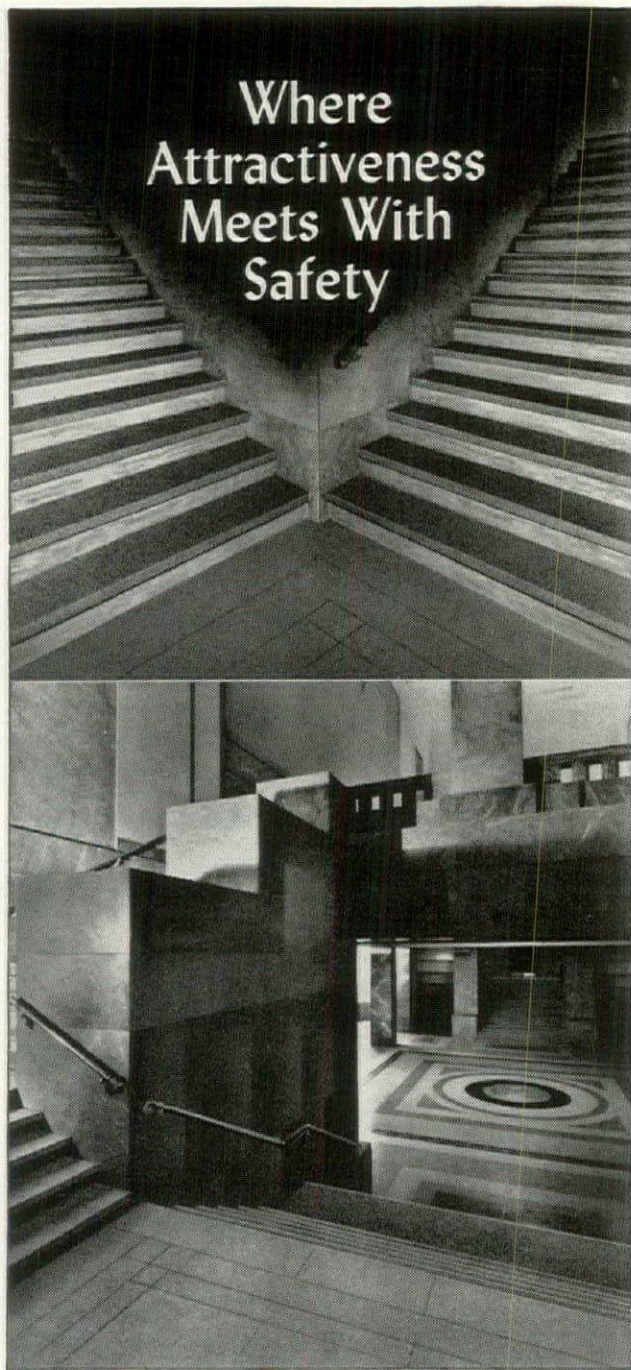


CERTIFIED BALLAST MANUFACTURERS

Makers of Certified Ballasts for Fluorescent Lighting

2116 KEITH BLDG., CLEVELAND 15, OHIO

Where Attractiveness Meets With Safety



ON these auditorium stairs, and in the lobby, an important safety factor has been added to the attractiveness and utility of terrazzo by the use of Alundum aggregate. For Alundum abrasive guarantees permanent non-slip protection, extreme wear resistance and a quiet, comfortable walking surface on terrazzo and cement floors and on stair, floor and mosaic tiles.

See our catalog in Sweet's

NORTON COMPANY
WORCESTER 6, MASS.

Forum:

With the cover for the June issue, you've succeeded!

The return to a solid color front I like. To superimpose Neutra's plan (or the like) is the necessary refinement—better than the once suggested abstract school; better than a solid color background with no relief.

Q. R. JAMES

Corte Madera, Calif.

• Better than a four-color picture of a Neutra house? See cover.—Ed.

FORUM AT COLLEGE

Forum:

I want to express our gratitude for the Cape Cod House articles you so kindly provided us this spring (FORUM, Feb. and Mar. '49). Students who have been reading them this month acclaim them enthusiastically and wonder why textbooks cannot be written on similar material with such warmth and understanding. Here at Northwestern . . . the main "textbook" we use is a three dimensional one made up of actual buildings—good, bad, and indifferent—in the Chicago area. . . . This, of course, is excellent training for them but should be fortified by good reading. Some of the best of it now is in your magazine rather than in books.

THOMAS M. FOLDS, *Chairman*
Department of Art

Northwestern University, Evanston, Ill.

FOR THE FIRST TIME

Forum:

Your article on the General Motors Center (FORUM, July '49) was extremely interesting, but I must take exception to your statement, "for the first time on record, the outer sheet is to be of heat-absorbing, blue-green glass."

I designed and built the Radio Broadcasting Booth at Seals Baseball Stadium in San Francisco where I used seven panes of double plate glass, the outer layer of which was heat-absorbing, blue-green glass.

HENRY L. CAPOT

Barrett & Hilp, Contractors
San Francisco, Calif.

ERRATA

• Contrary to the statement made in Aug. '49 FORUM, consulting architects for the Air Reduction Co. Research Laboratory at Murray Hill, N. J., were Bolton, Martin & White of Philadelphia. FORUM regrets the unintentional dis-service done these architects by its failure to credit to them their part in the project's design.—Ed.

• Contrary to statements in the July FORUM, the Del Marcos Hotel is located in Palm Springs, Calif.—not Palm Springs, Colo., which does not exist—and the interior designer was Emily Laser—not Emily Lawser.—Ed.



Plywood fortified with

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

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

• • •

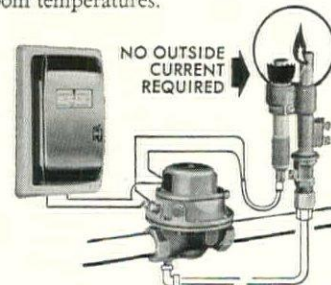
Write for free booklet and names of
plywood manufacturers who can supply
Kimpreg surfaced plywood.

Kimberly-Clark Corporation
Plastics Division • Neenah, Wis.

Control INDOOR CLIMATE AUTOMATICALLY

without Outside Current

The tiny pilot flame generates the electrical current to operate the control system. All three units scientifically designed to provide safe, remote control of room temperatures.



Automatic,
Safe, Silent and Self-Operated

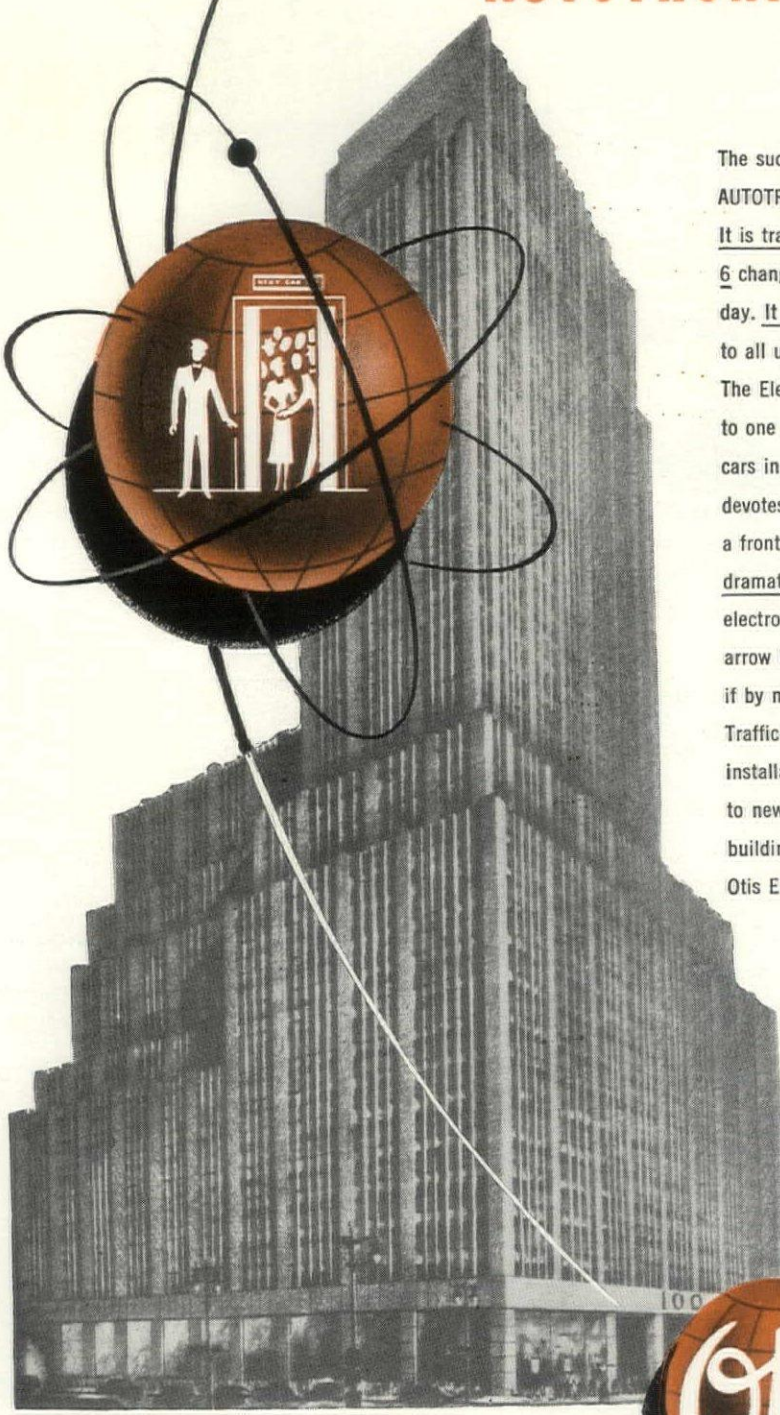


Put GENERAL CONTROLS heating comfort in the plans. It's the easy, modern way and effects construction economies, too.

Request Free Descriptive Literature
on the B-60 "All-Gas" Control System

GENERAL CONTROLS
801 ALLEN AVENUE, GLENDALE 1, CALIF.
Manufacturers of Automatic
Pressure, Temperature, Level & Flow Controls
Factory Branches and Distributors in Principal Cities

100 PARK AVENUE NEW YORK CITY buys **OTIS** **AUTOTRONIC ELEVATORING**



The successful introduction of Otis
AUTOTRONIC ELEVATORING is easy to explain.
It is traffic-timed! It matches service to the
6 changing traffic patterns of the entire business
day. It is flexible! It adjusts itself automatically
to all unusual traffic situations. It is easy to operate!
The Elevator Starter simply sets a traffic flow dial
to one of 6 traffic patterns...places the proper number of
cars in service...sets the dispatching interval—then,
devotes practically all of his time to doing a better job as
a front line public relations man for the building. It is
dramatic! A passenger merely "touches", not pushes, an
electronic directional arrow in the landing fixture. The
arrow lights up, the call is registered, and a car arrives—as
if by magic! Otis Booklet B-721-A explains how AUTOTRONIC
Traffic-Timed ELEVATORING will keep an elevator
installation modern for decades to come. It can be applied
to new or existing groups of elevators in office
buildings, hotels, hospitals and department stores.
Otis Elevator Company, 260 11th Avenue, New York 1, N. Y.



AUTOTRONIC
traffic-timed
ELEVATORING

an entirely new concept of elevating

Mesker Steel Windows



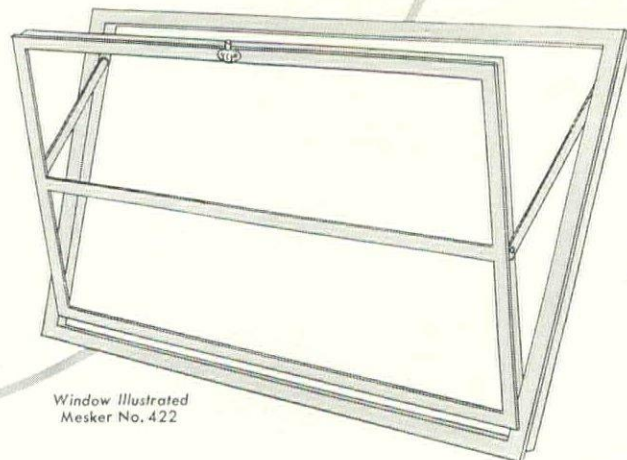
Here's a school project typical of those into which are now going thousands of Mesker Steel Windows. Today more than ever Mesker is the specification of quality minded, cost conscious architects all over the nation. You'll find Mesker Windows are not only competitively priced but are also available in a multitude of standard sizes for every design problem. Get in touch with your Mesker Sales Engineer—he's listed in Sweets—and work with him on your next project. You'll be ahead time and money!

ST. FRANCIS OF ASSISI YOUTH CENTER
CHICAGO, ILLINOIS

Architect
Edo J. Belli, Chicago, Ill.

Contractor
L. A. Marconi Co., Chicago, Ill.

Mesker Sales Engineers
Branch-Nicoloff Co., Chicago, Ill.



Window Illustrated
Mesker No. 422

MESKER INTERMEDIATE PROJECTED WINDOWS

These well-known Mesker Windows are an outgrowth of years of experience equipping many of the nation's leading schools, hospitals, public buildings, factory offices and stores. You'll find them truly *permanent* steel windows. Their strong steel members are 1¾ inches deep, making for a really **SOLID** window that assures permanent

weathertightness and ease of operation. Thin trim lines follow contemporary architecture and admit maximum daylight. Available in a wide range of heights and sizes, with or without hopper ventilators. For complete details, write for Mesker Brothers latest "Book of School Windows." No obligation.

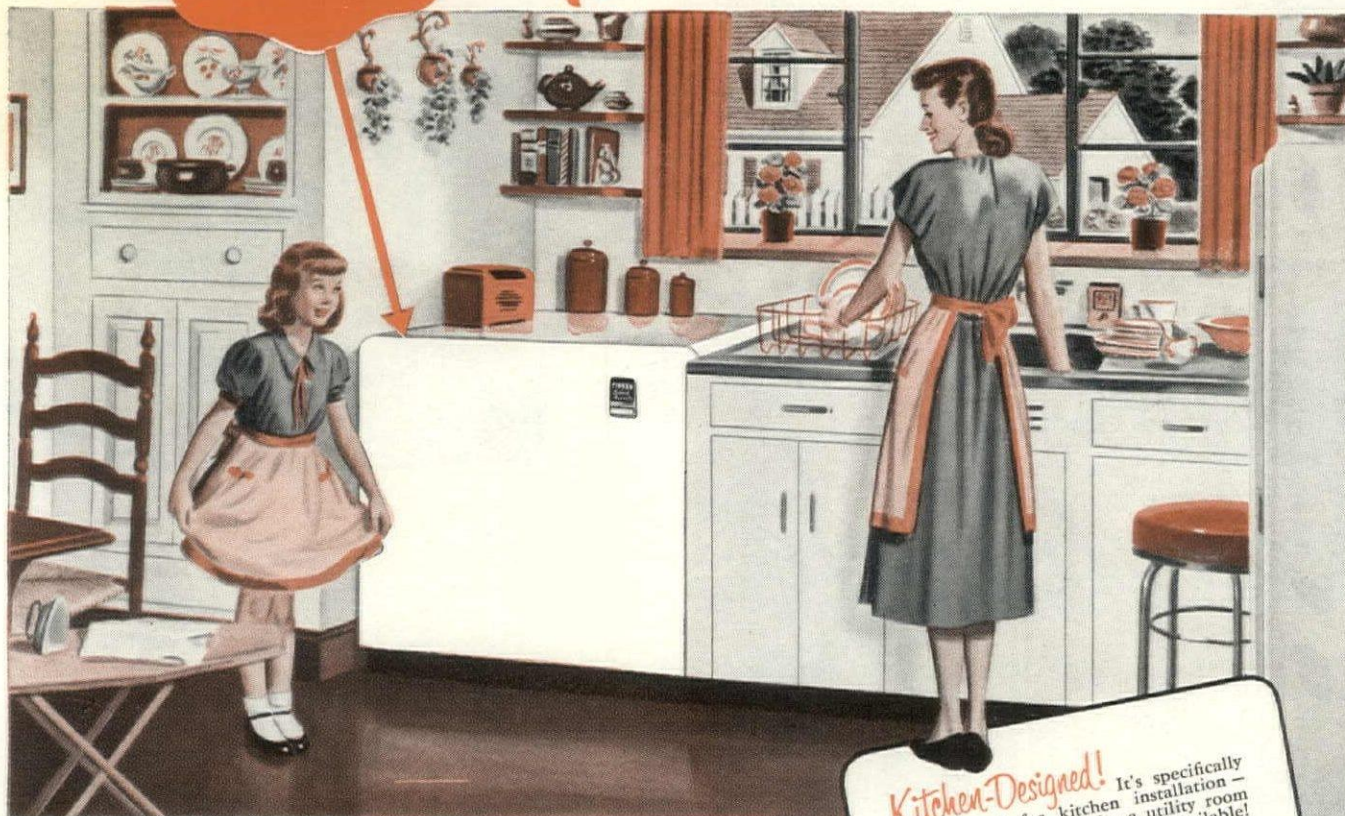
MESKER BROTHERS • 4336 GERALDINE AVENUE • SAINT LOUIS 15, MISSOURI

Duty-Designed

FOR SMALL HOMES
BY
TIMKEN
Silent Automatic

**Now! A Timken Silent Automatic
"Duty-Designed" Oil Boiler**

for Kitchen Installation!



**Here Is The Most Revolutionary Development
In Modern Small-Home Heating!**

The best in modern home heating equipment—priced to keep construction costs at a minimum—that's what you get when you specify Timken Silent Automatic "Duty-Designed" oil heating equipment for small homes! ☆ Now we proudly present the revolutionary new Timken Silent Automatic **KITCHEN-TYPE OIL BOILER**—designed to add to new home profits by completely eliminating the utility room! ☆ Finished in gleaming white—for kitchen installation—this extraordinary unit combines a house-heating boiler (fired by the famous Wall-Flame Oil Burner), instantaneous water heater, expansion tank, motorized circulating pump and complete automatic controls. Everything's enclosed in a counter-high cabinet topped by a space saving work surface. ☆ Here's the kind of *exclusive* product development that makes—and keeps—Timken Silent Automatic the leader in its field. A new descriptive folder is yours for the asking. Write for it—*now!*

Other "Duty-Designed" units include Hi-Furnaces, Hi-Boilers, Lo-Boilers, coil and tank-type Water Heaters, and standard-design Oil Furnaces.



HERE'S THE HEART OF EVERY "DUTY-DESIGNED" UNIT

The Timken Silent Automatic Wall-Flame Oil Burner—famous for savings up to 25% or more on ordinary fuel oil costs—has for more than 20 years been "The Accepted Standard" for quality and performance in automatic home heating.

Kitchen-Designed! It's specifically engineered for kitchen installation—eliminates the need for a utility room—makes extra kitchen space available!

Kitchen-Clean! Not only just as clean as other kitchen appliances, this beautifully simple, streamlined cabinet is easier to keep clean!

Kitchen-Quiet! It's so whisper-quiet you hardly know it's operating! The famous Wall-Flame is a natural burning flame without blowtorch roar!

Kitchen-Compact! It's so ultra-compact it occupies no more floor area than other kitchen units. All equipment and controls are completely self-contained!

TIMKEN
Silent Automatic
HEAT

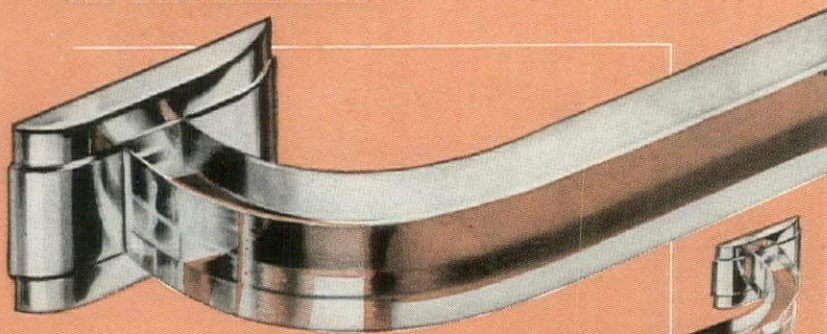
OIL • GAS • COAL

TIMKEN SILENT AUTOMATIC DIVISION
The Timken-Detroit Axle Company • Jackson, Michigan



PLANTS AT: DETROIT, MICH. • OSHKOSH, WIS. • JACKSON, MICH. • UTICA, N. Y. • ASHTABULA, OHIO • KENTON, OHIO • NEW CASTLE, PA.

**IT'S EASY TO PUT
SPARKLING NEW BEAUTY
IN BATHROOMS**



TOWEL BAR
NO. 192



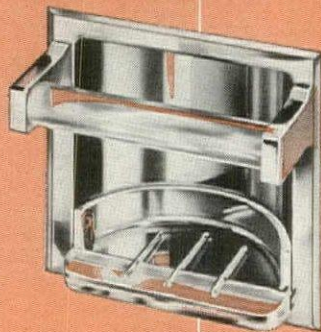
HALL-MACK
TRADE MARK REG. U.S. PAT. OFF.

Crystallchrome

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

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

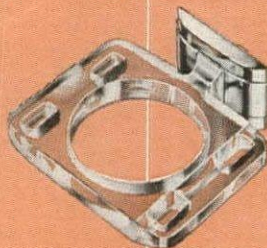
Crystallchrome Accessories are a part of the complete Hall-Mack line. Standardize on Hall-Mack—and know that in *one line* you can find accessories and cabinets that meet your most exacting requirements whether you're planning a millionaire's mansion or a low-cost housing project.



SOAP AND GRAB
NO. 165



ROBE HOOK
NO. 181



TUMBLER AND
TOOTHBRUSH HOLDER
NO. 130

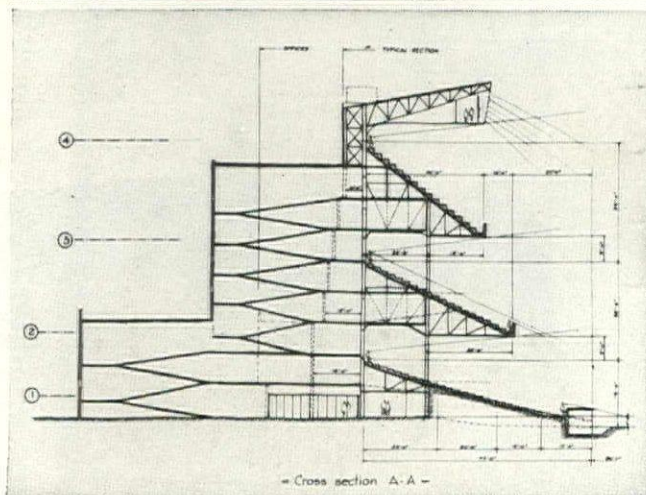
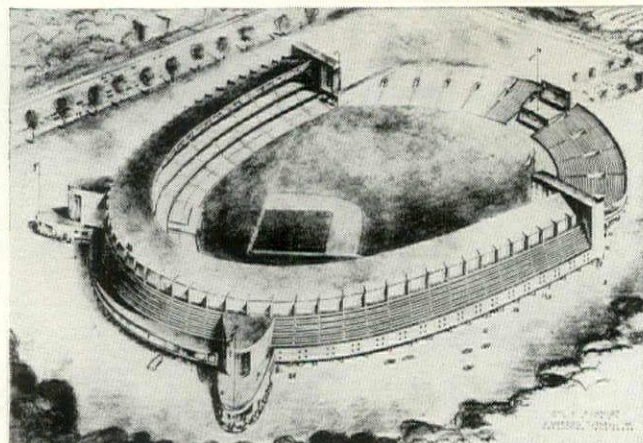
HALL-MACK COMPANY

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

PREVIEWS

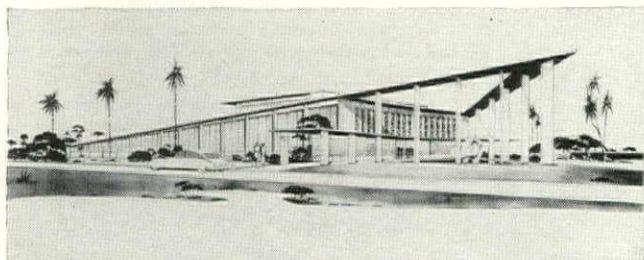
THREE-TIERED STADIUM will house the St. Louis Cardinals

To accommodate their enthusiastic following, the St. Louis Cardinals are planning a three-tiered, 47,000-seat stadium—with an additional 7,500 seats in the bleachers. This three-tiered plan, says Architect Syl. G. Schmidt, will mean less crowding in aisles and corridors and a closer, if more vertical, view from top seats. It will also make possible more efficient lighting for night games. Upper levels are reached by ramps set in easily visible towers at right angles to the stadium. J. Gordon Turnbull is consulting engineer.



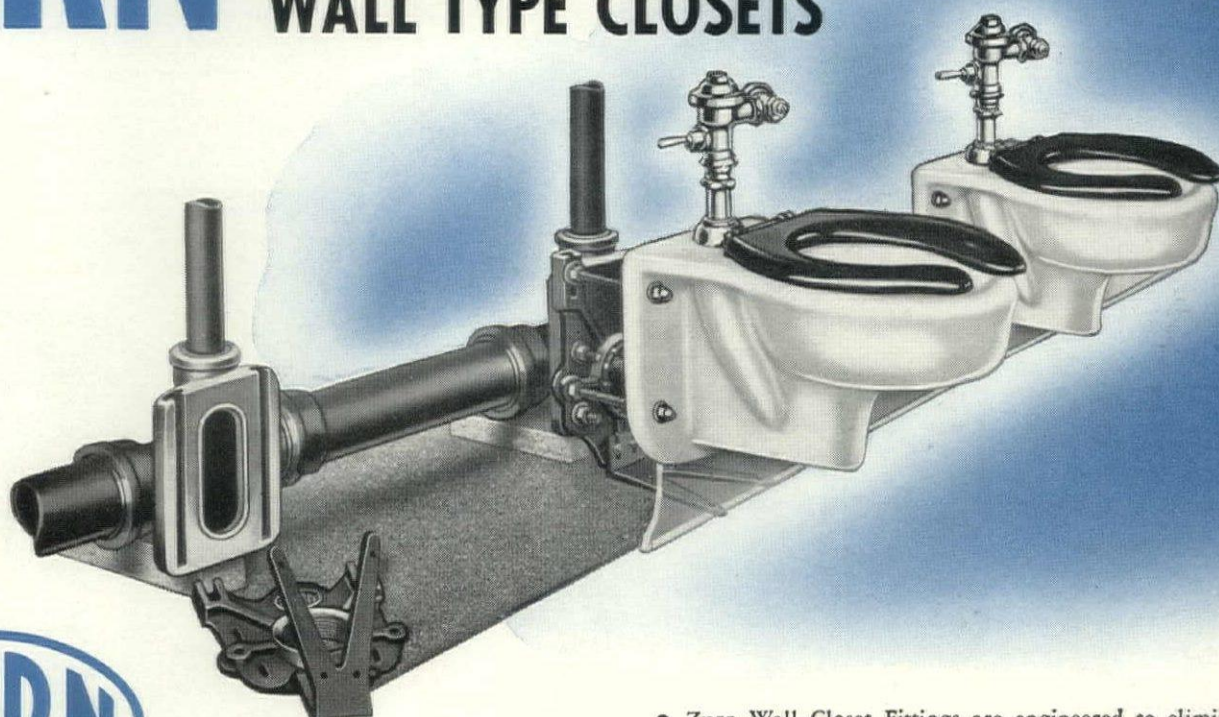
UNITARIAN CHURCH adopts a dramatic triangle

A triangle of concrete columns enclosing a pentagonal auditorium is the form chosen by Architect Igor Polevitzsky to dramatize the new Unitarian Church in Miami, Fla. (sketch below). An educational and recreational program will also be served by this religious center which makes structural use of reinforced concrete, stone, cypress wood and steel in its expandable meeting rooms and outdoor amphitheater. Completion is scheduled early this fall.



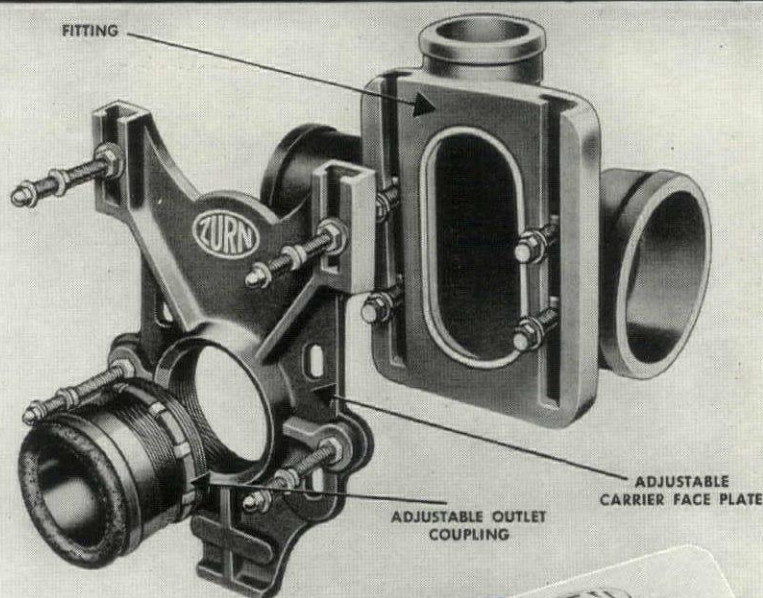
(Continued on page 42)

ZURN *Found* the simple, fast, safe way to install WALL TYPE CLOSETS

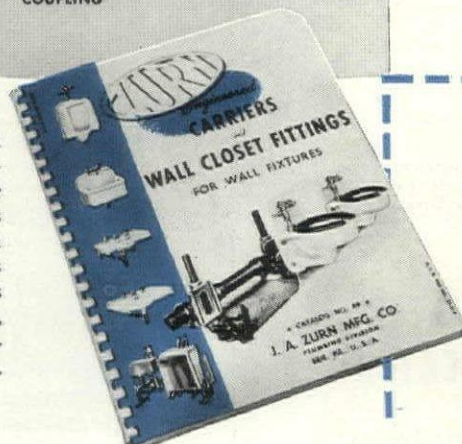


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The Zurn Carrier Catalog and Handbook has been prepared to meet all specification requirements. It describes in full the complete line of Zurn Wall Closet Fittings and Carriers, and explains how and when to install wall type fixtures. It contains illustrations, dimensional drawings, tables of sizes and dimensions, specification data, installation recommendations, photographs of roughed-in and finished jobs.



• Zurn Wall Closet Fittings are engineered to eliminate entirely the difficulties long associated with the proper support of wall closets—Zurn Wall Closet Fittings mean no more cracked wall tile, wobbly, misaligned fixtures or other installation grief.

The outstanding advantage of Zurn Wall Closet Fittings is the elongated waterway, allowing a 4" vertical adjustment, doing away with numbered fittings. Fittings may be placed at any point on the waste line—the carrier face plate can be adjusted immediately to any desired pitch. Maximum flexibility, speedy and accurate assembly and alignment are assured during installation. At completion, closet assembly is rigid, with thoroughly water tight connections, and weight supported entirely by the fitting and carrier face plate which rest on the floor behind the wall—there is no damaging strain whatsoever on the finished wall.

Zurn Wall Closet Fittings are widely used in commercial, industrial and institutional buildings, and fit all makes and types of wall closet bowls. Specify Zurn Wall Closet Fittings for either normal or difficult installations, with before-hand assurance of an efficient, fool-proof mechanical job.

Zurn sales representatives are located in all principal cities—do not hesitate to call on the Zurn man in your area for any help you need.

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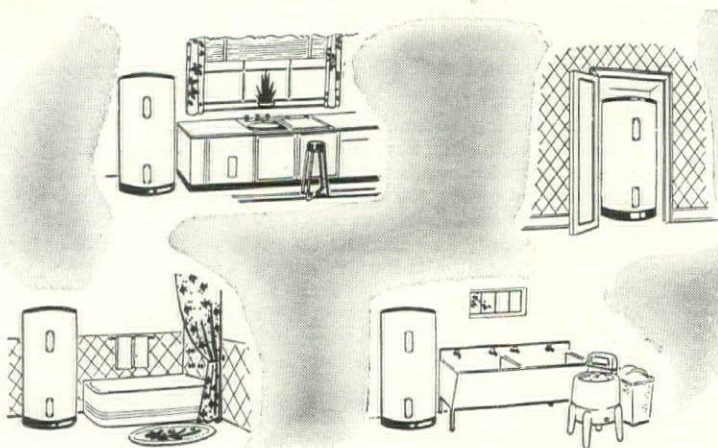
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Like the little pig, the Electric Water Heater has *really* gone to market.

Sales and survey figures both show that more people want this modern type of water heater than ever before. The only way to satisfy them is to install in the homes you build the kind of water heater that will satisfy your customers both now and years from now, and—OF COURSE, IT'S ELECTRIC!



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Electric Water Heaters can save you money on construction costs. Installation can be made anywhere—in the kitchen, in the bathroom, or the utility room—even in a closet. This keeps hot water lines short, cuts piping cost.

Customers like Electric Water Heaters because they are: (1) **AUTOMATIC** (continuous hot water, no

attention); (2) **CLEAN** (smokeless, sootless); (3) **DEPENDABLE AND TROUBLE-FREE** (as electric light); (4) **ECONOMICAL** (fully insulated storage, short hot water lines); (5) **SAFE** (all electric, dependable temperature control); (6) **FLEXIBLE** (can be installed anywhere, even in living quarters; no flue or vent).

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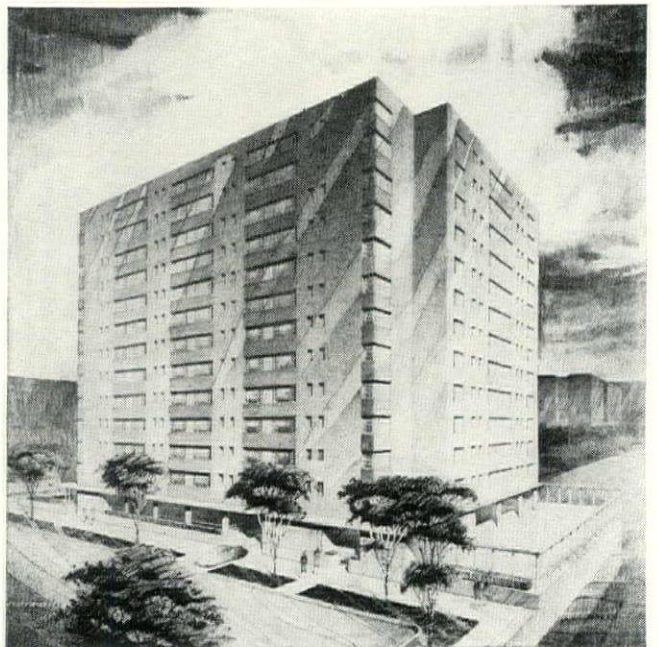
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HEATER!**

. . . in a house wired for an Electric Range!

CHICAGO APARTMENT house annexes 100 ft. of Lake Michigan

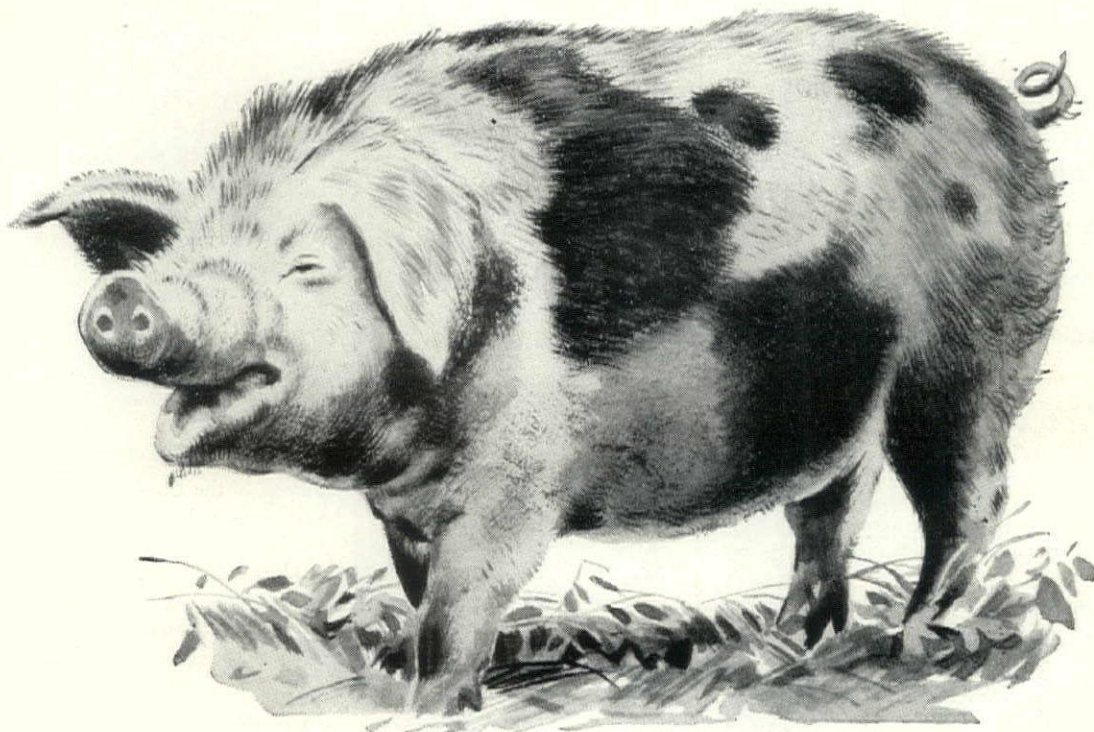
Anticipating the Chicago City Plan which proposes to fill in a bit of Lake Michigan for a public park and drive, the apartment house designed by Charles W. Nichol & Associates, architects, will extend its site 100 ft. into the lake. Sheet steel piling will form a seawall to protect this structure of reinforced concrete set on a concrete mat foundation.



MODERN BANK continues trend north of Rockefeller Center

The six-story office and bank building for Irving Trust Co., New York City, is another modern structure soon to adjoin Rockefeller Center. Architects Carson & Lundin designed the unusually open bank (photo below) to take advantage of the broad setback of the Esso Building next door—side windows of all upper floors will overlook its garden terrace.





HOW TO KEEP HOME BUYERS FROM **SQUEALING !**



...of course, it's Electric!

You know that customers can squeal like a pig unless you give them what they want. One thing they definitely want is the most modern type of kitchen equipment—and that includes **Electric Ranges**. Proof is found in the actual sales figures. Another million American families switched to Electric Cooking last year.

To you, this means just one thing. To build houses that are modern today and will stay modern for years to come, you must include wiring for an Electric Range, leading to a range outlet in the kitchen. The time to do this economically and efficiently is during construction. An Electric Range, like electricity itself, is now a "must" in every modern house!

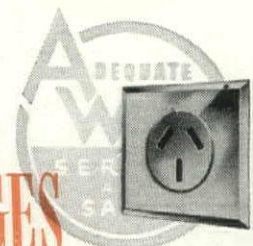
ELECTRIC RANGE SECTION, National Electrical Manufacturers Association, 155 East 44th Street, New York 17, N. Y.

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WIRE YOUR HOUSES
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Bermuda Tile may be obtained in 4 different colors—gray, tan, peach and green—and 4 delightful patterns, providing 16 different colorful treatments to harmonize with any architectural or decorative scheme. Send for free samples today.

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MARIO CORBETT, second generation architect, studied in Europe and at the California School of Fine Arts, was admitted to the profession in 1932, just in time for the depression. In stark contrast to his architect father, a Beaux Arts man and friend of Stamford White's, Corbett's architecture is strictly contemporary, devoted solely to "the type of building where materials are used honestly—for their own sake, for their own intrinsic beauty—in a plan which grows out of the client's needs, not vice versa." (p. 59).



JACK HILLMER and **ROBERT WARREN CALLISTER's** first commission was the Haines Hall House (p. 62), in scenic Marin County, part of the architecturally-famous California Bay Region. Texans both, they studied architecture at the University of Texas until 1941, when Hillmer joined the engineering design group at San Diego's Consolidated Vultee Aircraft Corp. and Callister went off to the Army, for five years. They opened their office in San Francisco in February, 1946, still share office space, though working independently at present.



JAMES J. CHIARELLI and **PAUL HAYDEN KIRK** are fellow alumni of the University of Washington, class of '34 and '37 respectively, both with honors in architecture. Kirk did public housing design and Chiarelli was field architect for a 1,000 unit housing project in Vancouver before they established the present office in 1944. They have kept their practice general, turning out some conspicuously good house designs (p. 70) along with stores, clinics, even a fire station.



CARL KOCH, 37 year old Wisconsin-born architect and Assistant Professor of Planning and Architecture at M.I.T., is himself a Harvard-trained designer. In practice from 1937 to 1942, he did wartime service as Senior Research Technician for NHA, and in the Navy. Though best known for his top-notch house designs (at least two of which were premiated and many more published, see p. 72), Koch's portfolio runs the gamut all the way from a seismological laboratory to a Finnish bath.



WILLIAM WILSON WURSTER (p. 68) is as well-known as M.I.T.'s architectural dean as he is for the crisp, unaffected California houses that have marked him as founder of a school of regional architecture often regarded the best the contemporary movement in this country has produced to date. Dean Wurster divides his career between Cambridge's academic activities and his San Francisco practice, the latter with Theodore C. Bernardi and Donn Emmons.



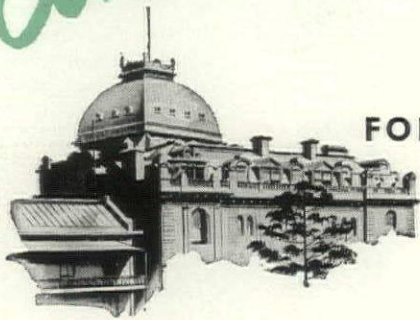
FRANK W. SHARP, 43 year old Houston builder, staked out a career for himself in building after the depression wiped out his bookkeeping job with an oil company. In business for himself since 1936 when he started on a \$150 shoestring, he has run up a housebuilding record of typically Texan proportions: almost \$20 million worth of housing in one eight-year period, not to mention the \$32 million Oak Forest development, started in September 1946 and now almost halfway to completion (p. 75).



EMANUEL A. BALLIN, youthful Long Island housebuilder, is a native New Yorker and a former student of art and architecture at Cooper Union and the City College of New York. He won his City College diploma and a new Pontiac (in a sketching contest) the same year, 1939. He has been both mechanical draftsman and gadget manufacturer (plastic objects of his own design). He worked for another builder before starting his own business three years ago. Mallow Park is his first big subdivision (p. 78).

(Continued on page 46)

Aluminum



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From the moment of Reynolds entry into aluminum production, aluminum output has steadily increased...and with it architectural appreciation of its manifold utility. Aluminum roofing and siding in various forms, aluminum windows, and architectural shapes are among the Reynolds Building Products that offer inspiration to creative minds. For descriptive literature in A.I.A. File form, please write us.

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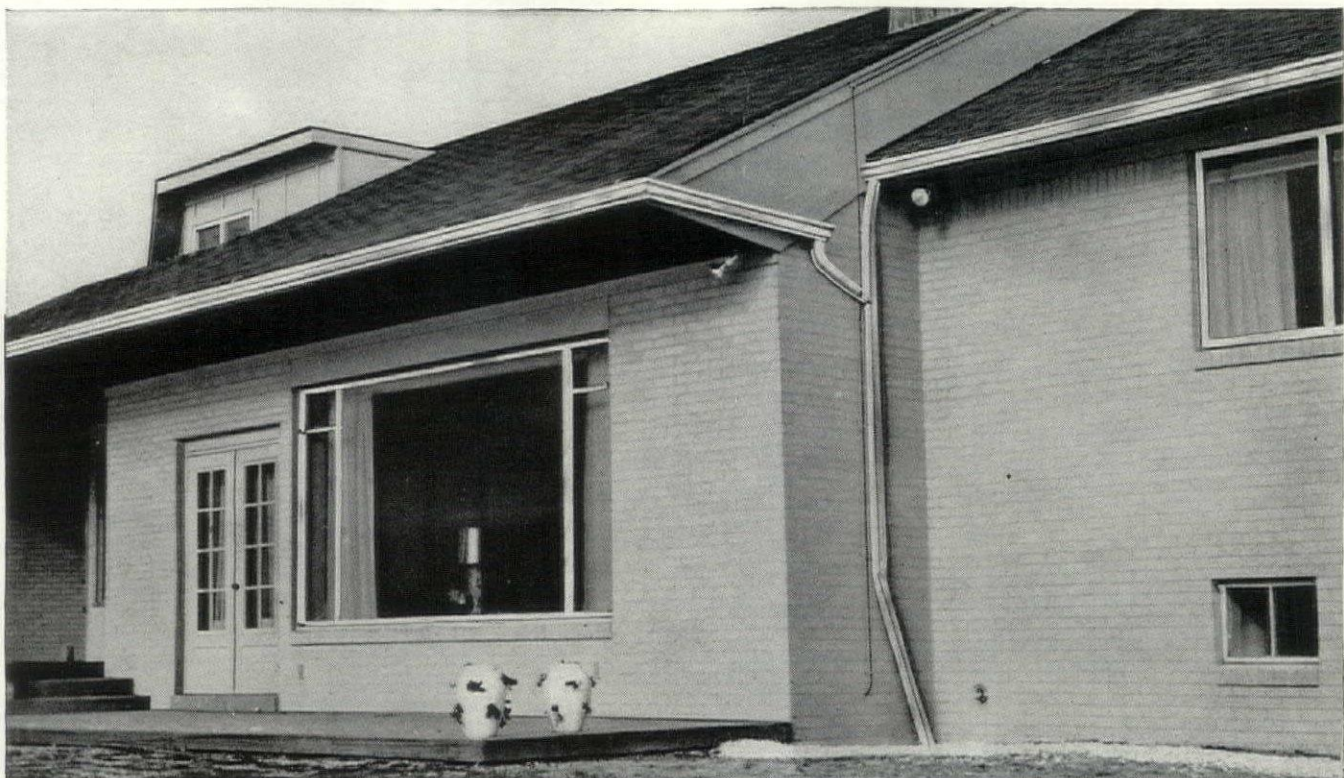
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IF YOU SEE RUST
YOU KNOW IT'S NOT
ALUMINUM



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House O'Charm, Detroit, Michigan.
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Bain & Anderson, Builders.
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Gutters and Downspouts, O. G. Style.





One of three Lustertone-equipped training kitchens in Morton High School where "Home Ec" students work in an efficient, pleasant home atmosphere.

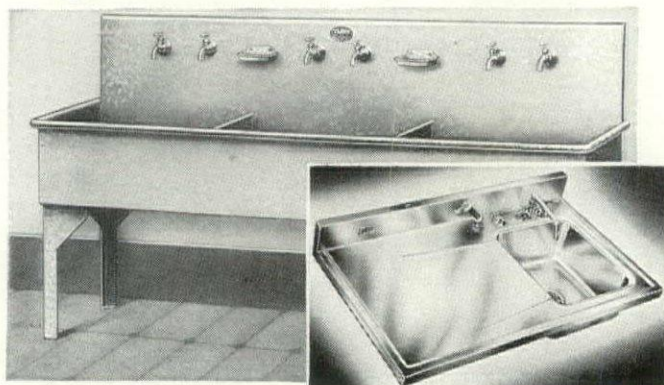
A NEW ANGLE ON ECONOMICS Stainless Steel

It hardly looks like a classroom—this beautifully designed and equipped "Home Ec" kitchen—but it typifies the modern trend to homelike, last-word-in-efficiency training kitchens. Just like hotels, hospitals and restaurants, schools demand extra durable equipment to withstand the wear-and-tear of continual hard usage.

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KETCHUM, GINA & SHARP, architects with **HAROLD M. HEATLEY** of the Davison-Paxon stores (p. 81), is a name familiar to all specialists in store design. The firm's polished designs (more than 150 specialty shops, over 175 chain stores) have appeared all over the country, on its main streets and in its press. Founding partner Morris Ketchum, Jr. studied architecture at Columbia University, taught design at Yale University's School of Fine Arts, New York University and Cooper Union. In independent practice since 1934, Ketchum formed the present partnership with Gina and Sharp in 1944. Like Ketchum, Francis X. Gina graduated from Columbia University and served on the faculty of New York University's School of Architecture. J. Stanley Sharp received his architectural degree from New York University, later taught architecture at Vassar College. In addition to stores and shopping centers, the firm's projects have included houses, offices, factories and package design.

Harold M. Heatley has been architect and manager of Store Planning for Atlanta's Davison-Paxon since 1944, working with Ketchum, Gina & Sharp on the store's multi-million dollar expansion program. A native of Canada and a graduate in architecture of its University of Manitoba (class of 1921) Heatley came to New York in 1923, worked for several architects (York & Sawyer, McKim, Mead & White, John Russell Pope), was attracted to the department store field in 1936. Heatley has been an instructor at Cooper Union and New York University. (Continued on page 48)

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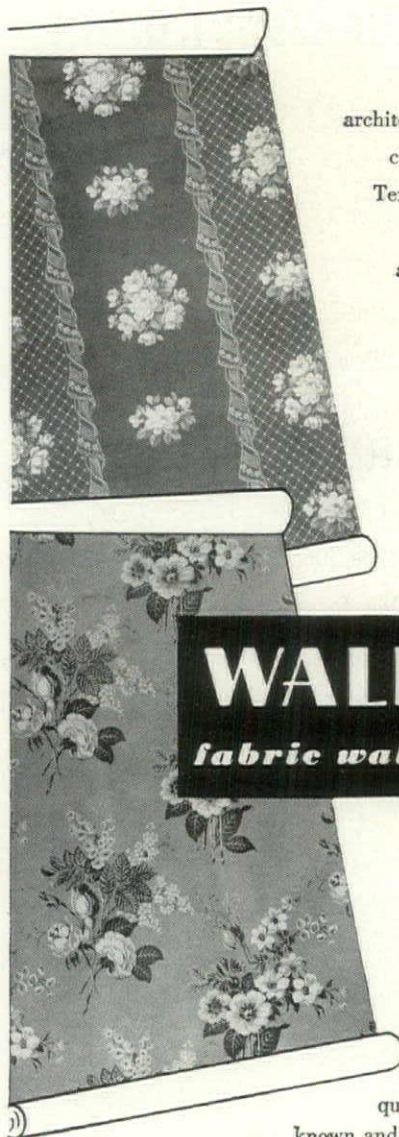
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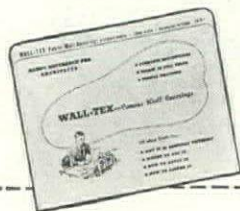
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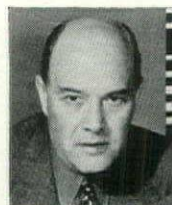
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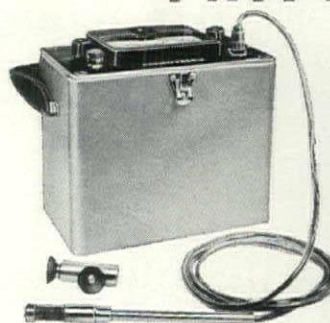
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Town and State _____



SAMUEL A. MARX, architect with **FRIEDMAN, ALSCHULER & SINCERE** of the Baxter Laboratories in Morton Grove, Ill. (p. 92), was born in Natchez, Mississippi and graduated from M.I.T. in 1903, with a Bachelor's Degree in Architecture. He spent the next two years in Paris, at the Beaux Arts, and at two Parisian *ateliers*, and in travel on the continent. He started his private practice in 1909, has achieved renown both as an architect and painter, with numerous exhibitions, even a one-man water color show, to his credit.

The firm of Friedman, Alschuler & Sincere, with certain changes of name, has been in existence since 1907. It has been one of the larger architectural and engineering firms in the Chicago area, having designed and supervised construction of more than 2,000 buildings worth over 300 million dollars. Senior Partner Raphael N. Friedman is native of Illinois, a graduate of the Armour Institute of Technology (B. S. in Architecture, 1911), and a former professor of architecture at Chicago Technical College. He has been a member of the organization since 1919. Alfred S. Alschuler, Jr., son of the firm's late founder, was educated at Harvard and M.I.T., joined the company in 1935, after receiving his architectural degree. He is Superintendent of Construction and Specifications, Edwin M. Sincere studied architecture at the Armour Institute of Technology, has been with the firm 30 years, is Chief Superintendent of Construction and General Manager. **JOHN CROMELIN** was associated architect, with Marx, on the Baxter design.

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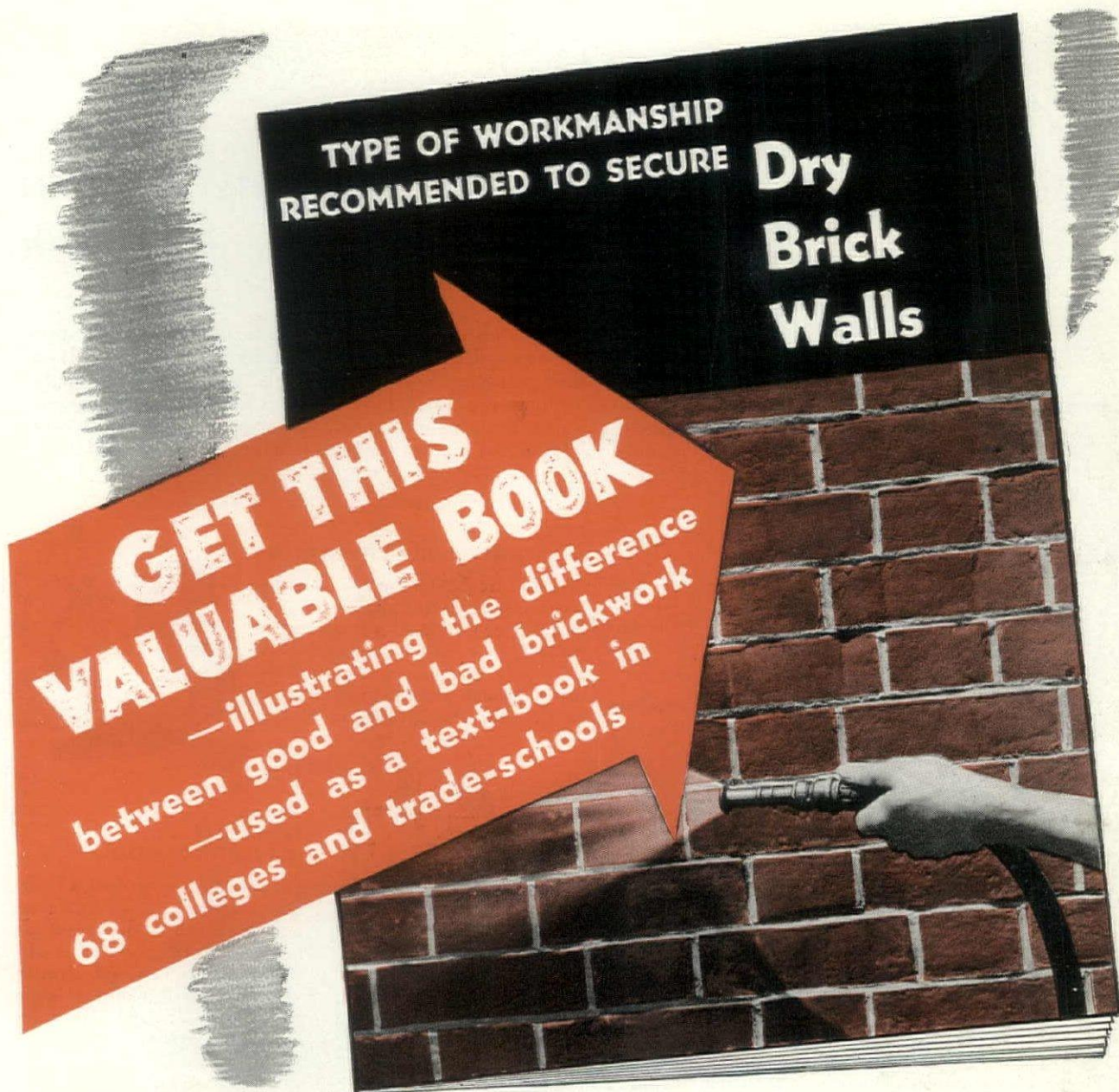
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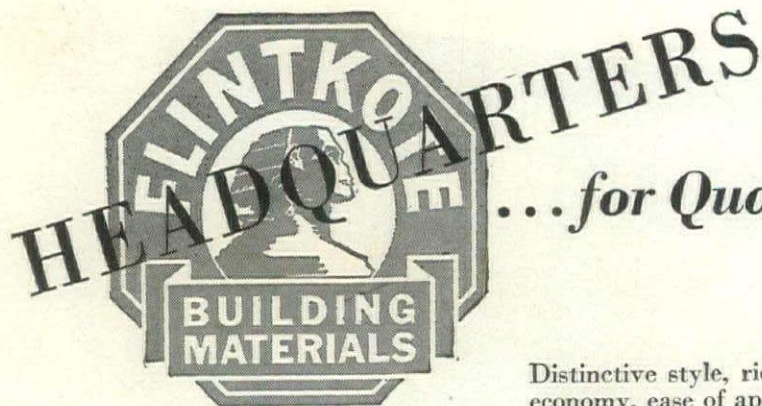
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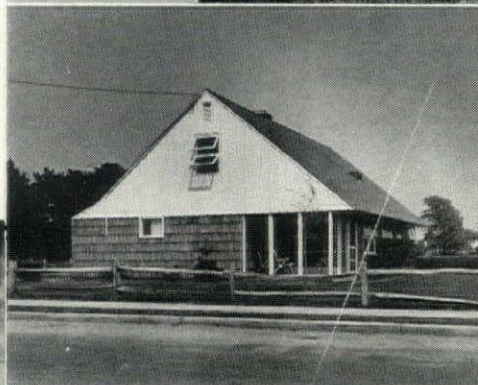
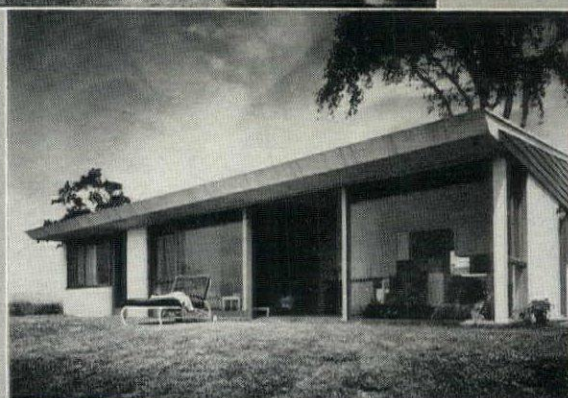
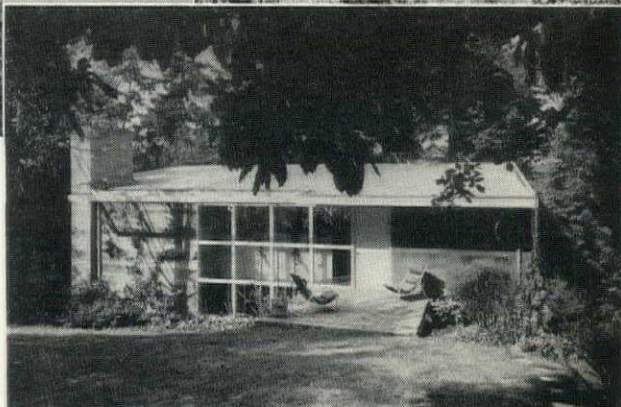
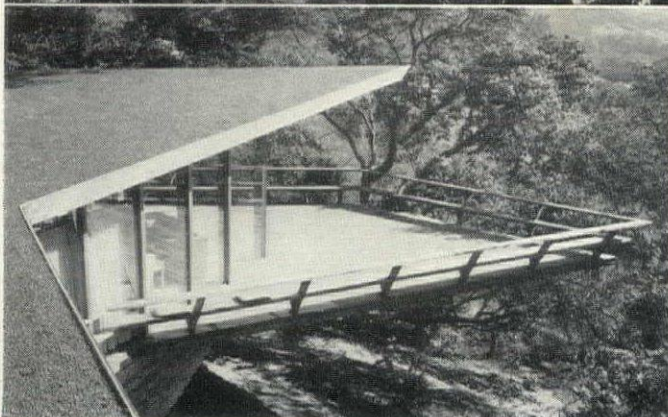
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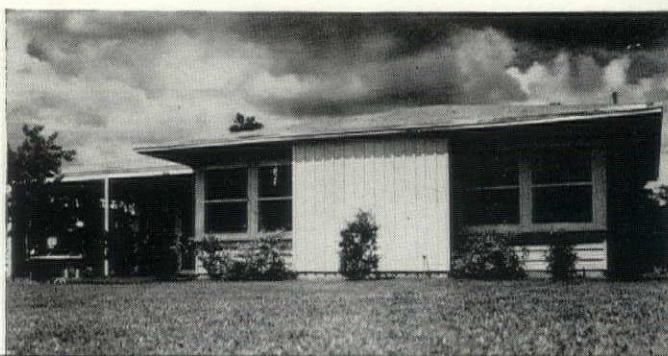
MAGAZINE OF BUILDING



HOUSES

The following 29 pages are devoted exclusively to houses and home design. The examples, summarized pictorially on this page, range in size from two rooms to 22 rooms; in concept, from the tightest rectangular box to the most freely conceived open plan; and their creators, from relatively obscure builder-designers to some of the biggest names in architecture. Each presents pointed lessons in siting, planning, design, construction and other important phases of building. Some of these houses are practical expressions of what the public demands today; others are distinctly houses of tomorrow, pioneering advanced ideas which will one day be adopted for general use. As such, each page of this portfolio merits the close attention of everyone with a stake in any form of house building.

Two of these houses (p. 59 and 62) are included in the exhibit, *Domestic Architecture of the Bay Region*, organized by San Francisco Museum of Art, and are presented in color through the cooperation of LIFE which has photographed the outstanding houses of San Francisco's Bay Region for a forthcoming article.



A modern house uses its setting to help provide luxurious living

LOCATION: Montecito, Calif.

RICHARD J. NEUTRA, Architect

WHITTAKER & SNOOK, General Contractors

"Lyrically expressed, a building of proper design may answer a question that is asked by the setting. It is a *response* . . ." On this and the following pages is seen an outstanding example of Architect Richard J. Neutra's application of his statement to a house so well integrated with the landscape as to be its natural foil. Sweeping horizontal planes, melodic in feeling and movement, hug the gently sloping contour of the terrain. Mammoth trees and glacial-sized boulders cradle the house, while spacious terraces and glass walls give it transparency and de-emphasize its massiveness.

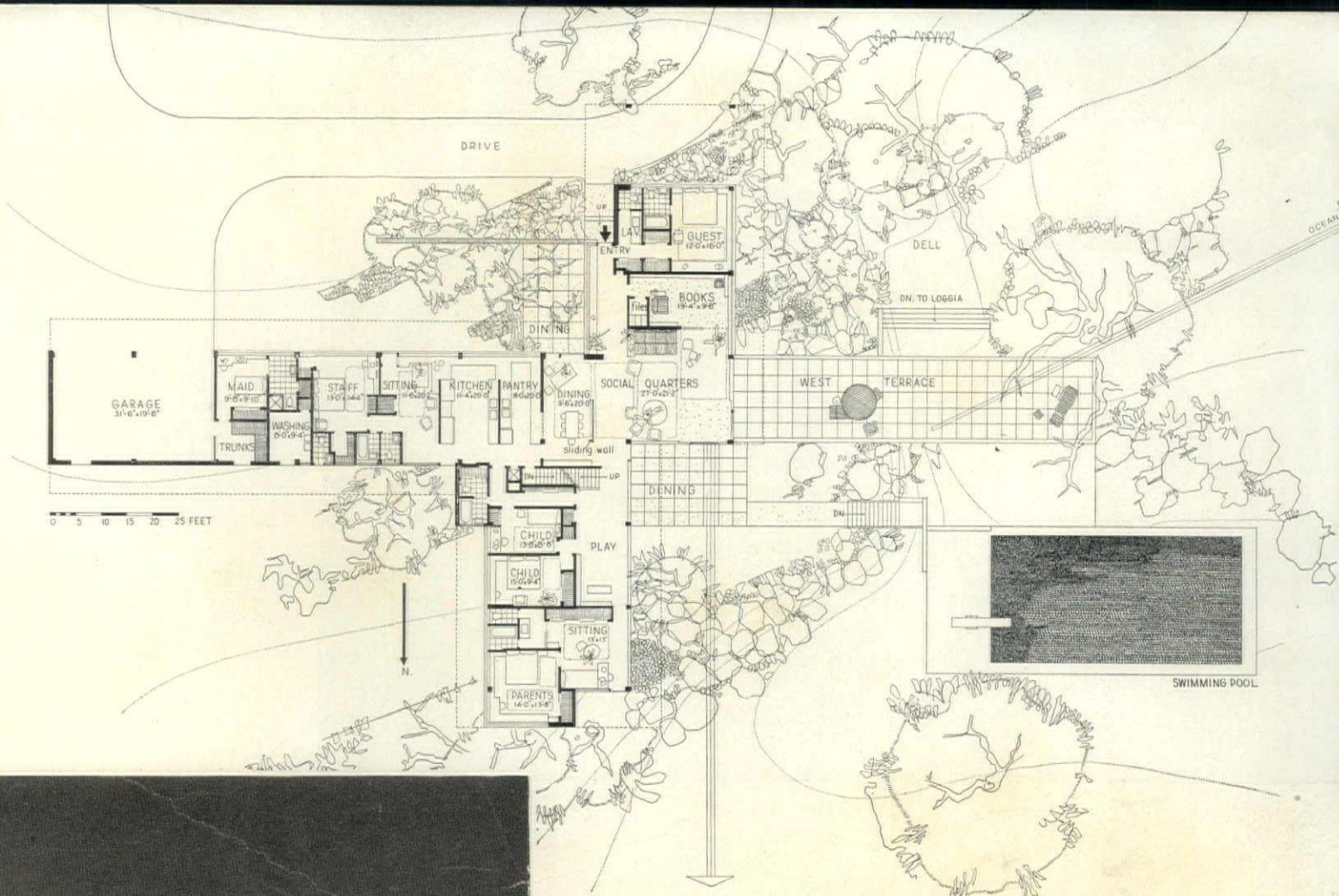
Esthetically, the house is not so much framed by nature as fitted into it, rephrasing in its own forms something of the grandeur of its setting: the sweep of ocean in the distance, the nearby rock-studded

dunes and meadows, the wind-swept sky. In achieving his "response," Neutra interlocks these forms with his own man-made design.

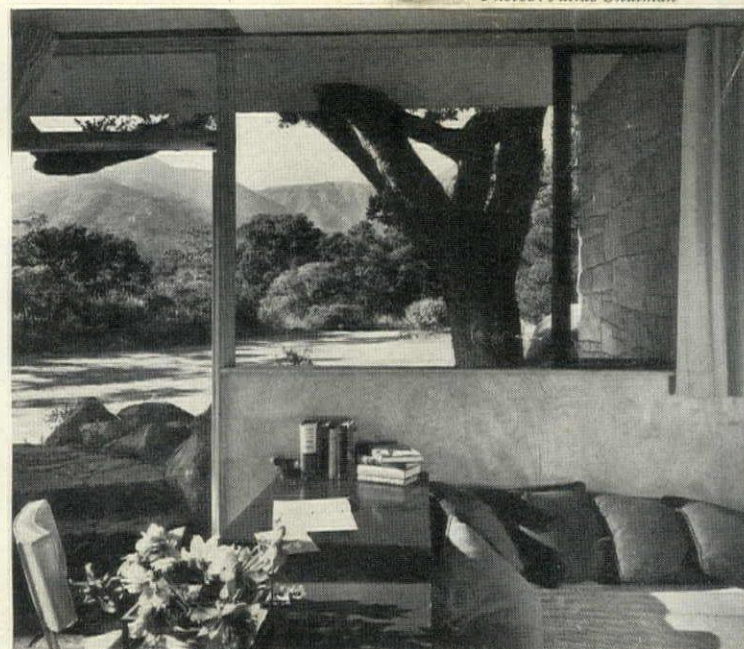
Structurally, the house has "bones"; the strong plastic character of the concrete frame lifts it out of the cardboard modern manner, warms it without recourse to redwood texture or soft effects.

Functionally, the structure follows many of the architect's previous designs, in that it uses a living-dining-service area as the hub of a pin-wheel layout. Social quarters are adjacent to extensive terraces. Formal division of indoor and outdoor areas is kept to a minimum by sliding or fixed glass partitions. Kitchen and service quarters are a succession of bays connected by an aisle leading to both dining terraces and service yard.



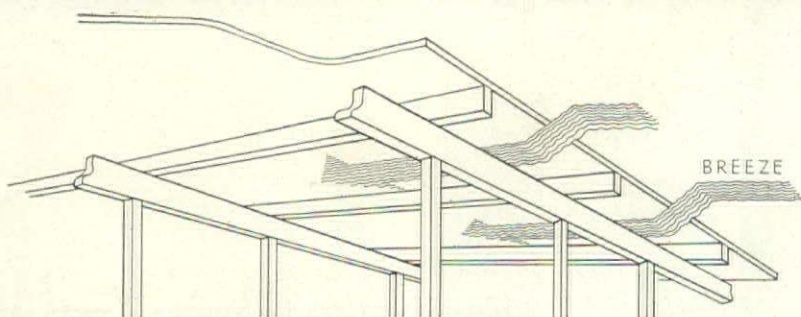
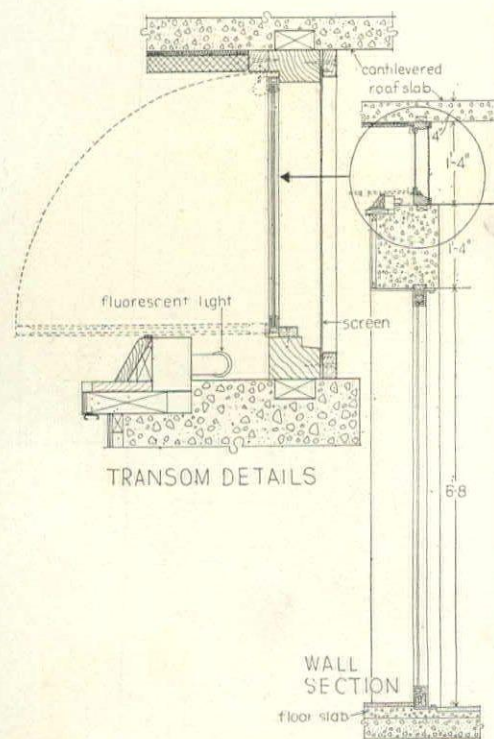


Photos: Julius Shulman

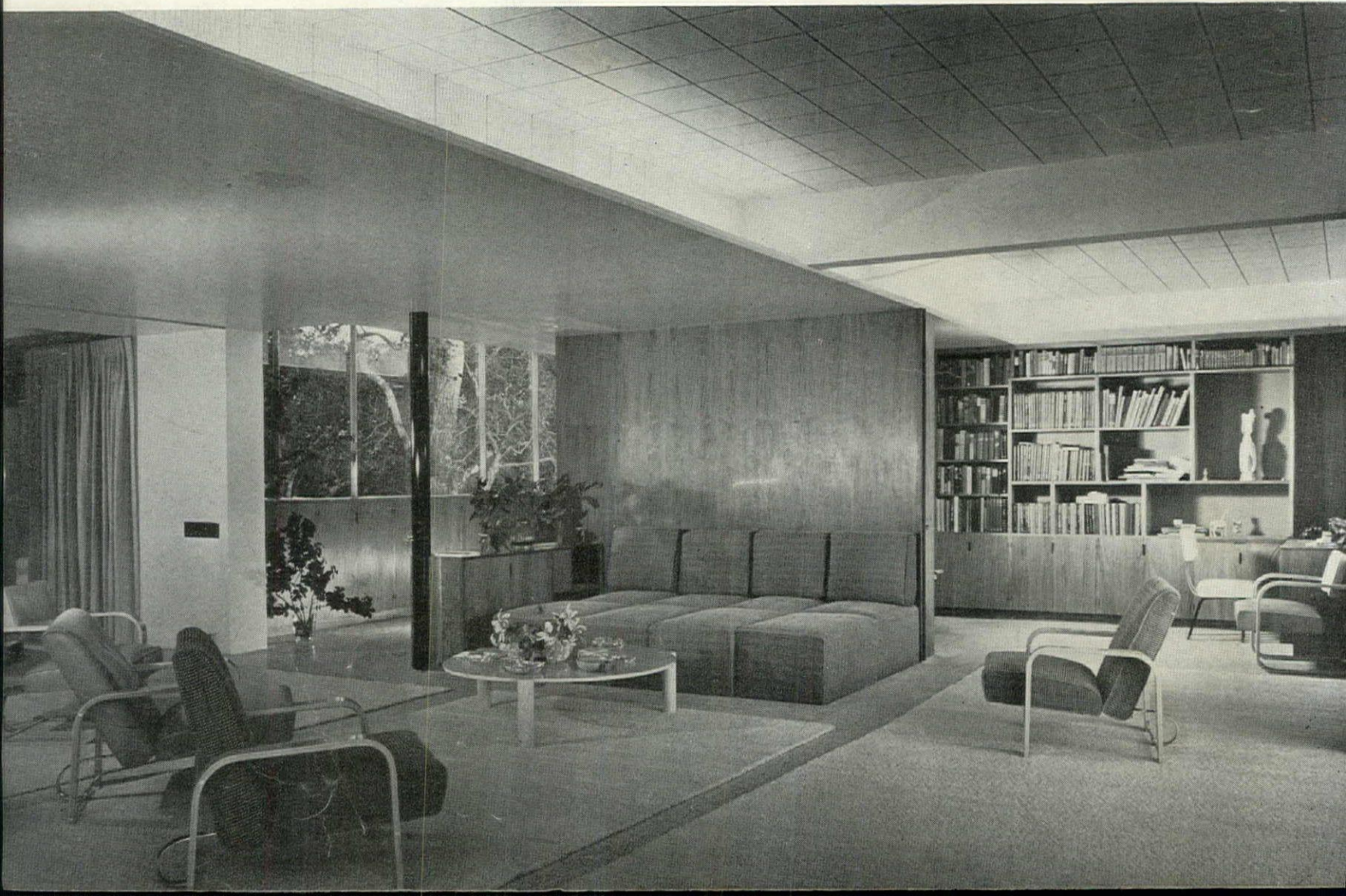


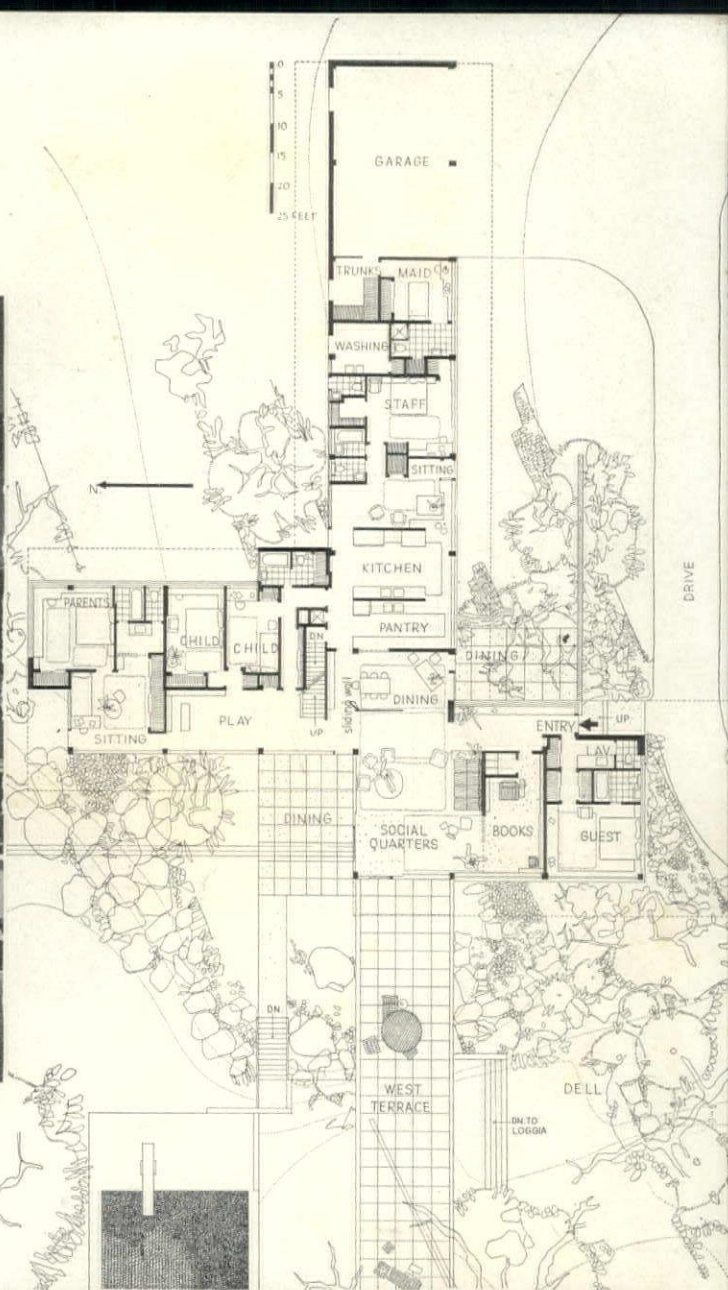
Sitting room of master suite commands dramatic view of mountains to the north. Recessed entryway opens privately into a landscaped yard, separated from general play area by trees and boulders.





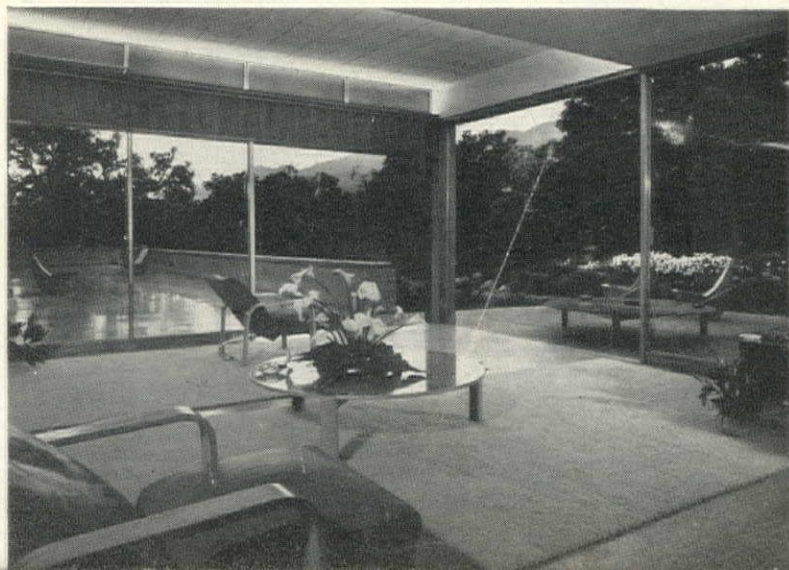
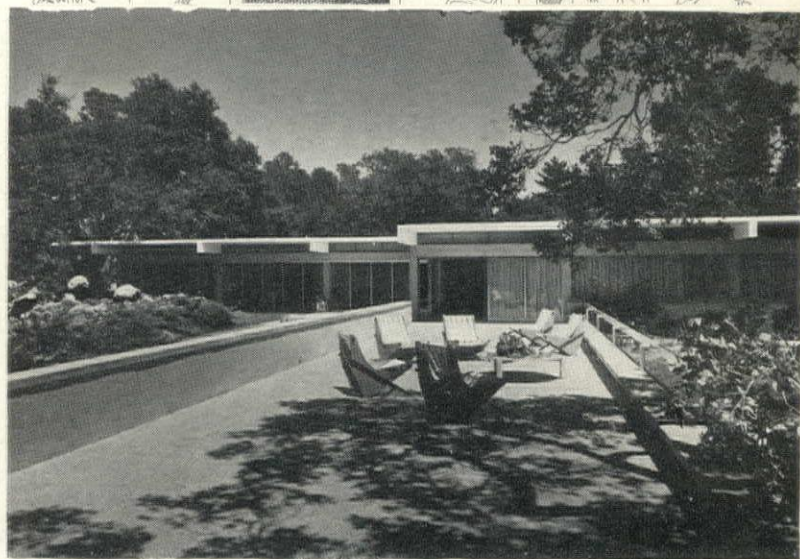
Above detail drawing shows 1 ft. 4 in. ventilating transom between roof slab and lintel, with swing-down windows and fluorescent light for indirect illumination. Left, diagram of direction of air movement. Photo, upper left, shows transom and lights in living room.

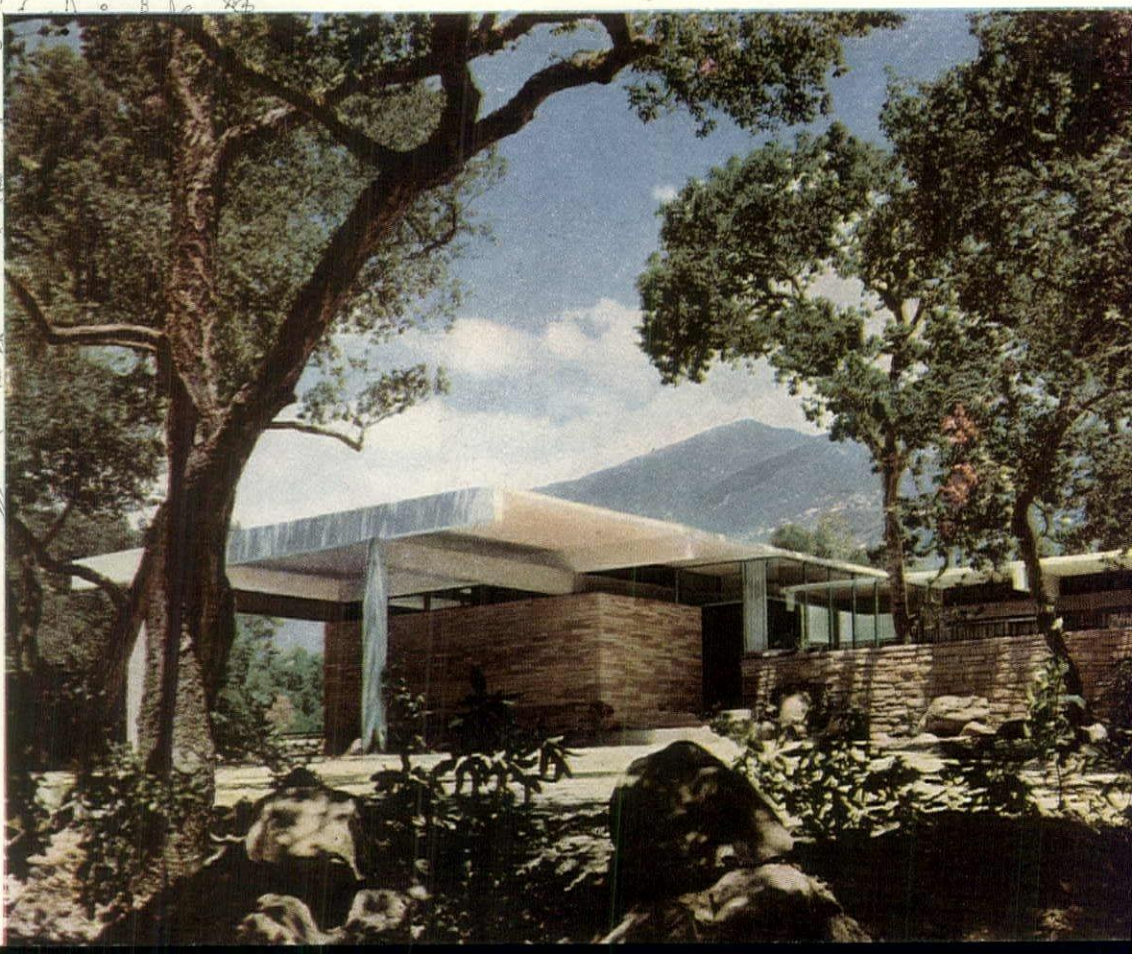
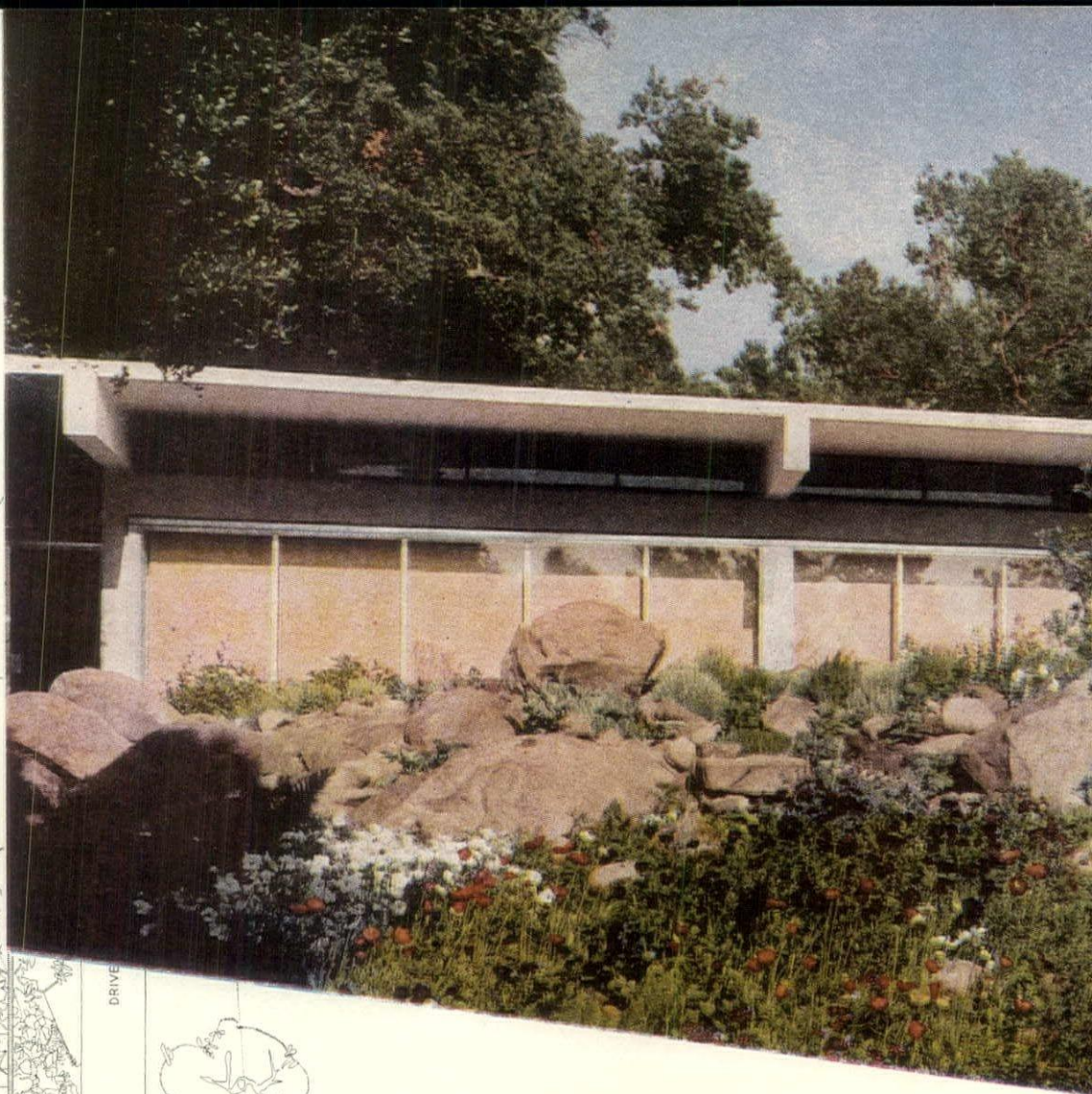
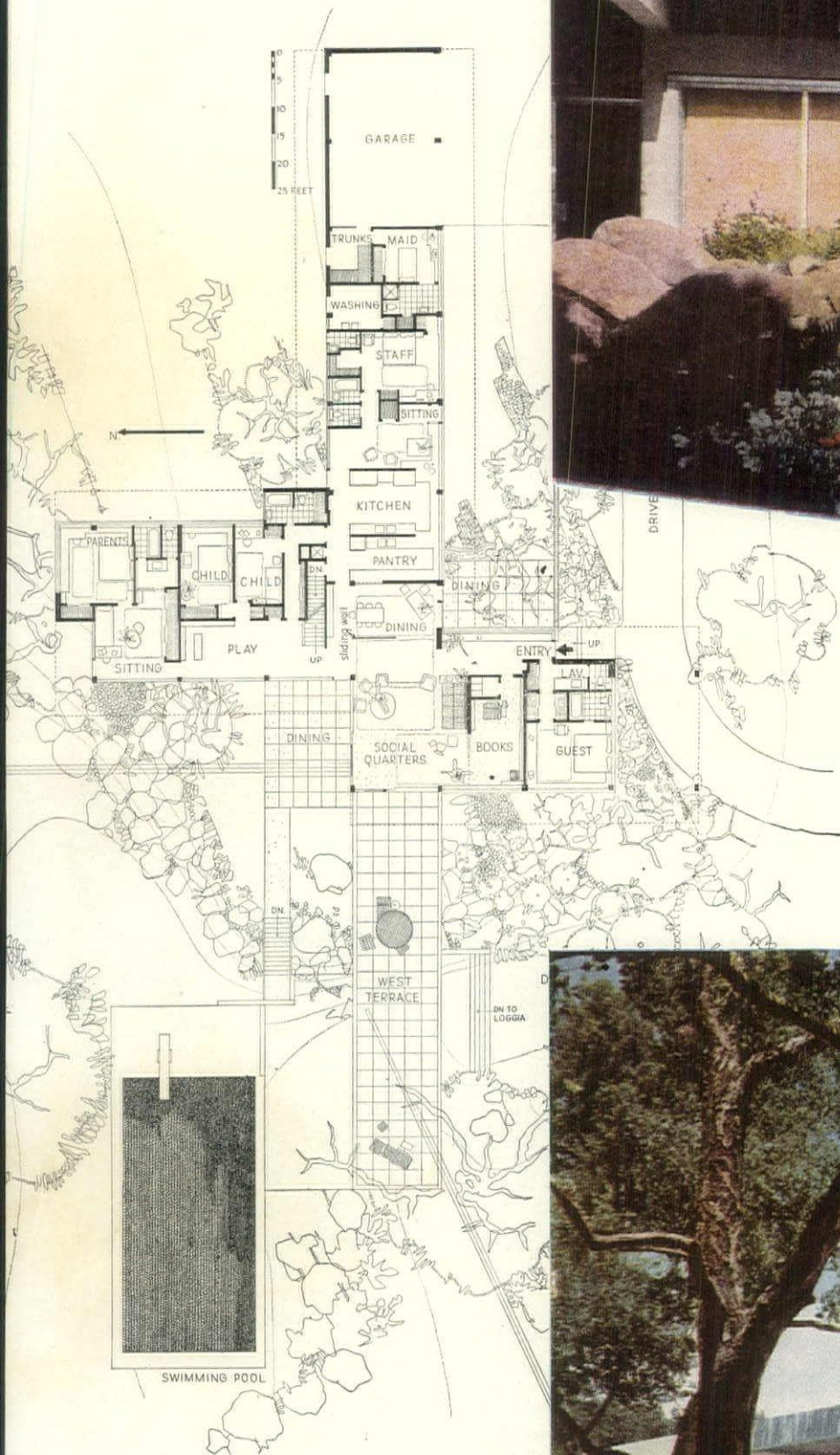




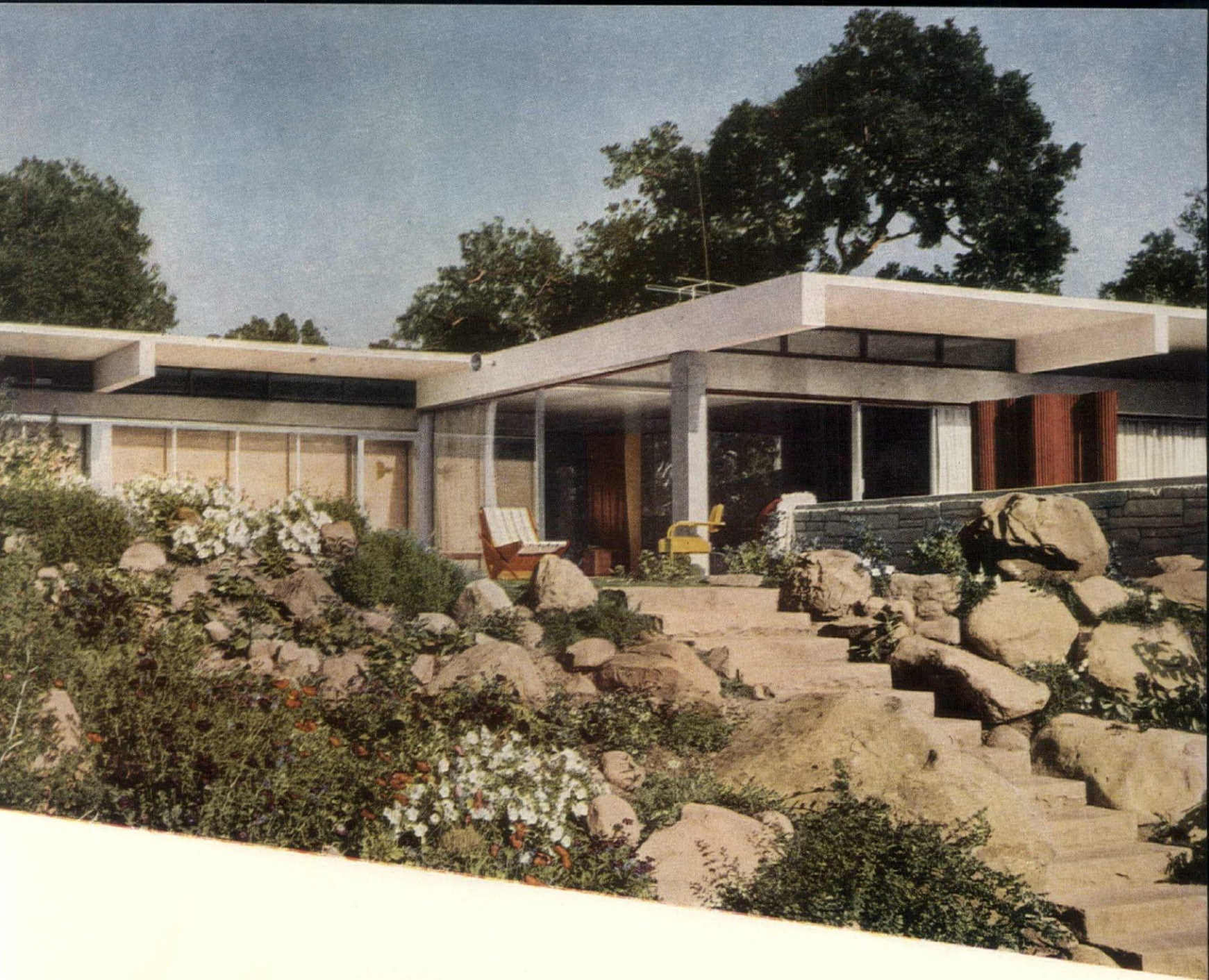
Neutra's minutely integrated system of structure, illumination, and ventilation is shown in the photographs of the social quarters on the opposite page. Unique is the detachment of the roof slab from the frontal, or spandrel, girders, which uniformly span 16 ft. of glass. Above these wide-span lintel girders, and bracketed between cantilevering cross beams, extends a continuous upper tier of screened openings with windows which swing in to form a horizontal glass shelf. Ventilating air is thus admitted and circulated at ceiling height, where it is most effective. In many rooms, as exemplified in the social quarters, an inner portion of the ceiling is also suspended from the roof slab over the center of the room, forming a shelf which conceals a strip of indirect tube lighting. In addition, constellations of carefully spotted lights, with unnoticeable emission openings, selectively brighten tables, shelves, pictures, flower pots.

The north wing of the house is reserved for sleeping quarters. The photo above is a view of the master suite, with its broad plate-glass opening, large wardrobes, and fitted-in storage furniture. At the right are two views of the carefully linked terrace-social quarters section of the house. (Upper photo shows the sun deck as it flows into living room; lower photo shows the same room as the hub of the sun deck and a dining terrace.) Outdoor sitting areas and social quarters are really one free-flowing space, since large portions of the transparent glass fronts can be slid out of the way. Continuity is preserved over the outline of the floor plan by the polished terrazzo floors, which extend to the outdoor areas, and are radiantly heated. Throughout this house for Warren Tremain, Architect Neutra has successfully created the visual, climatic, and luminous environments which are implicit in its design.





Approach to the house is from the south, and is focused around a porte-cochere which leads to an entrance gallery. This side of building gains a feeling of massiveness by use of stone walls topped by a continuous window strip.



West view of the Tremaine house (above) illustrates sweep of longest wing (north), and shows continuous under-roof ventilating grill and cantilevered roof overhang, an application of Neutra's previous designs for Caribbean schools and health centers. Here, too, is seen the house's careful relation to site. The dining terrace (close-up at right) overlooks the pool and play area and commands a panoramic view of the mountains. Landscaping is informal.

Structurally, Neutra's design is carried out in unusually slender reinforced concrete, partly spray-coated white, partly sandblasted. Masonry is of natural buff-colored sandstone, available on the site. Plaster has been omitted throughout, and the glass partitions are fixed in aluminum.

CONSTRUCTION OUTLINE: Foundations—concrete. Exterior walls—sand stone. Interior partitions—plaster, walnut or birch plywood. Ceilings—plaster and Audiotone, U. S. Gypsum Co. **ROOFING**—Pabco tar and gravel, Paraffine Co.'s. **DOORS**—Paine Lumber Co. **WINDOWS**: Sash—steel, Druwhit Metal Products. Glass—Pittsburgh Plate Glass Co. and W. P. Fuller Co. **HARDWARE**—Schlage Lock Co. **PAINTS**—General Paint Corp. **ELECTRICAL FIXTURES**—C. W. Cole Lighting Fixture Co. **KITCHEN EQUIPMENT**: Dishwasher—Hotpoint, Inc. Range—Western Holly Town & Country. Refrigerator—Westinghouse Electric Corp. **PLUMBING FIXTURES**—American Radiator-Standard Sanitary Corp. **HEATING**—floor and ceiling radiant system. Pumps—Bell & Gossett Co. Thermostats—Minneapolis-Honeywell Regulator Co. Pipes—Chase Brass & Copper Co. System by Radiant Heat Systems, Franklyn L. Webb, Engineer.



The significance of the setting: By Richard J. Neutra

Contemporary architecture has been assailed as mechanical, standardized, indifferent to the diversity of specific and regional circumstances. Yet, I have always felt much attracted and inspired by the singular peculiarities of a problem. There are first the varied human beings involved, both those who are to construct and those who intend to use the contemplated structure. Not less determinant is the climatic and visual landscape, the entire sensory constellation, so to speak, into which the new building has to be composed. It is maligning modern architecture to say that its capacity to fit natural settings is less than its predecessors.

From the stone age dwellings to our own native villages, innumerable examples can be found of the inborn human talent to engage esthetically the full potential of a site. If designers ever failed herein, it was often due to an exaggerated preoccupation with their particular object, too much narrowed-down and thus segregated from the overall impact it would have in its surroundings.

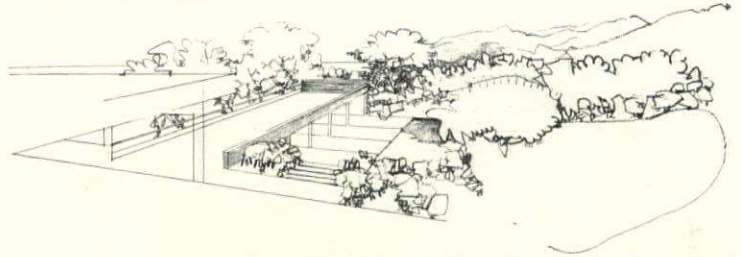
No matter how flamboyantly shaped or rustically textured, a building is, after all, a geometrically simplified construction in the midst of a natural scene. At best it can be camouflaged, and mimic its own surroundings. Yet instead of being an outcropping rock or a sprouting plant it is an *insert*. Instead of growing from tap roots it stands on waterproof footings placed in excavations. It is more designed to repel the atmospherilia than to absorb them for life processes or assimilation of nourishment.

Still, while overtly a foreign body in the landscape, a structure can nevertheless be fused with it esthetically. It can itself and by its appendages interlock convincingly with grade conditions; it can intimately relate to views by its fenestration and to orientation by its shading roof projections. By the reflectiveness of glass, like that of water pools, it can mirror not only the hills, the sea, and the trees, but also the clouds, the changing illumination of every hour, the many moods which every natural setting offers. It can be designed to glow in the last evening light like an alpine peak over the lake or to silhouette itself somberly against the horizon, or lightly against masses of darkish foliage.

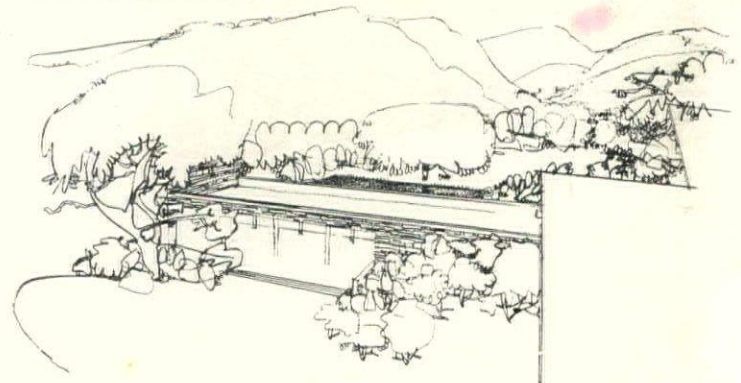
Afterthoughts of landscaping will never fully make up for what may be missed in an original failure to render the newly designed structure a true part of its setting.



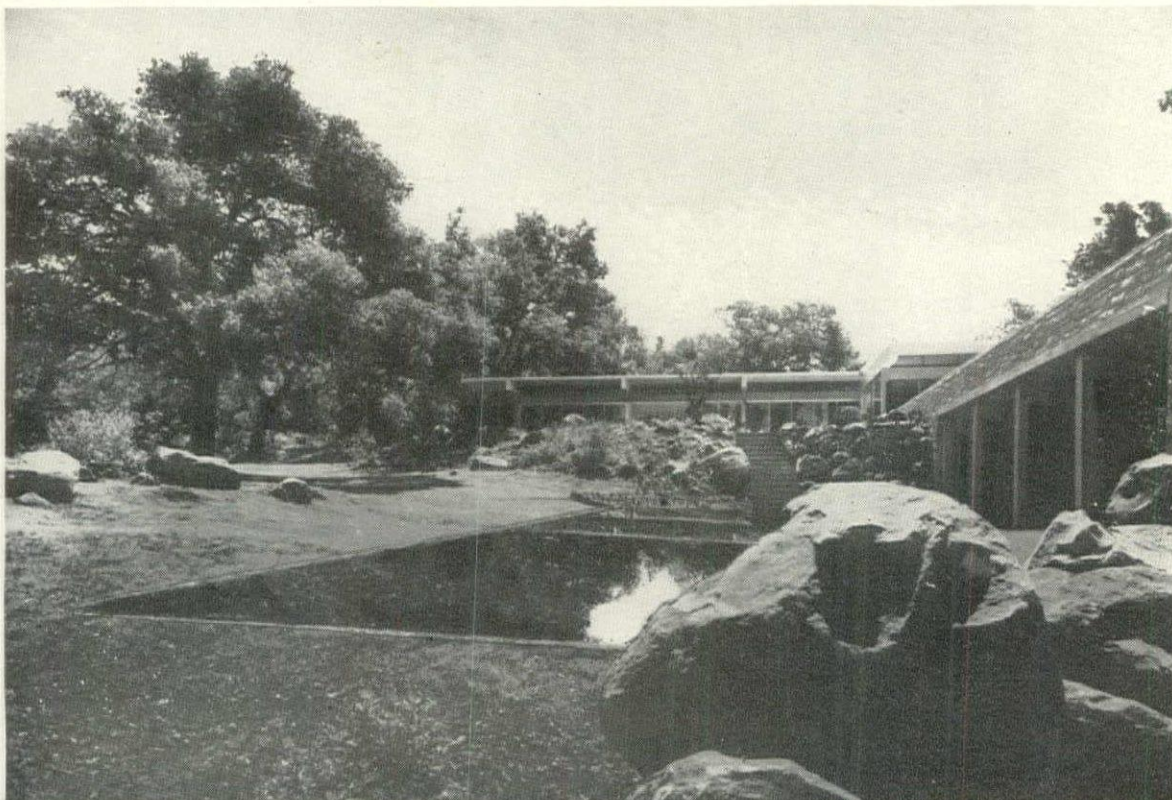
"Geometrical abstractions in architecture cannot substitute for being in love with the real facts of the setting. Their juxtaposition and mingling with the formal conception of the building all sincerely studied, will insure a deep rooted significance.—Southwest view of the house from the valley of a stream."



"Contraposition as well as sensitive interlocking characterize the composition of a geometrical structure into the free formed natural landscape. —West view from sun deck of the house: distant horizon line of the ocean to the left, the undulating meadows rising to foothills at right, the sky mirror of a pool in the center."

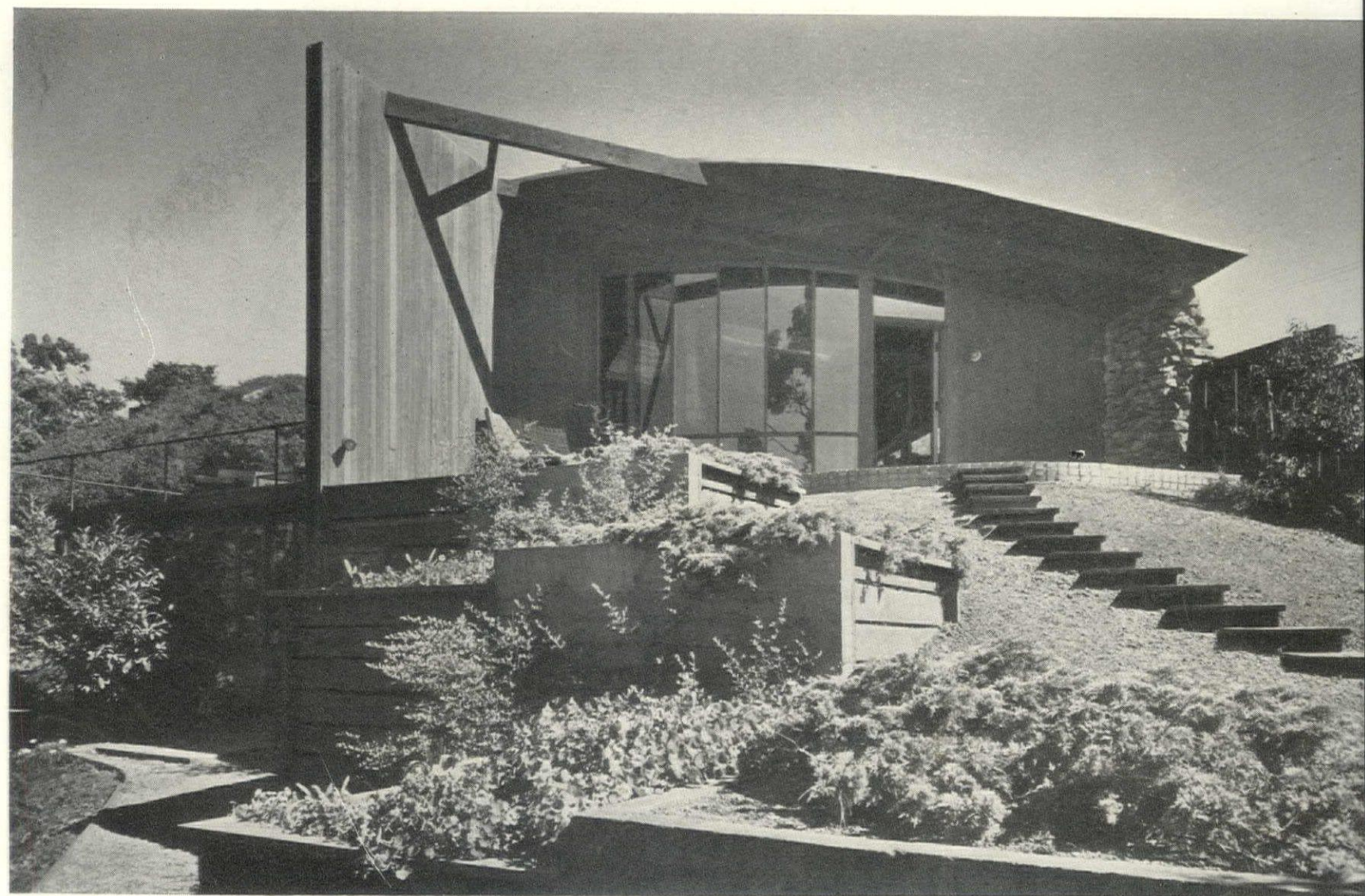


"A building must share the spirit of the site; no self-satisfied design can wield these powers. The mythology of many races and thousands of years has honored natural setting by this profound belief in it.—View over a low dell, pool porch and terrace into the mountainscape north of the house."



"Erratic boulders or trees may curb an arbitrary placement of the building but they also may give foil and scale to it, and reflective water surfaces will add to the depth of the composition.—Tre-maine house seen from the west."

The long view in architecture—Mario Corbett's own house

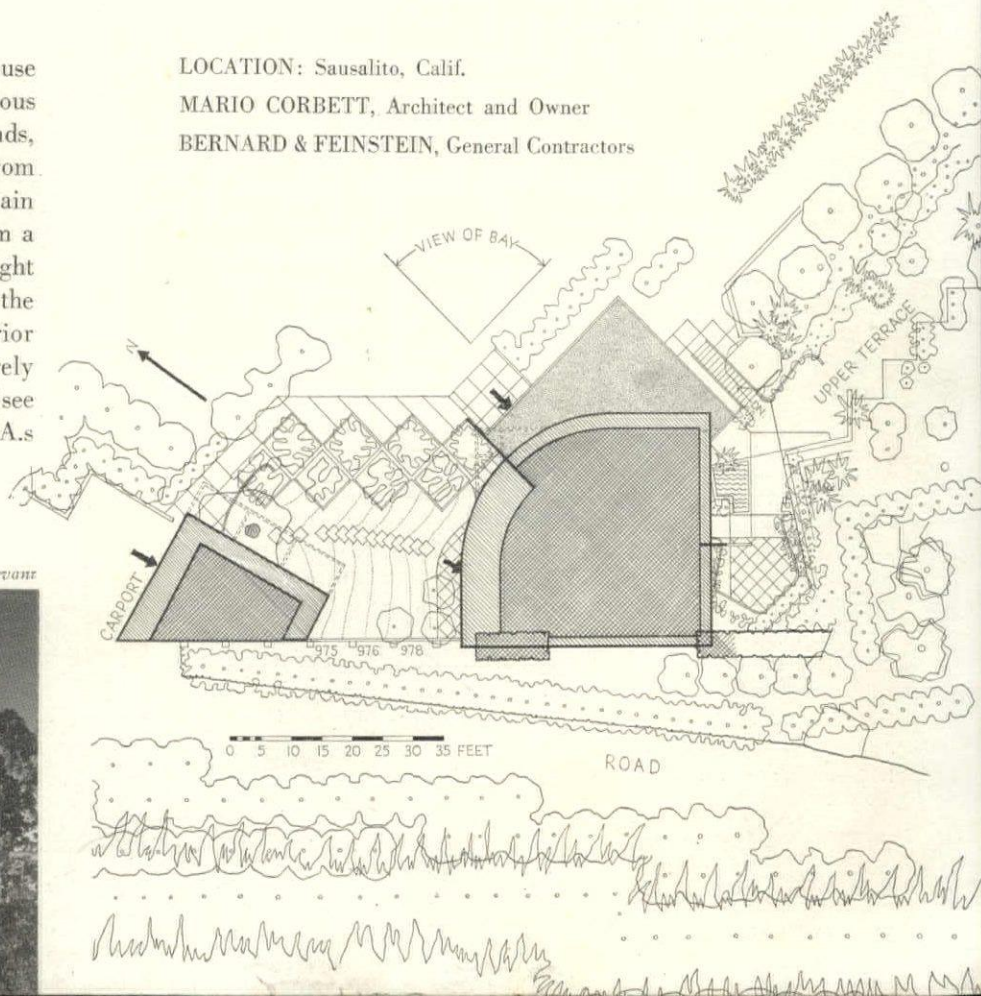


The site was the primary source from which the design of this house was derived. Set on the small, fan-shaped saddle of a precipitous ridge, the house views a sweep of open sea, sheltered harbor, islands, city and hills. It takes the fan shape of the saddle, growing from heavy bulwarks of native stone set on the rocky hill. The main structural element is a massive master beam which slants up from a 6 ft. 2 in. base at the lowest corner of the rear stone wall to a height of 11 ft. 1 in. where it rests on the fin wall on the deck outside the living room. The rigid roof is framed from this beam, with no interior bearing walls—even the studs in the circular glass wall serve merely as mullions for the fixed windows. Glass is used all around (see cover) to exploit the views. This house won an honor award at A.I.A.'s 1949 Convention.

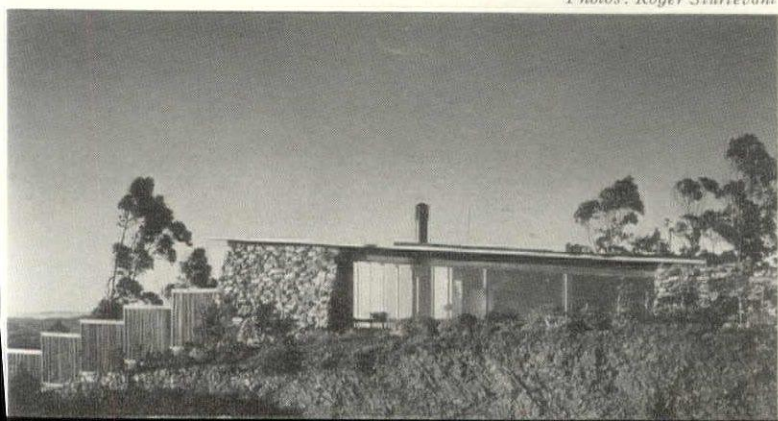
LOCATION: Sausalito, Calif.

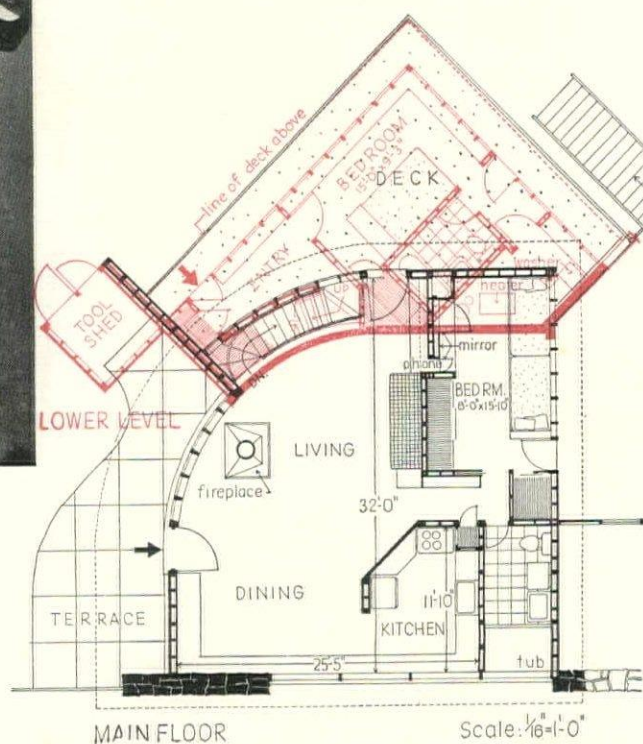
MARIO CORBETT, Architect and Owner

BERNARD & FEINSTEIN, General Contractors



Photos: Roger Sturtevant





The fin wall in the picture above does more than serve as a support for the roof framing and a windbreak for the living room terrace. It also is a part of the plan, splitting the overwhelming panoramic view of land and sea into segregated vistas. It does this on the terrace and on the deck beyond the fin, but at the same time all the broad view is retained from inside the living room. The radial line of large windows of the living room is oriented roughly north; this is explained by the fact that solar requirements are to some degree reversed in this part of California, with north orientation minimizing heat and glare much of the year. Where the living room glass wall curves to present more of a west exposure, it is recessed farther (see plan) for shielding against late afternoon sun.

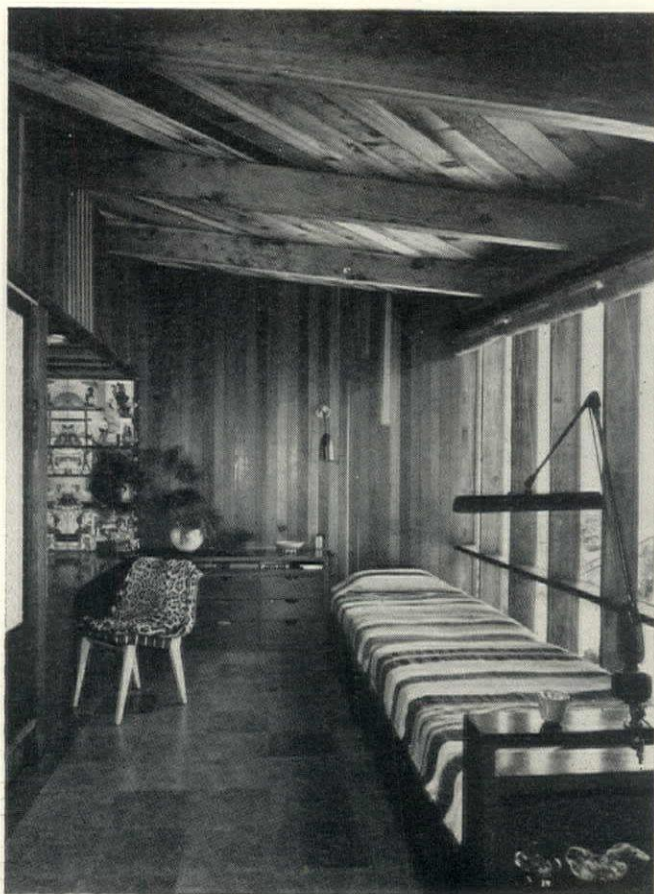
No luxury materials were used in the house. Redwood of inexpensive quality was used inside and out—stained on the exterior, oiled on the interior, varnished against moisture in the bathrooms. The upper level of the house concentrates living area in 984 sq. ft., with a guest room on the lower level complete with private bath and garden terrace. Cost, with much labor by the owner, was \$19,700 for the house, \$700 for grading, and \$2,600 for landscaping.

CONSTRUCTION OUTLINE: Exterior walls—redwood siding, sheathing. Interior—vertical siding, stone with one wall of kitchen and bath copper paneled. **ROOFING**—Flintkote Co. **WINDOWS:** Glass—Libbey-Owens-Ford Glass Co. **FINISH FLOORING**—Kentile, David E. Kennedy, Inc. **PAINTS**—Samuel Cabot Co. **ELECTRICAL INSTALLATION:** Wiring and switches—General Electric Co. Fixtures—Boyd Fixture Co. **KITCHEN EQUIPMENT:** Range and refrigerator—General Electric Co. Dishwasher—Hot Point, Inc. **LAUNDRY EQUIPMENT:** Washing machine—Bendix Home Appliances, Inc. **BATHROOM EQUIPMENT**—Kohler Co. **HEATING**—integral warm water system. Water heater—Rheems Mfg. Co.





East view of house, above, shows living room deck over guest suite. Main bedroom, right, opens on garden (see cover). Beds are built-in, sofa fashion, against glass wall.



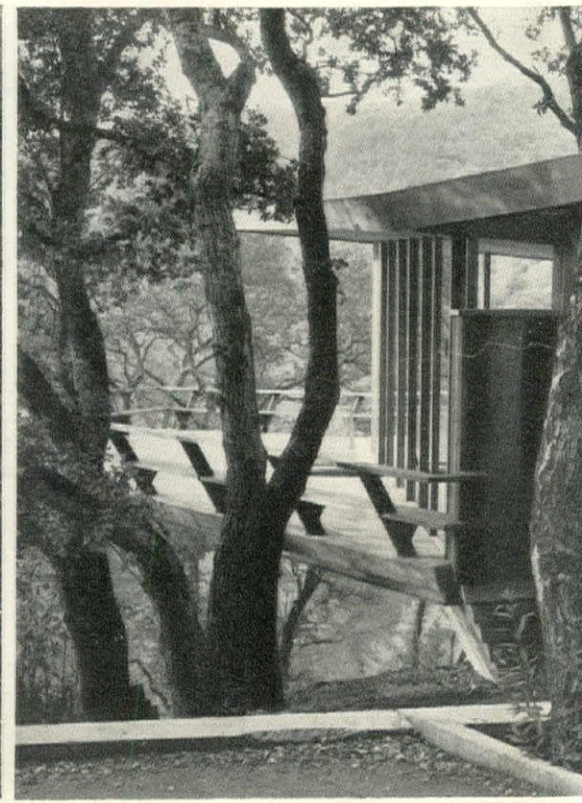
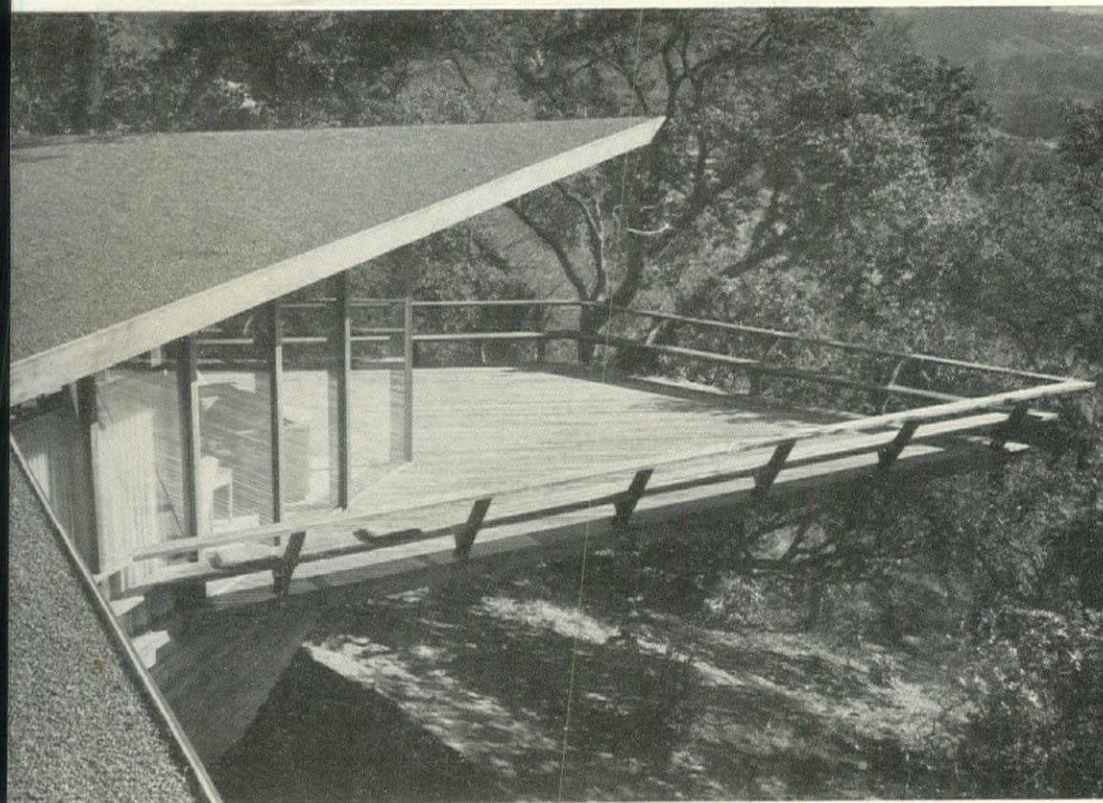
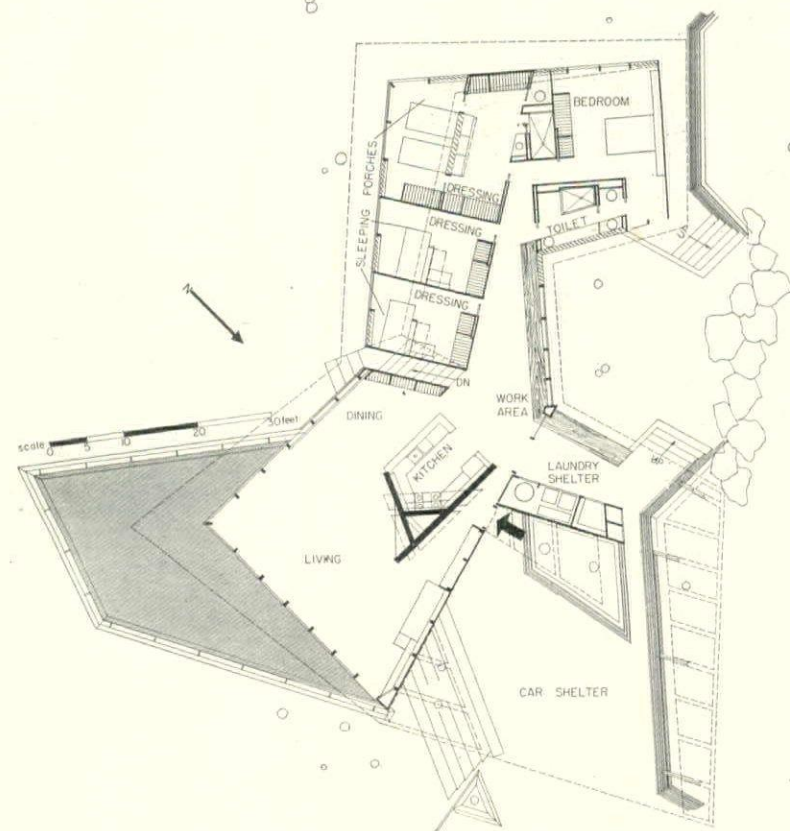
Living-dining room is 39 ft. from corner to corner, extending to deck and terrace with no change in level. Fireplace, cast in black iron, is focus of room inside.



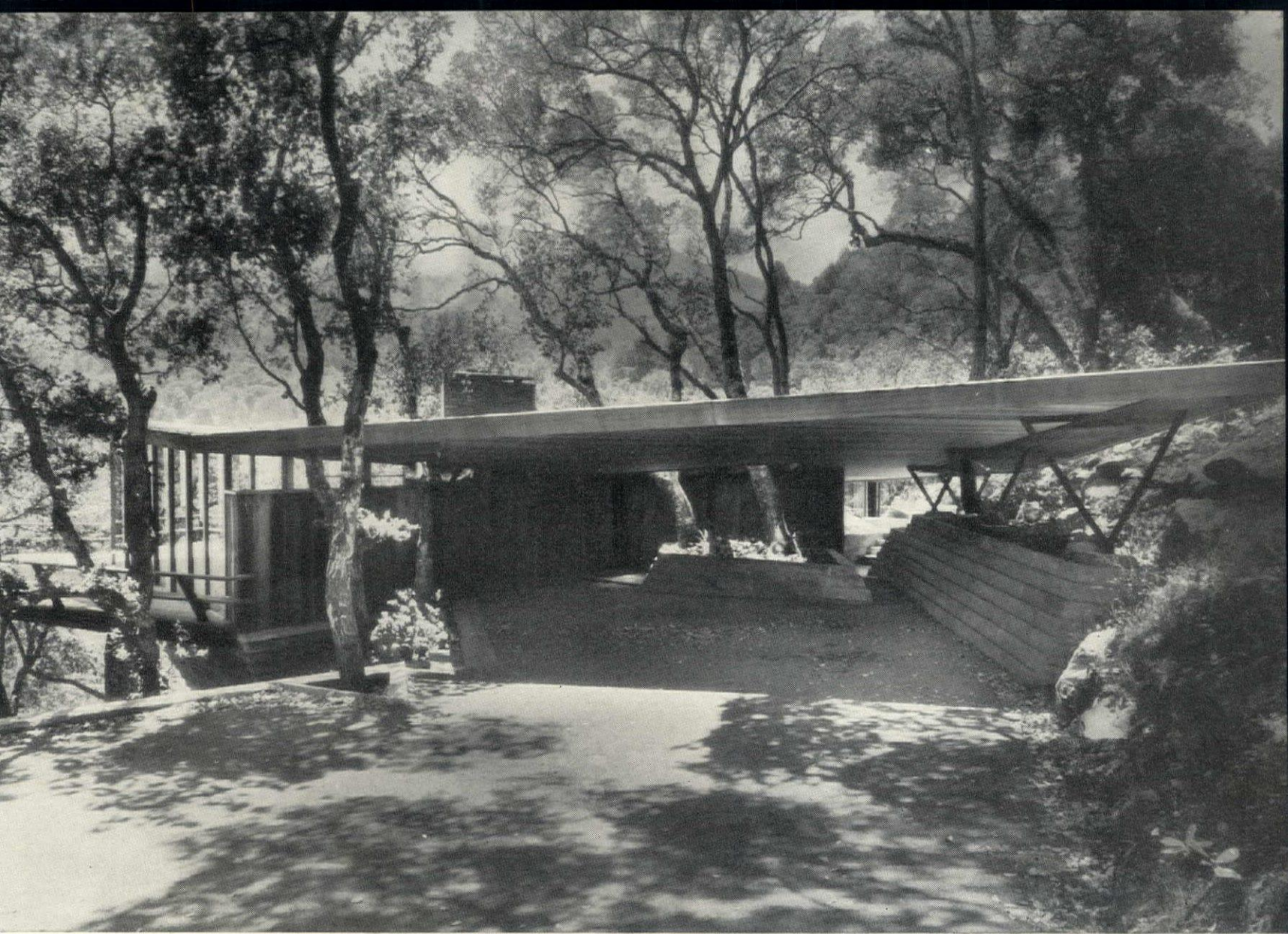
What gives this house its exciting fresh quality is a very simple strong theme handled with a new freedom. Basically the composition is a love affair between two great sweeping horizontal planes—and the sheltered space between them. The floor plane starts on solid ground with the road itself, sweeps through the house, darts out over the valley in the grand climax of a knife-sharp terrace. The great roof sheet floats magnificently above, in slightly tilted planes, and its shape plays variations on the same theme, in wood with a beautiful leaf-like graining. Between these two great surfaces the interior spaces take on ever varying irregular forms yielding exaggerated free perspectives. (See plan.)

With this major effect of free-reaching horizontality nothing is allowed to interfere. Vertical supports, by a variety of devices, are kept subordinate, weightless, apparently insubstantial (top view, opposite page), to keep the roof floating subtly "over air."

Throwing away T-square and triangles released the architects from formal geometry in their plan, and not for nothing: with straightedge alone they could more sensitively feel out contours, work around rock outcrops, build in the trees, point distant views, keep an intuitive artist's balance—and still create a building not too difficult to execute in beautiful big boards of redwood.



Living room darts out over the valley in the grand climax of a knife-sharp cantilevered terrace. Railing around terrace is also a continuous bench, seen more clearly in profile, as viewed from the driveway (right).



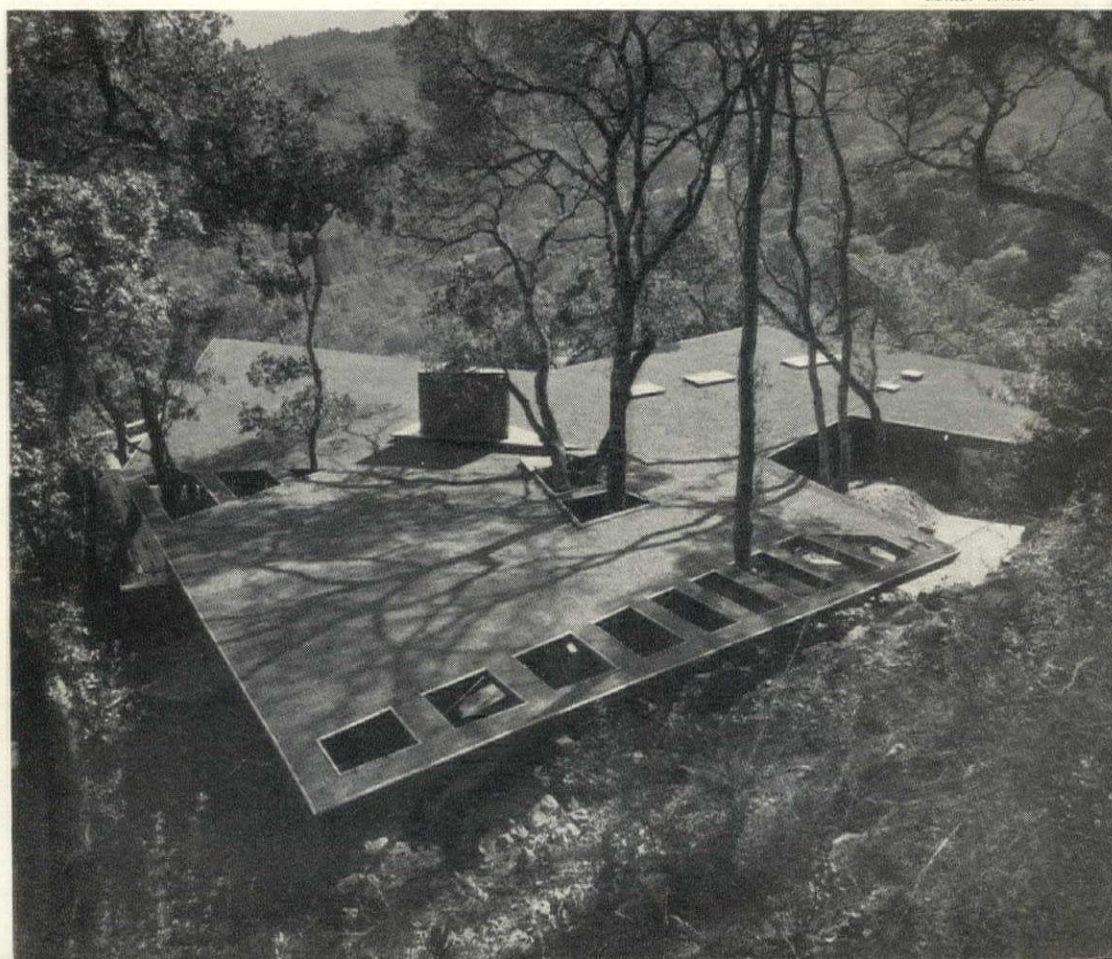
Van Ekhardt & Madden

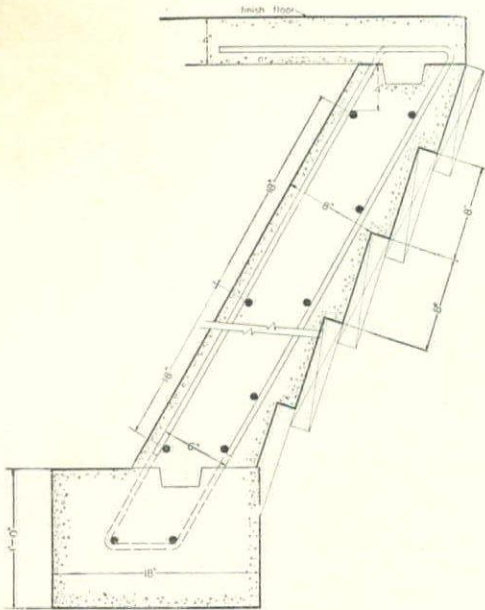
The composition is a play of space between the sweeping floor plane, starting on the solid ground of the road, and the magnificently floating, tilted roof above. Vertical supports are kept weightless, subordinate. Retaining wall is a reversal of foundation shape (next page).

Minor White

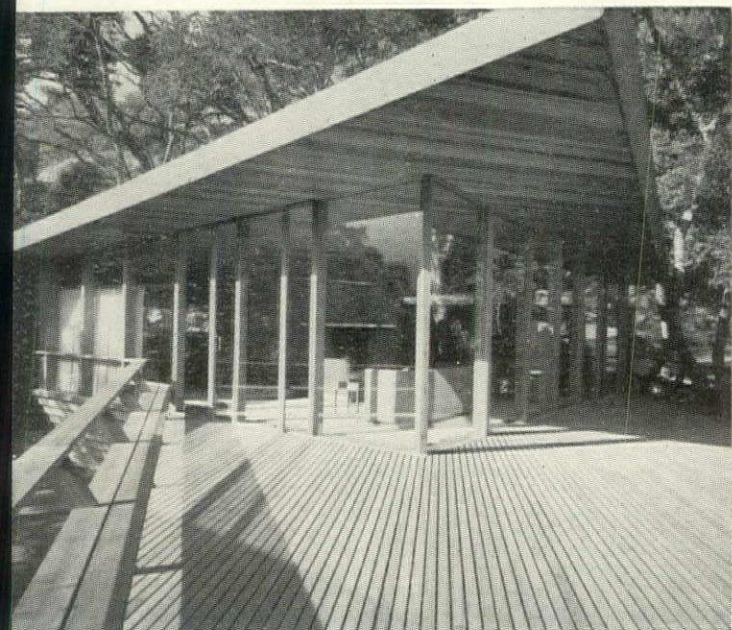


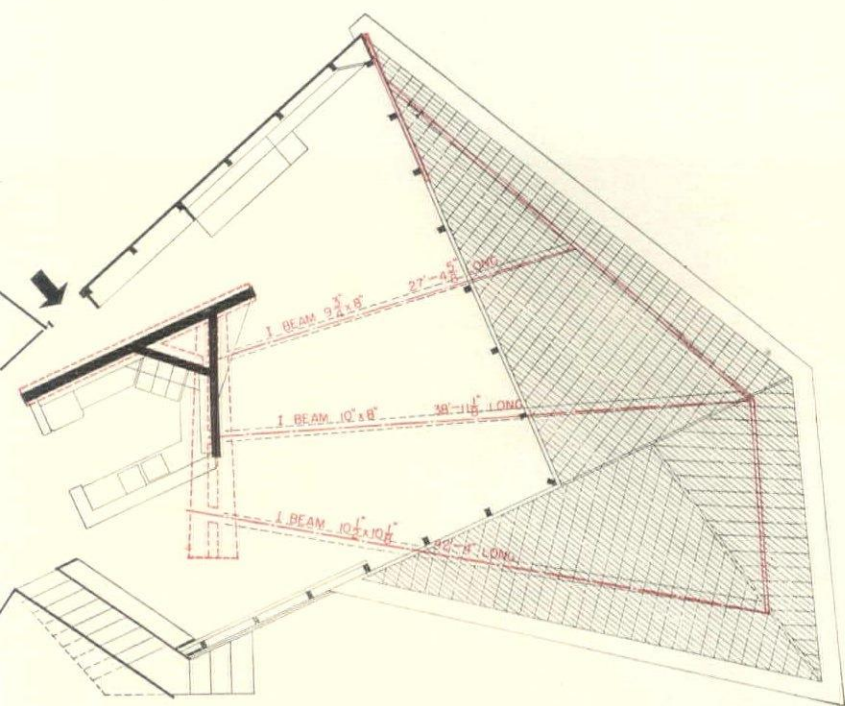
Importance of the roof plane is dramatized from above. Free shape allowed architects to balance their plan on natural features, such as trees growing through the roof, adding their shadow as arabesque. Note the rhythmical progression in the series of roof openings.





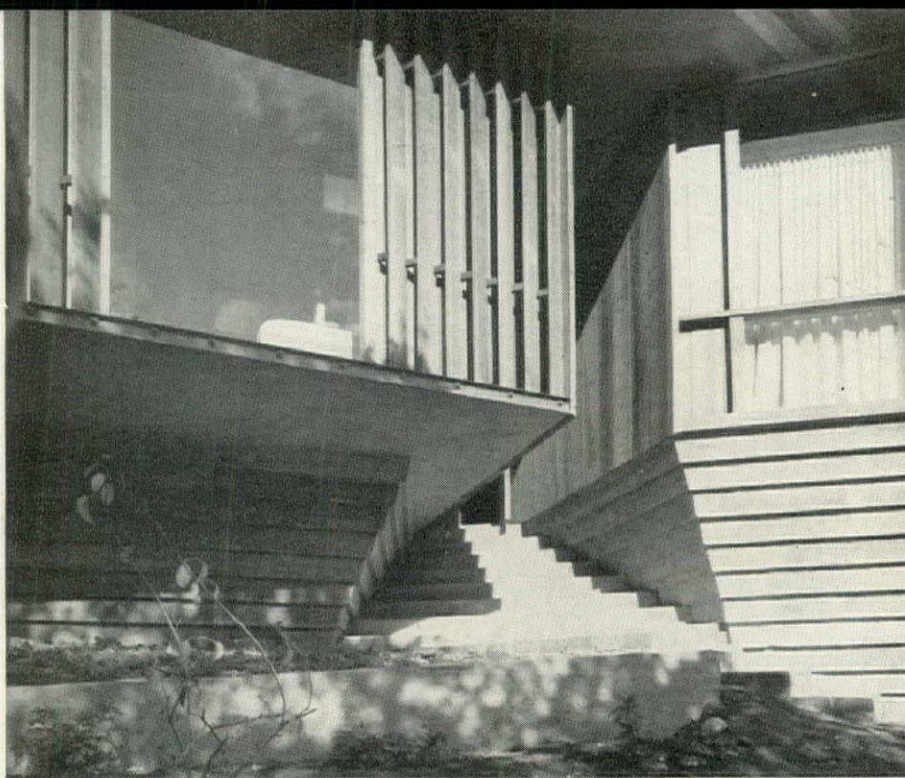
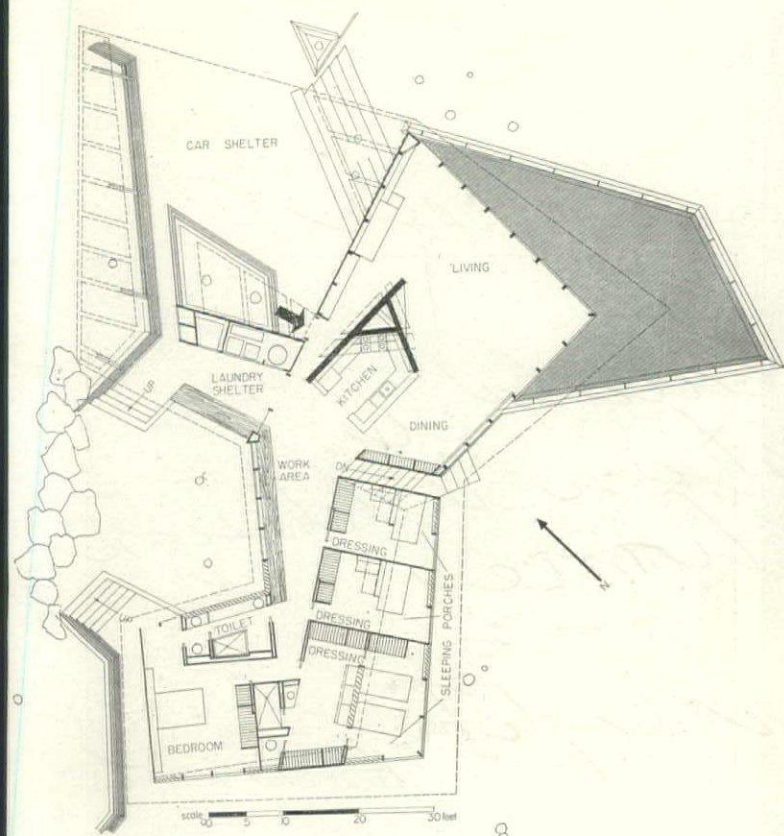
Deck boards and ceiling boards (photo, left) are laid at right angles to one another; and the boards strike the principal edges of the balcony and the roof at oblique angles.





Plan shows how steel beams, carrying the thin profile of the balcony, are anchored into the chimney mass.

How the architects have achieved the beautiful quality of the house and its bowsprit balcony is explained by the clear and consistent vocabulary of their construction. The outward flaring foundation (top color photo) is not of wood but is an 8 in. slanted wall of sprayed concrete, tied in by reinforcing with the concrete slab of the floor. Its appearance, resembling the "lap-streaked" side of a boat, is the legitimate outcome of the clever way the wood lining was used for the forms. Not only does such treatment keep the foundation in harmony with the rest of the house, but the shiplap finish will weather excellently, minimize water stain. Salvaged from an old stable, weathered redwood boards—2 x 12 in., tongue and groove—are placed vertically to serve as both structure and finish, inside and out. Only the interior surface of the boards was replaned. Glass is carried from floor to ceiling of living room (lower color photo), with only the most delicate horizontal trim so that the all-important floor plane and ceiling plane flow on past the glass wall with no sign of an interruption.

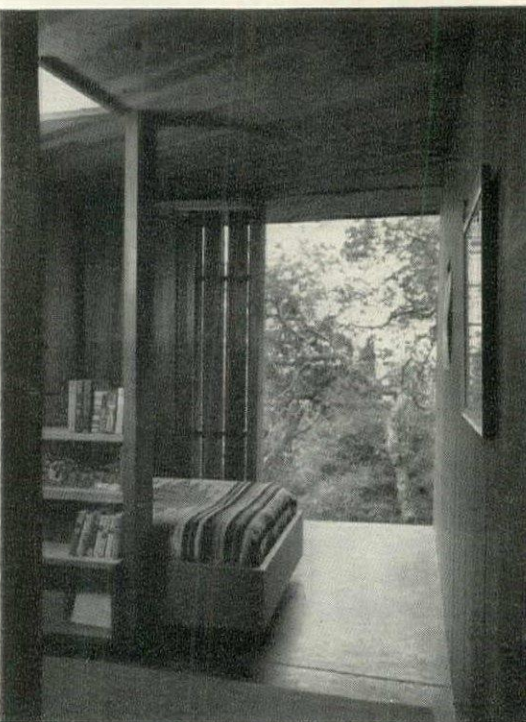


Entrance, between sleeping and living wings, features the "feathered board" elements of the structural and decorative vocabulary.

Photos: Minor White



Master bedroom and children's bedroom both have partition between the inner dressing section and the outer sleeping porch section. The "outer wall" in each case is composed half of floor-to-ceiling glass, half of vertical ventilating louvers.



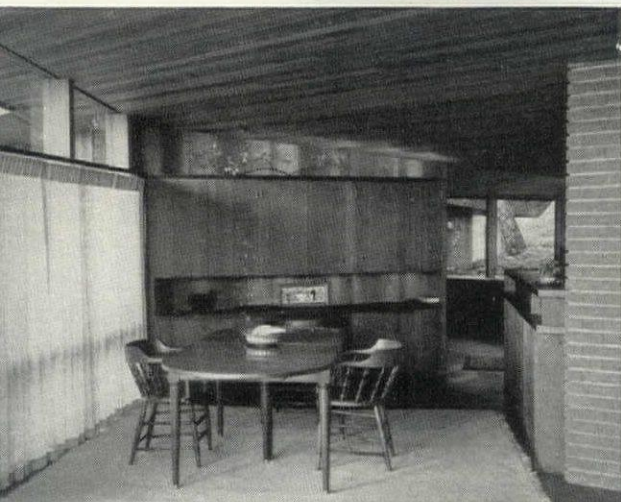
The structural simplicity of this unprecedented house is translated into a very simple, forthright and unified vocabulary of decorative detail. In the bedrooms, in particular, this comes into play. Each bedroom is dual, composed of an inner dressing room and an outer sleeping porch, separated by a partition (see plan). And each of these outer sleeping porches is faced half with a floor-to-ceiling glass wall, half with floor-to-ceiling vertical ventilating louvers. (Top photo, this page). When the effect of these vertical louvers is added to that of the "lap-streaked" foundation, plus the feathering, or leaf-like pattern of the same redwood used for through-going ceilings, there develops a rich and energetic play, all based on the theme of "the board," and all surprisingly and quite bafflingly simple. The concrete floor and brick chimney walls are a minor foil.

The plan features speak for themselves: the Wrightian interior kitchen; the charming wide passageways, the open areas, so adroitly managed as to give the owners a house to be happy in and proud of.

CONSTRUCTION OUTLINE: Foundation—gunited reinforced concrete. Exterior walls—2 x 12 in. vertical T. & G. redwood. Floors—4 in. concrete slab, Permanente Metal Co. and L. Sonneborn Sons, Inc. finishes. **ROOFING:** 5-ply, Johns-Manville Corp. **SHEET METAL WORK:** Flashing and leaders—Revere Copper & Brass Co. **WINDOWS:** Glass—Pittsburgh Plate Glass Co. **WALL COVERINGS:** Bathrooms—Transite, Johns-Manville Corp. **HARDWARE:** Schlage Lock Co. **ELECTRICAL INSTALLATIONS:** Conduit—Wire-mold Co. **KITCHEN EQUIPMENT:** Refrigerator—Electrolux, Servel, Inc. Disposal and dishwasher—General Electric Co. Ventilating fan—Emerson Electric Co. **LAUNDRY EQUIPMENT:** Washing machine—Bendix Home Appliances, Inc. **PLUMBING FIXTURES:** specially designed, stainless steel. Trim—Repeal Brass Co. Showers—Speakman Co. **HEATING:** Hot water, floor panel system. Coils—Revere Copper & Brass Co. Boiler—American Radiator-Standard Sanitary Corp. Regulator—Minneapolis-Honeywell Regulator Co.



View across fireplace corner to dining area, which adjoins "island" kitchen. Passage-way to bath and carport entrance is at right of brick wall. Kitchen serving counter is shown in photo at left.



View into kitchen from corridor of sleeping wing. Most interior woodwork is red-wood; floor is integral color (red) concrete.



THE OUTDOORS IN RESIDENTIAL DESIGN

A proposal for a new minimum standard puts the apartment balcony on a par with the bath, gives each house a useful back yard and a window big enough to take it in*

—by WILLIAM W. WURSTER

Here is a very specific and concrete proposal: that private outdoor space, with a large glass area overlooking it, be considered a minimum standard for modern homes, whether single dwellings, row houses, flats or tall apartments.

In discussing this proposal it is important to start with the fundamental question of *how people actually want to live and carry on their family and social life*, in specific, tangible terms of shelter, space and equipment. What are some of the broad facts and trends which must be thought through in their bearing on the design of homes?

First and foremost, we are becoming more and more an urban nation. During the period 1910-40 the U. S. as a whole increased 41 per cent in population, but in urban areas the increase was 76 per cent while in rural non-farm areas (mostly in metropolitan sections) the increase was only 42 per cent and there was a drop of 6 per cent in rural farm areas. These comparisons substantiate the view that the problems we face today are not in any way identical with those of 40 years ago.

Urbanization under any setup, but particularly with our present pattern of location of industry and commerce, brings an ever-increasing separation between home and work, home and recreation. Knotty problems of the "journey to work," automobile traffic on the roads and parking at journey's end are inevitably raised. Urbanization also puts stress on the intensity of land use. The more people who wish to live near a given point the less land each person can have. (We are very prone to act in America as if we had no land problem. We act as if the waste lands of the Rocky Mountains could help our metropolitan areas, but such is not so.)

All these problems raise their heads in *every* modern urban industrial society. But in our own society in America there is one special angle which makes these problems particularly acute: Most of us are tied to cities. We make our living in cities, and we demand the kinds of schools, shops, entertainment and intense and varied social life which are the recognized "urban advantages."

Unlike many of our European cousins, however, we still like to *live*, by and large, in a rural kind of way. Perhaps it is a sentimental heritage from the frontier, an innate desire for elbow room. Perhaps it is our well-known "individualism." Perhaps it's our national addiction to sun, air, exercise and general hygiene, or just our restlessness. Perhaps it comes from the way we bring up our children. Whatever the cause, we *don't* like congested living conditions; we *do* like space and freedom.

So we move out of the crowded city districts as fast as we can find something that we can afford.

* Digest of a talk before the Baltimore and Washington chapters of the American Institute of Architects.

Unfortunately, this is not a universally available solution. Ownership is not always possible and is not always sensible, considering the family cycle.

It is not merely ownership, but also the physical form of the free-standing house, which has been coming into serious question as a universal pattern or ideal. Free-standing houses, particularly the rambling one-story type that has recently come into fashion, take up a lot of land. If they are set too close together they are self-defeating. But the more they are spread out the longer the distance, by and large, to the places where people work.

Controlled outdoor space . . .

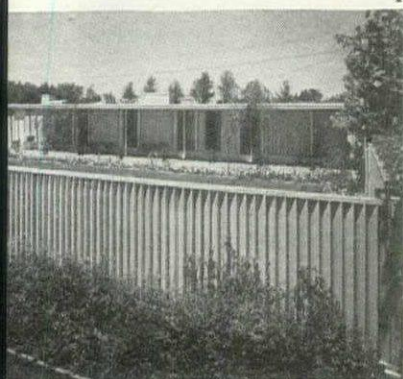
It is important to determine what people are really seeking, specifically, when they ask for free-standing cottages, and to figure out ways to provide these benefits in closer kinds of communities. Privacy and quiet could well be persuading factors for this. But probably the predominant single desire is for personally controlled out-of-door space, where the family can have a flower or vegetable garden at its door, where clothes can be dried in the sun, where the baby can be put out in a play pen or the younger children can make mud pies. This is what people want most, I think, when they vote overwhelmingly for the individual house, even though all these qualities are not necessarily confined to this type of dwelling. Every architect who is designing places for living must keep in mind the common quality which can and should in some measure be possessed by *every* home—be it apartment, row house or free-standing cottage—and that is out-of-door space, usable and private.

. . . In detached houses

Even the free-standing house itself is rarely ideal in this respect: it provides "space," but not necessarily the right kind of space for garden, play area and for private eating and sunning. For maximum use and control over the space, a yard should have a fence or wall. Here the mother can leave her baby in the sun and air and feel that no harm can come to it. It gives passive recreation for the adults and active play space for the young children up to school age. If the space be quite small, then care in the design of the fence will permit the maximum light and air—perhaps a wire mesh fence with vines, or open pickets.

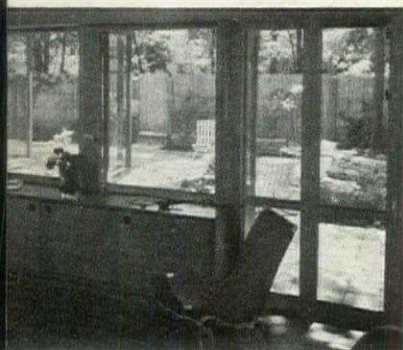
. . . In row houses

But it is not necessary to have a free-standing house to secure many, if not most, of these advantages. They may be given to the row house or the so called "garden apartment." This has been done to some extent by the Metropolitan Life Insurance Co. in San Francisco and by the John Hancock Insurance Co. in Brookline, Mass. One constructive



"... a yard should have a fence or wall."

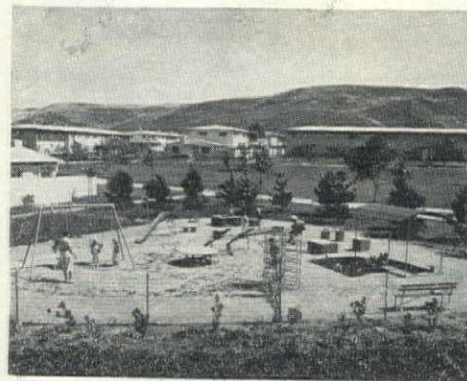
Above: Heckendorf House, Modesto, Calif.; John Funk, Architect. Below: House near St. Louis, Mo.; Huson Jackson and Joseph P. Richardson, Architects, Diedrich Ricmann, Associate.



"... A real outdoor living room ... for each dwelling ..."

Friluftstaden (Fresh Air City) at Malmo, Sweden; Eric S. Persson, Architect.





4 5

solution is having the door on the street front be the one through which everything enters and leaves the house—family, guests, groceries and garbage. This leaves the inner space for garden living with control over the young child and with no danger from gates left open by delivery men. The system also permits greater density with corresponding savings in utilities and transportation. Very much that has been said above about the plot of the free-standing households for the row house.

Far too many housing projects, private as well as public, have merely set down their row houses carelessly in a flat and featureless open field, with no real effort to enclose some *private* space or to relate it properly to interior living room and kitchen. In a Danish project by Kay Fisker, which has much greater density than we would usually permit for row houses, a real outdoor living room was provided for each dwelling by means of a high curving wall or hedge. This in turn made the walks interesting and attractive, with changing views and that sense of not seeing *everything* all at once, as one does perforce in a military camp or baseball diamond.

Garages are a special problem in this kind of scheme, but one of the few things we have really learned in the past 20 years—since Sunnyside and Chatham Village, to be exact—is that people *will* walk quite a distance to a garage compound in order to save their quiet gardens and courts from desecration. And I've always thought that even the typical San Francisco row-house plan, with the garage on the street-front under the house, had something to commend it as an idea, if not in actual execution.

... In apartments

Most of the European countries have accepted urbanization with greater grace than we have. One always feels that apartment life in the Italian cities in some way has become a goal and not something from which all desire to escape. Scandinavia is always to be viewed with praise in this regard, for it has developed some community facilities within the apartments which do much to simplify living.

But almost every apartment house built in Europe in the past 20-30 years has one thing which is very, very rare in the U. S.—a balcony. Now, at long last, we should face the fact that the demand for private outdoor space (above all in America!) requires balconies for multi-family dwellings if we are to make them anything but makeshifts or mere way-stations for the rich on their way from Maine to Florida. Not balconies put on for esthetic reasons but usable, well-located places with high nonclimbable railings for the safety of children. And each apartment should have for those who wish it a small allotment of garden space. The restlessness of apart-

ment living has much of its root in the fact that we have never regarded a balcony on a par with the bathroom. Everyone resents the fact that there can be no simple out-of-door lounging in our present apartments; instead, their occupants must dress for the street or to go down via the elevator to the garden—if there is one—or to a public park. (No harm in going to a park, of course, although it does not permit the momentary, casual touch with the outdoors that stepping out of one's door provides.)

The need for apartment balconies is not new. Holland, Scandinavia, England and Switzerland have acted upon this knowledge for years. The much-used fire escapes of the New York tenement have proved the desire for a balcony—if we would but observe it. But no, we are prone to follow blindly that more modern slum, Park Avenue, where apartments have neither view nor out-of-doors so the only hope is to use them for as short a period as possible. I would feel greater hope if some of the new apartments in New York realized how wrong they are—Stuyvesant Town and Fresh Meadows, for instance.

To become *positively* good, apartments must take full advantage of their compact form to make life simpler and easier. They must encourage the kind of cooperative living and highly developed social life they make possible. Again, the Scandinavian models—with their restaurants that send up cooked dinners, their 24-hour nurseries and whatnot—point the way. With the trend toward weekend and vacation shacks in real country, where people can satisfy all their most "individual" desires and enjoy complete solitude, there may be more and more people, even in America, who would like the impersonal ease of living in a really modern apartment during work and school days.

Varying regional, climatic and cultural demands will enter this picture in wide variety, but one basic human wish is clear; to be able to enjoy the out-of-doors if and when it is wanted.

... Through big windows

Also necessary is a large glass area in at least one of the rooms—controlled from glare. With this all can enjoy the changing sky and season no matter what the weather conditions are. (Years ago I moved into an office with continuous windows, and the whole day became richer.) Without expenditure of effort in a busy life or money in a frugal one, the day expands. This I would term controlled out-of-door space with a real importance to the lives of the people. This would help us achieve the new minimum standard for modern houses: private green space which may be enjoyed inside as well as out-of-doors.

"... Simple, out-of-door lounging in our present apartments."

Left: Baldwin Hills Village, Los Angeles; Reginald D. Johnson and Wilson, Merrill & Alexander, Architects. Right: Valencia Gardens, San Francisco; Harry A. Thomsen, Jr. and William Wilson Wurster, Architects, Thomas D. Church, Landscape Architect.

6



"... Not balconies put on for esthetic reasons but usable, well-located places with high, nonclimbing railings for the safety of children."

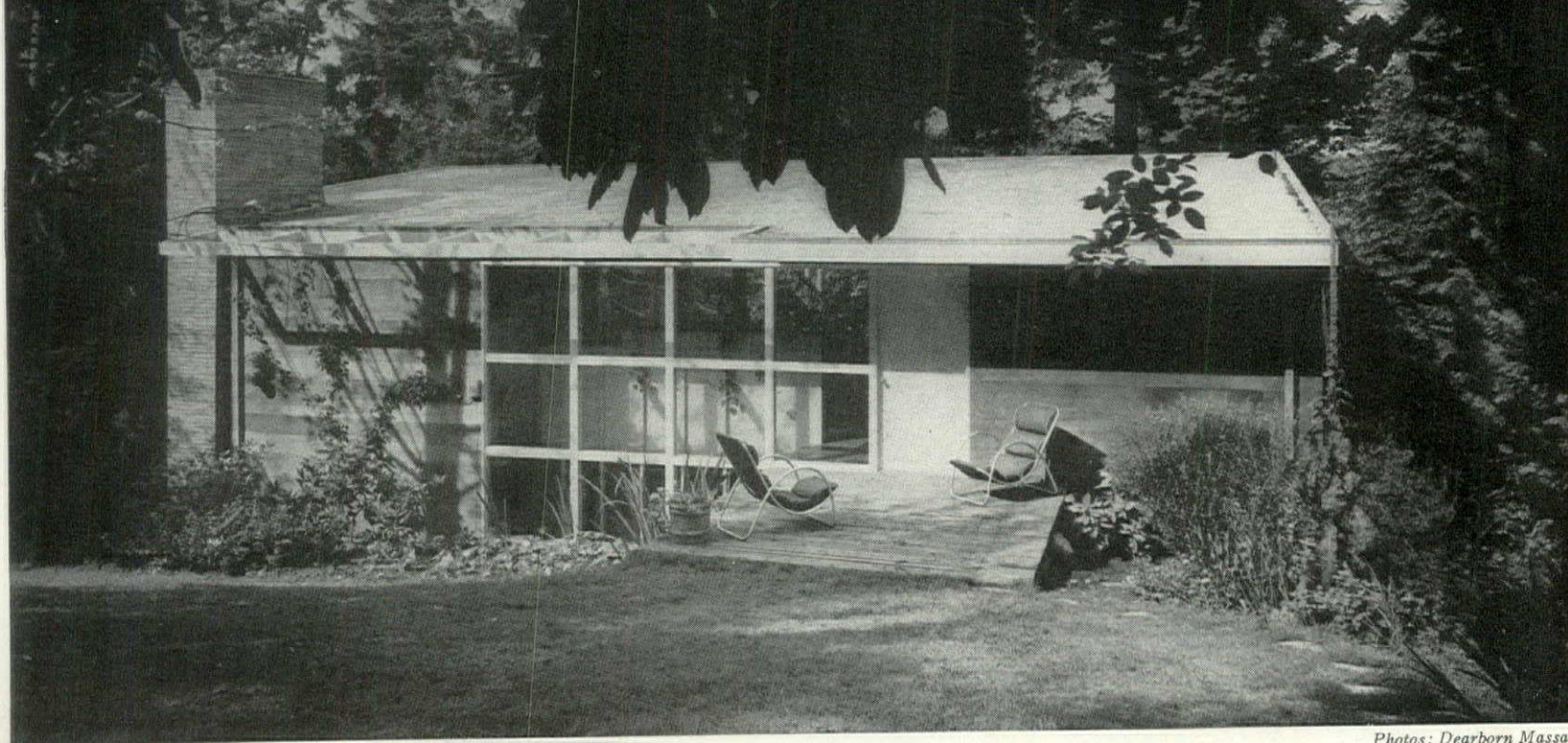
Callaway Apartments, Georgia Institute of Technology, Atlanta, Ga.; Stevens & Wilkinson, Architects.

"... The demand for outdoor space requires balconies for multi-family dwellings..."

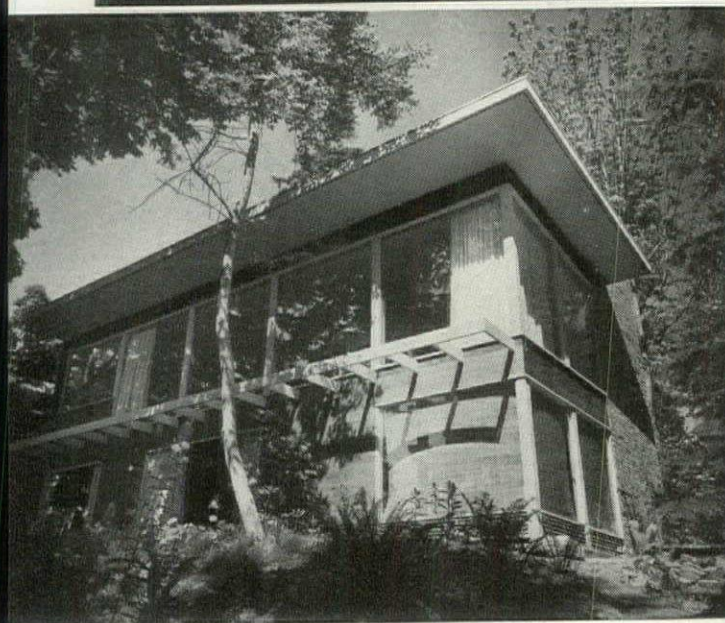
Apartments, New York City; Leonard Schultze & Associates, Architects.

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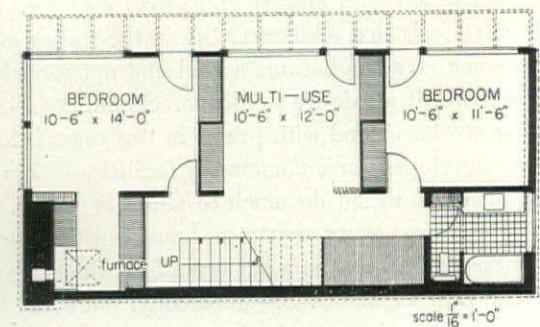
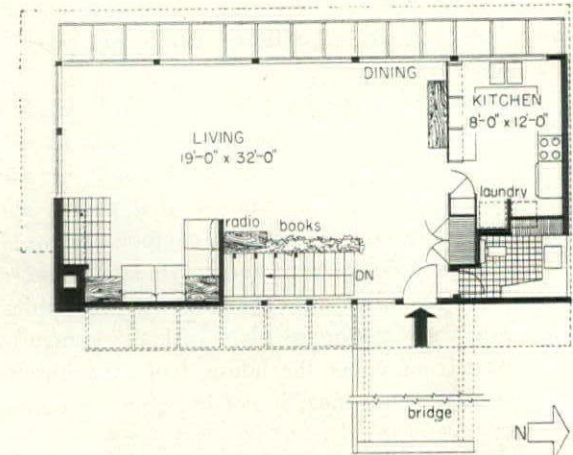




Photos: Dearborn Mass



Approach to house is at rear (above). Essentially boxlike proportions, as seen at left, are nicely broken by large glass areas, the trellis and by the overhang of the shed roof. Both floors overlook the lake.



Complete, floor-through circulation is gained by screening kitchen only part way to ceiling. Vertical interior siding and large pressed wood floor tiles give the living-dining a feeling of warmth and informal graciousness.

Upper floor of hillside house is big living area with three-way view

In adapting this small house to a steeply sloping site on the east shore of Lake Washington, the architects have literally up-ended the standard floor arrangement to give the living area the full top floor and a three-way view. Except for the bath and half-partitioned kitchen, the whole floor is actually one big room, with break-up achieved by a fireplace corner, a bookcase-partition which separates the stairs from the main part of the room, and furniture groups. Floor to ceiling windows in both front and rear invite guests to enjoy a dramatic view of the lake, or the gentler landscape on the approach side of the house. Since most of the glass is fixed, ventilation is through the open front door (a year-round method in Washington's mild climate) and under-window louvers, which can be closed if necessary. A roof overhang on the western wall shields the windows against frequent rains and, to a lesser extent, shades the room from the sun.

Vertical cedar paneling, a built-in fireplace seat, and a bearskin rug give the room a feeling of rustic naturalness in keeping with the house's hillside setting. Bedrooms, on lower floor, enjoy the same view of the lake and, like the living area, are distinguished by clean-cut, simple detailing.

LOCATION: Bellevue, Wash.

CHIARELLI & KIRK, Architects

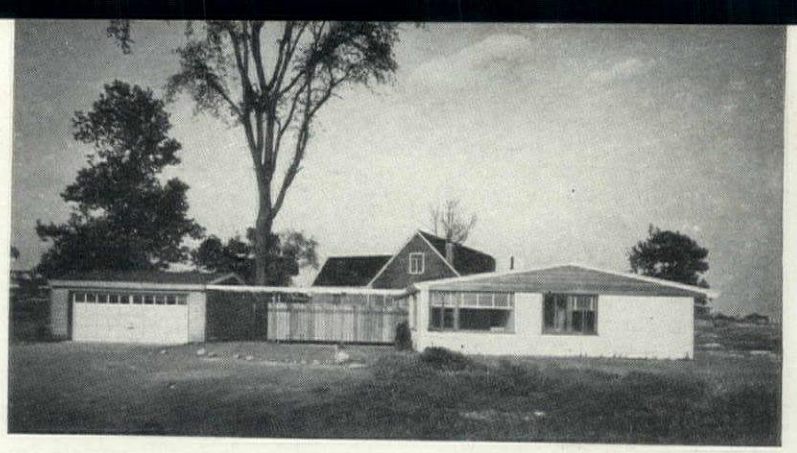
GUY E. MCFARLAND & SONS, Contractor

CONSTRUCTION OUTLINE: Exterior walls—red cedar, building paper, 15 lb. rag felt, shiplap and studs; inside—red cedar. Ceilings—plaster. ROOFING—built-up. WINDOWS: Sash—fixed, Whitco adjusters, Vincent Whitney Co. Glass—plate, crystal sheet or obscure. FLOOR COVERINGS: Living room—Masonite, Masonite Co. Kitchen and bathroom—linoleum, Armstrong Cork Co. PAINTS—Benite Co. and W. P. Fuller. CABINETS—plywood, U. S. Plywood Corp. ELECTRICAL FIXTURES—Prescolight Co. Switches—Bryant Electric Co. KITCHEN EQUIPMENT: Sink and dishwasher—General Electric Co. LAUNDRY EQUIPMENT: Washing machine and drier—Bendix Homes Appliances, Inc. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Corp. HEATING—electrical radiant system, wires in ceiling and floors. Water heater—National Steel Construction Co.

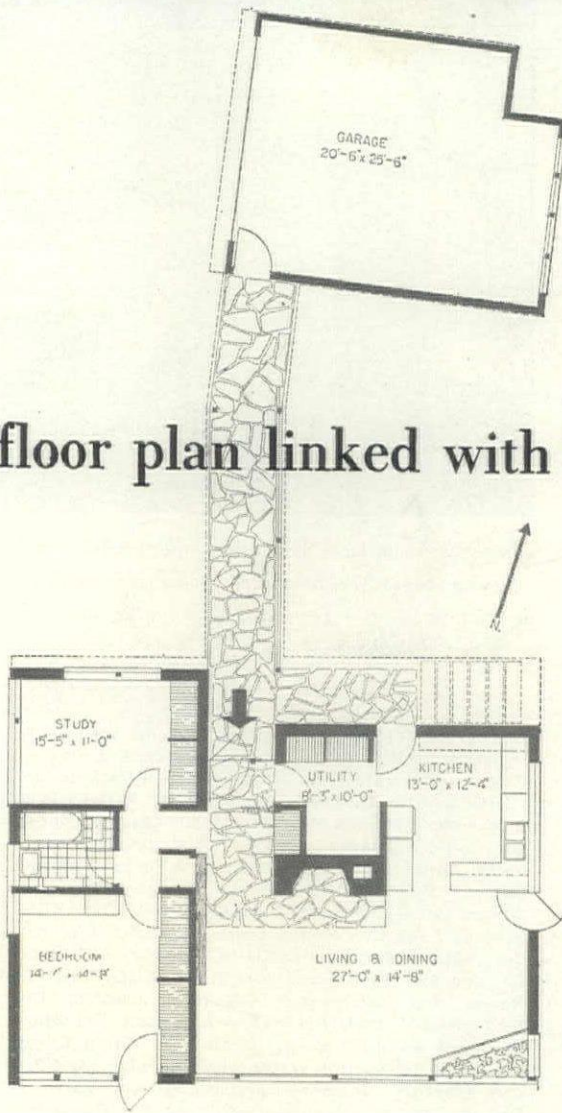
Slope of shed roof, unmasked inside, helps open up view to the west, and modifies the rectangular proportions of the room (right). Book shelves, storage cabinet, and partition separate stairway (below), which also acts as a light well for lower floor. Stairway is ideally out of the living area, but convenient to entrance.







Open floor plan linked with the outdoors enlarges a small house



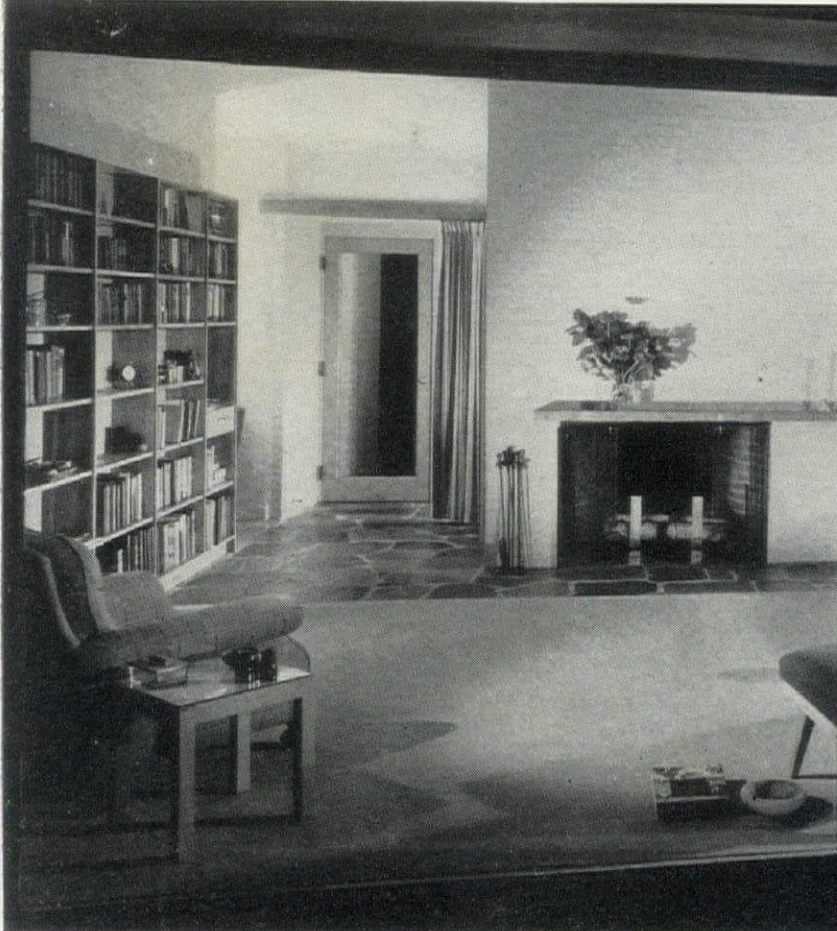
LOCATION: Swampscott, Mass.

CARL KOCH & ASSOCIATES, Architects

JOHN F. CAREY, General Contractor

Although the photo at the left might suggest that this compact, five-room house had been built on a desert island, it actually occupies a fairly small (8,400 sq. ft.) lot in an ocean-side subdivision. Architect Koch has nevertheless given it individuality, a view and privacy. The neat, trim design might easily be adapted for modern builders' houses. Orientation affords a good view of the ocean through a 26 ft. glass front, and a 7 ft. 9 in. sliding glass door virtually turns the living room in to a screened porch in summer. A terrace provides a dining room out doors. The service yard is separated from the approach by a trellis-covered walk and wooden screen. Altogether, the house is handsome to look at and warm in feeling, digesting something of the local tradition—the low gabled roof—into a freely expressed modern design. Simplicity of design and construction held the cost of the 1,200 sq. ft. house, 500 sq. ft. garage and 160 sq. ft. pergola to \$15,600, excluding land.

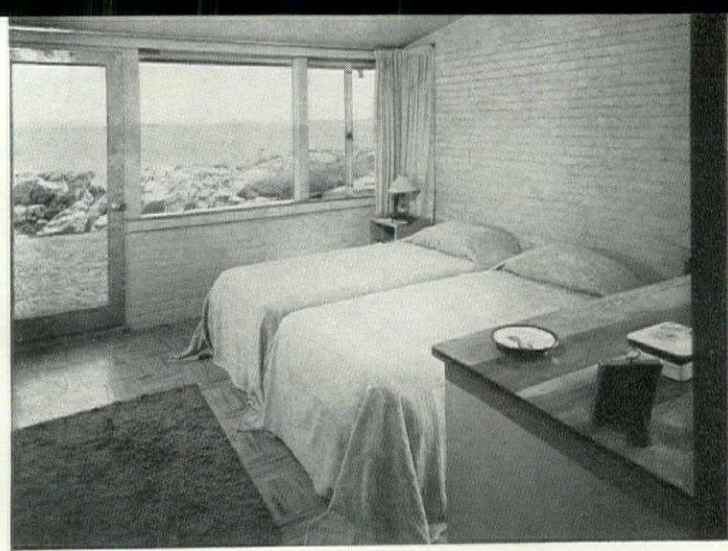
Photos: Ezra Stoller: Pictor



Entrance hall, living-dining area, and kitchen are one free-flowing space, with fireplace as hub. Flagstone entry way joins hearth, while mantel turns corner to become kitchen counter.

Taking advantage of its seashore location, the house provides excellent through ventilation by means of a wide hall which joins the flagstone entry walk on the approach side with the living room, which opens to the sea (large photo, below). A total of five doors, as well as swing-out windows, insure ample cross circulation.

Structurally, the house was designed with an eye on economy. Exterior painted brick walls are repeated inside in all rooms except kitchen and bath. The gentle slope of the roof is exposed to view inside. Storage walls furnish plenty of closet space. Cabinets, a dressing table and dressers in the master bedroom are all built-in. Guest room doubles as a study, has a hide-a-bed and a wall of open shelves.

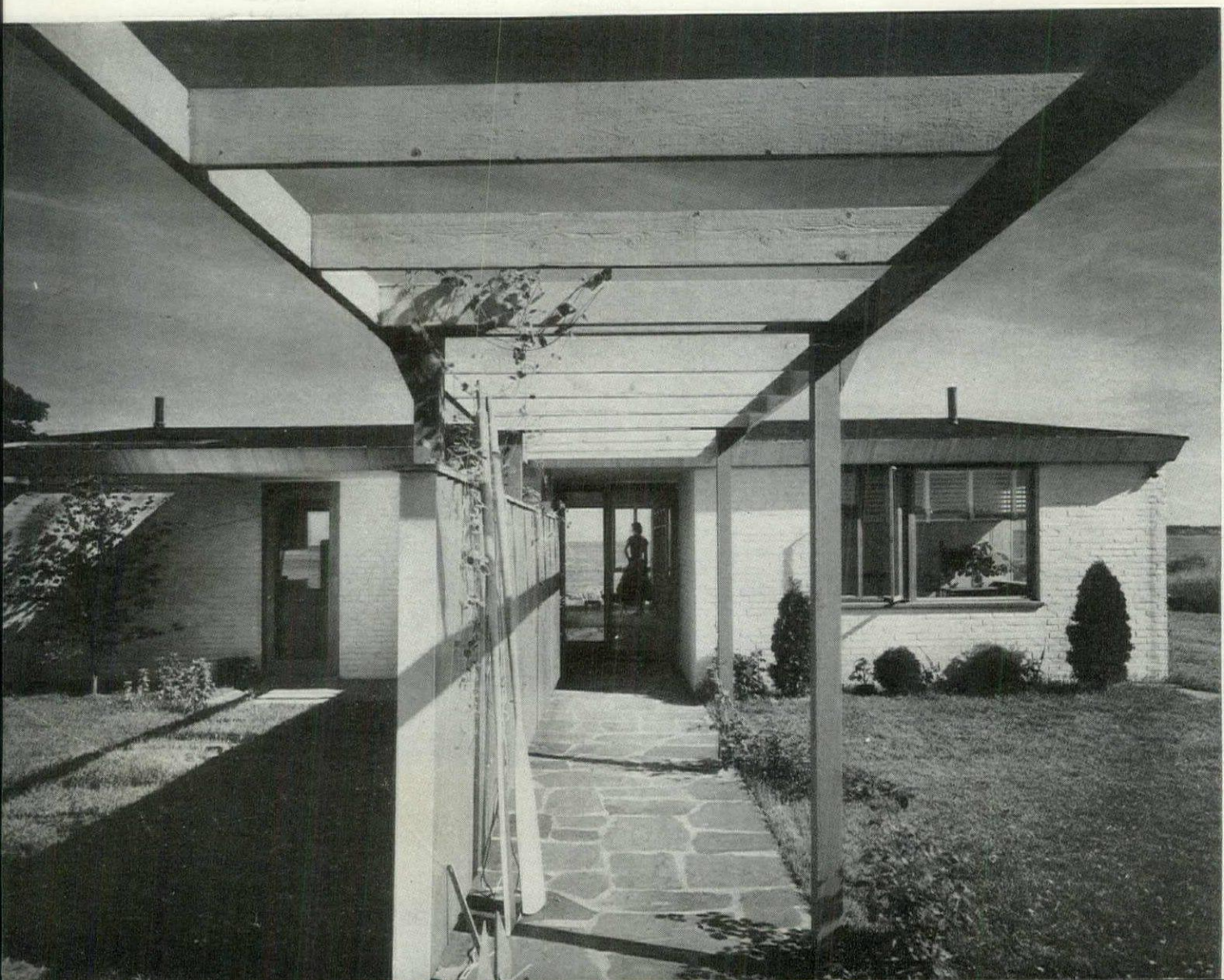


Master bedroom faces west, has complete privacy and morning shade. Note unmasked gabled roof and brick interior walls—two cost-cutting factors in the construction of the house.

COST BREAKDOWN

Foundation	\$860	Plaster	278
Sewer	100	Cabinets (from mill)	1,200
Brick walls	1,057	Paint	575
Concrete floors	300	Hardware	179
Chimney	450	Flagstone	500
Framing	2,058	Heating	1,350
Windows and glazing	740	Pergola	167
Insulation	109	Garage	1,573
Plumbing	1,025	Miscellaneous	126
Doors, screen doors and hardware	400		<hr/>
Finish labor (windows, trim, doors and cabinets)	350	Plus 10 per cent.	1,397
Roofing and gutters	350		<hr/>
Electricity	275	Insurance	200
Weatherstripping	45		<hr/>
			\$15,564

CONSTRUCTION OUTLINE: Exterior walls—10 in. brick cavity; inside—concrete block and plaster. Floors—concrete slab. ROOFING—Flintkote Co. FIREPLACE: Damper—Donley Bros. WINDOWS: Sash—steel Hope's Windows Inc. Glass—Libbey-Owens-Ford Glass Co. Weatherstripping—Chamberlin Corp. PAINTS (exterior)—Medusa Portland Cement Co. DOORS—Paine Lumber Co., Ltd. Garage door—Overhead Door Corp. HARDWARE—Schlage Lock Co., Knappe-Vogt and Richard Wilcox Corp. ELECTRICAL FIXTURES—Sylvania Electric Co. and Swivelier Corp. KITCHEN EQUIPMENT: Range and refrigerator—General Electric Co. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Corp. Cabinets—Philip Carey Co. HEATING—hot water pipes in slab, Bethlehem Steel Co. Burner—Lynn Burner Co. Valves—Bell & Gossett. Regulator—Minneapolis-Regulator Co. Water heaters—Taco Heaters.



A NEW METHOD OF MERCHANT BUILDING

Big Builder Frank Sharp of Houston teams up with 13 small builders to combine the economies of both big and little operations

One of the best ways to get building costs down is to harness the profit motive to economy. On that theory, Big Builder Frank Sharp of Houston has worked out an extraordinary free-enterprise system of piecework and subcontracting which gives every man working in his 1,132-acre Oak Forest development a personal stake in more efficient construction. He has, in fact, pushed the process of decentralization so far that 1) someone has claimed that he is building his 4,780 house project with only one man and one girl on his salary payroll and 2) it is rumored to the contrary that he has stopped building altogether.

These rumors are, of course, grossly oversimplified descriptions of the new merchant building technique which Sharp is pioneering, but they do dramatize the general truth behind his remarkable operation: that most of the work is farmed out to individual builders, subcontracting specialists and, in turn, to labor on a piecework basis.

Sharp and his subsidiaries develop and sell the land, maintain a library of house designs, furnish the precut lumber, assist in the merchandising of the houses, handle the builders' bookkeeping and assist them in financing themselves and the houses they build. But he does no building. Thus, Sharp controls the development of his big subdivision, and earns a tidy profit with none of the headaches and risks that go with actual house building. On the other hand, the builders, their subcontractors and their labor are reaping the benefits of a large scale operation.

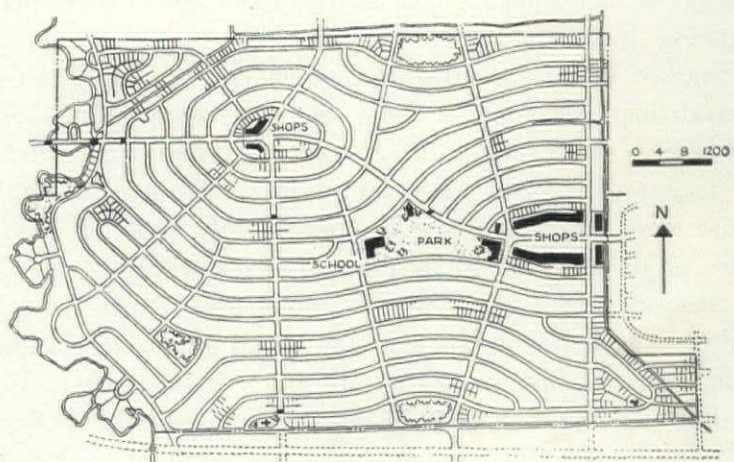
Sharp "invented" this new technique to rescue himself from the high cost of centralization. He began Oak Forest in 1946 in the traditional manner, keeping all of the work within his various subsidiary companies (FORUM, July '47). By the time he had completed 890 houses and reached the production rate of 100 houses a month, unit prices were out of hand, overhead was terrific and eating into profits. Another reason for the shift in his operating technique was last fall's change in the trend of material prices—says Sharp: "Nobody with any sense ever does speculative building in a descending market."

Sharp knew that there were economies inherent in many phases of his big building operation, but he also saw small builders meeting and often beating his total production costs. This, he reasoned, was because small builders can be on the job all day watching every nail driven, making sure that every man does a good day's work, and otherwise saving money through close self-interested supervision. In Sept. 1948 Sharp decided to cross-fertilize the best features of his large scale operation with the best features of the smaller builder's technique.

Big builder benefits

Into the merger Sharp brought everything that he knew could be done cheaper by the dozen. First was the land, which

Sharp bought at \$400 per acre, developed with utilities and paved streets at a cost of \$1,000 per acre and now sells for an average of \$1,350 per typical 60 x 120 ft. lot. (The builder includes this lot at \$1,500 in his sales price.) Then came the financing which Sharp arranges (mostly with Investors' Syndicate) on better terms than the small builder can obtain. Also into the merger went an excellent design service—a portfolio of different floor plans and exterior variations of proved consumer acceptance which Architects Wilson, Morris & Crain produce for Sharp at \$50 per house.



Oak Forest's 1,132 acres have been subdivided by Sharp into 792 acres of house sites (4,780 lots); 50 acres of park, church and school sites; 20 acres of business property; and 270 acres of streets. The patterns of curved streets center around two shopping centers.

Other Sharp contributions: 1) a big lumber yard (backed by two West Coast mills purchased by Sharp during the days of scarcity) where Oak Forest builders may take advantage of Sharp's quantity buying (the mark-up is only 20 per cent) and where their framing members are precut to size at no additional cost; 2) a millwork plant with production priority and discounts for Oak Forest builders—Sharp figures his prices by adding 10 per cent to the price list of a big Texas wholesaler, so the millwork bill for a typical five-room house comes to only \$610; 3) an accounting department which helps Oak Forest builders keep careful tab on the day-to-day cost of each house; 4) expert advice on advertising and selling techniques.

Small scale specialists

Most important of all, Oak Forest offers its builders the benefits of a highly specialized subcontracting system. With a great many houses going up in one development (Oak Forest's 1949 total will be about 900), a subcontractor can afford to send trained crews of specialists from house to house. One crew of carpenters, for instance, does nothing but the framing. Another handles sheathing; still another limits its work to interior finish, and so on. Sharp still speaks of the costs in his development as if they came out of his own pocket. "When

the carpenters were on my payroll," he says, "they used to cost me \$2,400 a house. Now they are working for themselves and they cost me \$900 a house." That is only about \$1 per sq. ft., and it includes a \$145 to \$165 profit for the subcontractor. This subcontracting system makes it unnecessary for a builder to have more than three men on his pay roll: A general superintendent, a clean-up man and a bookkeeper.

Although they make as much as union labor paid by the hour, Oak Forest's labor is nonunion and is paid on a piece-work basis. A cement finisher gets a flat fee of \$17.50 per house; and a bricklayer is paid \$50 a thousand and furnishes his own mortar and scaffolding. Sharp estimates this piece-work labor costs \$1,000 a house less than hourly paid labor. (He used to pay \$36 a day for the laying of only 400 bricks, and the cement finishing job used to run close to \$100 per house.)

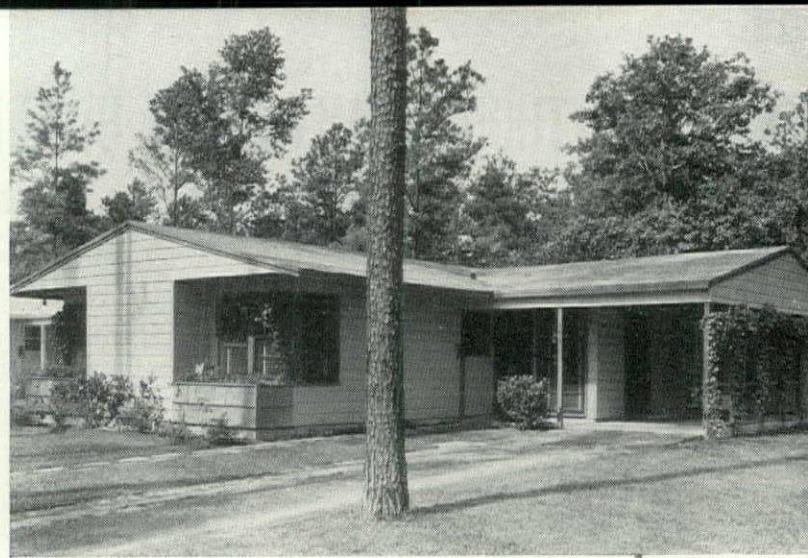
Sparked by the incentive of free enterprise, Oak Forest's specializing subcontractors and their piece-working labor combine to shave costs on every contract. Plumbing, including an automatic dishwasher, for a typical five-room-and-bath house now averages \$705, compared with \$900 in 1947 when no dishwasher was included. Electric wiring comes to \$3 per opening—a total, for example, of \$18 per typical bedroom, including equipment (three wall plugs, one ceiling light, one wall switch and one pull-socket in the closet). Asphalt shingle roofing costs \$8 per square; built-up roofing on lower pitches, \$10 per square. Asbestos siding, excluded from carpentry figures mentioned above, \$6 per square. Solid exterior sheathing, \$30 per house. Plaster board, including its hanging and taping comes to \$60 per house; and interior trim, \$115. Painting inside and out, averages only about \$450 per job.

Combined with the benefits of Sharp's large scale operation, these down-the-line economies have helped keep Oak Forest's sales prices below the competition. Total sales price per square foot, including carport and lot, runs \$7 to \$9. This is well below last year's level. The typical Oak Forest house, which last summer sold for \$8,900, is now priced at \$8,600 and includes \$410 of additional sales appeal which was not needed in last year's sellers market: an attic fan at \$115, a central heating unit at \$185 plus \$60 for duct work and an automatic dishwasher at \$50. Thus, the buyer receives a \$710 better value than he did a year ago.

Thirteen builders: one architect

In view of Sharp's many inducements, it is small wonder that Houston builders have been quick to team up with him. Today, thirteen* are operating in Oak Forest. Despite this decentralization, however, Oak Forest still presents the unified appearance of a one-builder development. The reason for this is Sharp's control of the project and the fact that most of the builders have taken advantage of Sharp's home design service and have built homes designed by Architects Wilson, Morris & Crain—such as those shown on these pages.

* P. S. Luttrell, Marvin Henry, A. R. Foster, L. E. Kerbow, Frank E. Dailey, H. R. LeMay, A. Mascari, B. B. Bettell, Thomas & Carol Construction Co., Brace & Carruth, Big State Construction Co., Sam Puchett and McWilliams Construction Co.

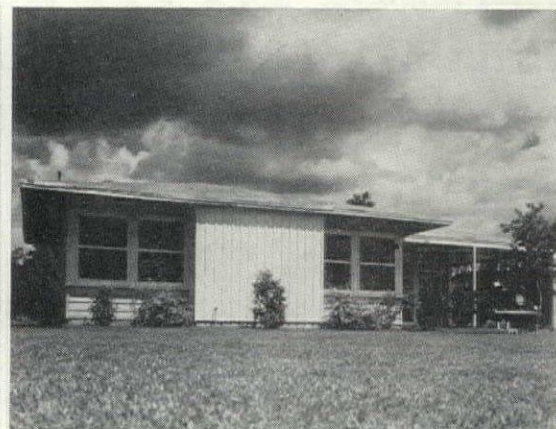
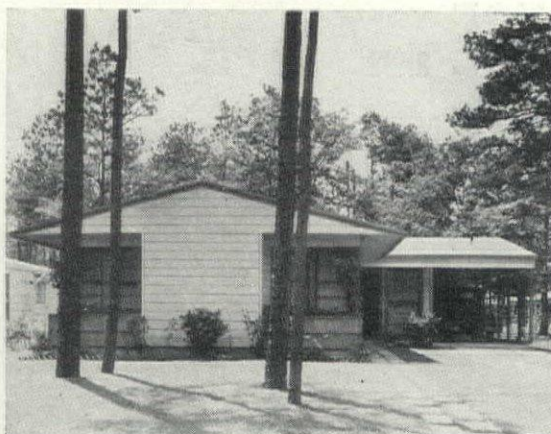
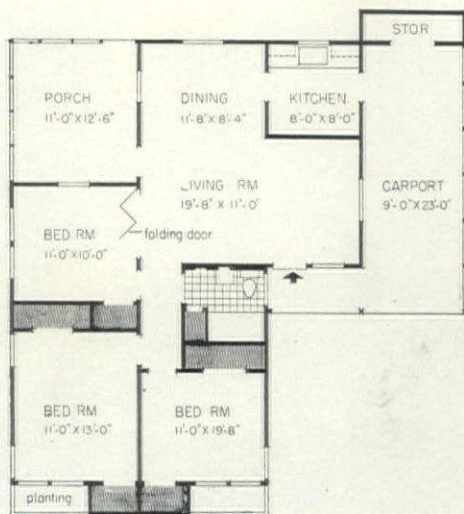


House design at Oak Forest features infinite exterior

Photos: Bob L.



\$8,875 house contains 1,076 sq. ft. including open carport and a screened porch (304 sq. ft.) opening off living room and one of two bedrooms. One end of kitchen projects out under the big eave. Note big closets in carport and hall. Sales price per sq. ft.: \$8.20, including land.



variation, standardized rooms, ground-hugging lines and outboard closets beneath big eaves

At a glance all the houses in Oak Forest seem different—and, thanks to minor variations in exterior treatment, most of them are. Actually, the first group of 890 houses built by Sharp himself were based on 150 different plans by Architects Wilson, Morris & Crain. Under the decentralized program, however, only a half dozen basic plans are offered to Sharp's builders. But, even these six are so modified by various orientations, porch and entrance details, exterior siding materials, color schemes, and other superficial treatments, that the entire development presents a pleasant appearance of unified but individual house design.

Although no module is used in the design of these houses, construction is simplified by the repetition in most plans of standard 9 x 6 ft. 10 in. bathrooms and standard 9 x 10 ft. kitchens and by the fitting of all other rooms beneath standard 10, 12 and 14 ft. roof framing members.

The design of all houses is characterized by these sense-making details: 1) A low over-all appearance is created by setting the house close to the ground on a concrete slab floor and by extending the low-pitched (one-in-four) roof 3 ft. beyond and 9 in. below the plate. 2) Windows are many and large and are protected from Texas' burning sun and sudden summer showers by the generous eaves. 3) To conserve bedroom space, closets are projected outside of the main house perimeter beneath the roof overhangs. 4) Waste interior space is further reduced by holding hall areas to a minimum and by using sliding doors on all closets. 5) Garages are frequently replaced by open carports which may double as rainy-day play areas. 6) Each garage or carport has its own "out door" closet for the handy storage of garden and play equipment. 7) Exterior color schemes include green, gray, pink, brown and white—a distinct break from Texas' all-white tradition. 8) Sharp's design service includes careful orientation of the house not only to the street but, more important in hot Houston, to the prevailing southerly breeze.

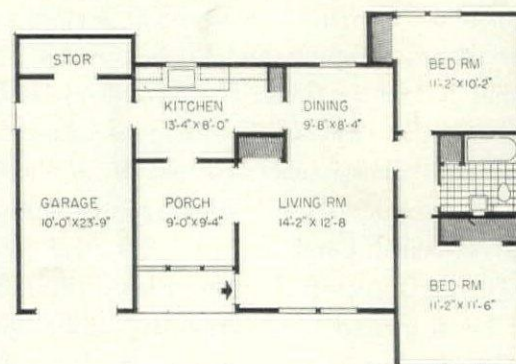
In general, the design of Oak Forest's houses is more modern than that in most local subdivisions. Sharp believes in paying for good design, as modern as the public will accept. Hence his selection of Wilson, Morris & Crain who have a progressive, modern reputation. Says Sharp, "One of the most important lessons the merchant builder must learn is that, when he adds good design to his houses, he is adding more dollars to his profits than he could add proportionately in any other way." The fact that Oak Forest houses are selling faster than in any other Houston development (and in a tough market which has prompted Sharp to say "Houses are as hard as hell to sell now") gives weight to Sharp's advice and credit to his architects.

\$10,050 house (left, above) contains 1,273 sq. ft. including 366 sq. ft. in carport and porch, thus sells for \$7.90 per sq. ft. (Excluding land, cost per sq. ft., according to breakdown below, was \$6.40.) Note modification of fenestration and outboard closet treatment in house of same floor plan pictured at right, above.

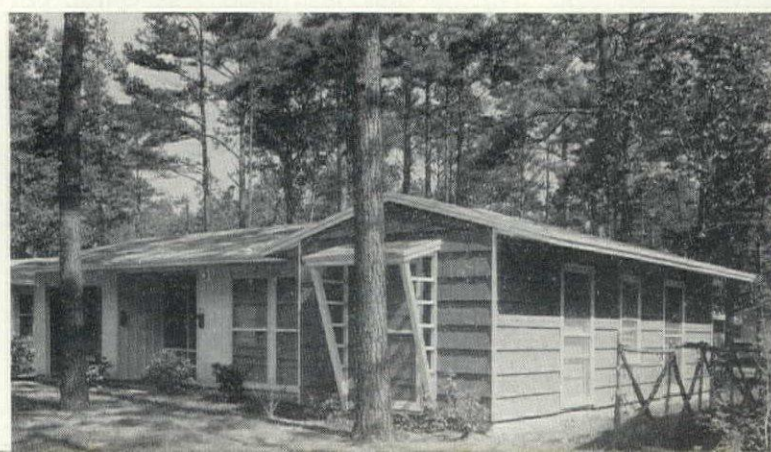
COST BREAKDOWN

Improved site	\$1,350	Tile works*	120
Grading and landscaping ...	200	Painting*	400
Concrete slab	472	Overhead; design, sales, advertising, administrative and misc. expenses	1,386
All materials†	2,887		
Carpentry and misc. labor† ..	1,537		
Plumbing*	687		
Electrical work*	185		
Roofing*	192		
Insulation*	41		
		Total	\$9,457
		† Excluding subcontracts.	
		* Subcontract.	

CONSTRUCTION OUTLINE (typical house): Foundations—reinforced concrete slab. Waterproofing—2-ply 15 lb. felt or 2 layers mopped reinforced weathercap. **STRUCTURE:** Exterior walls—pine or fir sheathing or asbestos siding on shiplap, or wood shingles on 1 x 2 in. battens, and 15 lb. felt on studs; inside—1 x 10 in. shiplap, canvas and paper or 3/8" plaster board, U. S. Gypsum Co. Ceilings—canvas and paper or plaster board, U. S. Gypsum Co. **ROOF:** cedar or asphalt shingles or built up with tar and gravel. **SHEET METAL WORK:** galvanized iron. **WINDOWS:** Sash—white pine, double hung. **FLOOR COVERINGS:** Main rooms—Orco carpet, Ohio Rubber Mfg. Co.; kitchen—asphalt tile; bathrooms—ceramic tile. **WALL COVERINGS:** paper throughout main rooms; Masonite wainscot in kitchen and baths, Masonite Co. **PAINTS:** U. S. Gypsum Co. and Sherwin-Williams Co. **WIRING SYSTEM:** Romax, General Electric Co. **KITCHEN EQUIPMENT:** Range and refrigerator—General Electric Co. Dishwasher—Kaiser Fleetwing, Inc. **BATHROOM EQUIPMENT:** Kohler Co. **PLUMBING:** Sewer pipes—cast iron. Water pipes—galvanized steel. **HEATING:** Gas-fired space heater, furnace type, Lennox Furnace Co. Bathroom heater—Day & Night Mfg. Co., Inc.



\$8,800 house of 1,151 sq. ft. (including 356 sq. ft. in garage and porch) has outdoor living room enclosed on three sides, an extra large non-standard kitchen and a fully enclosed garage. Sales price per sq. ft.: \$7.60.



BUILDER'S \$16,000 HOUSE aims

at the new buyer's market, sells quickly by offering more for the customer's dollar

EMMANUEL BALLIN, Designer and Builder

LESLIE LOWEY, Engineer

Here is a house which successfully challenges the current belief in some quarters of the building industry that the \$15,000-and-over market has been satisfied. Long Island's Emmanuel Ballin, designer and builder of the house, virtually sold out his 67-unit project on the day he opened his model house.

Builder Ballin's impressive record resulted from the combination of a big (1,600 sq. ft. including porch and garage) quality house and a right price (\$15,990). Equally important was a rational approach to another factor: the problem's of a middle-sized builder in a buyer's market. Ballin knew that a 67-house builder could not count on volume to cut costs very far. (His per-square-foot cost is about \$9, close to the Long Island average.) Stabilized lower costs could be assured only by knocking out as much speculative risk as possible. This could be done with a quality house at a price that would "guarantee" an early sellout, thereby making him essentially a contract builder. No longer plagued by slow (or no) sales, he could then afford to deflate his cost estimates.

Administrative costs were clipped by subcontracting the entire operation on firm bids after the subdivision was sold out. A more intangible, but no less real factor in Ballin's \$15,990 price tag, however, is the straightforward design of his house. From the outside, it presents a somewhat sober front. Ballin checks his conservatism at the front door, however. The interior features a neat, economical service core which divides the living, sleeping and kitchen areas. (See plan, right). Other indoor features: two lavatories, radiant heating, storage wall and a kitchen that includes a range, refrigerator, dishwasher, clothes washer, 130 cu. ft. of shelf space and a wall which disappears into the garage to combine the dining room and screened porch.

Having successfully proved his formula of offering a quality house priced to sell rapidly, Ballin could then afford to make some profitable revisions in his original cost estimates. Taking a backward look on his original hunch as to selling costs, he pruned the normal \$500 brokers fee to almost nothing. ("After all the houses sold themselves.") Ballin then refigured his own profit, which he originally held to a conservative 10 per cent. Having sold out quickly, he could, of course, pocket his savings on selling costs and probably some of his allowance for contingencies. Although he claims to have ploughed some of this money back into the houses in the form of additional equipment, his profit "still adds up to a nice sum when multiplied by 67," as Ballin points out drily.

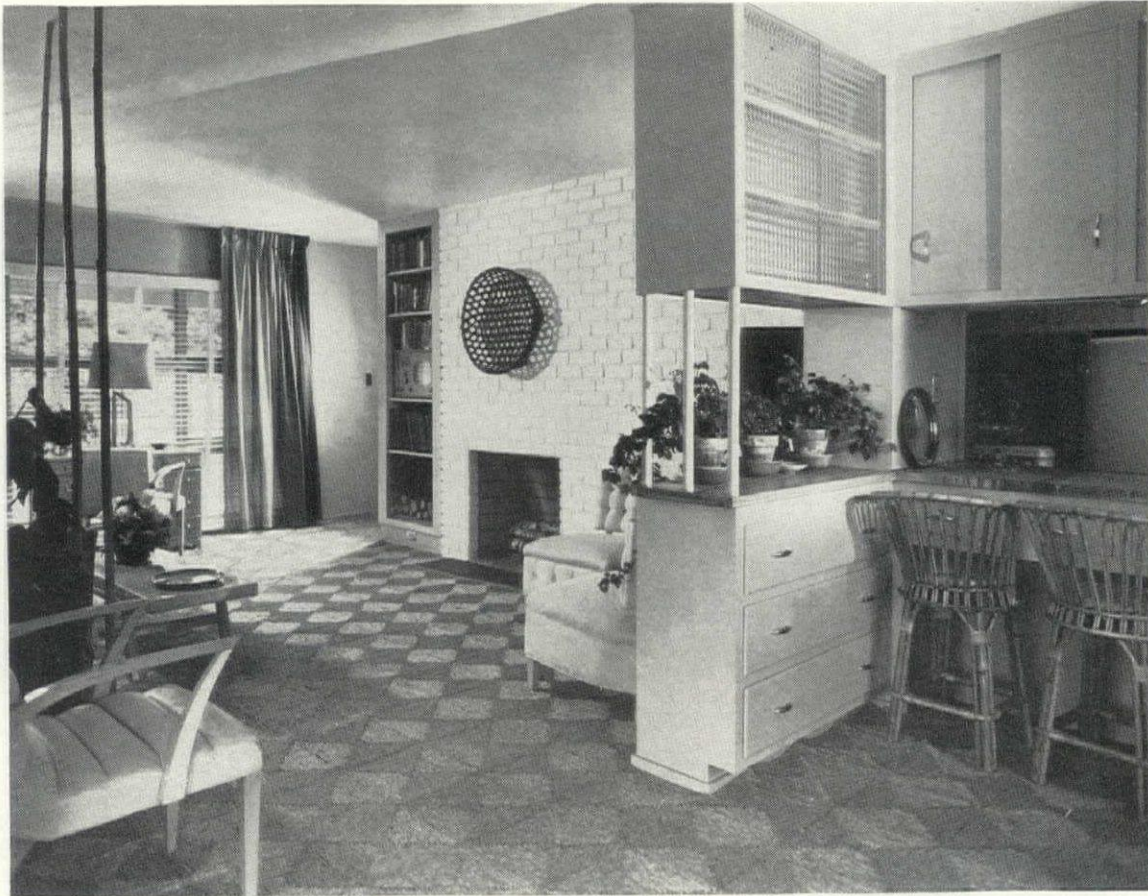


House exterior is typical of the conservative low-slung treatment favored now by Long Island merchant builders. Builder Ballin offers his clients three facade variations. These are achieved by putting a gabled or a hipped roof over the garage or (as in the picture above) by extending the main roof to cover it.

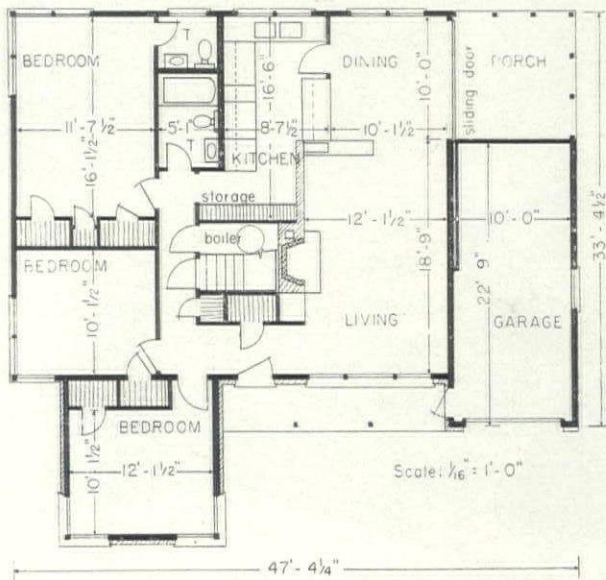


COST BREAKDOWN

Plans & survey	\$80	Electrical work	360
Site improvement	560	Insulation	195
Slab & sidewalks.....	950	Painting	700
Carpenter labor	1,500	Glazing	40
Framing lumber & trim	2,298	Cabinets & fixtures	600
Flooring	505	Blinds & screens	173
Roofing	425	Kitchen appliances	700
Lath & plaster	930	General labor	435
Plumbing & heating....	2,310	Landscaping	350
Brick work	600	Total cost (excluding	
Hardware	160	land & profit)	\$13,871



Living and dining areas are separated only by projecting utility cabinet, built high enough to facilitate furniture placement in the living room. Cabinet is a small part of the 710 cu. ft. of cabinet space (not counting closets) which Builder Ballin has provided throughout his house. Note sliding porch door in plan below.



Kitchen pass-through features drawers (behind wicker chairs, above) which can be pulled out from either side. Screened-in porch can be combined with the dining area by sliding a weatherstripped 7 x 10 ft. glazed panel (one end of which is shown at left of picture below) into the garage on roller bearings.



CONSTRUCTION OUTLINE: Foundation — concrete. Waterproofing — tar and felt with Celotex Corp. insulation. **EXTERIOR WALLS**—shingle or siding, brick veneer on front, felt, sheathing, studs and Rocklath and plaster, U. S. Gypsum Co. **ROOFING**—asphalt shingles. **INSULATION**—Infra Insulation Co. and Owens-Corning Corp. **FLOOR COVERINGS**—Kentile, David E. Kennedy, Inc. **DOORS**—Roddis Lumber & Veneer Co. **ELECTRICAL FIXTURES**—Acme Electrical Corp. and Lightolier Co. **KITCHEN EQUIPMENT:** Range, refrigerator, dishwasher and washing machine — General Electric Co. **BATHROOM EQUIPMENT**—Kohler Co. **HEATING:** Boiler — Pensteel, Penn Boiler & Burner Corp. Burner—Atlas Mfg. Co. Grilles—Thin Man, Register & Grille Co. Regulator — Minneapolis-Honeywell Regulator Co.

Photos: Larry Gordon

TWO-ROOM ECONOMY HOUSE, built by Federal Housing Expediter Tighe Woods, incurs industry's wrath by cutting space more than costs

RICHARD BARR, Architect
TIGHE WOODS, Builder

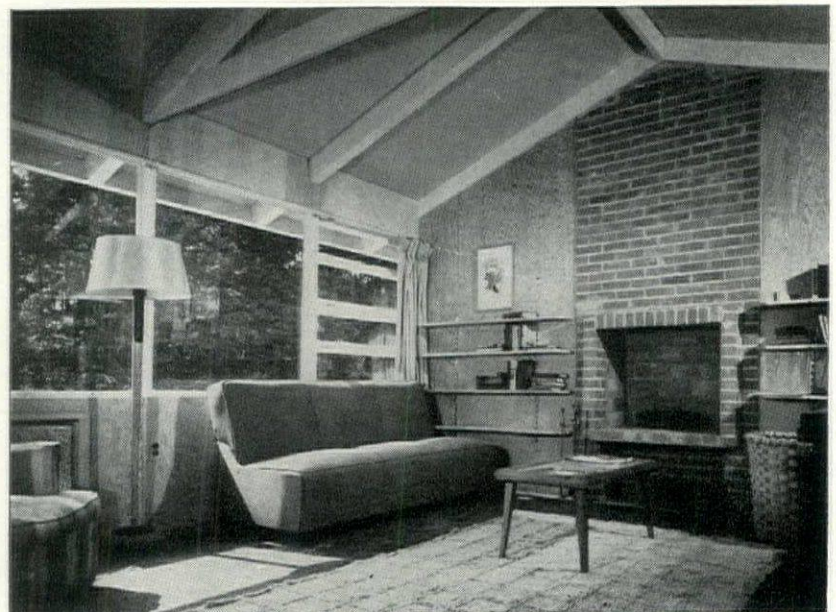
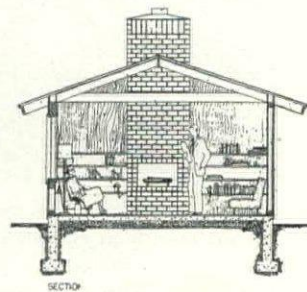
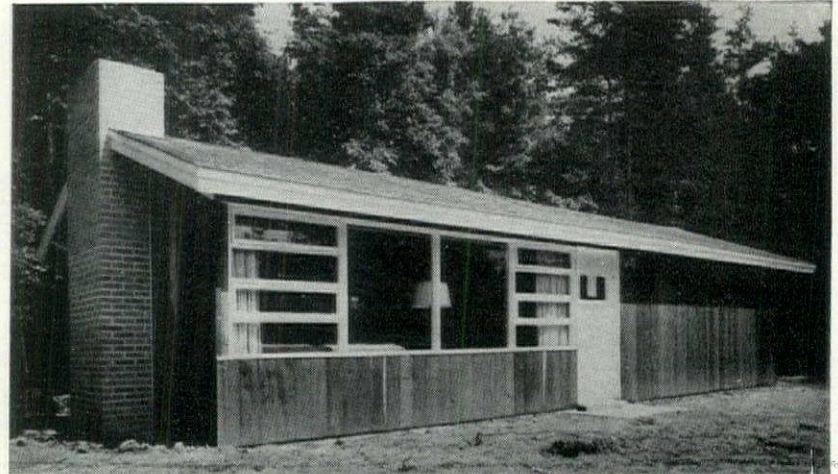
Tighe Woods, who for the past two years has been telling other people how to expedite low cost housing, this summer decided to do a little expediting himself. The nation's housing chief announced that he was sponsoring his own low priced house. "for the guy who makes \$50 a week."

The house that Woods built was a small (36 x 15 ft.) attractive "ramblerette" located on a subdivision near Ft. Belvoir, Va., 23 miles from Washington. Designed by Chicago Architect Richard Barr, the house had an attractive price-tag: \$6,450 with no down payment and monthly charges of only \$40. Included in the price were a quarter acre lot, radiant electrical heating, automatic laundry, range and refrigerator. The entire project was his own, Wood explained, with no help—5 per cent or otherwise—from the government. "I wanted to do something for the \$50-a-week guy. The building industry said it couldn't be done so I went ahead and did it." (For the industry's reaction's to Tighe's accomplishment, see supplement, page 118.)

Just how far Tighe Woods had advanced the solution of low cost housing was a matter of question, however. Measured by the only realistic criteria for economy housing—low cost and adequate living space—it failed on both counts. The house does not introduce any cost-cutting economies, either in use of material or in construction methods, which set it above other attempts to house lower income families. Despite the building's simple rectilinear plan, its per-square foot cost is about \$9, not appreciably different from average costs in the Washington area.

Granting sound construction and good materials, the Woods' house has a living space deficiency that rules it out as an adequate economy house. The 550 sq. ft. unit has, in fact, only two habitable rooms. Says Architect Barr, in defense: "A careful examination of the plans and specifications will show that this house is designed with a maximum of flexibility." The flexibility cited by Architect Barr consists largely of two draw curtains in the living room—one which is intended to partition the kitchen, the other to create a "bedroom" (see plan). Such makeshifting in a 200 sq. ft. space, however, is scraping rock-bottom as far as housing standards are concerned.

Despite these deficiencies in his house, Builder Woods reported receiving 200 applications from house-hunters who had visited his project. At month's end, he was preparing to build the first group of ten houses on his 84-lot subdivision.



Living room has Pullman-type kitchen at one end, brick fireplace at the other. Flanked by built-in bookcases, the fireplace is raised 18 in. from the floor to provide wood storage space underneath. Rafters were left exposed for economy reasons. Walls throughout the house are plywood treated with white lead and shellacked.

COST BREAKDOWN

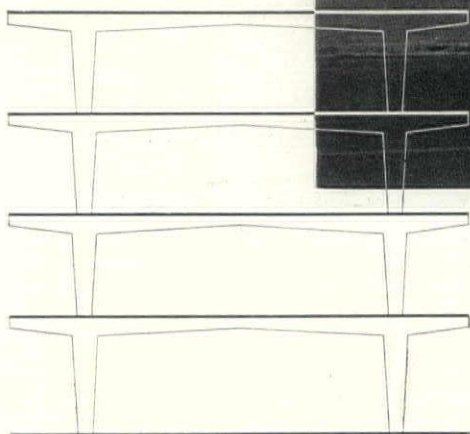
Layout	\$15	Electrical work	150
Foundations & footings..	122	Heaters	185
Concrete	246	Plumbing fixtures	425
Steel mesh & fireplace equipment	34	Asphalt tile	100
Masonry (chimney)	112	Hardware	77
Framing (fir)	160	Glazing	45
Trim, doors, windows, etc.	425	Weatherstripping	18
Sheathing	48	Bathroom wall finish.....	50
Insulation	49	Painting	200
Roofing	333	Range, refrigerator, water heater and sink	714
Redwood siding (shingles)	224	Driveway	25
Interior finish (1/4 in. plywood)	160	Labor	800
		Contingencies	100
		Total	\$4,817

CONSTRUCTION OUTLINE: Exterior walls—redwood siding, Insulite Co. sheathing, studs, Infra Insulation Co. silver foil and fir plywood. Floors—concrete slab. ROOFING—composition shingles. INSULATION—Infra Insulation Co., Insulite Co., Celotex Corp. and Wood Conversion Co. FIREPLACE: Damper—H. W. Covert Co. FLOOR COVERINGS—asphalt tile, Armstrong Cork Co. WALL COVERINGS: Main rooms—plywood, U. S. Plywood Corp. Bathrooms—Tylac, Tylac Co. PAINTS—Sherwin-Williams Co. and Valentine & Co. ELECTRICAL INSTALLATION: Wiring—BX. Switches—Bryant Electric Co. and Harvey Hubbell, Inc. KITCHEN EQUIPMENT: Range and refrigerator—General Electric Co. LAUNDRY EQUIPMENT: Washing machine—Bendix Home Appliances, Inc. BATHROOM EQUIPMENT—Crane Co. and American Radiator-Standard Sanitary Corp. HEATING—radiant glass wall panels, Continental Radiant Glass Heating Corp. Sensatherm—Mercoid Corp. Water heater—General Electric Co.

TWO DEPARTMENT STORES, designed from the ground up by experts, are built from the ground up on a framing system which saves space and money



Photos: Hedrich-Blessing Studios



Davison-Paxon Co.'s new store in Augusta, Ga., is built on a reinforced concrete rigid frame, partially visible through the openings in its handsome north facade. Simplicity, good proportion and bold scale are features of this facade—a panel of reddish-brown brick surrounded by glass. The fourth floor's continu-

ous horizontal window admits light to offices. The second and third floors are closed except for vertical strips of glass at the boundary walls which provide daylight for fitting rooms and serve as emergency entrances for the fire department. The sign is white porcelain enamel, backlighted by neon tubing.

Single-bay framing with cantilevered floors produces ideal sales space at minimum cost

DAVISON-PAXON CO. (subsidiary of R. H. Macy Co.), Owners
HAROLD M. HEATLEY and KETCHUM, GINA & SHARP, Associated Architects*

FRED N. SEVERUD, Structural Engineer
STANLEY McCANDLESS, Lighting Consultant

Augusta Store:

JAROS, BAUM & BOLLES, Mechanical Engineers
CLARENCE MOBLEY CONSTRUCTION CO., General Contractors

Columbus Store:

SYSKA & HENNESSY, Mechanical Engineers
MURPHY POUND CONSTRUCTION CO., General Contractors

The best known firm of store architects in America is probably Ketchum, Gina & Sharp, but the two new Davison-Paxon Co. department stores in Augusta and Columbus, Ga., planned in association with Harold M. Heatley, are the first they have ever had a chance to build from the ground up. As might be expected, the results are handsome and efficient machines for selling. But, more than that, they demonstrate a radically new single-bay method of framing in which the columns are set back 12 ft. not only from the front (which has already been done in a few stores to give complete flexibility to the show windows), but from the sides as well (which has never been tried before). The central 46 ft. of each floor is thus freed of columns to permit complete flexibility of layout. All around each building the walls and the last 12 ft. of floors are supported on cantilevers. These 12 ft. strips of floor outside the columns accommodate such

services as elevators, stairs and forward stock rooms. This 12 ft. space is also ideal in depth for small individual departments where customers, standing between the columns, can shop without being jostled by traffic in the aisles.

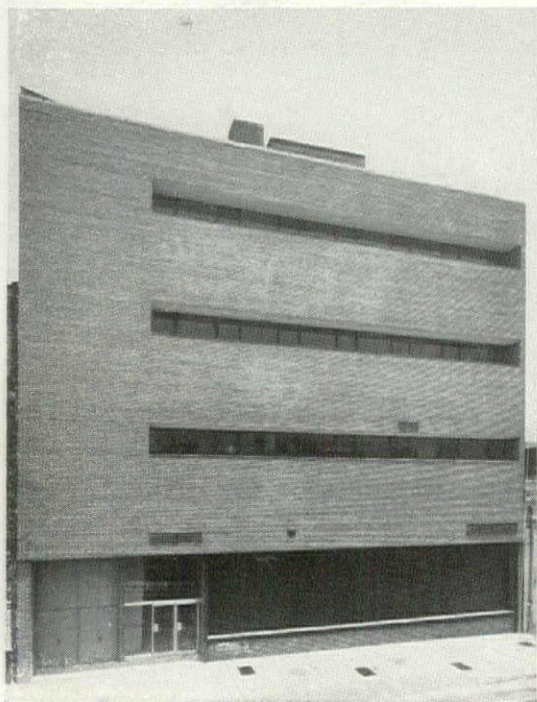
Working with Engineer Fred Severud, the architects found that this cantilevered single-bay framing system was also considerably more economical than the usual methods—11 per cent cheaper in Augusta than three-bay framing. (Awkward two-bay framing was not even considered.)

The economy lay primarily in the possibility of placing the column footings far enough back from the walls of

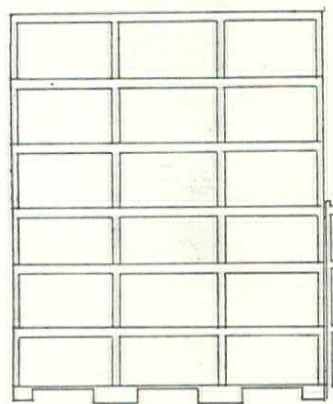
flanking buildings so that practically no money had to be spent shoring and underpinning these walls. (In other words, this framing plan is cheaper as well as better for a downtown store, though it would probably save but little in the expense of a free-standing suburban branch.)

At Augusta the skeleton is a rigid frame of reinforced concrete, whose tapered columns are a distinctive feature of the sales floors and a frank expression of the structural system (photo, right). This type of construction involves more expensive form work, but the long rectangular plan of the four-story Augusta store is so simple that the forming operation was highly repetitive and of minor consequence. However, because the Columbus store is L-shaped in plan and the forming operation would therefore have been more complicated and less repetitive, a conventional reinforced concrete system with beams and floor slabs proved more economical for this building.

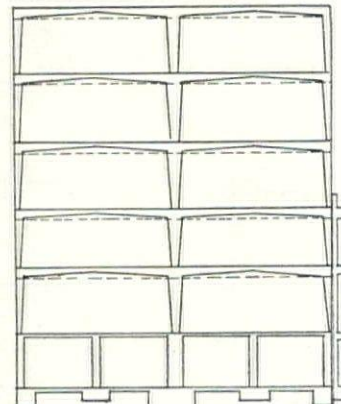
Such strict economy was carried throughout the design of both stores, even to the point of sacrificing the flexibility of a dry, hung ceiling with removable pans for a wet, plastered ceiling. (Plastering rates in Georgia are so low that they offered an \$8,000 saving.) But the architects state that this is the only case where they sacrificed anything obviously better just to cut down initial cost. In all other respects, including layout, ceiling height, lighting and color, these two stores reflect the architects' most advanced thinking.



Rear view of Augusta store shows minor customer entrance flanked by fire exit doors on left, roll-up shutters of loading platform on right. Upper floor windows are deeply recessed for sun protection.



Triple-bay frame would have divided the 71½ ft. wide store into three "bowling alleys" running the 27½ ft. length of the building—difficult to use for efficient merchandising and visually confusing to the public.



Double-bay frame would have required fewest number of interior columns, but their presence down center of store would have divided the building in half visually and would have limited the flexibility of fixture layout.

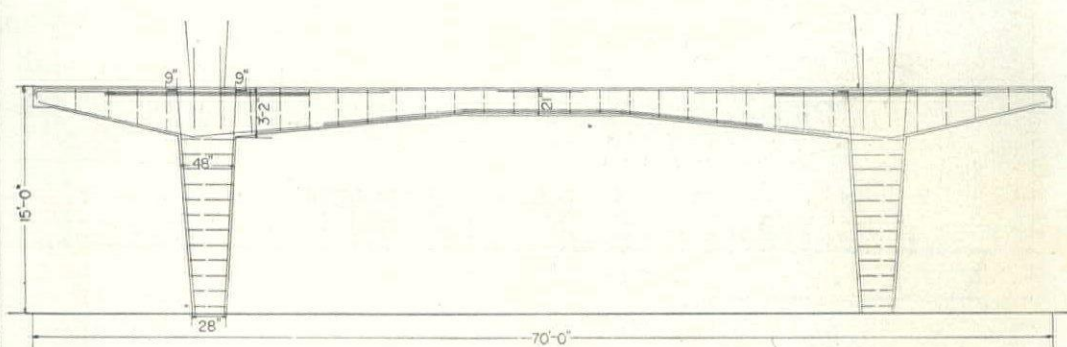
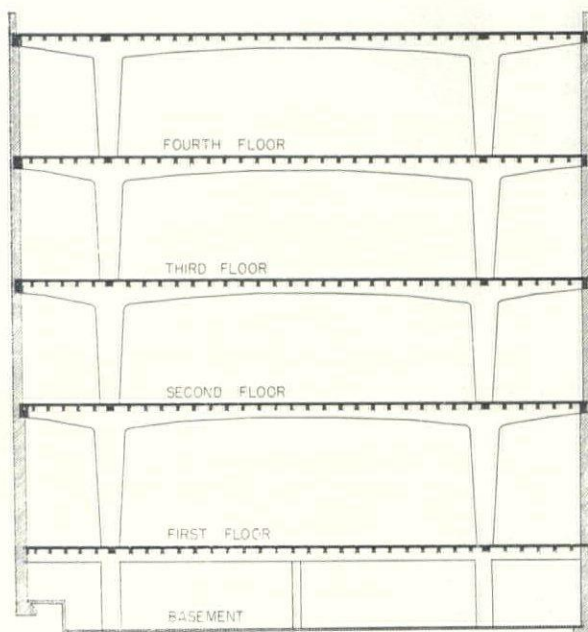
* Project staffs: HAROLD M. HEATLEY—Robert Brady, R. C. DeWeese, John Portman, William Lathbury, James Rice, O. P. Sandhagen; KETCHUM, GINA & SHARP—Joseph Amisano, William Heidmann, D'Ans.n Iseley, Rauni Lampe, Carl Stoye, Fred Treffeisen.



Photos: Hedrich-Blessing Studio

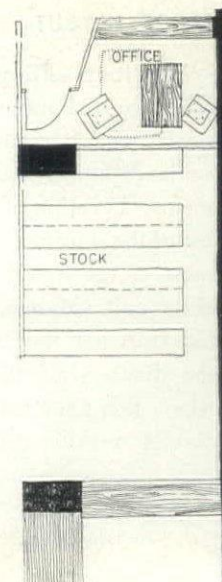
Openness of the central merchandising area is shown in this view of the women's accessory departments located near the first floor main entrance.

Glazed sales fixtures designed by the architects are finished in natural walnut and supported on "ebonized" legs of light, delicate design.

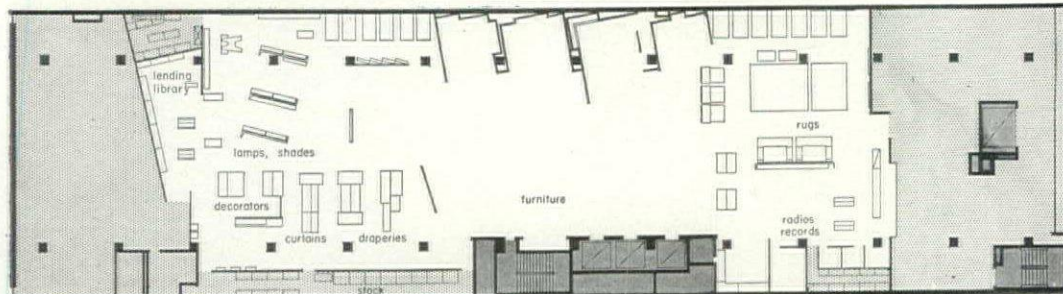


Single-bay frame, as used in the Augusta store, creates a 46 ft. wide open sales area in center of store flanked by 12 ft. cantilevered areas on either side. Sales department layout and customer vision in the large central area is unhampered by fixed columns, and the flanking 12 ft. spaces are ideal for the location of elevators, stairs, washrooms,

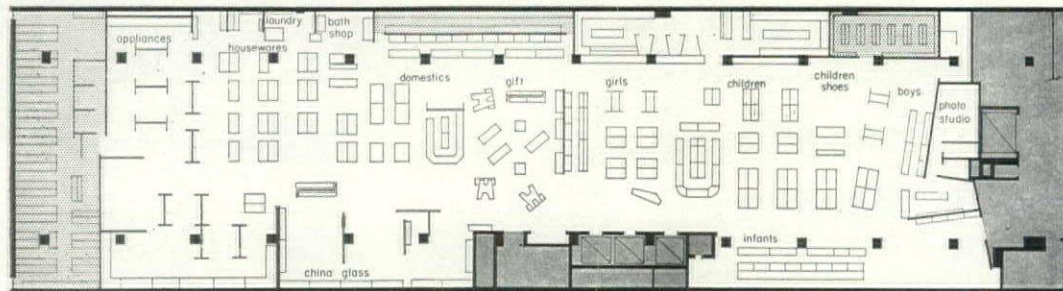
offices, forward stock rooms, as well as small sales departments (diagram, right). In the Augusta store the skeleton consists of a rigid frame of reinforced concrete whose truss-like construction is detailed above. Columns of rectangular cross section tapering down to 26 x 28 in. at the floor are by-products of this structural design.



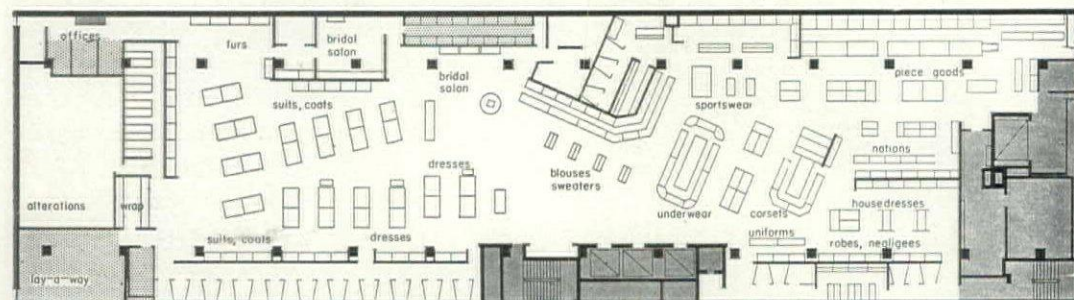
Inside the Augusta store is many a new idea for modern merchants and store designers



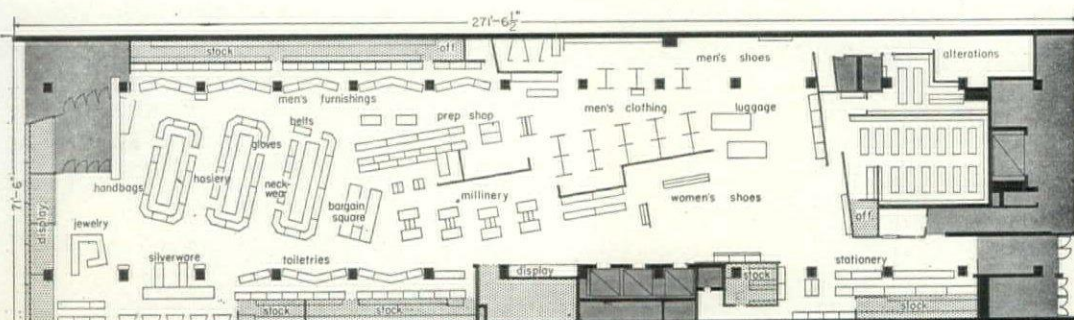
FOURTH FLOOR



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

scale 0 10 30 50 70 feet

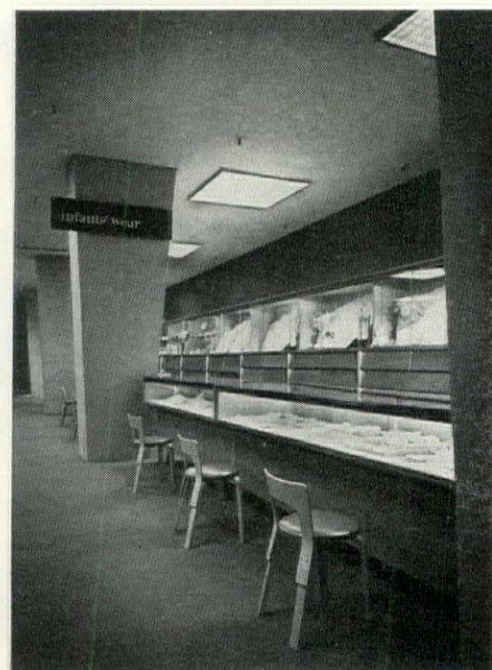
FLOOR LAYOUT

The four selling floors in the Augusta store are laid out in a logical sequence, vertically and horizontally, of impulse, convenience and demand merchandise departments. Location of the elevators at the center of the store requires shoppers to traverse most of the first floor from the entries at either end. (Main entry is at the left.) Thus, like it or not, they are subjected to most of the displays of the impulse merchandise which this floor features. The second floor carries fashion departments; the third,

mainly demand items (home furnishings, housewares, children's apparel, etc.); the fourth, furniture and equipment. On each floor impulse or convenience departments are located adjacent to the elevators. Because the floors are uncluttered by columns and because all fixtures are movable, merchandising layouts are completely flexible. Store fixtures were furnished at Augusta by Zermann-Acme Granada Shops, Inc., and McLean Co. (Platt Contracting Co.); at Columbus by Hinzmann & Waldmann, Inc.

SPACE DISTRIBUTION

Because the bulkiest mechanical equipment is located on the roof of each store and because neither store was judged to have sufficient traffic to warrant space-eating moving stairs, the ratio of net selling area (including adjacent wrapping, service, fitting and alterations facilities) to total area is high—about 63 per cent in each case. Building function areas occupy only 19 per cent of the total; non-selling store areas, the 18 per cent balance. Excluding the basement, these ratios are 73, 15 and 12 per cent, respectively. (Note shaded areas in plans, left.) The Augusta store provides about 101,830 sq. ft. of floor area on a 19,585 sq. ft. lot; the Columbus store, 63,030 sq. ft. on a 11,850 sq. ft. lot.



Set back into inter-column spaces, third floor infants' wear department and its customers' chairs are clear of the traffic. All lighting is fluorescent.

SHOW WINDOWS

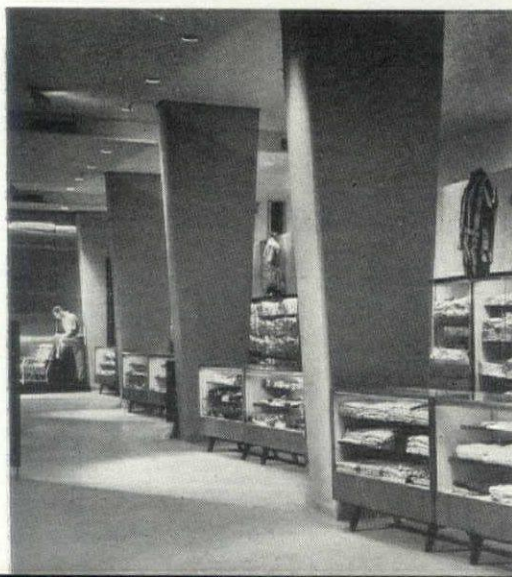
The entire first floor of both buildings can be seen through the show windows whenever their removable backs are taken out. The cantilever construction left the windows completely unobstructed. The show window floor is made up of removable panels, below which there is a continuous floor sinkage about 24 in. deep. This arrangement makes it possible to remove some or all of the floor panels in order to create another lower floor in the show windows for special displays. Manikins and other display props can be taken up from the basement directly to the show windows through a removable section in their lower floor.



From elevators occupying inter-column space display fixtures of second floor women's apparel department (above) radiate into open central area.



Silverware section on first floor's main traffic aisle (above) is set between columns to which are affixed special showcases. Ceiling spots highlight the merchandise.



Men's furnishings are displayed between first floor columns in cases which are staggered to draw shoppers out of the traffic aisle. Note air-conditioning outlets in the "risers" of the saw-tooth ceiling.

LIGHTING

The general lighting system of the sales area on the upper floors (photo, left) consists of parallel rows of 4 ft. square louvered fluorescent ceiling fixtures which produce 20 foot-candles at sales counter level. Their down light is supplemented in some areas by incandescent fixtures recessed into the ceiling, by swivel ceiling spots and special up-lighting in the alcove departments. On the first floor (large photo, left below) general lighting consists of concealed incandescent ceiling down-lights. These subdued glareless sources provide strong illumination at the counter level (20-25 ft. candles). This is supplemented by swivel display spots which are trained on special displays in each sales department in order to maintain the high display tempo set by the show windows.

CEILING CONSTRUCTION

Ceilings are only 11 $\frac{1}{4}$ ft. high because the architects felt "there is no reason why a store should look like a bank," and the lower ceilings save space and money as well as contribute a feeling of intimacy. The floor-to-floor height is 15 ft. The 45 in. space between the floor and the hung ceiling accommodates air-conditioning ducts and other mechanical lines. In the Augusta store air-conditioning outlet grilles are set vertically in the "risers" of the saw-toothed first floor ceiling. In this position they are concealed from the customer as he enters the store (photo, left).

COLOR

Wall colors were selected, first, to bring out the natural color of the merchandise on display in that particular location, second, to help identify sales departments and, third, to unify the whole sales area with a related color pattern.

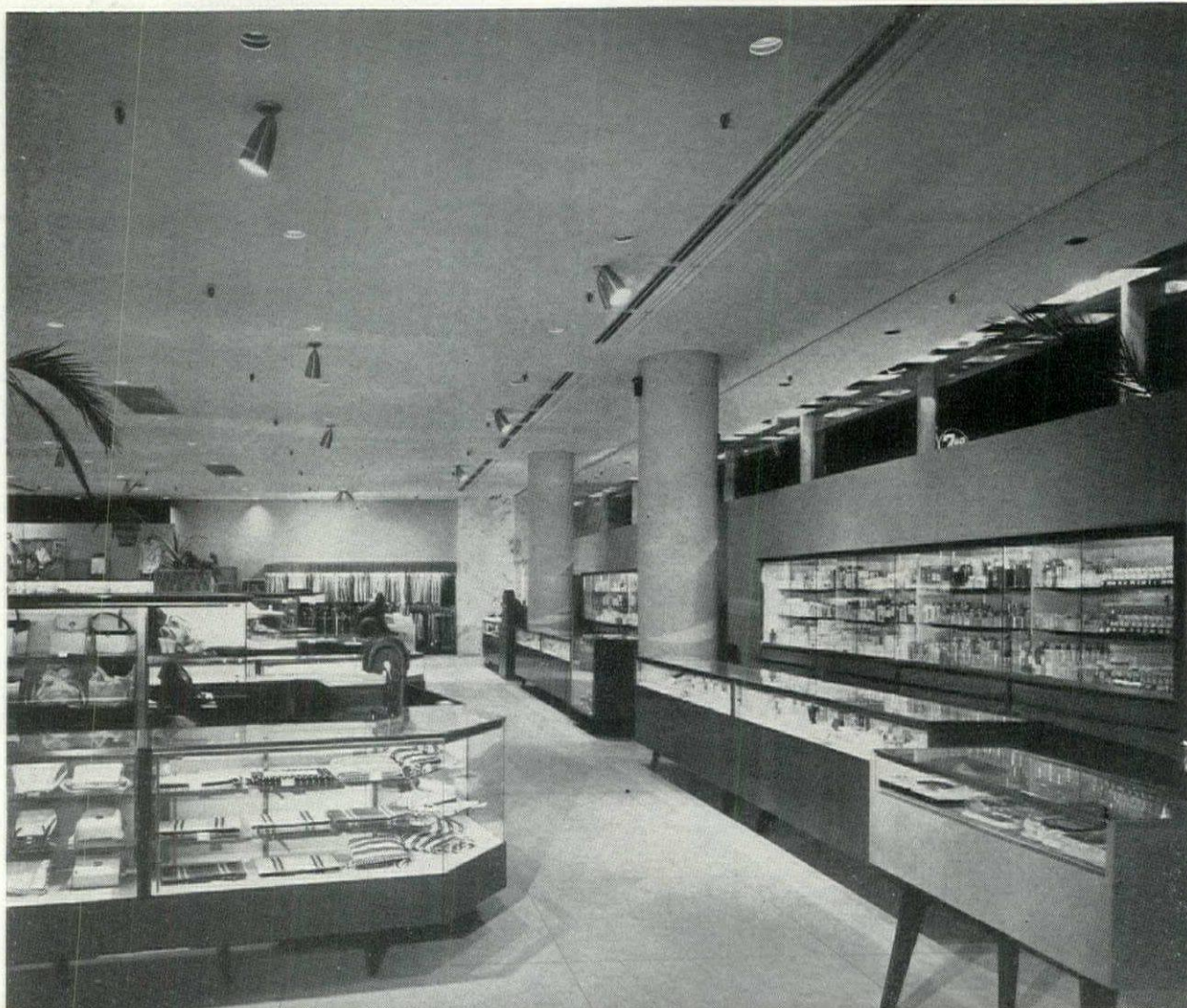
All ceilings and the upper part of the structural walls visible behind the dwarf partitions are painted white, partly to increase the sense of space and partly to focus interest on the vivid colors used on the dwarf partitions. Floors are mostly light gray—off-white terrazzo on the ground floor, asphalt tile above—covered in many departments with carpet of a darker gray. Many of the dwarf partitions which define the sales areas are of natural wood finish, others are painted in dark, rich, warm colors. Palette for the entire job was limited to eight colors for easy maintenance. Elevator enclosures were painted in the darker hues of this palette, a different color for each floor. The dark color does not show finger marks or dirt, while the change in hues helps floor to floor identification. Sales fixtures are normally finished in natural oak and are set on "ebonized" legs.

Columbus store, similar in design to its Augusta sister, solves a different problem



Horizontal windows of the Columbus building light fitting rooms on the second and third floors, the executive offices and credit department on the fourth floor. Vertical band of windows at extreme right, required by fire law, lights other fitting rooms and service areas.

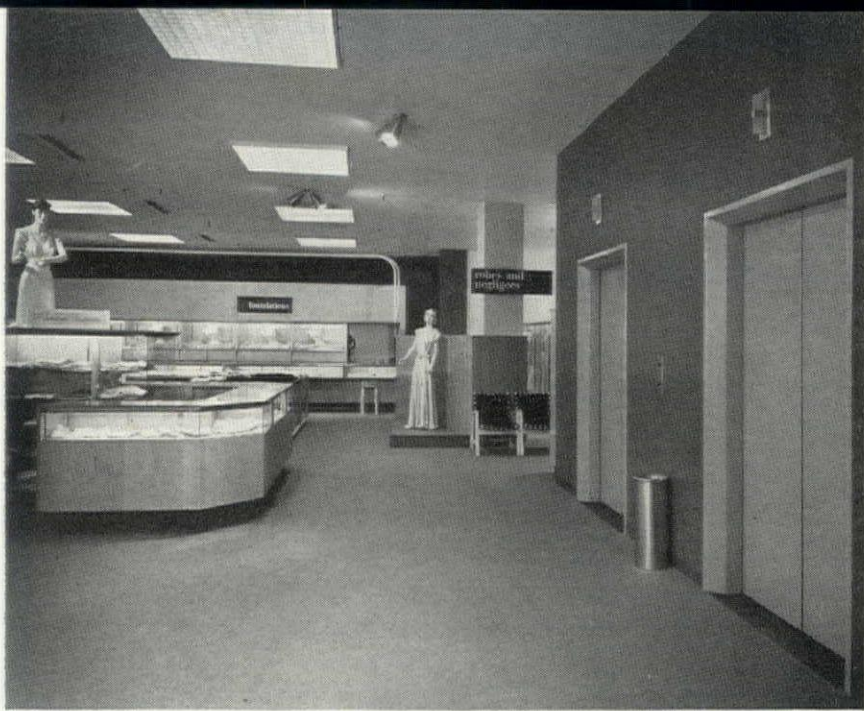
Cosmetics display fixtures line the rear of a show window screen along the store's larger front. This plywood screen is putty colored in contrast with the tangerine rear wall, the white ceiling and off-white terrazzo floor. Note that overhead light is provided by recessed ceiling fixtures, arranged in rows paralleling the strip of air-conditioning outlets. Special spot-lighting accents the displays.



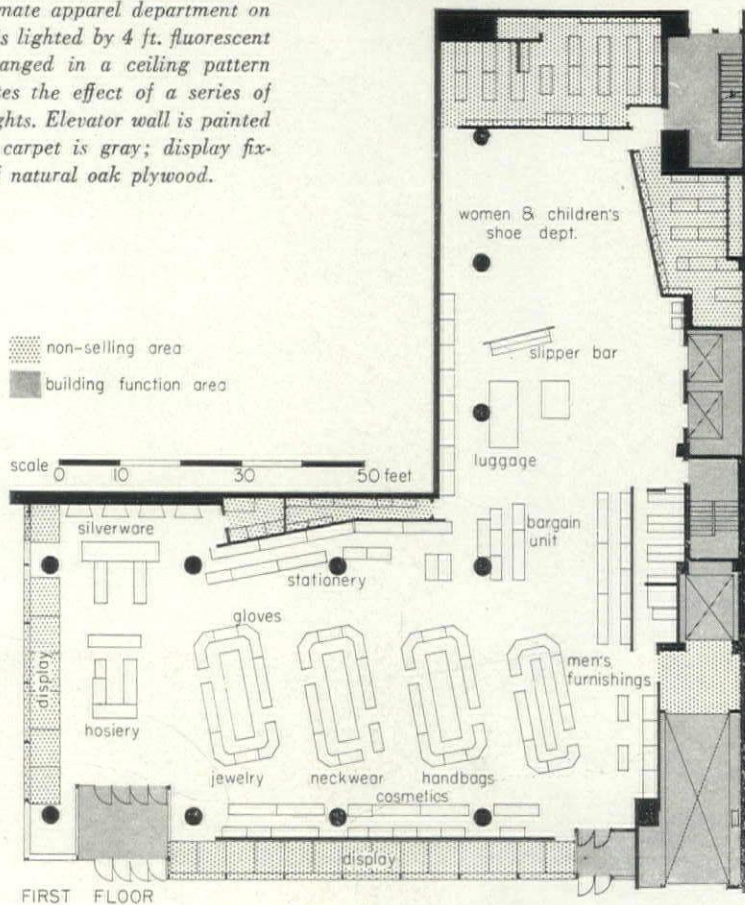
Like the Augusta store described in detail on the preceding pages, the Columbus branch is erected on a cantilevered single-bay frame. But because of the forming complications inherent in its L-shaped plan, it is built on a conventional reinforced concrete frame rather than on a rigid truss-like frame. This accounts for the round columns instead of the rigid frame's typical rectangular supports.

Unlike the Augusta building, which provides for most of the usual department store departments, the Columbus store was designed for a more restricted merchandising program, emphasizing apparel departments and completely omitting a number of home furnishing sections. However, to permit future enlargement of this initial merchandising program, the structure was designed to carry two additional floors.

Other minor variations from the Augusta pattern were obviously occasioned by the shape of the site and the fact that it is located on a street corner. Otherwise, the Columbus store mirrors most of the details of its counterpart in Augusta.



Ladies' intimate apparel department on third floor is lighted by 4 ft. fluorescent squares arranged in a ceiling pattern which creates the effect of a series of sunlit skylights. Elevator wall is painted slate blue; carpet is gray; display fixtures are of natural oak plywood.



CONSTRUCTION OUTLINE (Material manufacturers supplying both stores): Exterior walls—face brick, Alliance Clay Products Co., common brick or terra cotta back-up. Stair walls—structural tile, National Fireproofing Co., Inc. Reinforcing steel—Ceco Steel Products Corp. and Southern G-F Co. ROOFING—The Flintkote Co. SHEET METAL WORK: Flashing—copper, Revere Copper & Brass Co. INSULATION: Roofs—Foamglas, Pittsburgh-Corning Corp. SOUND INSULATION—Acousti-Celotex, The Celotex Corp. WINDOWS: Sash—projected steel, Hope's Windows, Inc. ELEVATORS—Otis Elevator Co. FINISH FLOORINGS—The Tile-Tex Co., Mohawk Carpet Co., Sparta Ceramic Co. and Armstrong Cork Co. DOORS—hollow metal, Niedringhans Metal Products Co. and Aetna Steel Products Corp. Modernfold doors—New Castle Products Co. Special doors—Moeschl-Edwards Corrugating Co. and Peele Door Co. HARDWARE—Yale & Towne, Stanley Works, Sargent & Co., Oscar C. Rixson Co., P. & F. Corbin, Glynn-Johnson and Recording Devices Co. PAINTS—Pittsburgh Plate Glass Corp. and Sherwin-Williams Co. ELECTRICAL INSTALLATION: Wiring system—General Cable Co. and General Electric Co. Conduits—Youngstown Sheet & Tube Co., National Electric Products Co., Bulldog Electric Co. and Bryant Electric Co. Switches—Trumbull Electric Co., Square D Co., Hart & Hegeman Electric Co. and Bryant Electric Co. Fixtures—Fullerton Mfg. Co., Harris Electric Co. and Century Lighting Co. PLUMBING FIXTURES—American Radiator-Standard Sanitary Corp. and Kohler Co. Toilet partitions—Henry Weiss Mfg. Co. and Milwaukee Stamping Co. Sewage ejector—Chicago Pump Co. HEATING AND AIR CONDITIONING: Low pressure steam with split filtering, humidifying and cooling system, Reliance Engineering Co. and York Corp. Boilers—Kewanee Boiler Corp. and Petroleum Heat & Power Co. Radiators—National Radiator Co. and Vulcan Radiator Co. Grilles—Tuttle & Bailey, Inc. and Barber Coleman Co. Regulators—Minneapolis-Honeywell Regulator Co., Johnson Co. and Power Regulator Co. Valves—Jenkins Bros. and Warren-Webster. Water heaters—Crane Co. Fans—Buffalo Forge Co. and American Blower Co. Unit heaters—Modine Mfg. Co. Anemostats—Anemostat Corp. of America.

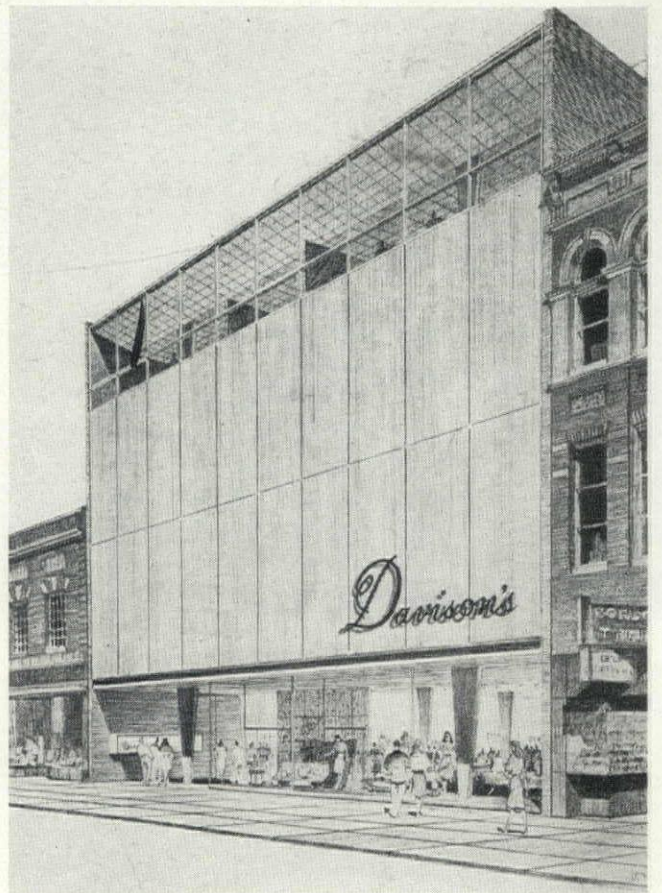
STAINLESS STEEL FRONTS

were originally planned for both stores on basis of appearance and lightweight

Although they were ultimately forced to use more conventional brick construction, the architects prepared a report on the comparative merits and cost of a stainless steel facade. It is worth attention:

Stainless steel panels were favored because of their handsome, durable and dull finish, permanent nonweathering surface, fire resistance and lightweight. This last factor would have led to a definite saving in the required size, weight, and strength of that portion of the building structure which would have supported them. While such panels would have been more expensive to install than brick, the cost differential was not considered excessive (see tabulation, p. 130). In addition, the lightweight vermiculite or diocrete concrete backing of these panels would have had a high insulation value—thus considerably reducing the initial and operating costs of the air-conditioning system. Also in favor of the stainless steel panels were their better maintenance qualities and their thinness. The latter would have produced a definite cubage gain—an important factor in a store building.

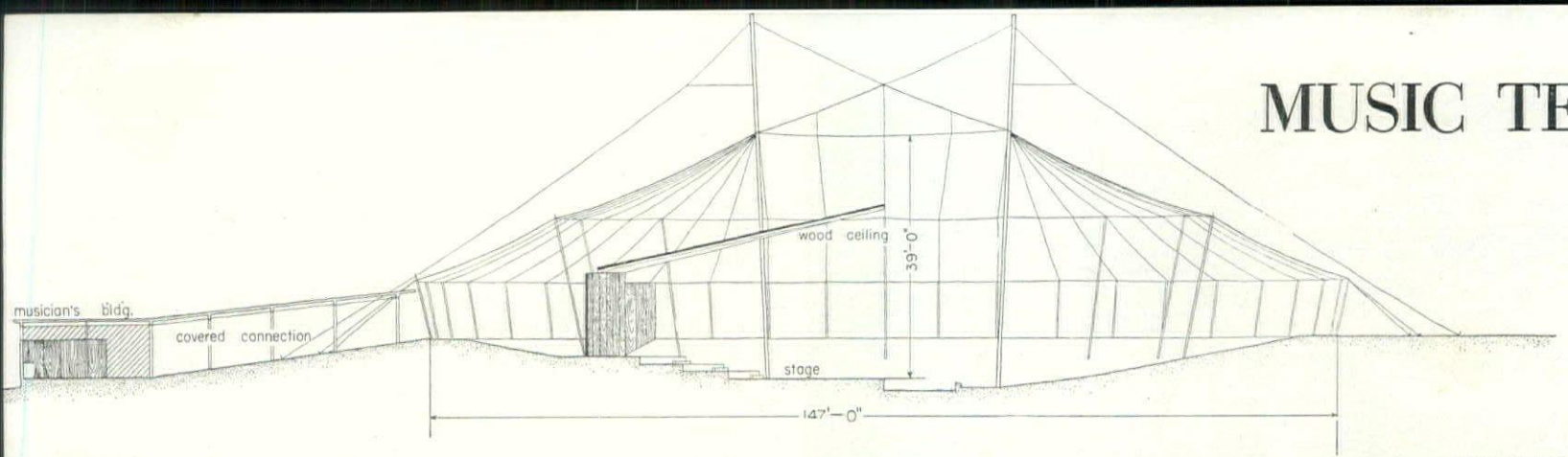
In the process of arriving at the above conclusions, the architects contacted nearly all the manufacturers of stainless steel for technical advice. One of these had already



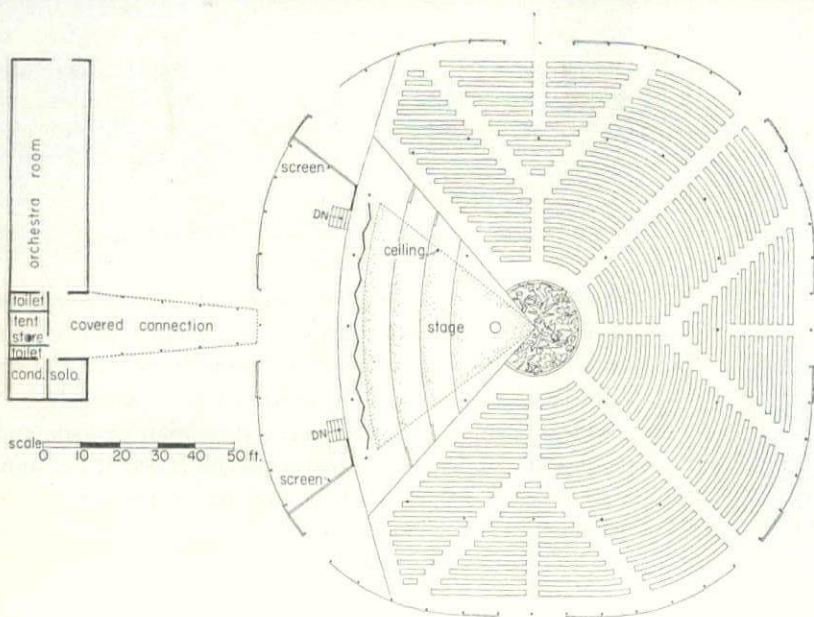
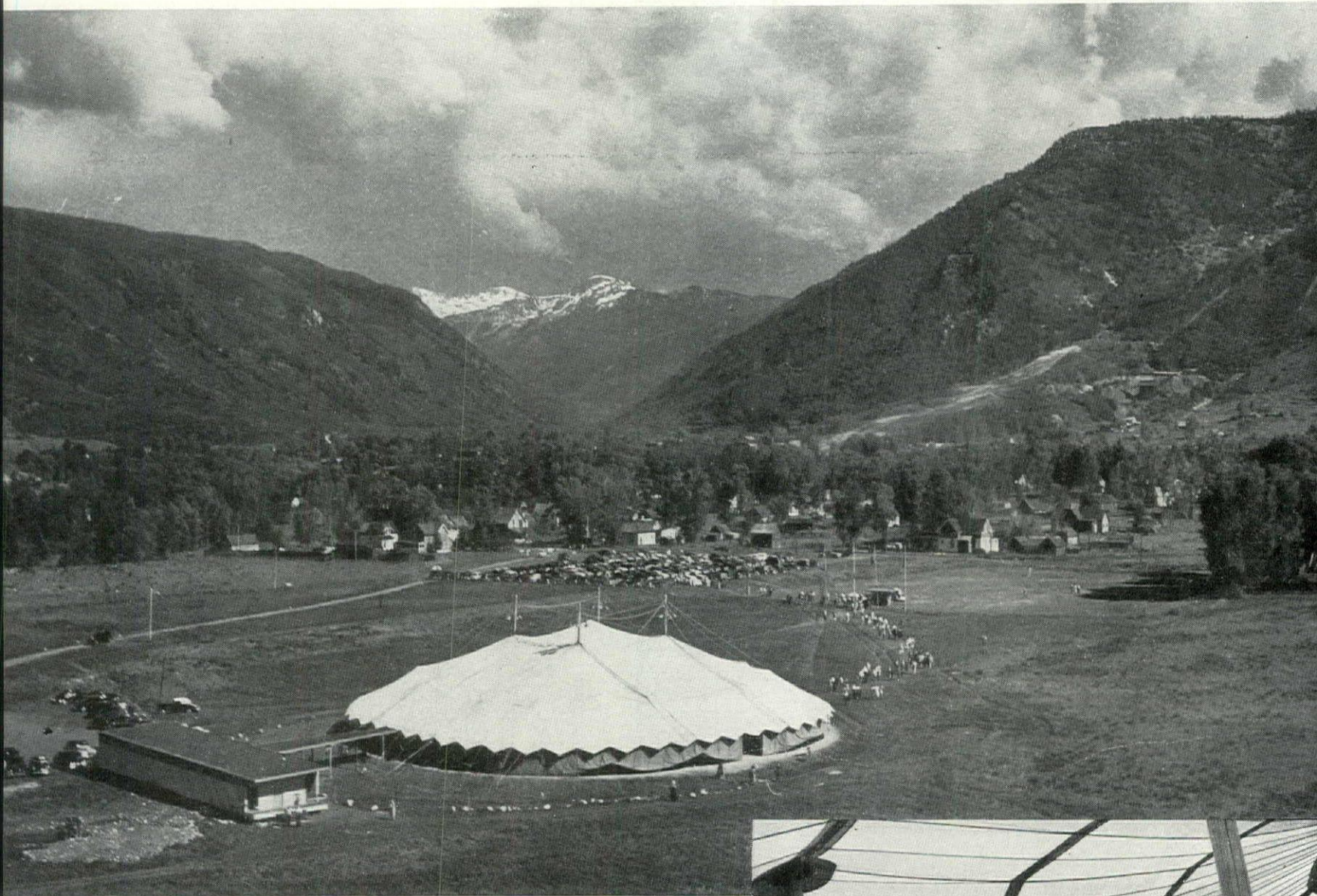
investigated the problem in connection with a proposed office building for New York City. Sample panels had been made and heat tests conducted at its plant. The results of these tests clearly indicated the practicality of stainless steel as protection against weather and sun and the use of a lightweight concrete as fire-resistant backing.

The problems involved in the development of these panels were 1) reducing glare from the stainless steel
(Continued on page 130)

MUSIC TENT



Life: W. Eugene Smith



designed by experts, demonstrates that temporary canvas buildings can be beautiful, workable and inexpensive

"One of the greatest thrills of my life was to play music under this . . . tent which I consider one of the great successes of our times, acoustically and esthetically . . . this system should be adopted everywhere." —DIMITRI MITROPOULOS, Conductor
Minneapolis Symphony Orchestra

SAARINEN, SAARINEN & ASSOCIATES, Architects
SMITH, HEGNER & MOORE, Associate Architects
BOLT & BERANEK: Acoustics Consultants
STANLEY McCANDLESS: Lighting Consultant
HERBERT BAYER: Color Consultant
MAURICE HOOPINGARNER: General Contractor
U. S. TENT & AWNING CO.: Tent Manufacturer



Fritz Kaeser

Primarily the work of roustabouts, the usual tent holds no interest for the building industry. But this is no usual tent. It was designed by some of the nation's foremost architects after consultation with some of its foremost acoustical, lighting and color experts. A far cry from the average carnival enclosure, it was engineered to permit some 2,000 high-brows to listen to the classical music of Dimitri Mitropoulos' Minneapolis Symphony Orchestra and the soft-spoken words of Philosopher Goethe's famous disciple, Albert Schweitzer. It is the tent for the Goethe Bicentennial Convocation and Music Festival held this summer at Aspen, Colo. More than that, it is a demonstration of how any large, once-a-year assembly may be accommodated at minimum cost in a home of its own. (The entire Aspen project cost only \$55,000, including the \$15,000 tent and the 23 x 100 ft. frame building which contains dressing rooms, toilet facilities and storage space for the tent.)

To depress the stage and thus achieve optimum sight lines between audience and performers, a bowl 8 ft. deep was scooped out of a sloping cow pasture. Piled 4 ft. high around the lower rim, the excavated earth extended the seating area upward and served as a barrier against outside sounds.

Comprised of many small convex parts, the shape of the standard tent was found ideal from the standpoint of acoustics. However, tests proved that, even when flameproofed, the canvas had a very high absorption coefficient for low-frequency sounds and that the reverberation time in the tent would be lower than optimum for orchestral music at all frequencies. To offset this shortcoming a plywood "bandshell" was erected on the stage. Its 16 ft. rear wall is comprised of 4 x 8 ft. sheets of $\frac{3}{4}$ in. plywood, "accordion pleated" to foster small scale modulation. Suspended from a network of standard pipe scaffold members, the canopy slopes up from the rear wall to a height of 30 ft.

At night the interior is lighted *through* the canvas from five flood lights fixed atop each of the four main masts. Result: 1) a soft, luminous glow similar to that produced by the sun shining through the white canvas and 2) elimination of a heat source.

Colors were selected with care. The tent's sidewall is tangerine and combines with its pure white top in beautiful contrast with the rich dark greens of the surrounding mountains. Inside, stage platform, "bandshell," masts and pine benches are finished natural with accents of orange and blue.

PARKING GARAGE

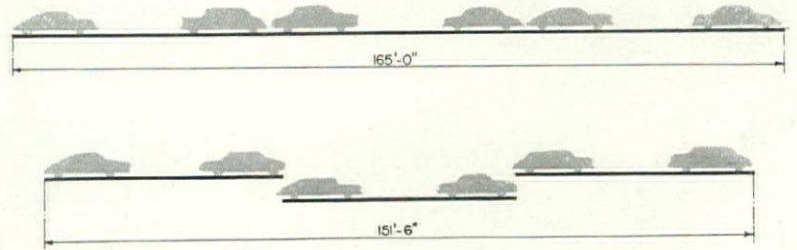
Use of staggered levels, short ramps, gains space

By introducing a series of intermediate levels and overlapping the cars in this Miami garage, the architects have saved some 12,000 sq. ft. (8 per cent of the 145,400 sq. ft. total) compared with a garage of customary design. Excluding the more costly elevator and continuous ramp-floor garages, the architects' studies revealed that the staggered floor system yields a higher ratio of parking capacity to floor area than other varieties of level-floor garage design, whether served by spiral or rectangular ramps. Staggering of the floors overcomes what is perhaps the chief problem in the economical construction of parking garages: the space-eating factor of long ramps. The intermediate levels are linked by short, fairly steep ramps (21 per cent grade, as compared with 15 per cent in most garages), and additional space is gained by the overlapping of cars on the staggered cantilevered floors. This necessitates somewhat higher ceilings than would otherwise be necessary—thereby increasing the total cubic volume—but since the garage has no outside walls, the extra cost of added height was small. And, at \$3.16 per sq. ft. (not including land) the architects have solved an economic as well as a design problem: the high cost of enclosed garages, with their expensive automobile elevators or continuous ramp systems, has long deterred construction in this field. Note that entrance and exit ramps in this plan are completely separated, expediting circulation and minimizing the possibility of "house damage" to cars. And, the handling of the low curbs is felicitous in an extremely handsome design.

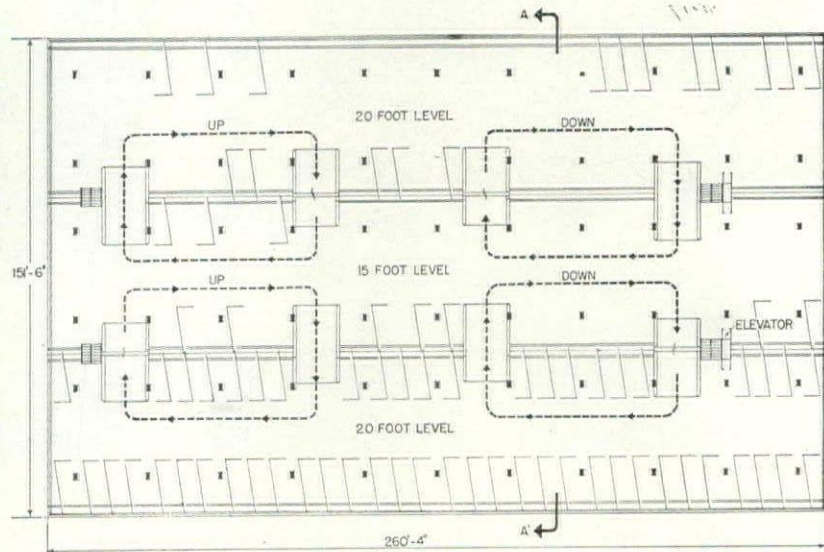
LOCATION: Miami, Fla.

ROBERT LAW WEED & ASSOCIATES, Architects

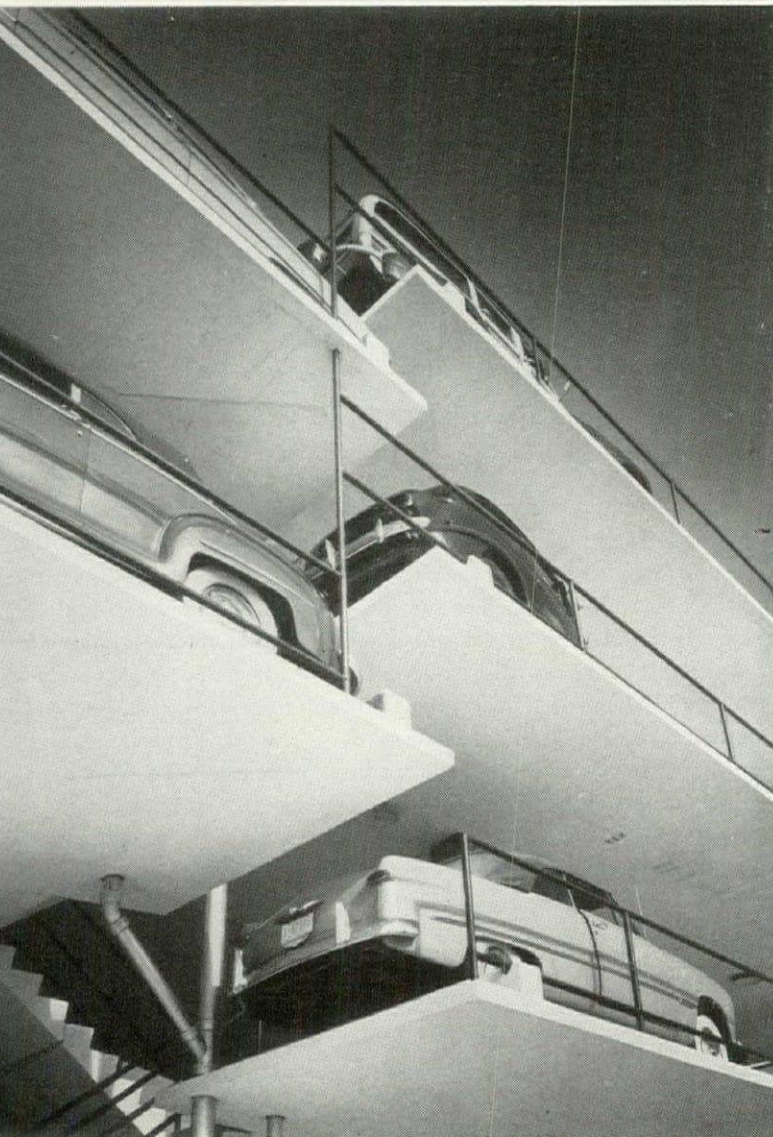
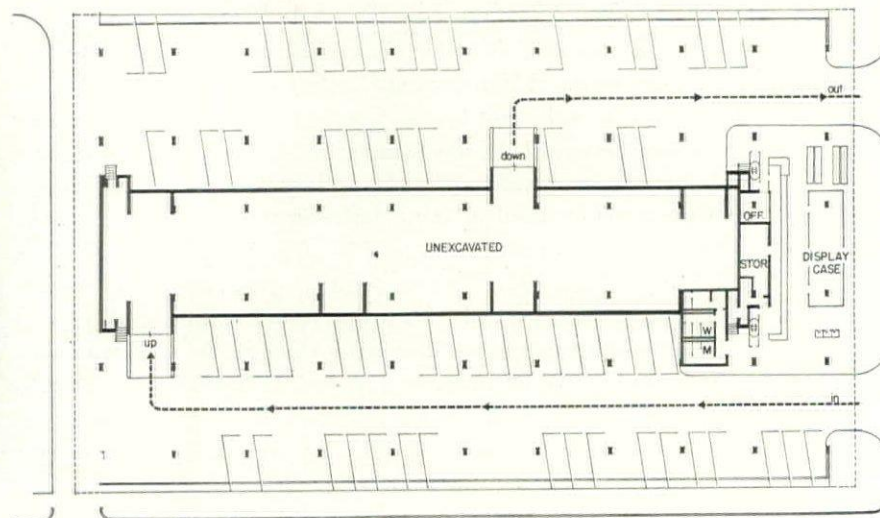
GUST K. NEWBERG CONSTRUCTION CO., General Contractors

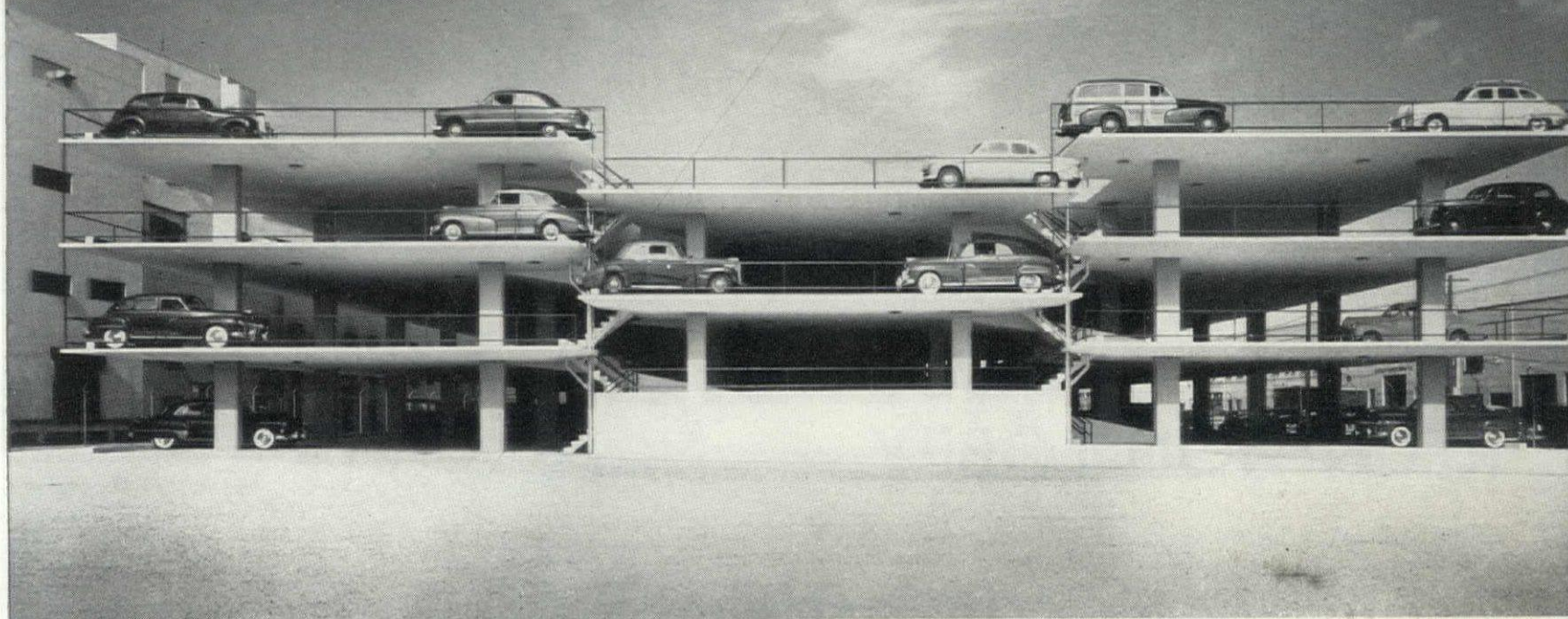


Overlapping of car ends, by the use of intermediate floors, is the unique, space-saving feature of this parking garage. Diagram above shows how six aisles of cars are accommodated in 151½ ft., while usual garage floor would have to be 165 ft. wide. (Building designed in accordance with patented Smooth Ceiling System.)

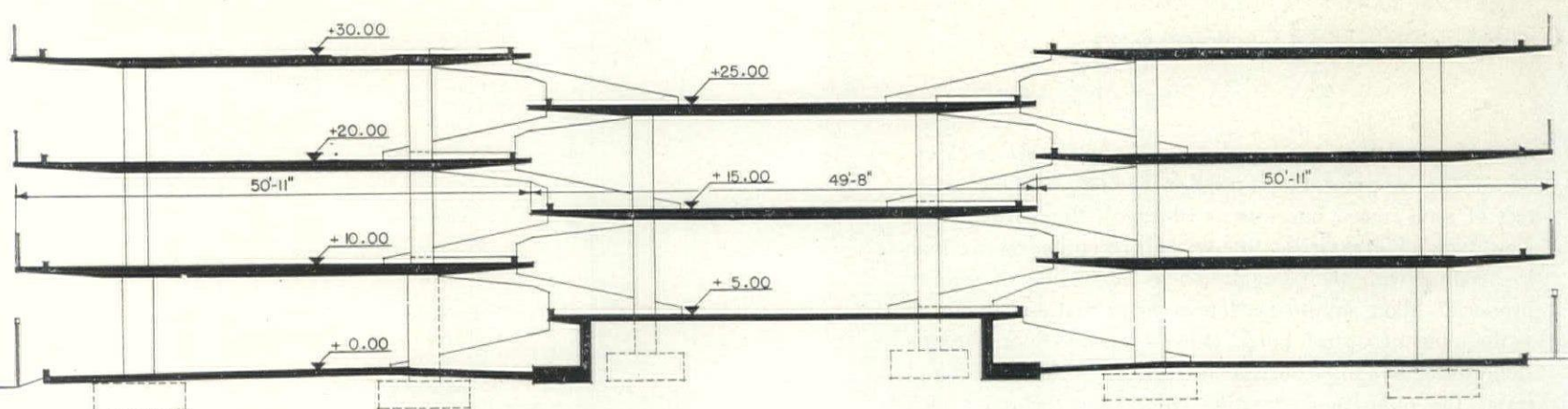


Linking of intermediate levels with short, separate "in" and "out" rampways (above) simplifies handling of cars and conserves parking area. Below: ground floor plan.





Esra Stoller: Pictor



SECTION A-A'

CONSTRUCTION OUTLINE: Foundations—reinforced concrete. Waterproofing—Sec Mfg. Co. Interior partitions—concrete block. SOUND INSULATION—Acousti-Celotex, Celotex Corp. DOORS—Kawneer Co. ELEVATORS—Nordyke, Allis Chalmer Co. FLOOR COVERINGS—Kencork block, David E. Kennedy, Inc. COUNTER TOPS—Formica, Formica Co. Trim—S & W Molding Co. and Kawneer Co. HARDWARE—Russell & Erwin Mfg. Co. PAINTS—Pittsburgh Plate Glass Co. and Sec Mfg. Co. ELECTRICAL SWITCHES—General Electric Co. PLUMBING FIXTURES—American Radiator-Standard Sanitary Corp. Water pipes—galvanized iron. Toilet accessories—Hoegger, Inc.



Photos: Hedrich-Blessing Studio

RECEPTION LOBBY

awes factory visitors with splendor and elegance

LOCATION: Morton Grove, Ill.

FRIEDMAN, ALSCHULER & SINCERE, Architects & Engineers;

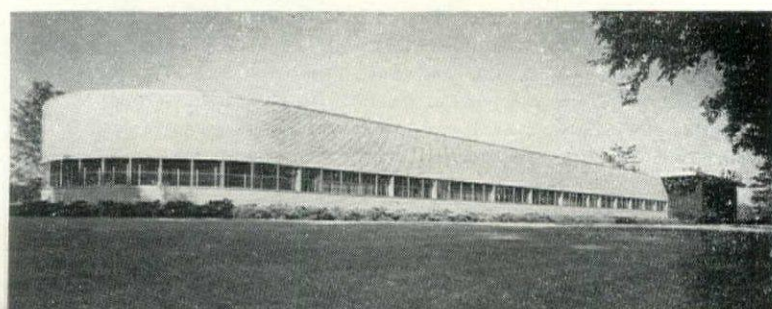
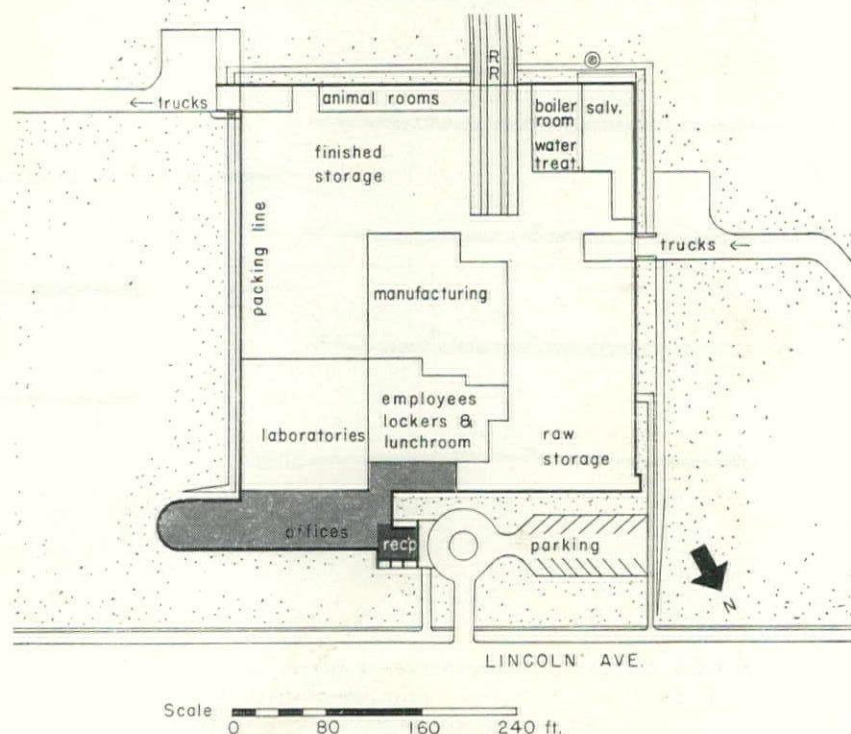
ERNEST A. GRUNSFELD, JR. Associate

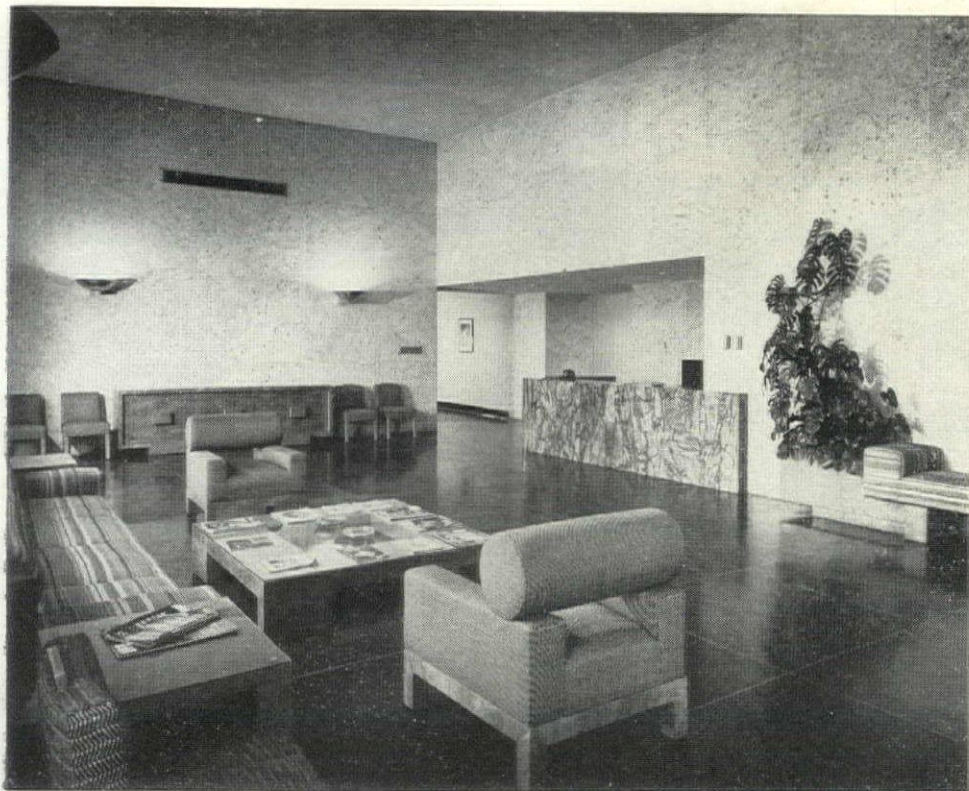
SAMUEL A. MARX AND JOHN CROMELIN, Associate Architects

FREEVOL-SMEDBERG & CO., General Contractors

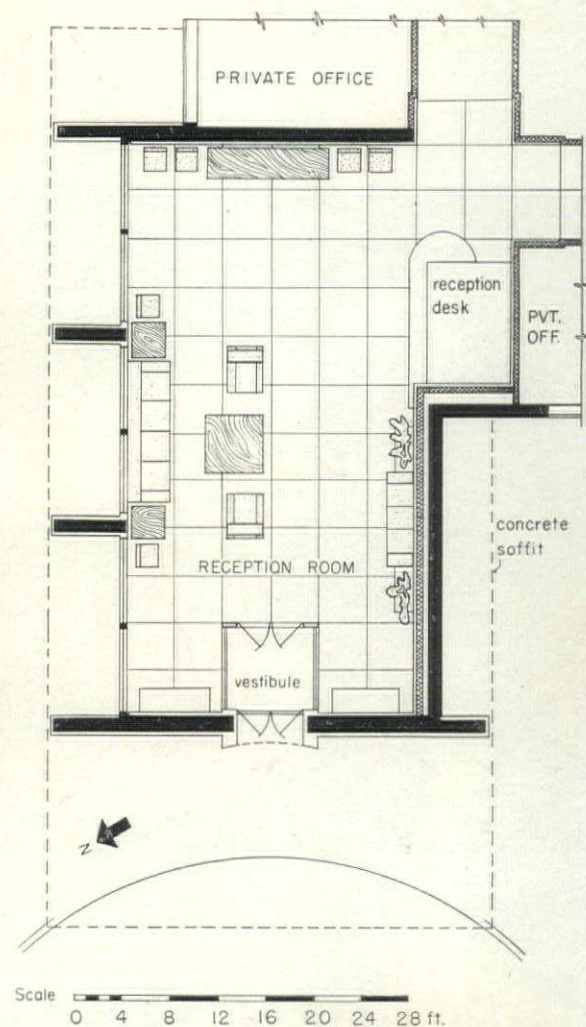
When Baxter Laboratories planned this new factory-research-administrative plant, they turned to Samuel A. Marx, architect of such famed interiors as Chicago's Pump Room and New York's Pierre Grille, to give their reception room a tone in keeping with their reputation as purveyors of quality products. Marx supplied a lounge as formal and imposing as the lobby of a plush hotel. It has a terrazzo floor, cordova stone walls, and an acoustical tile ceiling, which combine to frame the room in contrasting colors and textures. Such structural elements as the projecting finwalls have little work to do, supporting the roof, and being to the north of the room have no real sun-shading duties to perform. Smooth and unbroken ornaments of the new baroque, they add their polished marble to the plush of the curtains and the luxury of full-width plate glass. Against their sharply-arrised rectangularity, the architect plays the obvious contrast of the cylindrical roll cushions of the overstuffed chairs.

The consistent skill with which this mood is carried out, all pomp and surface, shows the Marxian master hand. And his confreres have given the building as a whole a "front" which conforms, with an off-end curve like the back end of a Pullman observation car.





View above is from vestibule toward office entrance. Extra height of room adds lobby-like feeling of spaciousness. Accents — polished granite information booth, foliage, furniture groupings — compensate for the rather severe lines and large circulation areas. Glass walls (below) are shaded by overhang. All artificial lighting is indirect.



400-BED GENERAL HOSPITAL



U.S. and France unite in research and design of an outstanding postwar hospital —and a living war memorial

PAUL NELSON, Chief Architect

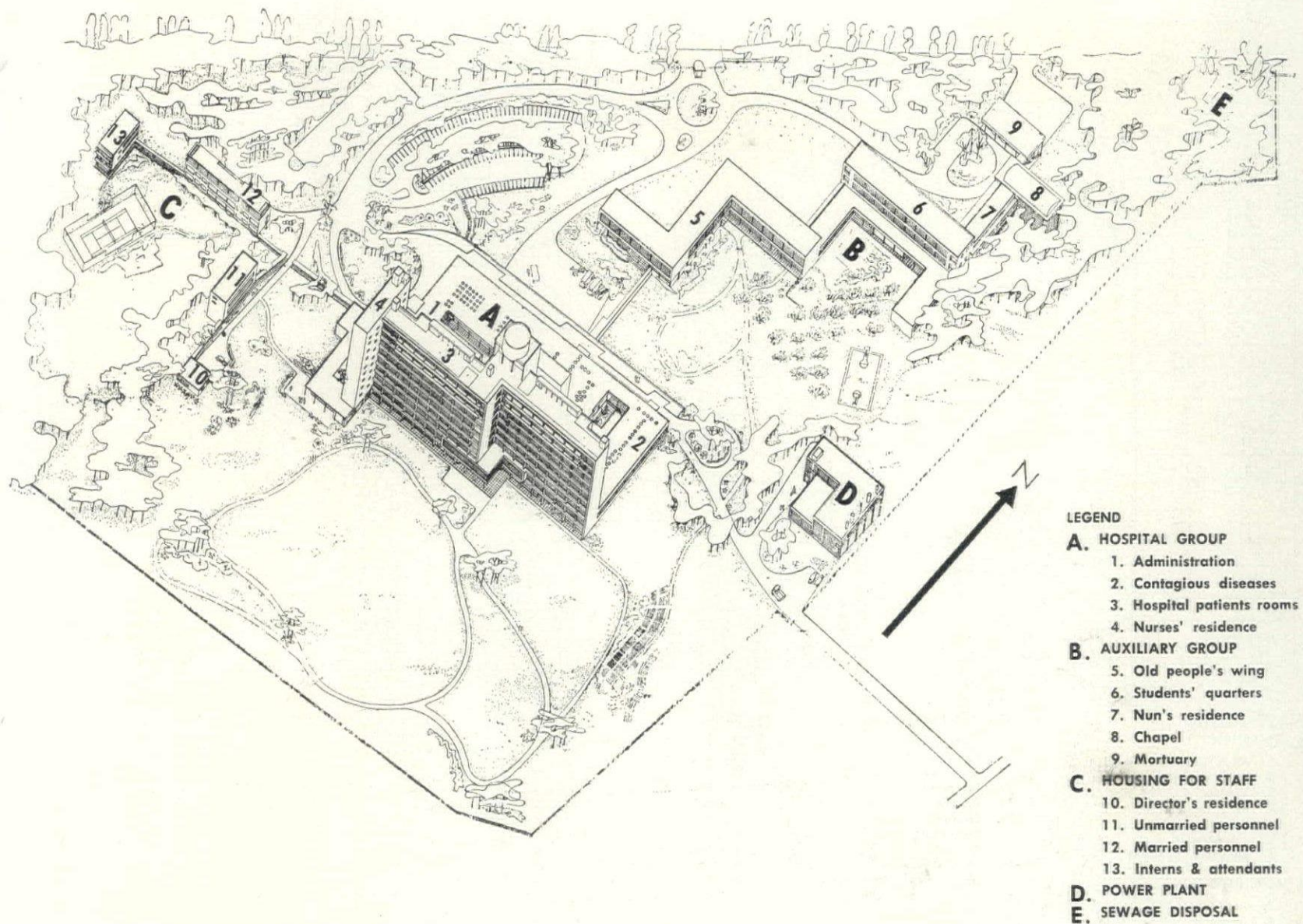
ROGER GILBERT, MARCEL MERSIER, CHARLES SEBILLOTTE, Associates

There was extensive consultation with the U. S. Public Health Service whose hospital standards were adapted to the requirements of the Ministère de la Santé Publique.

The big, beautifully-organized structure now going up in St. Lô, France, is setting a new standard for hospital design and international cooperation. Architect Paul Nelson and a group of French associates have adapted the latest findings of the U. S. Public Health Service to produce this 400-bed, single block general hospital for the health needs of the 70,000 people in a war-devastated district.

Design of the hospital was given the precision study usually reserved for a production-line factory. Every floor, every room, every piece of equipment was examined from both ends of a double standard — efficiency and economy. The result, which experts have called "*the great postwar hospital*," offers such striking benefits as: southern exposure for all sick rooms (this is a mild climate); no room with more than four beds, all reached by sunlight; each floor arranged so that complete night supervision can be maintained by only two nurses; a large out-patient department handling a maximum of patients without confusion or interference with other departments; a completely isolated yet accessible contagious

St. Lô, France



disease ward; absolute control of complicated traffic flow—medical, service, patients, visitors.

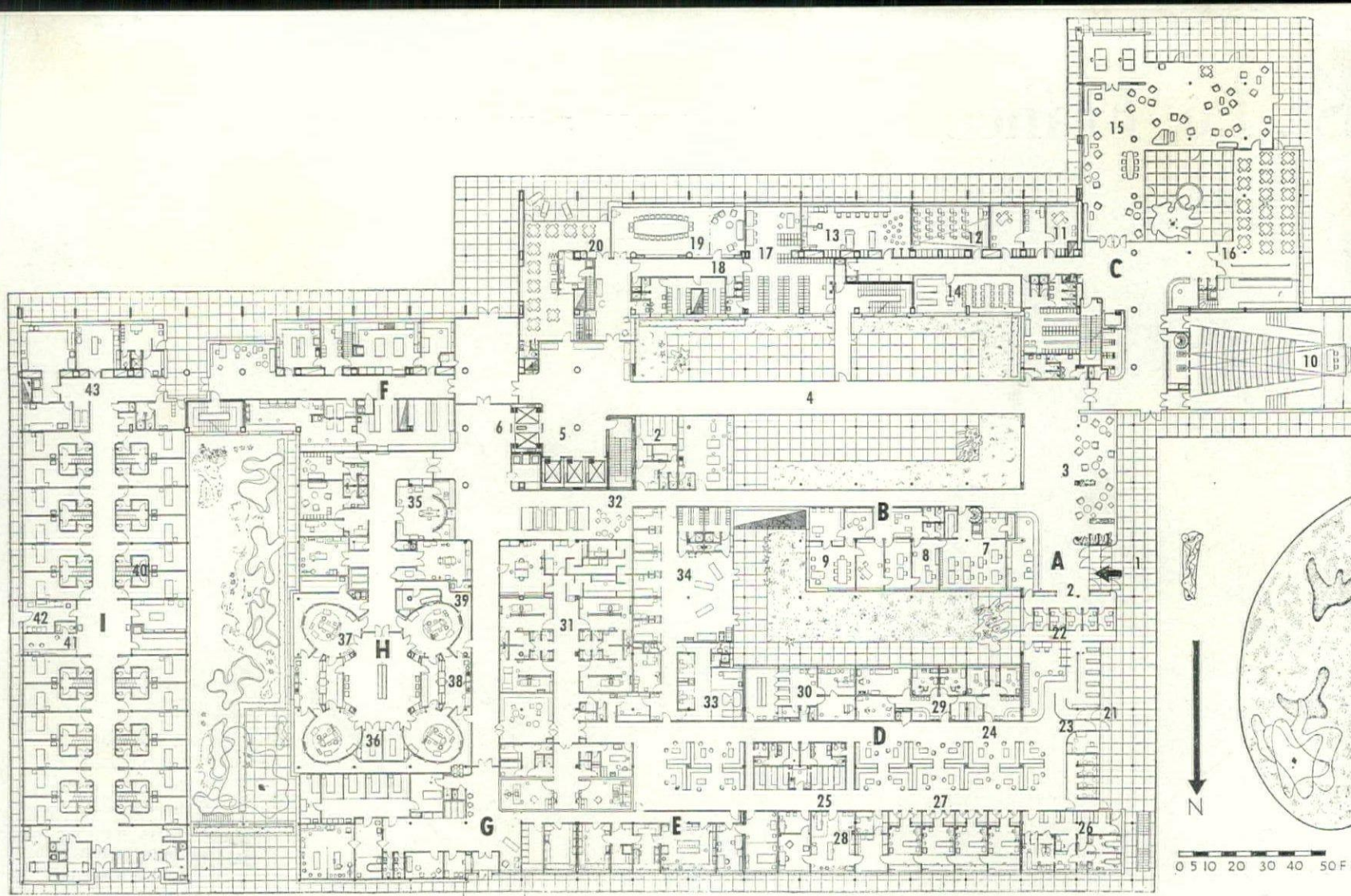
This superb traffic study has made it possible to include in a single ten-floor building the services usually divided among a number of separate pavilions for the sake of privacy and intra-departmental convenience. The saving in foundation and heating costs alone in a single-versus-multiple-building study shows the great economy to be derived from compactness. The buildings which surround the hospital in the plot-plan above will eventually provide auxiliary but independent services—apartments for male and married personnel, home for the aged, convent and chapel for nursing sisters, mortuary, power house and disposal plant. Even the nurses' home has been integrated with the main hospital block, where it serves the secondary purpose of protecting patients' rooms from the rainy west wind—the most troublesome feature of this climate.

Key to St. Lô's efficiency is the combination of vertical and horizontal traffic lines made possible by studied use of elevators—perhaps the first scientific example of this medium in European building. Their central placement and timing for various functions had a decisive effect on the placement and design of every other department and unit in the hospital. Only with their use could sick rooms be pushed up in one compact tower to enjoy sun and

privacy, leaving the general service, operating and therapy rooms to spread out over the ground floor area—immediately available for emergency and out-patient use as well as for visiting medical personnel. This skill in internal functioning goes far to justify the enthusiasm of French admirers who have termed it—"a machine for healing."

The structural skeleton of precast concrete, based on a 4-ft. module with column spacing of 19 ft. 6 in., is not only economical but allows for maximum present and future flexibility. Its design demonstrates again the French mastery of this medium (recalling the brilliant pioneer work of Auguste Perret). Nonload-bearing walls allow the whole south side to be opened up, and its glazing to be set behind the structural columns. Thus, protruding floor slabs create a *brise-soleil* shutting out the glare and rays of direct noon-day sun.

Not only plans but funds for St. Lô were the result of international cooperation. Intended as a memorial to U. S. soldiers who fell in the liberation of France, it will be paid for jointly by several departments of the French government and American Aid to France, Inc., which has already raised about \$150,000. Recently, too, the 193 million francs insurance from the *Friendship Train* fire were attributed through the courtesy of Drew Pearson.



FIRST FLOOR

A. RECEPTION

1. Main entrance
2. Admission of in-patients
3. Visitors' waiting room
4. Main corridor (visitors)
5. Elevators (visitors and personnel)
6. Elevators (patients)

B. ADMINISTRATION

7. Accountants
8. Treasurer
9. Board room

C. HOSPITAL PERSONNEL

10. Conference room, cinema
11. Personnel director
12. Classroom
13. Demonstration
14. Library
15. Lounge
16. Cafeteria
17. Files
18. Doctors' lounge
19. Doctors' conference room
20. Doctors' restaurant

D. CLINIC

21. Patients' entrance
22. Registration
23. Patients' exit
24. Waiting room
25. Blood bank
26. Dermato-venerology
27. Examination & treatment
28. Minor operations
29. Mouth and eye clinic
30. Tuberculosis clinic
31. Radio therapy

E. LABORATORIES

32. Waiting room, in-patients
33. Hydro-therapy
34. Diathermy

F. PHARMACY

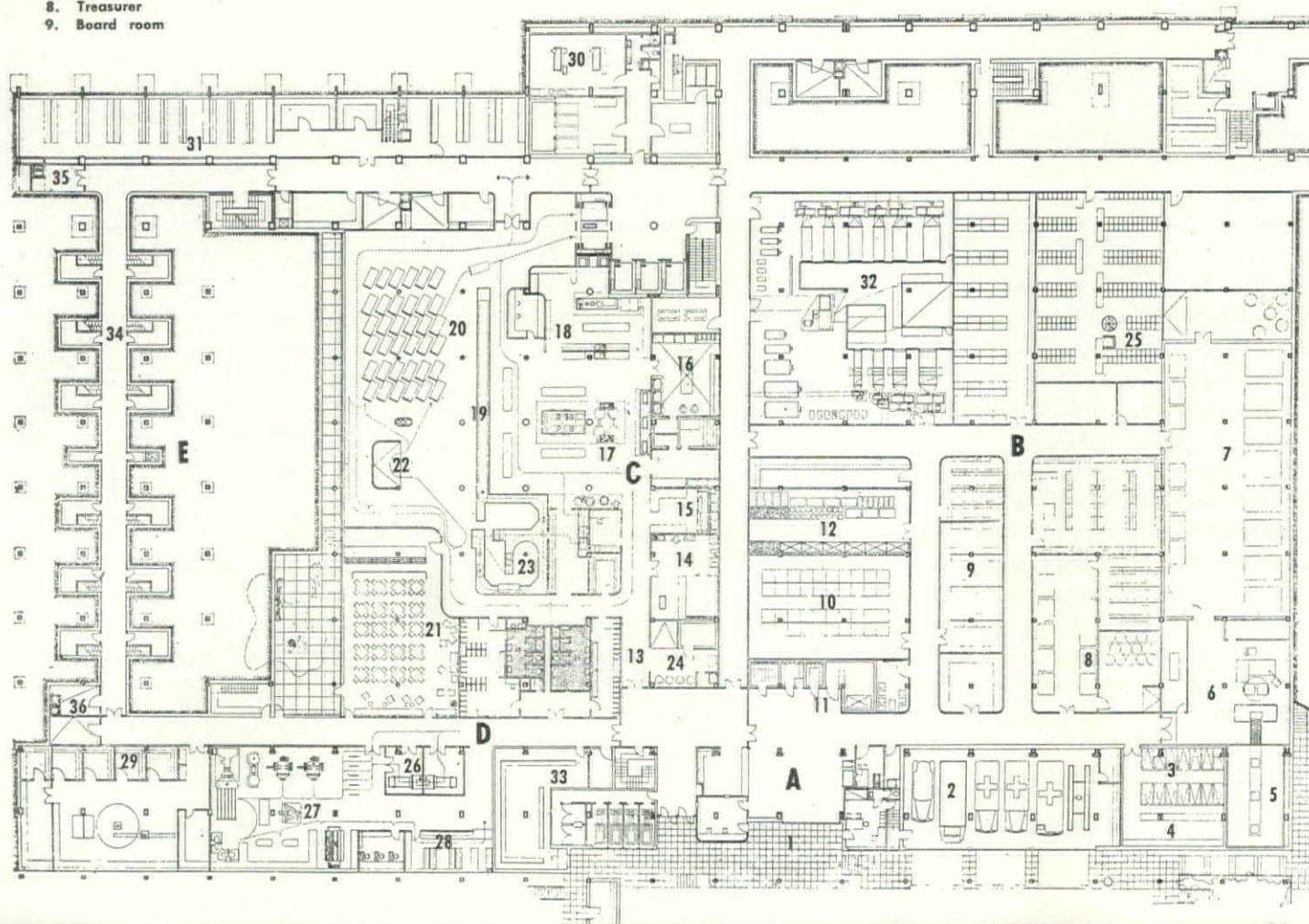
G. CASUALTIES

H. OPERATING

35. Mobile fluoroscope

I. ISOLATION WING

36. Anesthesia
37. Major operations
38. Sterilization
39. Theater for observers
40. Visitors' cubicle
41. Nurse
42. Workroom, contagious
43. Kitchen services



BASEMENT

A. SERVICE AREA

1. Loading bay
2. Garage

B. STORAGE

3. Potato storage
4. Vegetable storage
5. Cider storage
6. Brewery
7. Cellars
8. Barrels & casks
9. Grocery storage
10. Cereal storage
11. Refrigerator
12. Furniture storage

C. KITCHENS

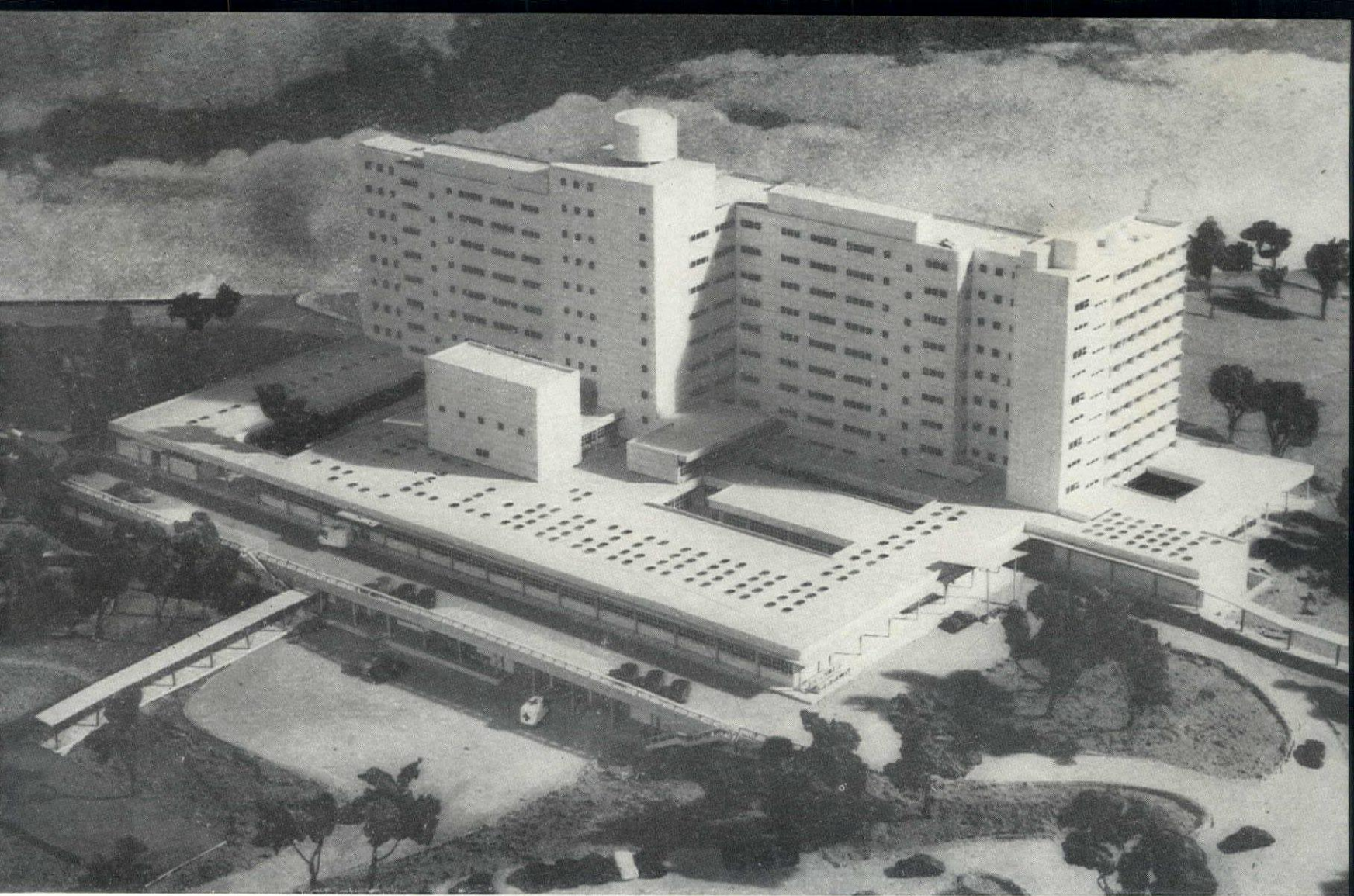
13. Kitchen entrance
14. Bakery
15. Meat preparation
16. Vegetable prep.
17. Kitchen, special diet
18. Kitchen, normal diet
19. Utensil conveyor
20. Meal trucks
21. Service restaurant
22. Washing, meal truck
23. Sterilizing of utensils
24. Garbage and trash

D. MAINTENANCE SERVICES

25. Archives
26. Disinfection
27. Laundry
28. Linen room
29. Repair shops
30. Autopsy room
31. Drug storage
32. Air-conditioning
33. Electrical equipment

E. ISOLATION WING SERVICES

34. Visitors access
35. Dumbwaiters
36. Laundry chutes, incinerator



Above: St. Lô, as it will appear from north and west approaches. Hospital's main entrance is on first floor (right) as are entries to emergency and contagious wards (far left); basement entries are for non-medical services and personnel.

Two lower floors accommodate general services

In spite of the great extent of St. Lô's ground and basement service floors, each has a functional orbit so compact and deliberate as to suggest a uranium atom. There are two entrance levels. Taking advantage of the rising slope the main entrance is located on the upper west side, while a basement service level opens up the lower north side for all non-medical services and personnel.

Immediately inside the main entrance, off the circular driveway, is a long information desk which serves as a sorting system to direct each group—patients, visiting doctors and friends—to its particular destination. Administrative offices are set in a block behind this central desk. Patients entering the hospital in the regular course follow the central corridor which leads directly from the desk back to the patients' bank of elevators; thence to nursing floors and rooms above. Out-patients coming for examination and diagnosis are sent to a section at the left (north) of the desk, complete with waiting rooms and facilities for registration, testing and treatment. Should examination indicate that more serious or prolonged treatment is necessary, there is direct access to the general therapy, X-ray and operating rooms which are set behind the central court.

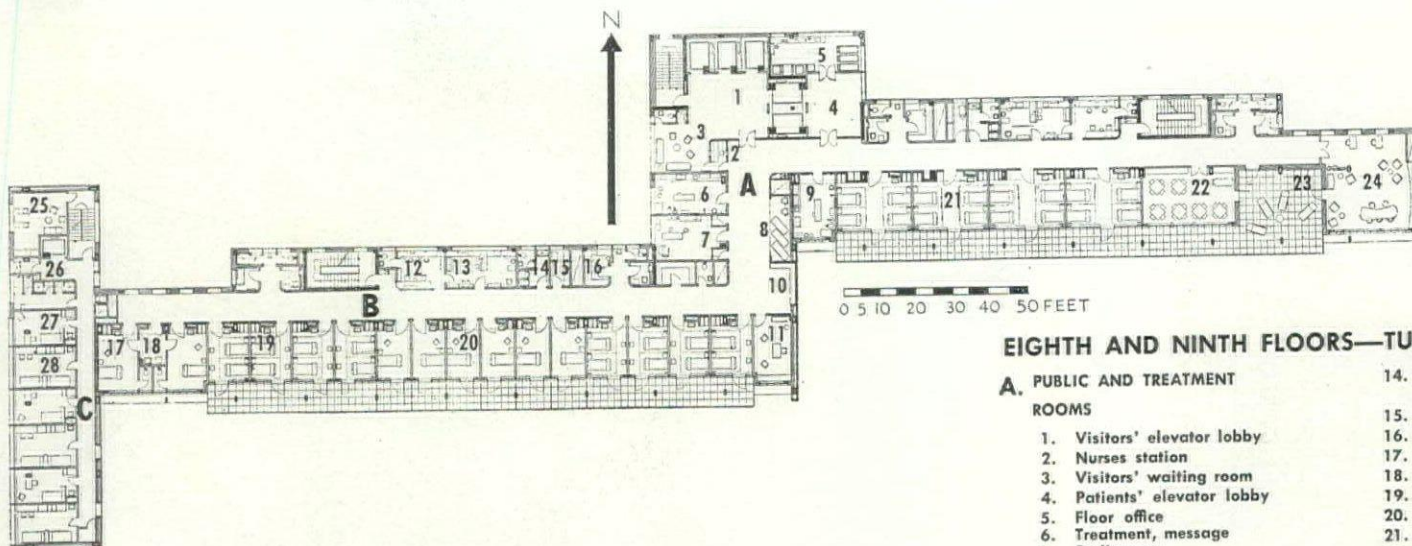
Visitors who arrive at the central information desk are directed either to a spacious lounge at the right of the entrance hall or through the glass-enclosed main corridor which leads past an interior garden court to the general elevators. Quarters for the staff and visiting doctors are at the far right where conference and classrooms, a lounge, game room and dining hall are provided—even a small projection theater.

Emergency patients by-pass all this front section and enter the

hospital at a separate and minor entrance near the center of the first floor's north side. This leads by an uninterrupted corridor to X-ray and operating rooms and patients' elevators. The contagious disease ward at the east end of this floor is completely isolated from the rest of the hospital by an outdoor court. An especially interesting part of its design is the glazed visitors' cubicle in each room, fitted with two-way microphones. Here friends can see and talk to patients without any danger of infection. The cubicles are reached by a gallery running through the basement and approached from the first floor visitor's corridor. (A separate, more direct entrance at the northeast corner is reserved for doctors and patients.)

Perhaps the most unusual single feature of St. Lô—and the special pride of Architect Paul Nelson, its inventor—is the group of egg-shaped operation rooms (four on the first floor; two on the maternity floor above). Lights set flush in the oval ceilings focus directly on the operating table, while independent access and circulation space is provided for patients, surgical and maintenance personnel. This design, although still in the experimental stage, may well revolutionize the current cube shape of operating rooms.

Beneath the main level, a large basement concentrates all non-medical services and storage—kitchen, laundry and collection of wastes. The general and special diet kitchens are equipped to feed a thousand people at every meal—possible total of 600 students and staff as well as the full patient quota of 400. From its central preparation rooms in the basement, food is sent in bulk lots to employees' dining rooms and by individual trays (in heated wagons) to patients' floors.



EIGHTH AND NINTH FLOORS—TUBERCULOSIS

A. PUBLIC AND TREATMENT

ROOMS

1. Visitors' elevator lobby
2. Nurses station
3. Visitors' waiting room
4. Patients' elevator lobby
5. Floor office
6. Treatment, message
7. Radioscopy
8. Stretchers
9. Examination
10. Patients' waiting room
11. Doctor's office

14. Laundry chute & incinerator

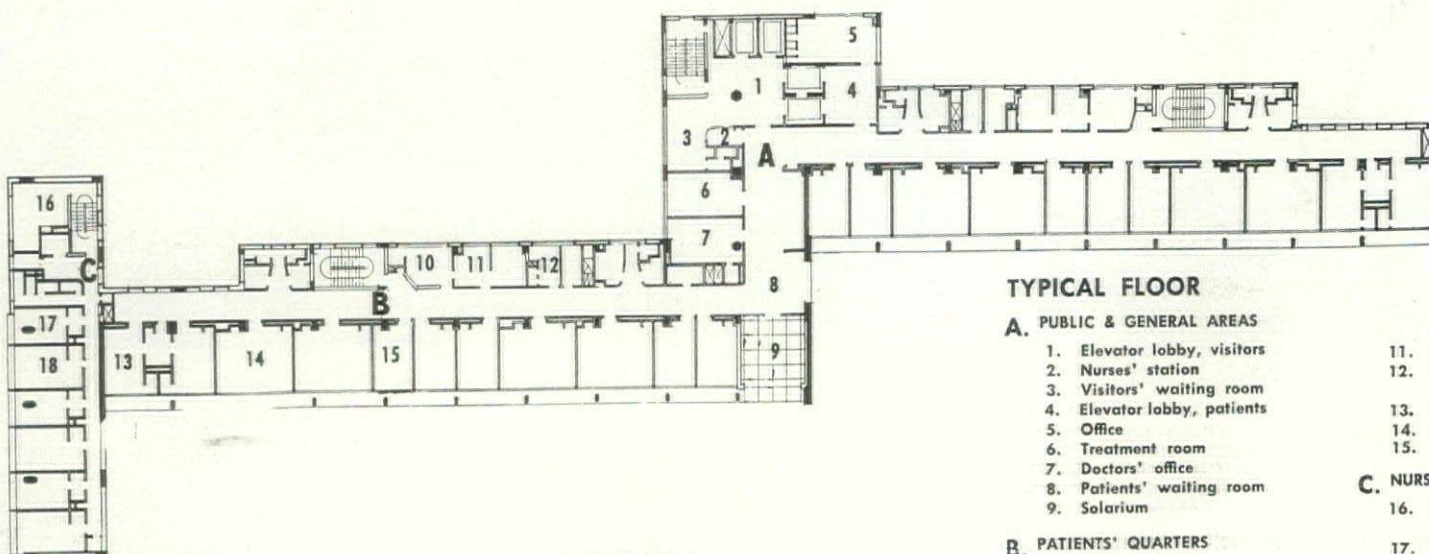
15. Linen room
16. Flowers
17. Isolation room
18. Sterilization
19. 2-Bed ward with balcony
20. Single room with balcony
21. 4-Bed ward with balcony
22. Patients' dining room
23. Solarium
24. Lounge

B. PATIENTS' QUARTERS

12. Nurses' room
13. Nurses' workroom

C. NURSES' WING

25. Small laundry
26. Office
27. Single bedroom
28. Double bedroom



TYPICAL FLOOR

A. PUBLIC & GENERAL AREAS

1. Elevator lobby, visitors
2. Nurses' station
3. Visitors' waiting room
4. Elevator lobby, patients
5. Office
6. Treatment room
7. Doctors' office
8. Patients' waiting room
9. Solarium

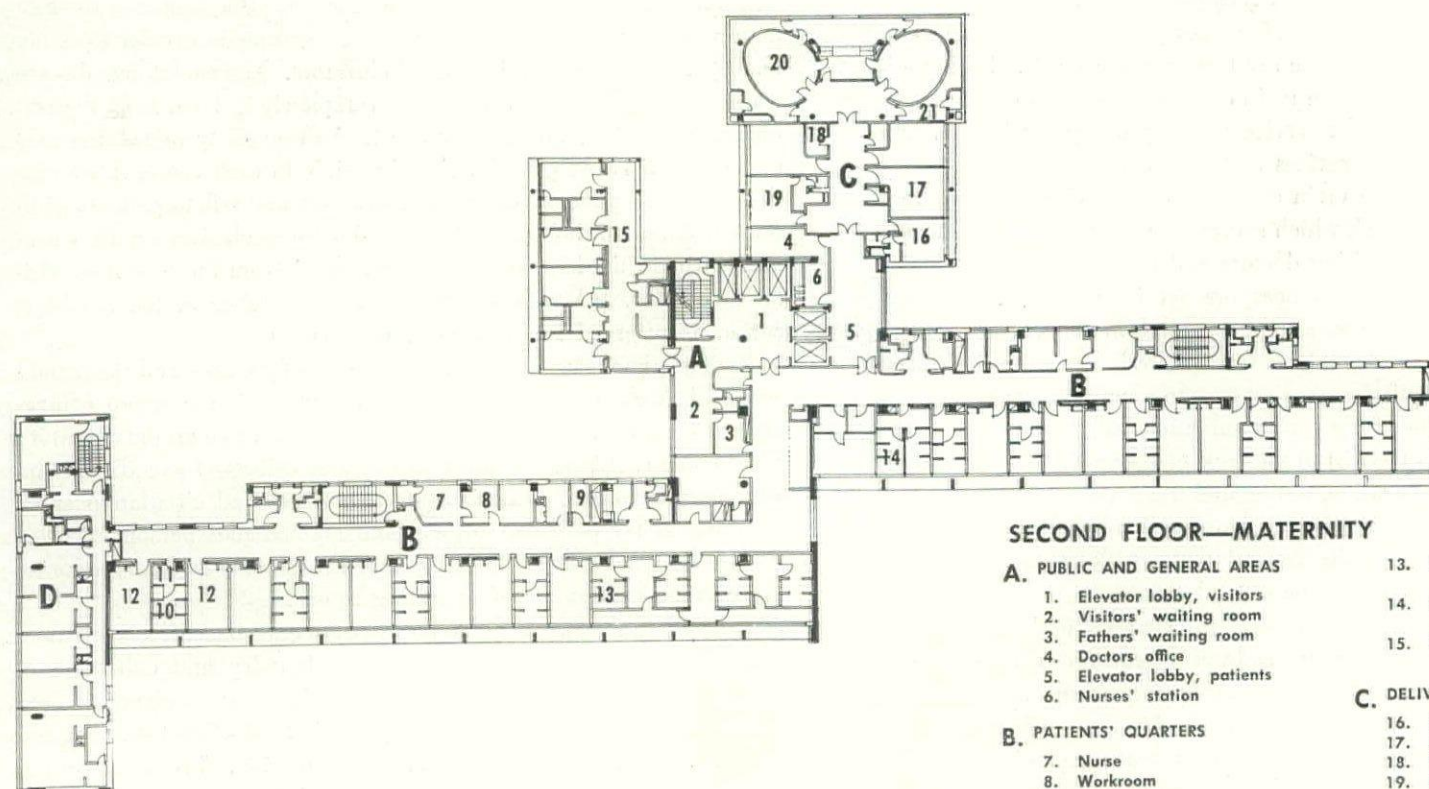
11. Work room
12. Laundry & incinerator chute
13. Single room
14. 4-Bed ward
15. 2-Bed ward

B. PATIENTS' QUARTERS

10. Nurse

C. NURSES' WING

16. On alternate floors, lounge or small laundry
17. Single room
18. Double room



SECOND FLOOR—MATERNITY

A. PUBLIC AND GENERAL AREAS

1. Elevator lobby, visitors
2. Visitors' waiting room
3. Fathers' waiting room
4. Doctors' office
5. Elevator lobby, patients
6. Nurses' station

13. Nursery for 4 premature babies
14. Nursery for 2 babies under observation
15. Quarantine area for mothers

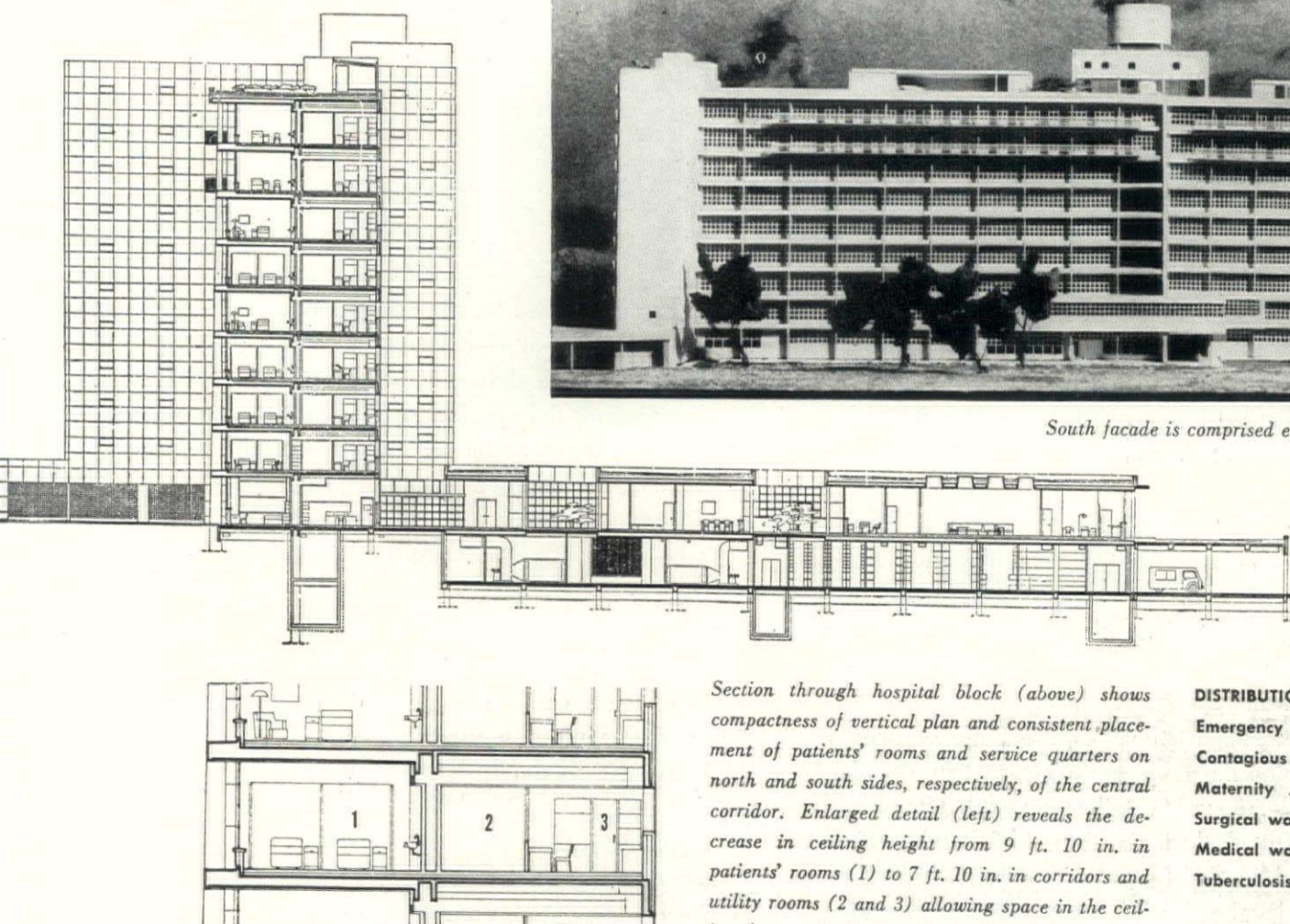
B. PATIENTS' QUARTERS

7. Nurse
8. Workroom
9. Linen room
10. Nursery
11. Dressing room
12. 2-Bed ward

C. DELIVERY

16. Doctors
17. Labor room
18. Scrub-up, doctors
19. Nurses & midwives
20. Delivery room
21. Observation corridor

D. NURSES' WING



South facade is comprised entirely of bedroom windows

Section through hospital block (above) shows compactness of vertical plan and consistent placement of patients' rooms and service quarters on north and south sides, respectively, of the central corridor. Enlarged detail (left) reveals the decrease in ceiling height from 9 ft. 10 in. in patients' rooms (1) to 7 ft. 10 in. in corridors and utility rooms (2 and 3) allowing space in the ceiling for mechanical ventilation ducts.

DISTRIBUTION OF BEDS:

Emergency and admission	4
Contagious unit	24
Maternity	38
Surgical wards	158
Medical wards	96
Tuberculosis wards	80
TOTAL	400

Each upper floor has two nursing wings

The figure of 400 beds on eight nursing floors provided at St. Lô is far from haphazardly chosen. It represents a golden mean arrived at by balancing the most efficient use of service facilities and the all-important end product—the comfort and care of patients. Fulcrum for maintaining this balance is the double bank of elevators (three for general use and two for exclusive use of patients) upon whose placement and rate of operation the design and location of every other unit depends. General and patients' elevators have separate corridor approaches and separate waiting rooms on every floor to avoid possible confusion. During the strictly limited visiting hours, the general elevators can distribute and clear away 500 people within a 20-minute interval. At mealtimes two of the general elevators are pressed into service for transporting food wagons between the basement and upper floors.

The Z-shaped layout of the nursing floors is also a function of elevator efficiency. The slight central jog allows for waiting and service rooms—a location which has the advantage not only of being equidistant from both ends but of shutting off as much noise as possible from the two room corridors. In each wing (75 ft. long) utility and storage rooms are on the north side of the corridor, patients' rooms, on the south. Individual rooms holding one, two or four beds (no more) bring the total patient-population of each wing to between 20 and 28—the most that can be efficiently handled by a single night nurse on duty.

Maintenance and care of patients is made easier by the compactness of sick-room size (clear height 9 ft. 10 in.; 885 cu. ft. per bed). Although larger than the basic figures recommended by the U. S.

Public Health Service research, these dimensions are very small by European standards—where mechanical ventilation is almost unknown. Complete air-conditioning is used only in the nurseries and operating rooms, but forced warm air (cool in summer) will be circulated throughout the hospital by a central system of ducts. The height of halls and utility rooms in upper floors is limited to 7 ft. 10 in. to allow for this piping. Original plans to supplement the forced air with panel heating have been discarded; it was deemed unnecessary in this mild climate. Large window walls overlooking a garden park dispose of the only possible objection to small room size—a shut-in feeling. Moreover, since rooms are never more than two beds in depth from the window, all patients receive a full quota of sunshine.

Slight deviations from the general plan are made only in the case of the maternity (second) floor and the two floors for tubercular care, located at the top of the building. Mother's rooms are spaced wider than usual to allow for individual infants' cubicles alongside—in accordance with the latest medical recommendations. A wing at the rear houses delivery and operating rooms. The tubercular (8th and 9th) floors have a maximum of sun and quiet and are close to the roof solarium. In addition, each room opens on its own balcony-porch.

Natural lighting is utilized as fully as possible throughout—not only through conventional windows and window walls, but by glazed interior courts and many circular skylights (see page 97 for photo showing skylights in first floor roof). Rooms demanding continuous light (such as kitchens and halls) will use fluorescent fixtures; those needing light only at times (patients' and nurses' rooms), will have incandescent fixtures.

MODERNIZATION OF BUILDING CODES

Progress is being made — but slowly

Economist Miles Colean studies one of the industry's top-drawer problems, finds the solution tangled in a maze of geographical variations, personal interests and costly paper work.

To the naked eye, progress in modernizing building codes may seem nonexistent. Certainly, the ear, dinned with complaints about the backwardness of codes, has heard little to indicate real progress. Patient observers, however, see "the inevitability of gradualness" clearly at work and can find some cause for cheer.

New York, some time back, established its Bureau of Standards and Appeals with broad authority to approve new materials and appliances when they meet the objective of the code. The idea has been picked up elsewhere, notably in a code adopted by Cleveland this summer. Cleveland's new code, moreover, represents a distinct advance in the special attention it gives house construction. Chicago, despite what amounts to a filibuster on the subject of three-coat plaster, is on the way to a new code. Kansas City has remodeled its code. Massachusetts has instituted, through a Board of Standards in its Department of Public Safety, a unique procedure for avoiding archaisms in local codes at least in so far as they affect residential building. The model code of the Pacific Coast Building Officials Conference has been adopted in whole or in large part by 532 cities; that of the Southern Building Officials Conference, by more than 250.

These are but a few examples of what has been going on amid the postwar confusion; and they represent real advances. Nevertheless, despite their resentment of uncritical attacks which make codes the whipping boy for all the troubles in construction, workers in the field are far from satisfied with the rate of progress. Gradualness is still too gradual; code experts recognize that a number of very fundamental issues have yet to be resolved before something more than a snail-gait can be achieved, and they wish others could also recognize these problems.

Problem No. 1 is the size and diversity of the country. With such special conditions of vermin and hurricanes in the south, tornados in the great plains, earthquakes in the Pacific region and heavy snows in the northern and mountain states, no single set of model code requirements can meet all conditions. Diversity, however, tends to be exaggerated as well as minimized; and the question of determining the considerable area within which standardization is possible is not a simple one.

Nature of the beast

To accomplish this essential task a complex machinery must be established and broadly accepted. The many-sided nature

of the task must also be recognized. It consists of: 1) determining the scope of essential regulation, 2) conducting research upon which defensible standards can be established, 3) determining the specific standards, 4) promulgating the standards in terms of model code provisions, 5) embodying the standard provisions in separate local codes, the last including the resolution of a number of knotty legal questions.

The roster of agencies—public, quasi-public, and private—engaged in one phase or other of this manifold assignment is a big one (see p. 126). From them has come a welter of recommendations, standards, and model codes, many of which have been utilized in code writing over the past decades. The diversity of contributors, however, creates a problem as great as that presented by the diversity of the country itself—and one perhaps even more difficult to resolve. Notwithstanding a commendable amount of good will and good intentions all around, jurisdictional jealousies still lurk, differences persist, and glaring gaps in important particulars remain. As a result, effort is wasted in jurisdictional bickering, financial support is unnecessarily diffused, research is retarded, and politicians and special interests, by playing one group or one standard against another, often block code improvement.

Taming the lions

The problem is how to end this factionalism in a worthy cause. Where there are so many equals, the assumption of leadership is almost certain to be taken as an act of presumption, more likely to increase suspicion than to promote cooperation. The fear and jealousy of federal government encroachment in what, as far as regulation is concerned, is constitutionally a distinctly local matter has kept any of the federal agencies from being a rallying point. Indeed, the rival claims of several agencies to a place in the building code sun do not increase the government's prestige or make it easy for any one of them to undertake the coordinating assignment. Recognizing these circumstances, Len Haeger, able and self-effacing head of HHFA's building code activities, has wisely chosen to work in the background and to concentrate his agency's work, in cooperation with the National Bureau of Standards, mainly on research related to standards on such subjects as plumbing, condensation, nailing, flues and chimneys, light and space, exits, wind pressure and snow loads.

(Continued on page 120)

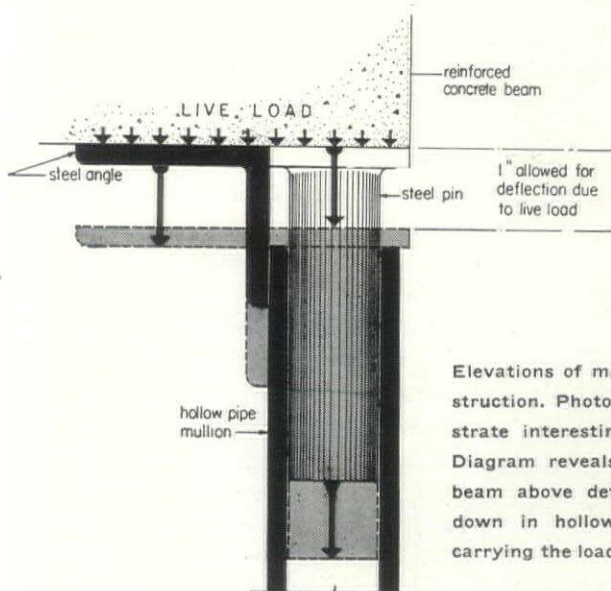
PRODUCTS AND PRACTICE

BOWSTRING MULLION for wind stiffening

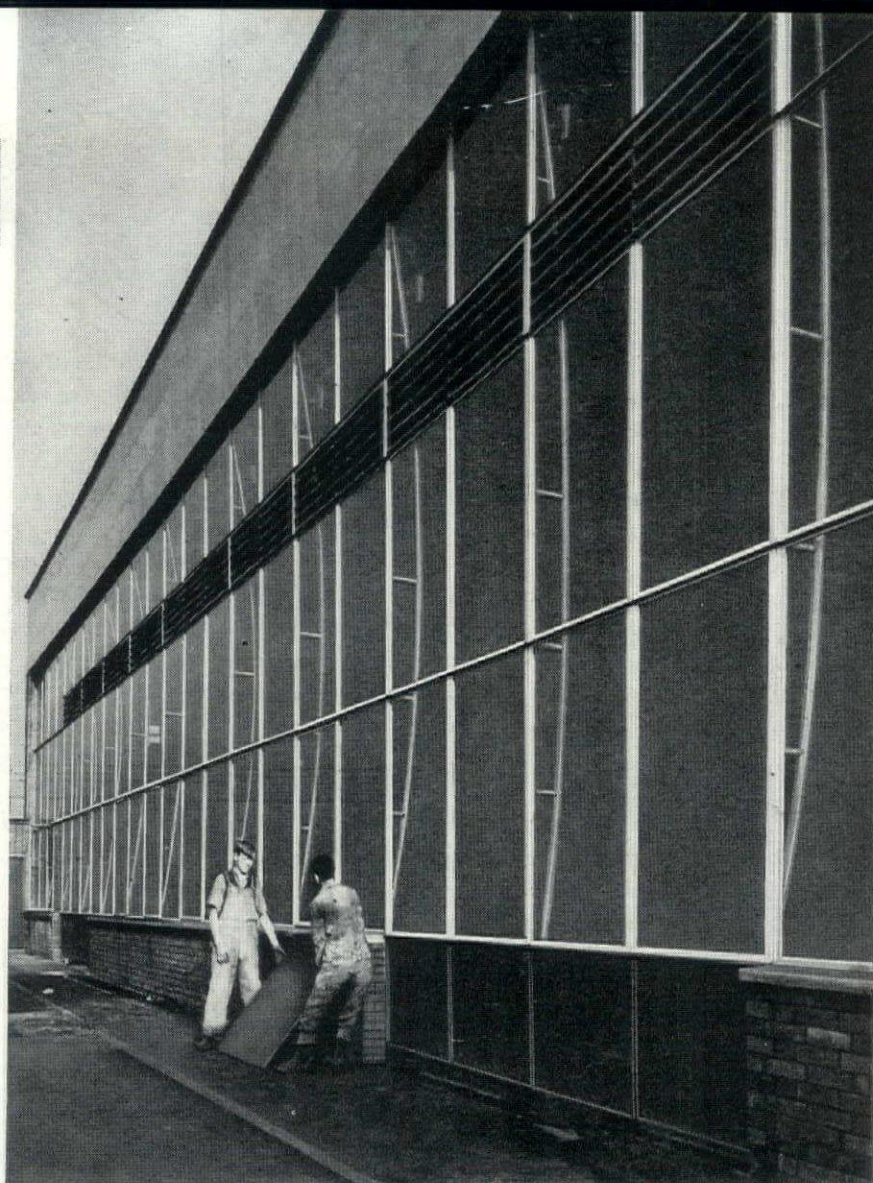
Wind bracing is one of today's familiar problems in detailing large glass areas without clumsy supports. The problem arises repeatedly in such construction as aircraft hangars, big showrooms and exhibition spaces.

When the designers detailed this big window for the Brabazon Aircraft hangar in Bristol, England, they came up against the obvious problem of stiffening it to withstand the considerable wind pressure which sweeps across the airfield. They also wanted to make the window as light as possible. Architect Eric Ross, F.R.I.B.A., working with Gardiner Sons Steelworks, rejected the usual solution of large flat mullions between windows in favor of a set of interesting bowstring mullions. The bowstrings are welded hollow steel tubing $1\frac{5}{8}$ in. in diameter and brace a window 97 ft. long x 18 ft. 10 in. high, including a long section of fixed louvers.

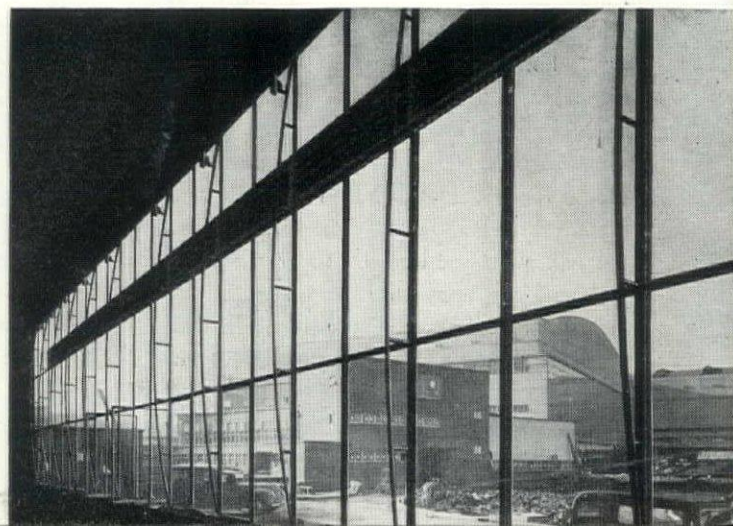
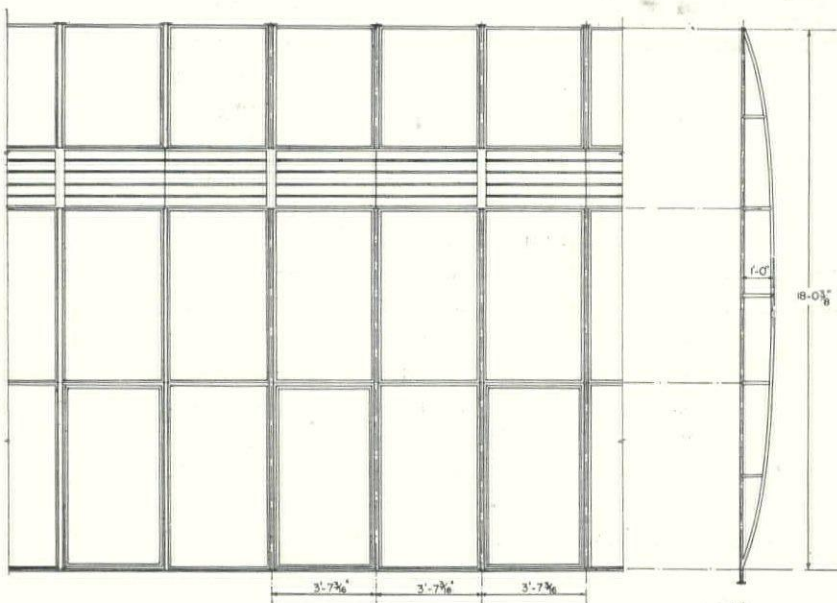
Since the light bowstrings had to be designed solely as stiffeners against horizontal pressure, and would carry no vertical load, another problem was encountered—the problem of deflection of the reinforced concrete beam carrying one side of the barrel roof over the window. This deflection was figured to be 1 in. under snow load—enough to wreck the lightweight mullions. This problem was solved by making telescopic joints between the mullions and the beam. When the beam bends under the snow load, the connecting peg on the window frame slides down inside the tubular mullions, thus avoiding the transmission of the load to the mullions.



Elevations of mullion above show lightness of construction. Photographs from inside and out demonstrate interesting appearance of finished window. Diagram reveals action at head of mullion when beam above deflects under snow load—pin slides down in hollow mullion, avoiding the strain of carrying the load.



Gardiner, Sons & Co., Ltd.



CRACKING IN CONCRETE BLOCK WALLS—more attention to design, with more

reasonable demands on the material, will forestall most of this trouble

Concrete block is probably the most used wall-building material in America today. At times it is also the most abused. Most concrete block walls put up in the last ten years of intensive building stand intact. But some fail, and in their failure is a consistent pattern.

Seldom is the material of construction itself at fault. Cement can be admixed and badmixed to a remarkable degree and still stand up for a good part of a civilization—provided it has been cured for a few days before being subjected to loading or other pressures.

It is cracking that kills a concrete block wall, and it is the way concrete blocks are put together that usually causes the cracking. Engineer Harold S. Woodward, a member of the New York firm of Seelye, Stevenson & Value, Consulting Engineers, has summarized the practical engineering of concrete block walls for the FORUM, and his observations appear below. (On the bottom of page 103 are sketches from a report by Seelye, Stevenson & Value on cracking in masonry walls, including not only concrete block but brick and other common masonry. On page 104 are a number of examples of new developments and refinements in concrete blocks.)

Consistent cracking

The cause of cracking of walls is often hard to diagnose but there are many points where the cause is obvious and where more attention to construction details will at least minimize cracking. More attention, Woodward points out, should be given by both architects and engineers to the loading characteristics of the individual job to determine where solid masonry or some other type of construction should be substituted for hollow blocks.

From tests it has been determined that the factors which determine the strength of any masonry are the following: 1) strength of unit; 2) design of unit; 3) regularity of unit; 4) size of unit; 5) strength of mortar; 6) bond of mortar to unit; 7) thickness of mortar joint; 8) quality of workmanship.

Factors 1, 2, 6, and 7 are the ones that tend to lower the strength of a block wall compared to solid brick. Comparative tests on small wall sections of the same gross area and the same mortar strength and workmanship show that a solid brick wall has a strength almost double that of hollow

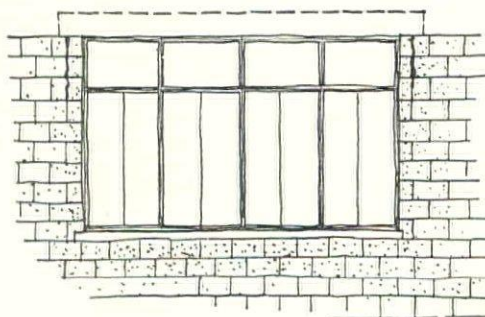
block. All building codes recognize this as indicated by the allowable bearing values. Concrete blocks are usually allowed 80 p.s.i. on the gross area, while solid brick walls are allowed anywhere from 175 to 325 p.s.i., both with cement mortar.

Concrete blocks vary greatly in strength. One set of tests conducted by the University of Illinois shows a variation in compressive strengths of the units ranging from 550 to 1,570 p.s.i., and the wall strengths from 330 to 780 p.s.i. For this reason specifications should give minimum strength requirements, usually between 700 and 1,000 p.s.i. on the gross area for load-bearing units, depending on the minimum face-shell thickness.

Brick and block, compared

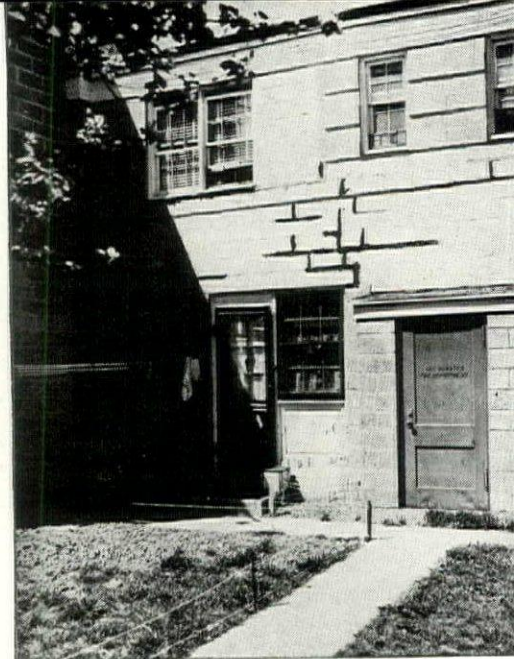
Comparing the construction strength of solid brick and hollow concrete block walls Woodward points out that the brick wall has mortar bond through the full width of wall. The bricks are small enough to insure full contact with mortar, and light enough to be handled expeditiously. Brick may be shoved more readily, tending to produce a tight joint and good bond. On the other hand, block is relatively high with a thin edge. The mortar may not adhere to the full height of the vertical edge of the block while being placed in the wall. What is finally obtained in many cases is in effect a "battered" joint with little cohesive strength.

This weakness of the vertical joints in the block wall is usually noticeable in cracked walls. Any tension causes the wall to crack through the blocks in line with the vertical joints in the alternate courses. In brick walls cracks tend to follow the joints.



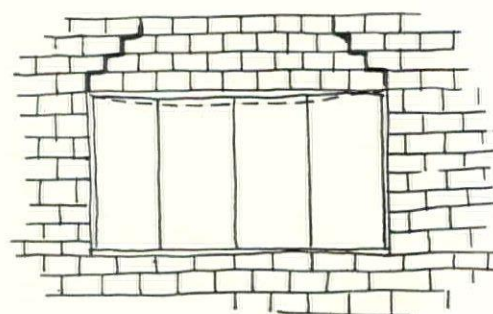
Cracks from bearing failure

Cracks in block walls are apt to occur in certain places and patterns. A common occurrence is the case of a long span lintel where the block under the bearing has



Patching emphasizes common pattern in this cracked concrete block wall.

cracked. This no doubt is due to the lintel deflection throwing the load on the inner edge. In one recent case inspected by Woodward the lintel spanned a garage door opening. Here the crack was probably made larger by the vibration due to door operation. This condition could have been prevented, he says, by using solid brick for bearing or at least filling the block with mortar.



Cracks from deflection

Lintel deflection cracks frequently occur over store windows, where the second story wall is carried on steel. There appears to be no practical method of overcoming this situation, although a stiffer beam may be used to minimize deflection. Pre-deflecting the beam is not practical. The use of $\frac{1}{4}$ in. pencil rods, two in each joint above and below any window and in the joint one course below the parapet wall, should help the condition. The rods should extend about 2 ft. past the window jambs and be hooked a similar distance around the corners in the parapet.

Most baffling are cracks which occur for no apparent reason. Thermal expansion probably is the cause in some cases. In a building 150 ft. long where the parapet or upper portion of the wall is exposed to the heat of the sun all day while the lower portion is not so exposed, the wall might easily have a temperature differential of 20° . This would account for $\frac{1}{4}$ in. change in

the length of the wall, an amount which would cause cracking at weak points such as window or door openings near the corners. If a window occurs in the end walls of such a building near the corner, chances are that the long wall will push this rear wall out at the corner causing a crack from the window corner through the parapet.

Special attention should be paid to cases of sloping rafters resting on block walls. All tendency to side thrust must be removed. Where an A-frame occurs, horizontal deflection cannot be eliminated unless the horizontal tie is close to the eave line. Heavy snows have exposed a good many of poor designs.

Another factor sometimes given little consideration is the condition of the blocks when the wall is built. If they are not fully cured, shrinkage will continue as they dry out in the wall. Also, if the blocks are stacked in the open, they may absorb considerable moisture from rains. When built into the wall in this wet state the blocks will shrink and crack as they dry out. Blocks should be stored under cover if possible and in narrow piles with cells horizontal

and opposite so that air circulates through the piles. The stacks should be raised off the ground on planks.

Foundation settlement

Another major cause of cracked walls is uneven settlement of foundations. Cracking from this cause is easily diagnosed. No special precautions are necessary with block walls except that wall footings might be reinforced top and bottom to get some beam action into the footing.

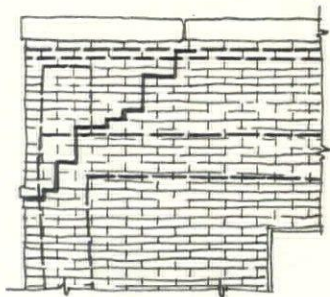
Because of its current importance Woodward makes special mention of the case of interior bearing walls in multiple-story schools, which are likely to be of concrete block. A careful investigation should be made of load carrying capacity as altered by wall openings for doors, ducts, fire extinguisher accesses, drinking fountain recesses, and pipe chases, etc.

Brick faced walls with back-up of hollow concrete blocks also merit close attention. These walls, Woodward maintains, must be bonded with header courses of brick at least every sixth course of brick.

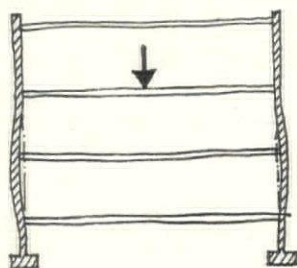
Engineer Woodward's eight general summarizing recommendations for minimizing cracks are worth the attention of all concrete block users:

- 1) Place two $\frac{1}{4}$ in. round steel reinforcing rods in each of the first two mortar joints below parapet copings. Wherever these rods are used, one rod should be placed in each face-shell joint.
- 2) Place two $\frac{1}{4}$ in. round bars in the first mortar joint above and below all window openings. Carry bars at least 24 in. past the edge of the opening.
- 3) Place the same reinforcing over doors.
- 4) Where continuous bars are used they should be lapped around the corners at least 2 ft.
- 5) Reinforce continuous poured concrete wall footings under block walls with three $\frac{1}{2}$ in. bars top and bottom continuously to avoid local settling.
- 6) Use solid masonry under the bearing of all lintels exceeding a 5 ft. span.
- 7) Where walls are carried on steel, design steel for extra stiffness.
- 8) Investigate for localized weaknesses in all bearing walls.

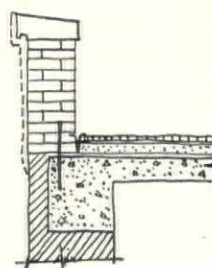
CRACKING IN MASONRY WALLS. Excerpts from a report by Seelye, Stevenson & Value, on how to avoid common errors



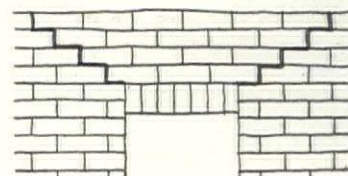
Parapet corner cracks from expansion and contraction of parapet in relation to walls—raise corner column stubs above roof; reinforce brickwork.



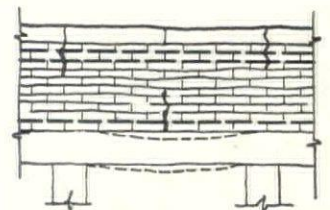
Thrust—use wall anchors and straps to connect floor system with walls; use tie rods for granular storage or cold storage.



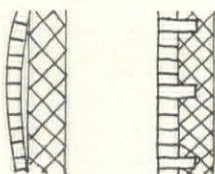
Shoving of parapet wall from expansion of deck—use dowels between wall and spandrel, or expansion joint (both shown).



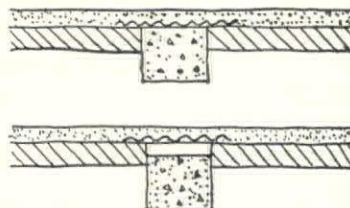
Lack of sufficient lintel or rowlock arch support—don't build flat masonry arches more than 5 ft. without lintel.



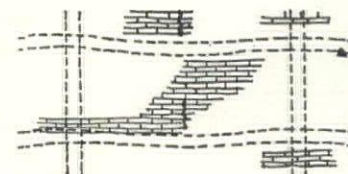
Parapet wall cracks at points of maximum positive and negative moment—use stiffer spandrels or predeflect them; reinforce brickwork.



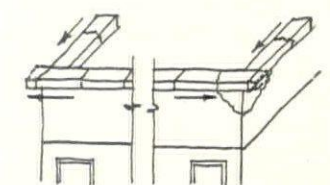
Frost plus broken or inadequate headers bulge face brick—provide standard number of headers and/or galvanized anchors or keys.



Separation of structural column and interior finish—set column free of lath, or provide real anchorage between wall and column.



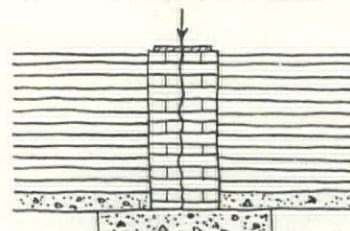
Beams not stiff enough, resulting in excess deflection—use stiffer beams or prestress them before building wall.



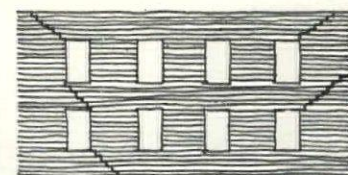
Thin joints between long coping stones on parapet do not allow expansion—pack joints with watertight, elastic material.



Shelling off of surface—refuse underburned (salmon) brick; use standard specifications, and test samples before building.

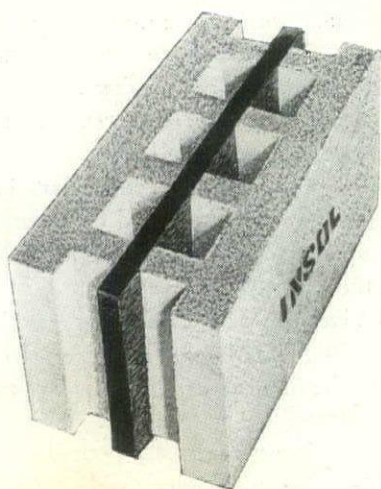


Vertical cracks on masonry pilaster or pier—overloading . . . provide adequate section to reduce unit stress to within safe limits.



Longitudinal stress from shrinkage makes cracks at openings—use shrinkage control and adequate foundations.

NEW BLOCKS—the lowly concrete block rises, as improvements are made in strength, finish, and qualities of insulation



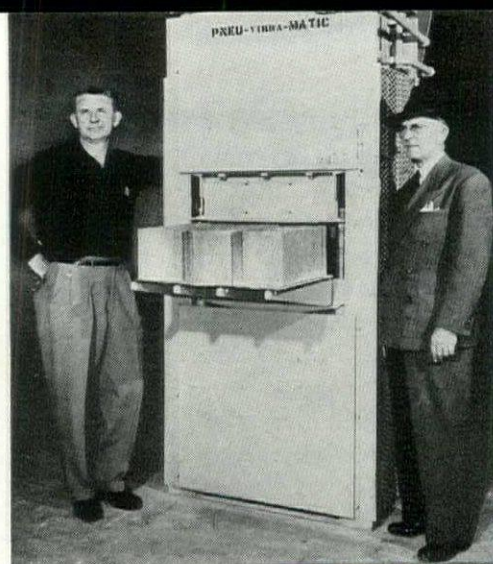
Insol block features moisture resistant insulation held in block by galvanized reinforcing wire which also brings the minimum tensile strength to 3,200 lbs.

Build a better concrete block, and there will be contractors on your doorstep. On this page are some successful attempts at better concrete blocks, including a machine for making them and a new device for reinforcing them.

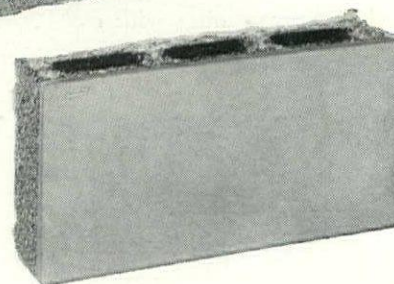
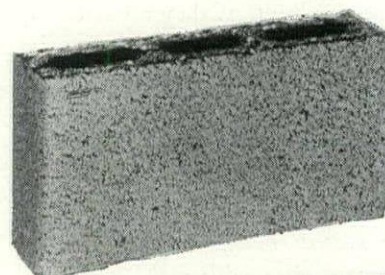
The attempt to improve concrete blocks goes in three directions—toward greater strength, better insulating qualities, and finer finish; and all three are represented here. The Insol block (see picture left) is an example of the effort to improve insulation. Invented by a Minnesota doctor, it features an asphalt treated insulating board built into the center of the block to break the line of heat transmission. In houses built in St. Paul, plaster was applied directly to the interior of an Insol block wall, with satisfactory performance. These blocks are laid in conventional manner, except that strips of flexible insulation 4 in. wide are laid between courses of the block to complete the insulation.

Klee-blocks (left) made in Belfast, Maine, are an excellent example of reinforced concrete block. Horizontal steel connectors give the hollow blocks support against high internal pressure and make them rigid against external pressure. Blocks of various widths, from 6½ in. up, are available. They may be used as self-contained forms, in such applications as footings, in which case concrete is poured into the cavity.

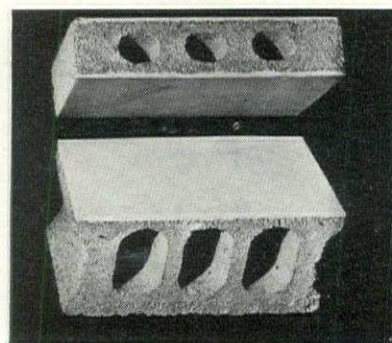
An unusually fine finish is available for concrete blocks in Spectra-Glaze, made by the Burns & Russell Co. in Baltimore. Two glazes, one smooth and one rough textured, are applied to conventional block in manufacture (pictures, right). The glaze can be mixed in a number of good colors, and becomes an integral part of the block, not merely a facing. The rough textured glaze is reported to have acoustical value, and the smooth glazed blocks are expected to become a strong competitor with more expensive ceramic ware for interiors.



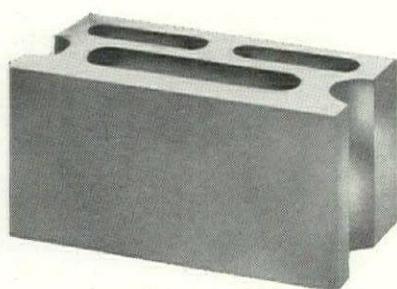
Pneu-vibra-Matic concrete block machine, Crawford Industries, Pomona, Calif., automatically produces 12 blocks per minute.



Spectra-glaze gives ordinary concrete block two finishes, above—smooth or textured—in a variety of colors.



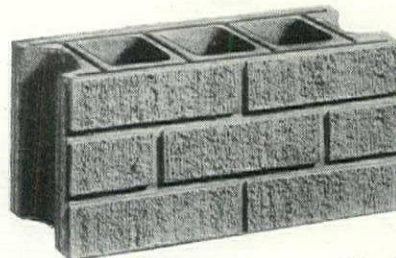
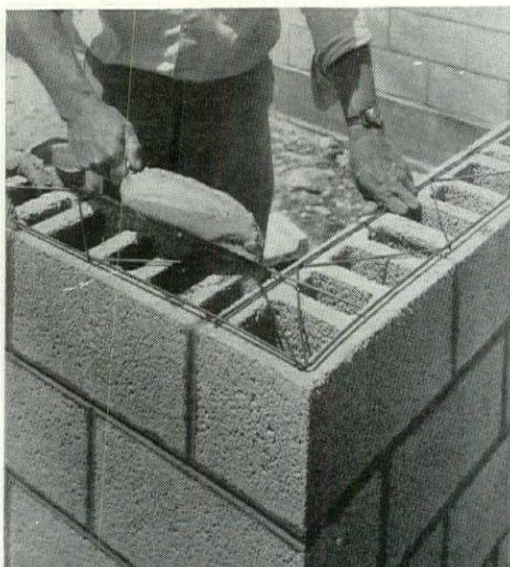
Knighton Process Marble Face Block, N. Y., has ⅜ in. stone or marble facing to reduce usual water absorption and add to appearance of block.



Klee-blocks are light and strong, with a deep cavity for added insulation or strengthening.

Redi-furred concrete blocks are made on machines of the F. C. George Co. in Florida, boast good thermal insulation, and good surface for plastering.

Dur-o-wal is a new patented steel reinforcing for masonry walls made by Cedar Rapids Block Co., available in all wall thicknesses. Lateral reinforcing prevents cracks.



Bric-Blocks, made by National Bric Block, Inc. of St. Paul, Minn., have a full color brick veneer finish.

Photos: Thatcher Studios, Dittrich, Pictorial Illustrations, Inc., Vern Thompson



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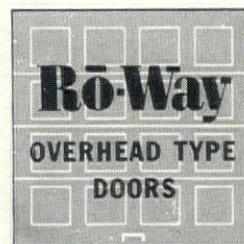
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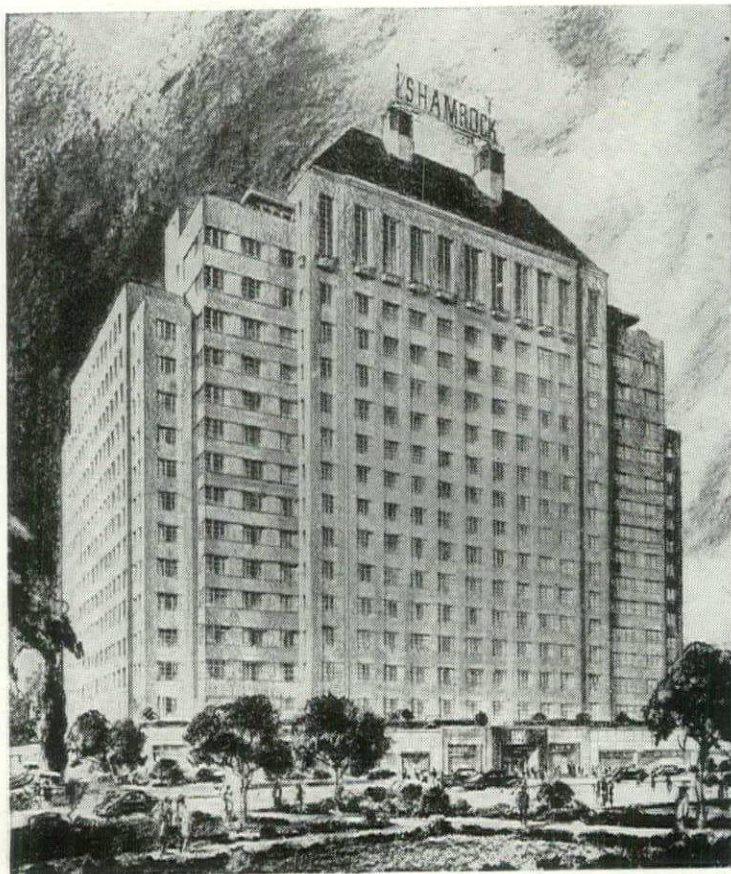


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SOLUTION: The SHADOW-LOCK Attachment System enhances appearance... creates deep shadow lines, distinctive corner profiles.

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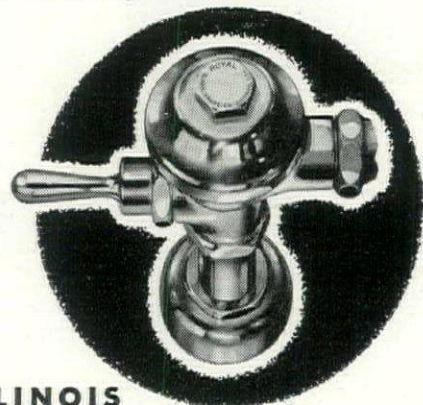
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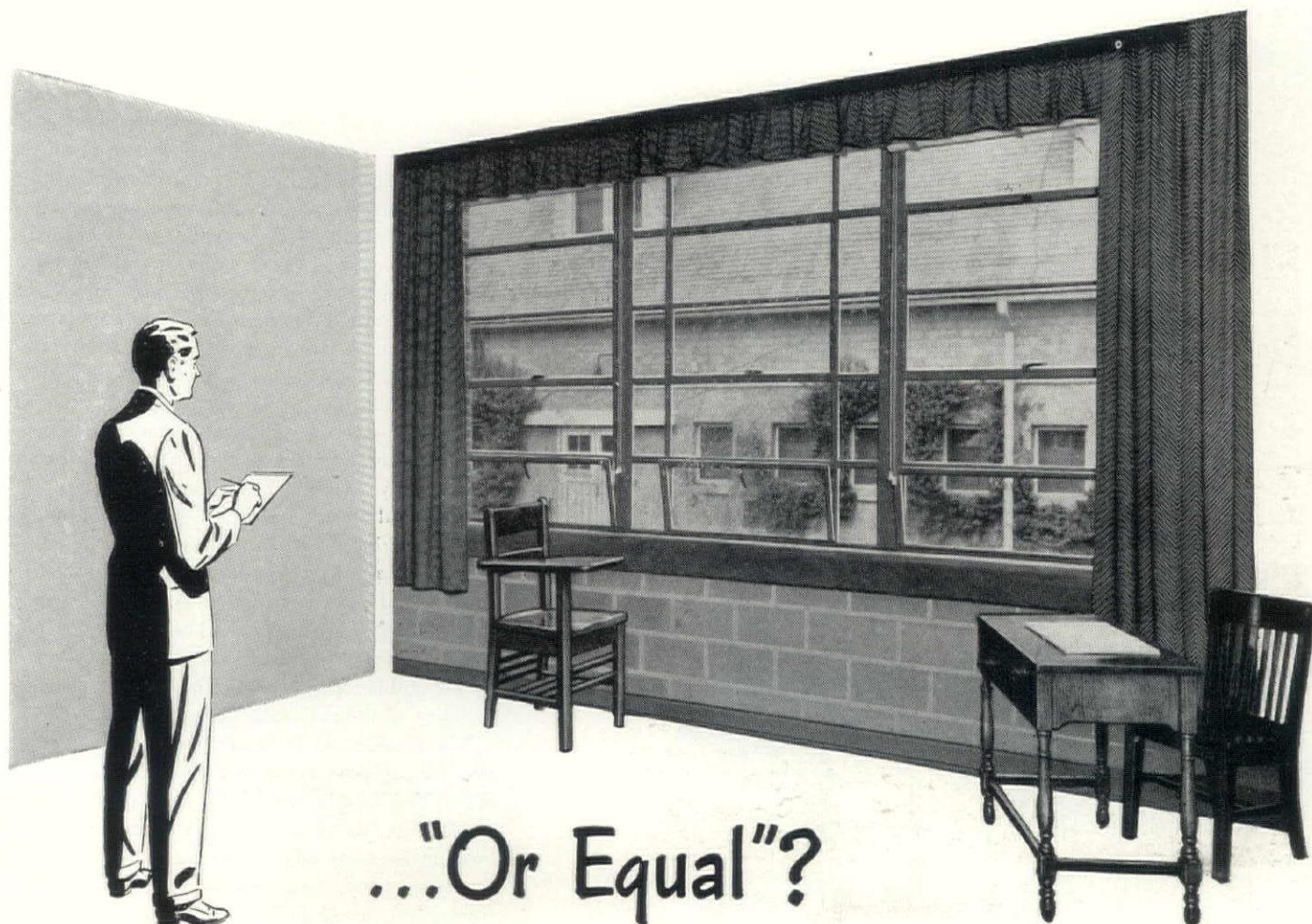
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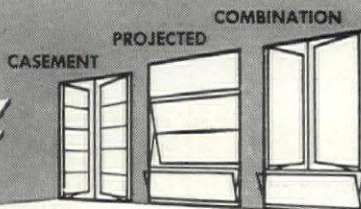
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PUBLIC HOUSING SURVEY

discloses readiness of local authorities to carry the new 810,000 unit federal program. Answers to FORUM's questions point to popularity of two-story row house and optimistic estimate of early construction

This month, for the first time in four years, the public housing spotlight was not on Washington, D. C. With the Housing Act of 1949 now law, the scene has shifted to the 400 housing authorities throughout the nation which may be authorized to build, during the next six years, the 810,000 units specified in the law.

To find out how the local housing authorities intend to handle this big order, FORUM polled them, learned that the average authority: 1) feels ready to apply for Federal benefits, 2) has made a survey of its needs, 3) plans to devote half its program to slum clearance, 4) prefers two-story row housing for its projects and 5) expects to have nearly half its

program started within two years. In short, the poll showed that the local authorities are optimistic about their own part in the new program. Cracked one official: "After all we've had four years to prepare for this while they were arguing about it in Washington. Why shouldn't we be ready?"

FORUM's survey was answered by 153 housing authorities, representing cities and counties with 39 million population and serving more than half the urban population of the country. (Although there are over 400 housing authorities in the country, many of them are inactive.)

The results of the poll are broken down according to the population of the areas served by the various agencies. Recognition is thereby given to the distinctive problems faced, for instance, by the New York City Housing Authority's 60,000-unit Federal program and the 100-unit program being planned by the housing authority of Davis, Calif. Such differences in scope emphasize the fact that a large part of the Federal program will be carried out by large-city housing authorities. Of the 481,206 housing units planned by the reporting authorities, 277,000 are being planned by authorities in cities of over a million population. These agencies represent only 5 per cent of the authorities reporting.

Not possible of summary are the widely different public housing problems faced by towns of the same size. Example: While Mobile, Ala. and Madison, Wis., both have a population of 175,000, Mobile's housing authority has set its low rent housing needs at 9,829 units, but the Madison authority, on the other hand, estimates its needs at 500 units. Such extremes in cities of similar size should serve to check any easy assumptions about estimates of housing needs—public or private. They lend strength to the fact that housing—and the determination of housing needs—is essentially a local problem. Since the Federal Act has wisely left the burden of such decisions to local housing authorities, their plans under the Act are significant. Herewith a summary of these plans.

Do you intend to apply for benefits under the new Act?
Consensus: Yes—83%

	Under 25,000	25,000 to 100,000	100,000 to 500,000	500,000 to 1,000,000	Over 1,000,000
Yes	50%	73%	93%	100%	100%
No	24	9
Don't know....	26	18	7

The answer is clear-cut; the big cities are going in heavily for the Federal program; a lot of the smaller towns are either undecided or against participation. Reasons given by the smaller authorities for their reticence in taking their share of Washington gold are varied. Main reason: they do not think they need public housing. About 10 per cent of the small towns said that local opposition to public housing was the important factor.

Most big city authorities reported they would apply for Federal grants before the end of the summer. The New York City and Chicago Housing authorities, both kingpins in U. S. public housing, lead the way by announcing plans for 60,000 and 40,000 units respectively within a fortnight after the bill was passed and signed by the President. Other large authorities also reported that they had already filed "shelf applications" with the Federal Public Housing Authority before the Act was passed.

(Continued on page 114)

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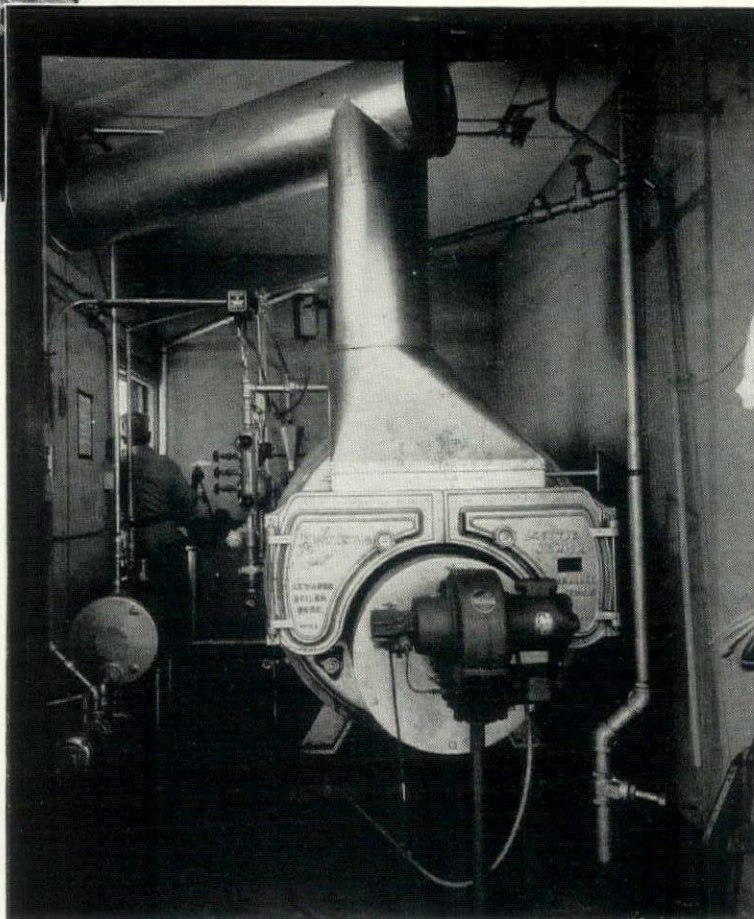
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PUBLIC HOUSING SURVEY

Did you build under the previous U. S. Housing Authority Act or the Lanham Act?

Consensus: Yes—65%

	Under 25,000	25,000 to 100,000	100,000 to 500,000	500,000 to 1,000,000	Over 1,000,000
USHA Act					
Yes	16%	46%	65%	50%	100%
No	84%	54	35	50	..
Lanham Act					
Yes	21%	50%	55%	27%	84%
No	79	50	45	73	16

This question was asked to get an idea of how much construction experience local authorities had under previous fed-

eral programs. (USHA was the original New Deal housing agency, the Lanham Act was a wartime measure to provide housing for industrial workers.) As can be seen from the breakdown, the big towns have had considerable construction experience with Federal government programs. They know pretty much what to expect in the way of red tape and other delays under the program.

Local authorities were also asked whether they had done any construction with city or state funds since the end of the war. Some 47 per cent of the authorities with *no* experience under USHA or the Lanham Act reported that they had started local programs. (Of those which had Federal experience, 24 per cent have also built with city and state funds.) Only 18 per cent of all reporting authorities have had no construction experience whatsoever.

How much of your program will be started during the first year? During the second year?

Consensus: First year, 33%; Second year, 35%

	Under 25,000	25,000 to 100,000	100,000 to 500,000	500,000 to 1,000,000	Over 1,000,000
1st year	58%	40%	27%	32%	17%
2nd year	39	44	38	33	22
Later	3	16	35	35	61

The optimistic view that the average authority expects to get two-thirds of its program started within two years is amended by the breakdown for large and small cities. In general, the six-year Federal program will get a slower start in big towns. Most small towns reported that they could get their programs under way immediately since they are planning only one or two projects. Needles, Calif. expects to have its program 100 per cent completed in two years. But the Needles housing authority plans to build only 100 units. Different is the case of Detroit which has scheduled a 26,000-unit program and expects to get only 15 per cent under way in two years.

An estimate of public housing starts weighted in terms of the number of units to be built by each local authority shows that only 13 per cent of the total Federal program of 810,000 units will be started the first year and only 17 per cent the second year. Total for the first two years: 243,000 units. (This is less than the legal limits of 135,000 units which the President is authorized to approve in any one year.) This is a rather impressive estimate when placed alongside the record of the ground-breaking USHA program back in the Thirties. USHA, after much strident confusion, had contracted for less than 60,000 units in the first two years of its existence.

What percentage of your housing will be built on slum-cleared land?

Consensus: 53%

	Under 25,000	25,000 to 100,000	100,000 to 500,000	500,000 to 1,000,000	Over 1,000,000
On slum land.	33%	46%	57%	67%	61%

Again, the distinction between small and large city housing authorities is apparent in the detailed breakdown of this slum-clearance figure which only includes those cities which surveyed their slum. The construction programs of the large housing authorities will be delayed because of the red tape involved in condemning and clearing slums as well as relocating tenants.

(Continued on page 114)

Dramatic Color Effects

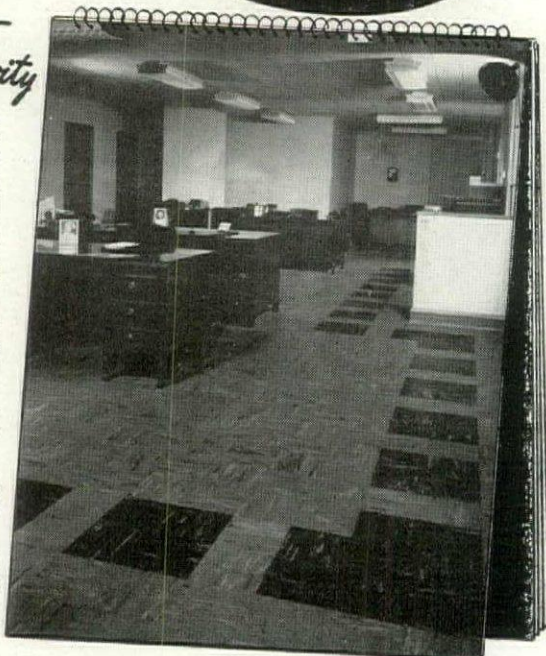
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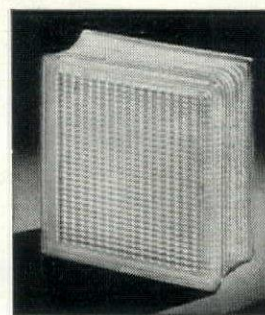


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PUBLIC HOUSING SURVEY

What type of housing is considered most desirable by your authority?

Consensus: Two-story row house—53%

	Under 25,000	25,000 to 100,000	100,000 to 500,000	500,000 to 1,000,000	Over 1,000,000	Total
2-story row ..	26%	53%	64%	72%	50%	53%
1-story row ..	36	32	18	17
3-story walkup	3	4	10	14	20	10
1-family	13	9	4	14	..	8
Low elevator apts.	9	..	4	..	20	7
High elevator apts.	10	2
Undecided ...	13	2	3

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The two-story row house, as in the past, will be the dominant design type for U. S. public housing. Only in the smaller towns will the two-story row defer to another type—the one-story row. There are several compelling reasons for the popularity of the two-story row: it has fewer mechanical and maintenance problems than taller buildings, it is better adapted to the needs of large families. By its very nature, it provides low site density. On the debit side, the two-story row has, in the past, suffered from unimaginative design and clumsy siting.

What will be the most formidable barriers to getting your program under way?

Consensus: Selection and purchase of sites—42%

	Under 25,000	25,000 to 100,000	100,000 to 500,000	500,000 to 1,000,000	Over 1,000,000	Total
Selection & purchase of sites	34%	36%	35%	55%	50%	42%
Procuring local funds	33	33	21	..	16	21
Clearing sites	8	8	22	21	18	15
Recruiting personnel	11	2	3	14	16	9
Local opposition to public housing	11	13	8	7	..	8
Preparing architectural drawings ..	3	8	11	3	..	5

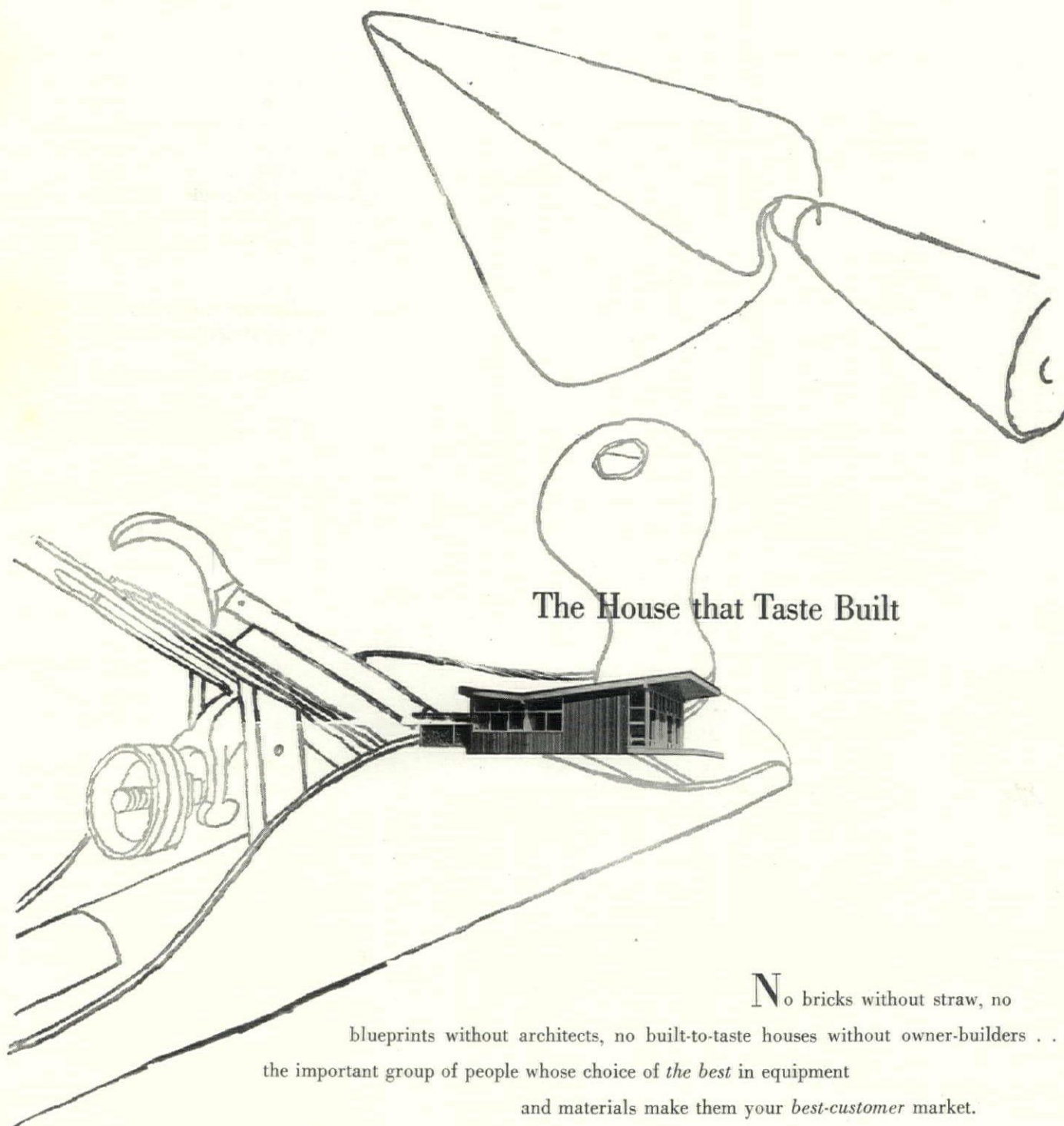
The problem of selecting, buying and clearing land faces all housing authorities, big and small. The big authorities will have more trouble because of their more extensive slum-clearance program. Typical is the experience of the Chicago housing authority which has been constantly checkmated in its postwar redevelopment program by land-buying trouble. Cloudy titles, delinquent taxes, absentee owners, and a host of litigations have cropped up. As a result the Chicago authority is now pressing for "quick taking" powers of condemnation to clear its land-buying bottleneck.

Because of the importance of this land-buying program, local authorities were also asked whether they had already surveyed possible sites for the Federal program. Half of them reported that they had. One-third also noted that they had even bought land for use under the Federal program.

Also significant in the list of obstacles is the difficulty of procuring local funds—a particularly big problem with the smaller authorities. Training personnel turned up as an across-the-board problem, involving all authorities.

Summary. The sum of the statistics in FORUM's survey underlines one significant fact: the coming-of-age of local public housing authorities in this country. Spawned and nursed by New Deal legislation, toughened by their experience with wartime projects, these authorities now seem prepared to handle the new 810,000-unit program in their stride. Housing authorities thus take their place as a potent force on the U. S. building scene.

Note: Local housing authorities participating in the FORUM survey were probably over optimistic in their estimates of public housing production during the early stages of the program. Federal government economists estimate that only 75,000 of next year's 200,000 multi-family housing starts will represent public housing. During 1949 this ratio will probably be 35,000 out of a total of 160,000.—Ed.



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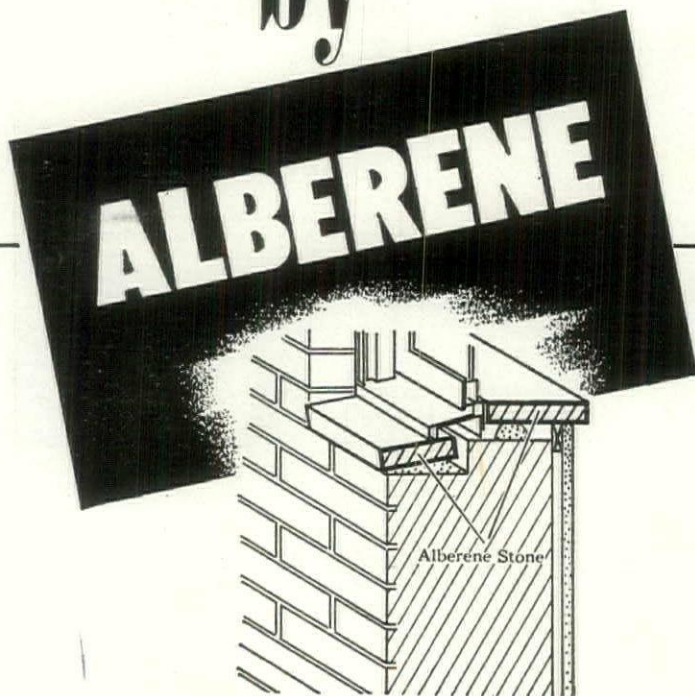
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(Continued from page 80)

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If Tighe Woods expected plaudits from the building industry for his new economy house (see p. 80) he soon found he was mistaken. For instead of bouquets from the builders, Woods found himself on the receiving end of their brickbats.

Prime purpose of the builders' attack, which was sparked by the National Association of Home Builders, was to answer Woods' assertions that 1) the industry was not producing enough economy housing and 2) that his house was a good economy house. Executive Vice President Frank Cortright summed up NAHB's attitude towards Woods' house: "It's a nice ramblerette for a young couple at the shore . . . but it isn't a house. Dollar for dollar, our contractors all over the country are doing just as well or better."

Particularly irksome to builders was the implication, in all the publicity given Woods' house, that the industry's economy housing program had failed. This, they said, just was not so. All current government and private surveys showed that the low priced housing program was booming far above the most hopeful estimates made for it at its launching last winter. Not only were they building a lot of low priced houses but, said the builders, these houses were bigger and better than Woods' 550 sq. ft. model. Unlike Woods, most builders were offering two bedrooms, a separate kitchen and a landscaped lot with sidewalks and a paved road.

However, what really knocked the Woods house out as an adequate low cost house was its inability to qualify for FHA-insured financing. (FHA regulations require a house to have at least three rooms, including an enclosed kitchen.) Here, Builder Woods admitted, his critics had a point but, he added hastily, they were wrong in assuming that FHA financing was best for low cost houses. A better way, he insisted, would be direct government mortgages under the Veterans Administration program. Said Woods: "The scarcity of money for straight VA insured loans is the chief obstacle to the building of new low cost housing around Washington and throughout the country."

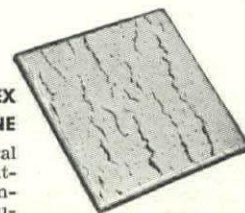
To reinforce his argument, he cited his own financing difficulties. After getting VA appraisal and approval on his economy house, he went to a private mortgage house and took the best terms he could get. They were a 3 per cent commission for each loan and another 3 per cent for exclusive sales rights. Total cost of financing his house: \$387. Straight government loans would cut out these charges, he declared. However, builders and mortgage men were quick to challenge his direct loan proposal on the grounds that government has a big enough stake in the nation's mortgage set-up without increasing its claims by direct lending, even in the name of low cost housing.

Builder Woods accepted all these criticisms calmly, then asked what all the fuss was about: "I don't claim a monopoly on the idea of low cost housing. Although many builders are doing a splendid job in the field, there are not enough houses being built that the average family can afford." But many another builder was still skeptical as to whether Tighe Woods and his pint-sized house had brought the solution to low cost housing any closer.

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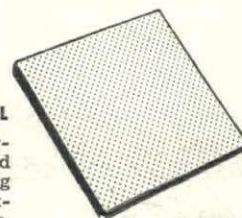
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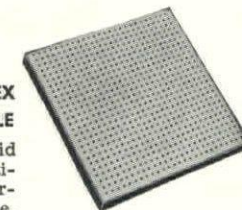
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is a light weight, rigid unit, combining acoustical efficiency with a durable, smooth surface. Perforations (to within $\frac{1}{8}$ " of the back) assure repeated paintability and ease of maintenance. Available in a variety of sound-absorbent ratings. Rot proof and vermin proof (patented Ferox process).



ACOUSTI-CELOTEX

Sound Conditioning Products

PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

120 S. La Salle St., Chicago 3, Illinois • Sound Equipments, Ltd., Montreal, Quebec, Canada



THERE'S 27 YEARS OF PROOF BEHIND THIS FLOOR!

The architect of this building wasn't taking chances. He specified the floor of proved performance . . .

WRIGHT RUBBER TILE

When you specify Wright you specify all this:

Proved long life. Many WRIGHT RUBBER TILE floors, in heavy traffic service for 27 years, still look as good as new. When measured for wear, they show a potential life of over 100 years.

Proved low maintenance. Hundreds of large commercial users testify that WRIGHT RUBBER TILE has cut their cleaning costs by more than half—saving them the total cost of their floor in less than two years.

Proved foot comfort. Twenty-seven years of experience by thousands of users has proved beyond doubt that resilient

WRIGHT RUBBER TILE drastically reduces foot fatigue.

Proved over-all economy. Long life and low maintenance combine to make WRIGHT RUBBER TILE the most economical floor covering you can possibly specify.

Proved user satisfaction. In 27 years, Wright has built an unmatched list of enthusiastic users. When you write for samples, be sure to ask for a list of satisfied users in the application you are considering. WRIGHT MANUFACTURING CO., 5205 Post Oak Road, Houston 5, Texas.

WRIGHT RUBBER TILE

is made in two different types:

WRIGHTEX Soft Rubber Tile for homes, hospitals, churches and other installations where quiet is important.

WRIGHTFLOR Hard Surface Rubber Tile for offices, stores, restaurants and public buildings—wherever traffic is heavy and long wear is most important.

WRIGHT-ON-TOP Compression Cove Base

The ideal finishing touch for every flooring installation, WRIGHT-ON-TOP is available in black and all twenty field tile colors.

WRIGHT RUBBER TILE

FLOORS OF DISTINCTION

Some months ago, W. E. Mallalieu, of the National Board of Fire Underwriters, grasped the prickly situation and arranged a meeting of representatives of eight of the most important agencies.* The purpose was to determine and, if possible, enlarge the area of agreement among the several promoters of model codes. But the area of agreement proved small. However, instead of persisting in their separate directions, the conferees decided to approach coordination by 1) attempting to agree upon a common set of definitions of the terms used in code writing and 2) comparing the technical requirements in the various codes to determine more precisely the range of difference and the possibilities of uniformity. The second and third meeting were sufficiently promising to warrant the scheduling of a fourth in St. Louis early this fall. Mallalieu's hunch is beginning to pay off, for the establishment of amiable relations and creation of the habit of working together could eventually lead to a settling of questions of jurisdiction and distribution of function among the main groups involved.

Such an outcome would inaugurate a new era in building code progress. It is now generally agreed that a concert, rather than a concentration, of code activity is the best solution. The task ahead is clearly large enough and varied enough to require an array of talent and to allow room for all who want to take part. The present diffusion, for all its frustrations, at least encourages a cross-fertilization of ideas such as might not be encouraged under a more centralized authority. The main need now is to decide who shall do what, for, although there is plenty for all to do, it is equally clear that each participant cannot do everything. Code promotion is a function separate from model code writing; code writing is a distinct job from the establishment of standards; and the setting of standards is again different from the research upon which standards are to be based, and from the establishment of tests by which conformity to standards is determined.

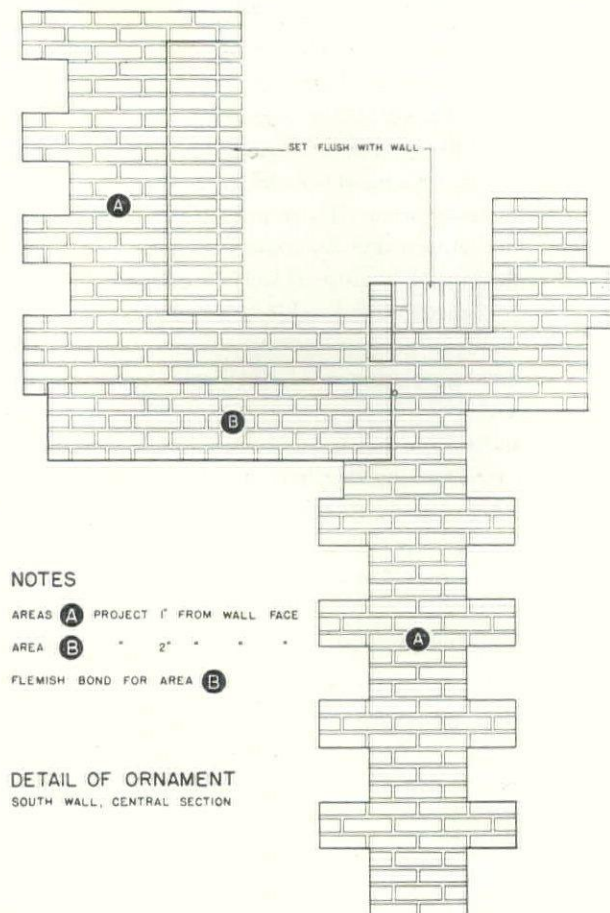
Divide and conquer

The lines along which such a procedural agreement might be established are easily drawn. Research is for all who can afford to pay for it. Much will be done by materials manufacturers, who have been showing increasing interest in building code research—witness their efforts through the Producers' Council to bring about harmonious relationships within and among the code writing groups. The research being conducted in universities and private laboratories should, of course, continue. Where research involves the combination of several materials or operations, and where the investigations are too large and complex for otherwise qualified researchers, governmental agencies may be the best centers of activity. Under the Housing Act of 1949, major appropriations for building

(Continued on page 122)

* National Bureau of Standards, National Board of Fire Underwriters, National Fire Protection Association, American Standards Association, Building Officials Conference of America, Pacific Coast Building Officials Conference, Southern Building Officials Conference, and Housing & Home Finance Agency.

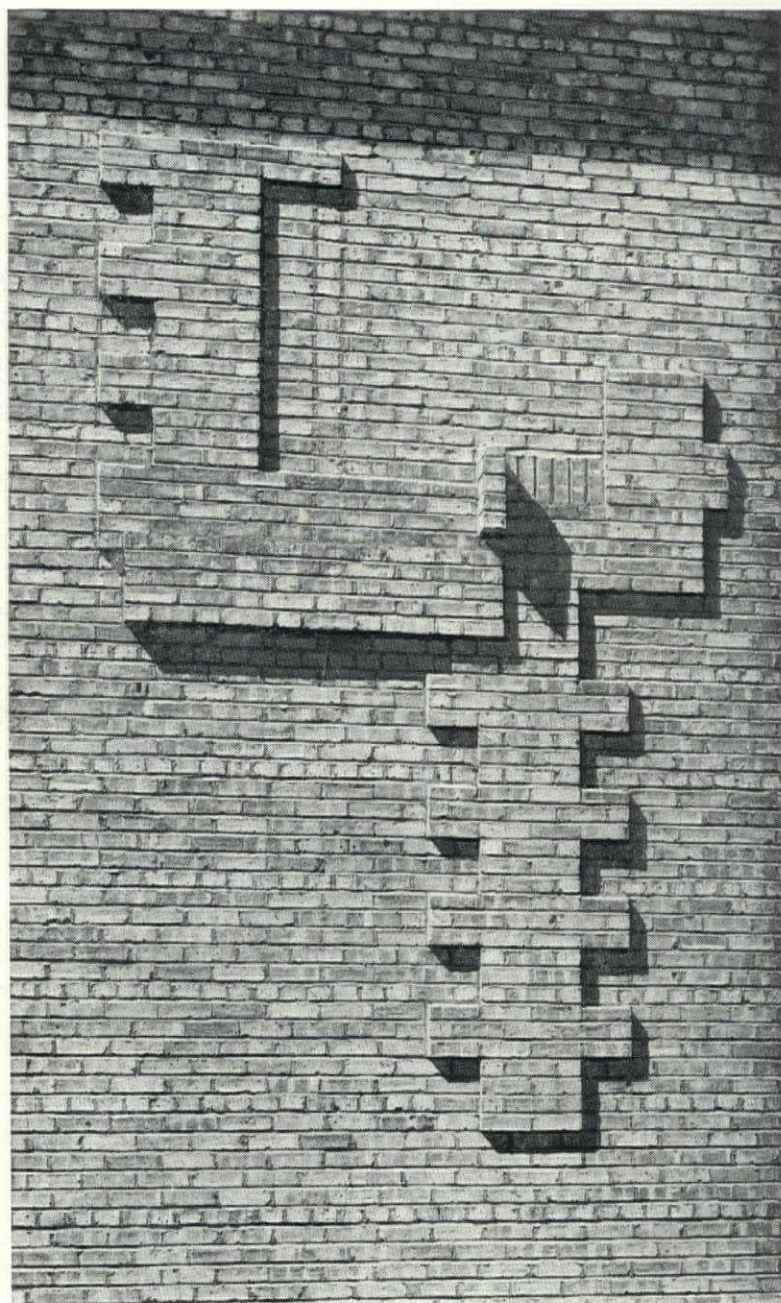
a mural or an entire building— it's easy with versatile brick



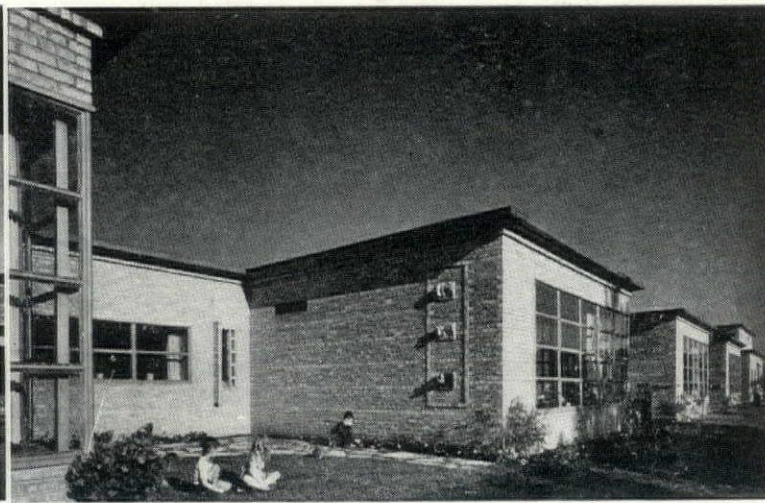
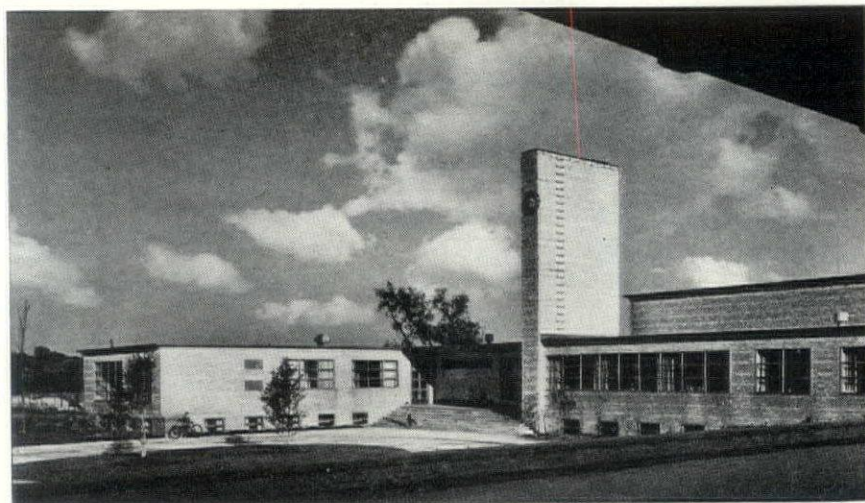
In the language of the man who designs in brick
the words "don't" and "can't" seldom occur.

This wonderfully flexible unit will serve anywhere... beautifully
and in the precise form your imagination dictates.

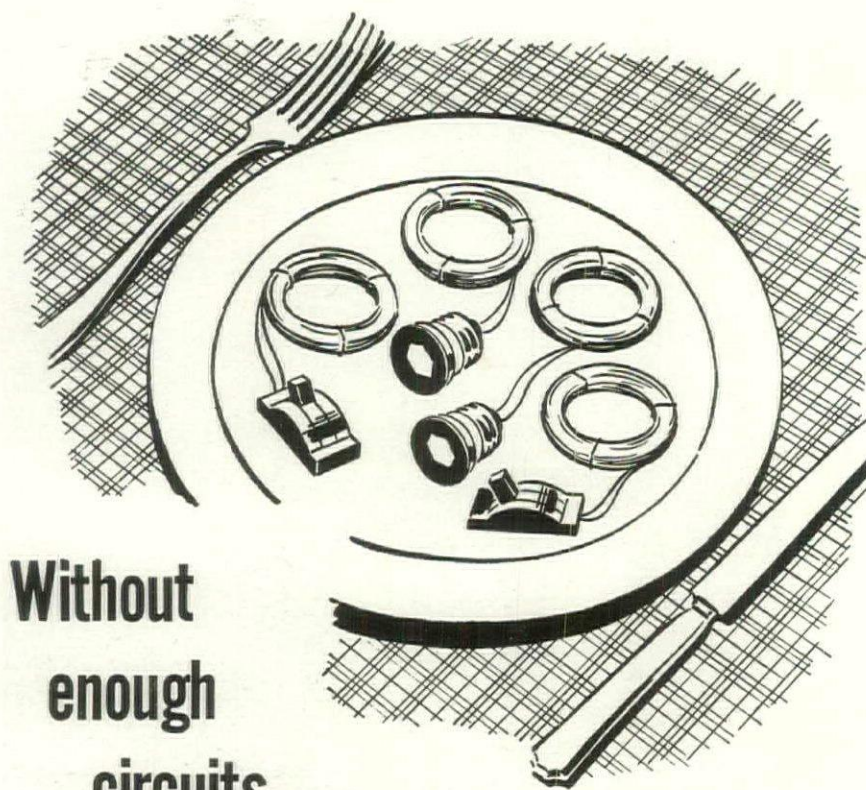
Because brick is also an exceptionally strong, safe material
you can easily combine its beauty
with the structural soundness and functional efficiency
every architect likes to achieve.



Here is a striking demonstration of the unequalled flexibility of brick. A three-dimensional mural which reproduces the design of the building it ornaments! The mural appears on the Crow Island School, Winnetka, Illinois; Perkins & Will, Eliel Saarinen and Eeko Saarinen, Chicago, architects. For 430 pages of valuable information on designing in brick, get the authoritative handbook "Brick Engineering." Send \$2.50 with your name and address to Structural Clay Products Institute, 1520 18th Street, N.W., Washington 6, D. C.



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enough
circuits,
you can
starve!

Without enough electric circuits, the lights and appliances in your houses will suffer from "electrical starvation"—and you may starve for sales! People don't want electrically undernourished houses.

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the Times

Use the services of the local Adequate Wiring Bureau in preparing a complete Adequate Wiring layout and specification, *before* you put the electrical job out for bids. Get the wiring into the plans for better appraisal—a better loan!

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Please send me, without charge, information on how to take advantage of Adequate Wiring as a sales feature.

NAME

TITLE

STREET ADDRESS

CITY STATE

research will probably go to HHFA, which has indicated that it would parcel most of these out to public and private agencies equipped to do the actual work. HHFA might also speed the development of standards by providing staff personnel for American Standards Association committees and by financing coordinating sessions.

The making of standards is mainly the job of the various industry associations acting for themselves or through the American Standards Association. The American Society of Testing Materials and the National Bureau of Standards offer facilities for establishing standard testing methods while the actual testing may be widely dispersed among governmental, academic, and private laboratories. The writing of model codes, embodying the accepted standards, and the promotion of those codes locally, may be carried on by the three organizations of building officials, which should find it possible to agree upon geographical jurisdiction. The task of correlating all these functions might be given to the Building Research Advisory Board or to a central committee growing out of the group that Mallalieu called together.

One successful example

Where coordination along these general lines has been possible, as it has on a much smaller scale, the results have been successful. Masonry offers one excellent example. The elements of the industry—brick, structural tile, cement block, etc.—decided some years ago that the seeking of special building code advantages was a fruitless form of competition. Consequently they joined in studying sound requirements for masonry construction and, through the American Standards Association were able to establish a national standard with which all were in agreement. The standard, thus recognized, has been embodied in the model codes of all three of the building officials organizations; and, by way of the model codes and other forms of promotion, it has been incorporated in numerous local ordinances.

This example, while not unique, could be more frequently repeated if the procedural lines were more precisely drawn than is now the case. The most highly developed procedure for preparing model code provisions will not, however, guarantee that these provisions will be embodied in actual municipal building codes or that the municipal codes will be periodically up-dated to reflect changes in the basic model code.

Paper work hurdle

The process of enacting and amending municipal codes is expensive. One big item is the cost of publishing the codes (which run from 200 to 400 pages) so that those affected may know the laws' requirements and penalties. Efforts have been made to spike this excuse for inaction by advocating a simple ordinance, incorporating model provisions merely by reference to an already published model code. Under this plan, only a brief local ordinance

(Continued on page 126)

RESULTS GUARANTEED BY GOLD BOND!



1640 EAST AVENUE APARTMENTS ROCHESTER, N. Y.

Architect Herbert C. Williamson, Rochester
Gen'l Cont'r . . . A. Friederich & Sons Co., Rochester
Sub-Cont'r Charles H. Carey, Jr., Rochester

BUILT in one of Rochester's finest residential sections, these fashionable new apartments deserved the best in building materials. So Gold Bond products were used throughout to insure top quality performance. Gold Bond plaster and allied materials—channels, diamond mesh lath, corner beads, etc.—were used exclusively. For non-bearing walls, the Gold Bond 2" Solid Partition System saved time and money, saved about 4 inches per wall, and provided an average of about 7% more rentable space!

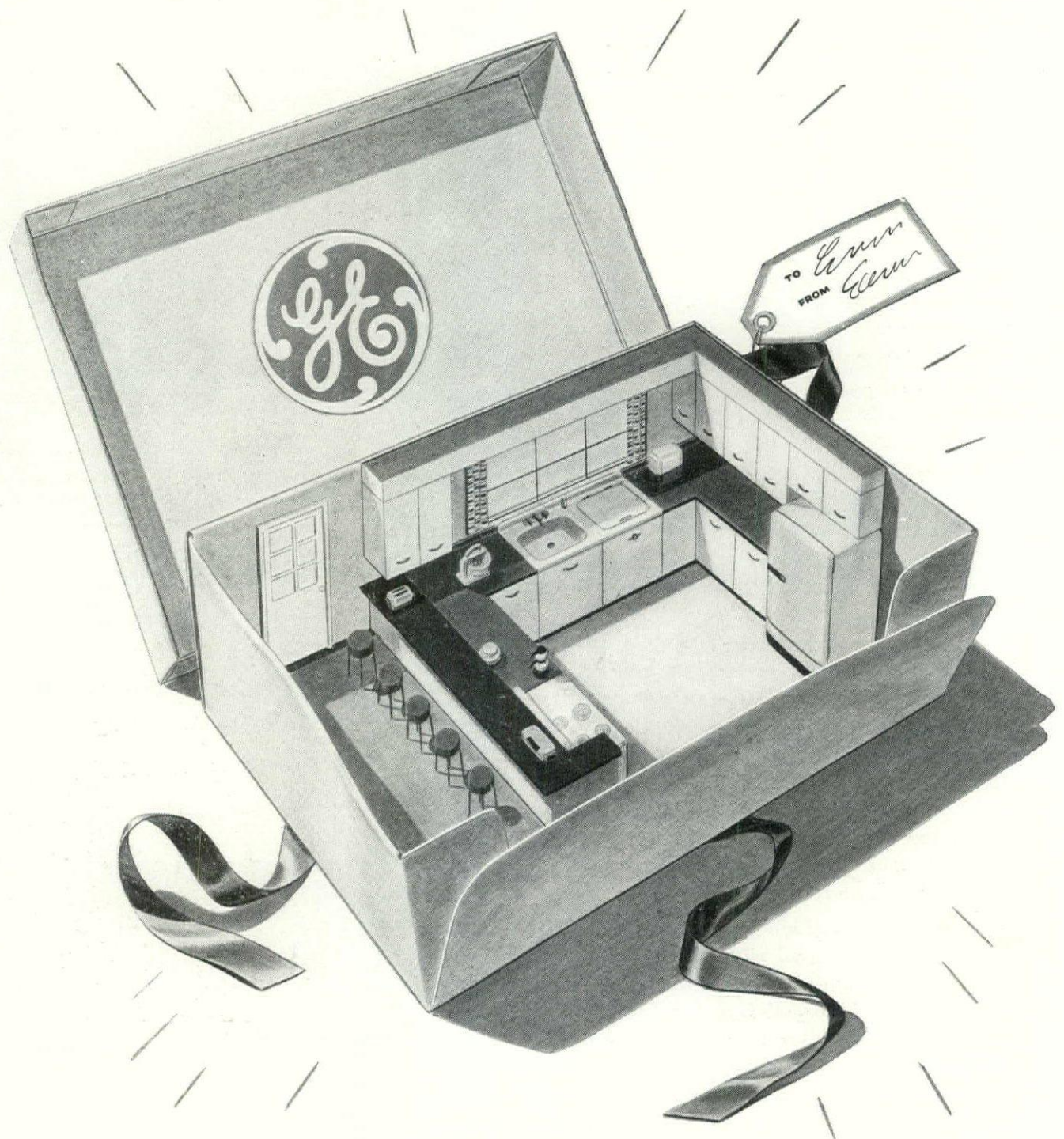
You save a lot of headaches on any job when Gold Bond building products are used right down the line. That way you pin the responsibility for performance on one reliable manufacturer, the National Gypsum Company. There are now more than 150 better building products bearing the famous Gold Bond label. Every one of them is backed by Gold Bond Research and guaranteed by National Gypsum. Use Gold Bond *exclusively* and let National Gypsum Company stand behind every product.

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**You'll build or
remodel better with
Gold Bond**

Over 150 Gold Bond Products, including Gypsum Lath, plaster, lime, wallboards, gypsum sheathing, rock wool insulation, metal lath products and partition systems, wall paint and acoustical materials.

A kitchen package that makes your homes



Sell Faster!

THE GENERAL ELECTRIC COMPLETE KITCHEN PACKAGE

To you, a General Electric equipped home means—

Faster sales! America's home-hunting millions are learning that *all-electric living is better living!*

To your prospect, it means—

Easier living! All thanks to wonderful G-E appliances, designed for truly *modern living*.

General Electric's *Complete Kitchen Package* wraps up both in one easy-to-sell, easy-to-pay-for package!

EASIER SELLING—EASIER PAYING WITH "PACKAGED MORTGAGE"

Under the convenient "packaged mortgage" plan, the home-buyer pays only a few extra dollars a month on his regular home mortgage—an average of about \$4.80.*

No heavy short-term installment buying . . . the buyer pays over *years* instead of months! No future installation problems or inconveniences!

And the savings through ownership of General Electric appliances can often offset the slight extra monthly payments.

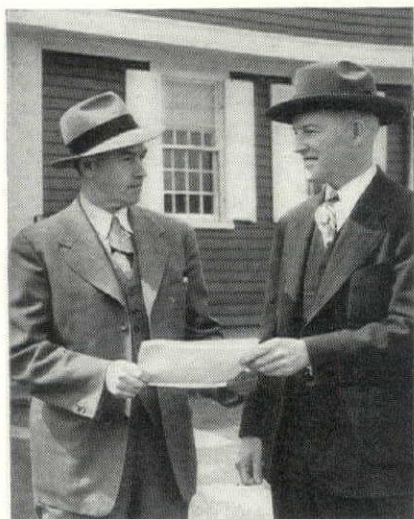
*When equipment is included in a long-term mortgage.

No Extra Costs to YOU!

Extra Costs? No! Extra profits? Yes!—you resell and make a profit on each appliance!

Your G-E distributor and the Home Bureau are at your service now—to help you sell your homes *faster* with General Electric *Complete Kitchen Packages* and selling aids. Call your G-E distributor or write to the Home Bureau, General Electric Company, Appliance and Merchandise Dept., Bridgeport 2, Connecticut.

GENERAL ELECTRIC HOME BUREAU SUCCESS STORY OF THE MONTH



All 3 Say Yes!

Builder—"A planned General Electric Kitchen is invaluable where quality, time-saving and laborsaving are factors. It's a wise investment for faster sales!" E. C. McLaughlin, Builder, Melrose, Mass.

Real Estate Salesman—"It's the women's 'yes!' that decides a home purchase. And few women can resist a planned G-E All-Electric Kitchen. Sales prove it!" Robert Stone, Sales Rep., Melrose, Mass.

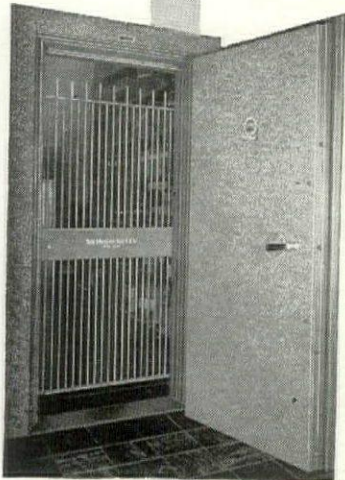
Homemaker—"The beauty and efficiency of the G-E Kitchen was very important in our decision to buy the house. Electrical living makes homemaking a real pleasure!" Mrs. Joseph E. Murphy, Melrose, Mass.



You can put your confidence in—

GENERAL  ELECTRIC

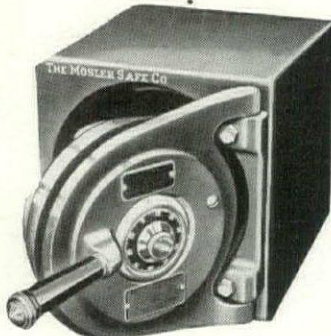
only Mosler experience COULD BUILD VAULT DOORS SO EASY AND INEXPENSIVE TO INSTALL



Many exclusive features for low-cost installation in the Mosler non-grout Vault Door prove to architects and builders the value of Mosler's 100 years' experience. Mosler doors simply clamp on inside of vault wall. No floor pit with wet cement required for setting. No patching or refinishing after door is installed . . . They carry the Underwriters' Laboratories, Inc. 1/2 to 6 hour fire labels. Special relocking device saves 10% on burglary insurance premiums.

For Modern Home Protection . . . MOSLER HOME SAFES

This popular closet or wall safe is also easy and economical to install. Offers protection for family papers and valuables at a modest price—a good, sensible suggestion an architect or builder can make to a new home owner. Available in a variety of sizes to fit any requirement. Inquiries are invited on the complete line of internationally famous Mosler record and cash protective equipment.



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Largest Builders of Safes and
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Builders of the U. S. Gold Storage
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need be published locally, provided sufficient copies of the basic model code are made available to the public in an appropriate municipal office.

So long as this principle applies to the document in its existing form and not also to further changes, it has passed the test of constitutionality. Amendments to the municipal code to keep it up-to-date with model code revisions, may, however, be made through a new ordinance with a new reference. Already 16 states* have passed enabling legislation which permits municipalities to handle building codes in this manner. In addition, Texas and Wyoming have statutes of different types which have much the same effect. A more limited authority to adopt codes by reference exists in New York, while the legality of such enactments has been approved in Arizona and Kentucky, where there are no enabling Acts. In Indiana and North Carolina the practice has become fairly widespread, presumably with approval of the attorney general.

This movement is one of the most important of those gradual processes by which building codes are being improved. To give it a push, the Housing and Home Finance Agency acting in cooperation with the National Bureau of Standards, the Construction Division of the Department of Commerce, the Department of Justice and the Council of State Governments has prepared and issued a model "Building Codes Adoption by Reference Act."

Sign posts

Where do we go from here? Probably pretty much along the same lines that have been described. Most encouraging is the fact that individuals and organizations to which the industry must look for continued progress are finding it possible to sit down together and, by so doing, are allaying mutual suspicions and learning that sitting together ultimately leads to working together. Future developments worth watching: the part to be claimed by HHFA under the greatly enlarged research program authorized in the Housing Act of 1949; the place to be taken by the Building Research Advisory Board; the efforts to harmonize the activities of the three main organizations of building officials; and the way in which the American Standards Association and the National Bureau of Standards are fitted into the general pattern.

* Ala., Calif., Ida., Ill., Mich., Minn., Neb., N. H., N. J., N. M., N. D., Ore., Pa., S. D., Utah, Wash.

Roster of agencies engaged in building code modernization:

National Bureau of Standards, Forest Products Laboratory, Construction division in the Department of Commerce, Housing & Home Finance Agency, Building Research Advisory Board, Pacific Coast Building Officials Conference, Building Officials Conference of America and its associated Building Officials Foundation, Southern Building Officials Conference, American Standards Association, the American Society for Testing Materials, the National Board of Fire Underwriters, numerous university and private laboratories, and many associations engaged in developing standards for individual materials such as the National Lumber Manufacturer's Association, Structural Clay Products Institute, American Iron & Steel Institute, Portland Cement Association, Gypsum Association, to name only a few.

See our 1949 exhibit at the Architects Samples Bldg., 101 Park Avenue, New York City

**Only
ONE
Moving
Part**



This compact piston unit contains all working parts of the SI-FLO. It gives years of trouble-free service and can be replaced, if necessary, in five minutes—constituting a complete repair of the valve!

in the **SPEAKMAN SI-FLO FLUSH VALVE**

Quiet as a Whisper!

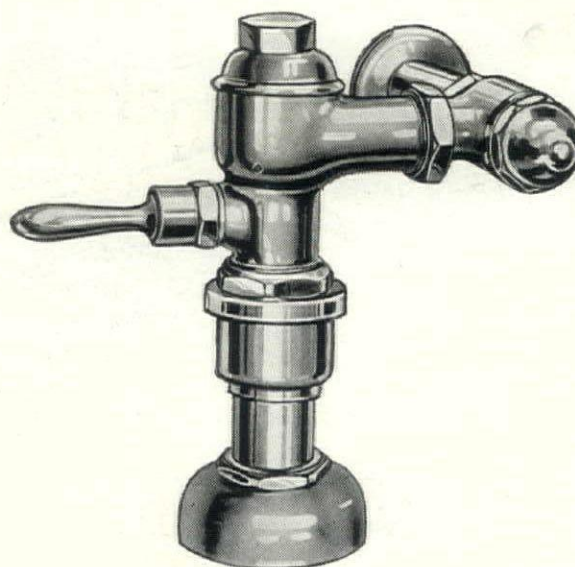
SI-FLO is the first, successful, quiet-operating flush valve. It eliminates hammering, knocking, line throttling, and closing noises—even with supply pressures as high as 100 pounds per square inch. And it stays quiet throughout its entire long-life.

SI-FLO is economically installed . . . an adjustable connection ($4\frac{3}{8}$ " to $5\frac{1}{8}$ ") between valve and stop lowers cost of installation time.

Many models are available for all types of installations. For complete information, send for our booklet S-4 or consult our General Catalog S-46.

Speakman Service

Repair parts for Speakman Showers, Fixtures and Flush Valves are readily available, when necessary, and can be installed quickly, easily and inexpensively.



K-9000-BSP SI-FLO FLUSH VALVE

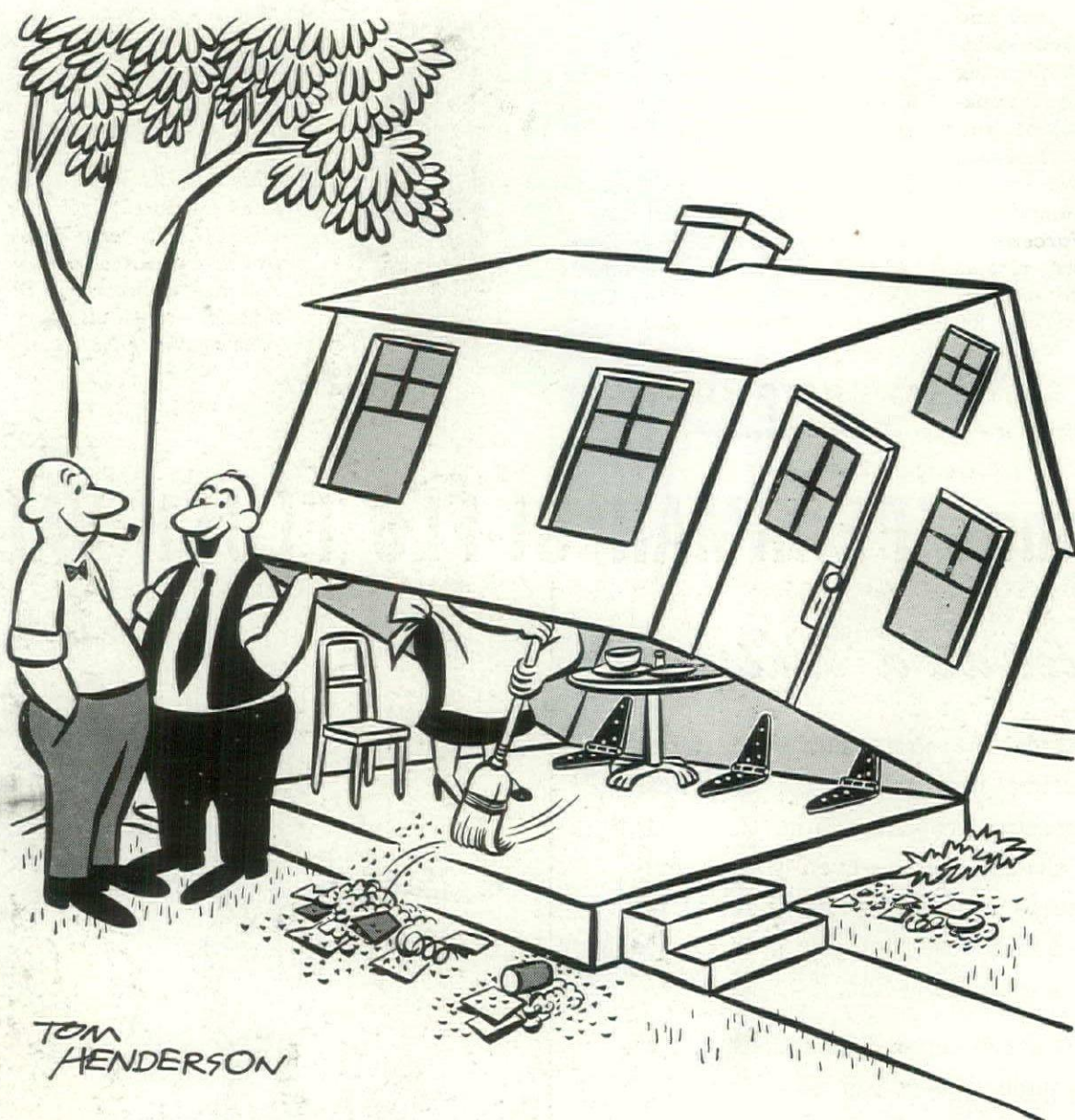
with Back Syphon Preventor. Self-cleaning bypass. 1-inch capped angle stop for right or left supply inlet. Wall flange, metal oscillating handle, flush connection, spud coupling and flange for $1\frac{1}{2}$ -inch top supply bowl.

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TOM HENDERSON
FAMOUS COLLIER'S CARTOONIST

"House cleaning's a cinch

since I showed Gladys how

Everything Hinges on Hager!"



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FOUNDED 1849 — EVERY HAGER HINGE SWINGS ON 100 YEARS OF EXPERIENCE

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(Continued from page 87)

THE

Commodore

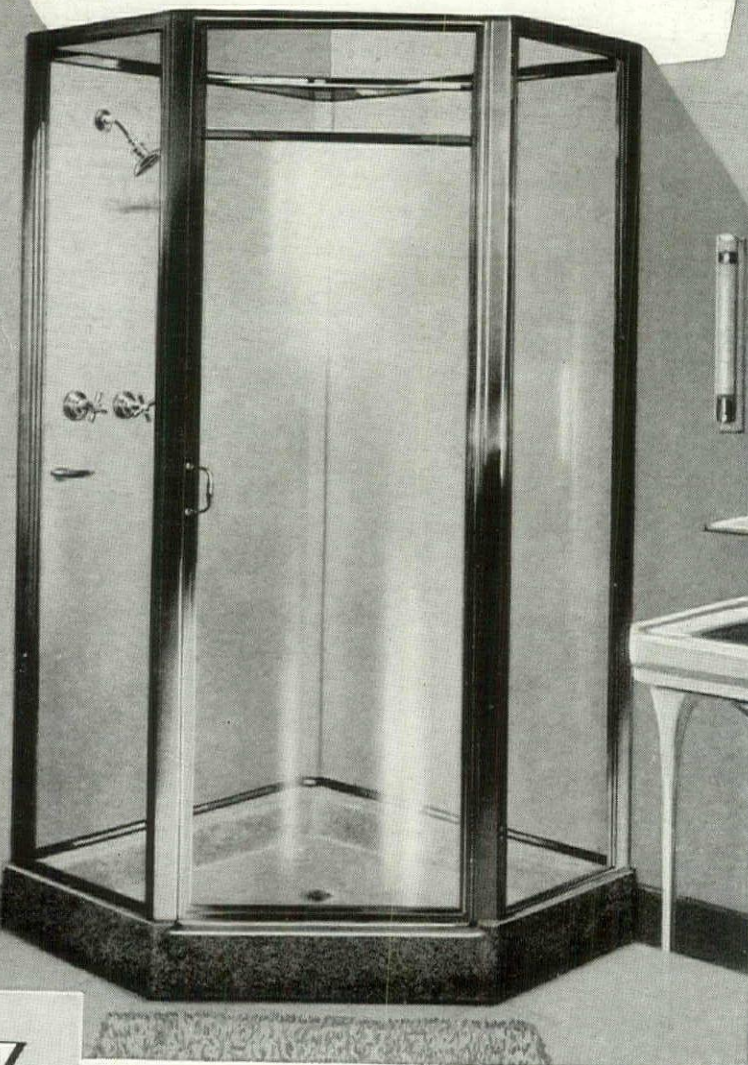
Shower Cabinet



DESIGN NO. 2000-C

The finest in shower cabinet design and construction, now again available for installation in bathrooms where the ultimate in luxury is desired.

Back wall panels are white vitreous porcelain enamel, glass panels set in solid brass chromium plated frame. Receptor deep type terrazzo generous size with overall dimensions 40"x 40"x 80". Architects, Builders and home owners will welcome back this Fiat shower cabinet that typifies luxury shower bathing equipment.



Fiat

Metal Manufacturing Company

CHICAGO 13, ILLINOIS

LONG ISLAND CITY 1, N. Y.

LOS ANGELES 33, CALIF.

In Canada Fiat showers are manufactured by Porcelain and Metal Products, Ltd., Orillia; Ont.

surfaces, 2) allowing for contraction and expansion and 3) devising fireproof connections to the structural frame.

The steel company had already found that the raw stainless steel, just as it came from the strip mill, formed the best glareless surface. All other methods of chemical bathing, tinting, or polishing had produced poor results.

Methods of providing for expansion and contraction and, at the same time, giving the surface of the stainless steel panels a more interesting finish were investigated in collaboration with another manufacturer. This company had developed an infinite number of patterns for embossing metal surfaces. It would have been possible to emboss each panel surface with one of these patterns that followed the natural lines of the expansion and contraction stresses of the stainless steel. This problem could also be solved by simply bowing each panel surface slightly outward, thus allowing for expansion or contraction.

The problem of fastening the panels to the structural frame reduced itself to either pouring the concrete backing in place or having it precast. While precasting appeared to be the most desirable from the point of view of controlling the quality of the concrete and obtaining savings in form work, it was found that by casting the concrete on the job no structural members were exposed to fire. This last method solved the chief problem in relation to the Underwriter's test.

Nearly all the lightweight concrete aggregates were investigated. Of these, diocrete was finally selected due to its immediate availability. A four-hour fire rating had already been given to a 4 in. panel of diocrete, but on the basis of additional factory fire tests, a 2 to 3 in. thickness was assumed to be adequate for back-up purposes. Diocrete is porous but it has ideal heat resistance. Its weight is only 28 lbs. per cu. ft.

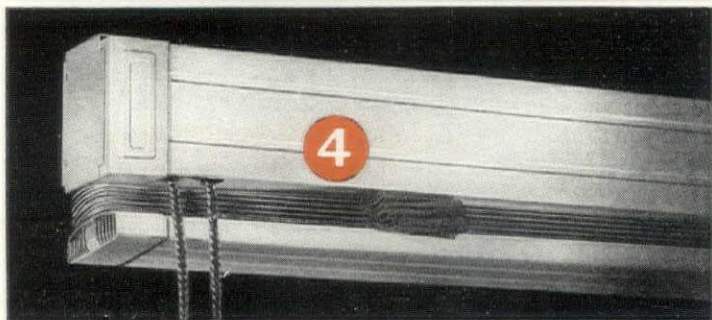
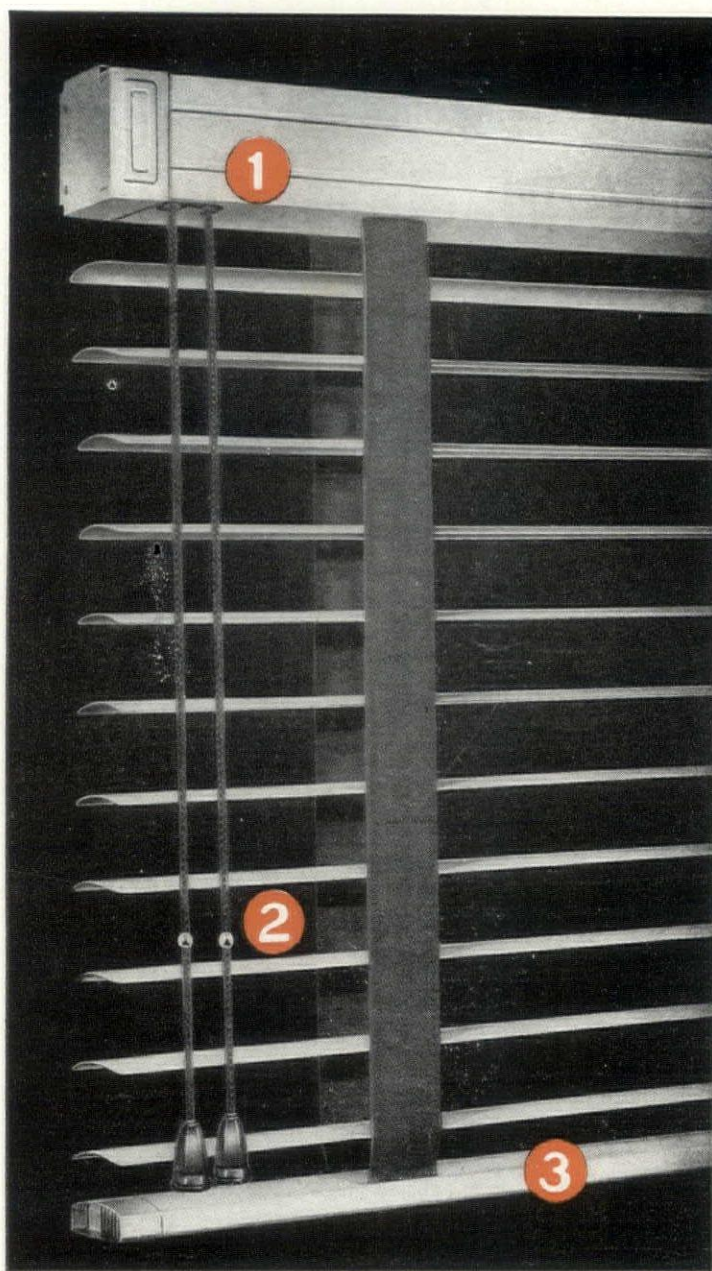
Because of the stringent fire ratings established by city codes or such testing laboratories as the National Board of Fire Underwriters, wall materials must pass severe tests before being approved for use. It was the time required for such tests that prevented the use of stainless steel and lightweight concrete panels as an exterior finish for the Augusta and Columbus store fronts. This fact should not prevent its use in other buildings.

COMPARATIVE COSTS AND WEIGHTS OF WALL FINISHES:

Material	Weight per sq. ft.	Wall load per lin. ft.	Excess cost Price over U per sq. ft. brick factor
4 in. face brick & 8 in. tile.....	75 lbs.	925 lbs.	\$1.59 0.36
Precast concrete..	54 lbs.	810 lbs.	\$5.00† \$11,660 1.01
4 in. limestone & 8 in. terra cotta tile	86 lbs.	1,290 lbs.	\$3.84 \$4,850 0.42
Stainless steel & 3 in. vermiculite..	12 lbs.	180 lbs.	\$2.56* \$2,522 0.15

† High cost, partially attributable to large size of contemplated panels, excludes insulation.

* Includes allowance (\$600 total) for reduction in size of structural framing members made possible by reduced wall load; does not include possible saving in air-conditioning (installation and operating) costs. This saving would be equivalent to the installation cost of insulation material corresponding in value to the difference between K factors for 8 in. terra cotta tile and 3 in. vermiculite. This difference is actually the cost of 1 in. of cork or rockwool insulation.



LEVOLOR
® Trade Mark
SELF-ADJUSTING TILTER

LORENTZEN HARDWARE MFG. CORP.
391 West Broadway, New York 12, N. Y.

**Why are more people
like you insisting on**

LEVOLOR *Blendow?*

**LOOK AT THE COMPLETELY-ENCLOSED,
ALL-METAL HEAD AND BOTTOM BAR.
YOU'LL FIND THE ANSWER THERE.**

Your days of looking at exposed parts on the top of a venetian and unsightly bunched-up tapes, tacks or outside tape clips on the bottom are over.

Now you can get new LEVOLOR Blendow all-metal heads and bottom bars to make venetians attractive built-in elements of your windows. LEVOLOR Blendow not only lends stylized beauty to your venetians, but a mechanical perfection that has been thoroughly tested for years of wear by Lorentzen engineers.

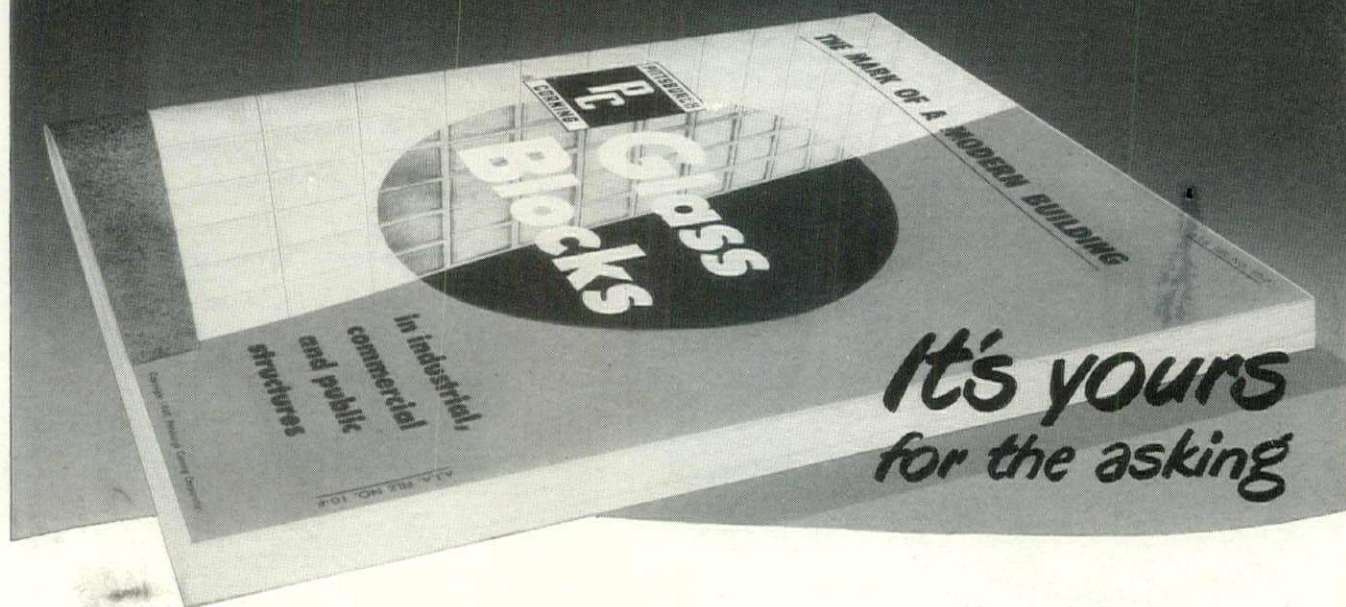
When you raise, lower or tilt a venetian equipped with new LEVOLOR Blendow all-metal head, notice how noiselessly and easily it works. See how the Blendow head neatly hides the famous LEVOLOR self-adjusting tilter, specially engineered tape drums, rods and pulleys which are built right in as a basic part of the head 1. Another advantage—there are no projections on the bottom of the head to mar slats or keep slats and bottom bar from being raised flush with the head 4. Tilt the venetian, and Lorentzen limit beads 2 on the cords limit cord travel... always keep cord tassels within reach. Now examine the slender, completely-enclosed bottom bar 3. An exclusive rolling process makes it so strong, it will never sag out of shape even on the widest blind. Tape and cord ends disappear inside—eliminate unsightly thumb-tacks, tape clips, staples and bunched-up tape ends. This gives a smooth, clean look that's especially important when your venetians are raised 4.

If beauty and economy are vital considerations in the building you design, decorate, manage or own, specify venetians equipped with LEVOLOR Blendow by Lorentzen—the only manufacturer of the complete line of venetian hardware. By insisting on LEVOLOR Blendow and Lorentzen hardware, you eliminate service repair costs... have hardware that's product-engineered for durability and quality.

Now...Specially compiled for your convenience...

COMPLETE INFORMATION ON PC GLASS BLOCKS

in a single, 40-page book



● PC Glass Blocks have won wide favor among architects everywhere... because years of experience have proved that PC Glass Blocks can give almost any building better lighting, more effective insulation, lower maintenance costs, a more attractive appearance, inside and out.

And now... to meet your need for a "bible" on Glass Blocks, we have put between the covers of a single new book all the essential information about this modern building material of countless uses.

This 40-page book treats comprehensively of its subject, includes numerous helpful and time-saving charts, tables and technical pointers. It is lavishly illustrated. From the table of contents listed at right, you can readily see the broad scope and detailed treatment of the information offered. We invite you to send in the convenient coupon for your free copy of this book.

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- Description of Glass Blocks
- Advantages of PC Glass Blocks
- PC Glass Blocks in Industrial Buildings
- PC Glass Blocks for Sash Replacements
- PC Glass Blocks in Commercial Buildings
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- Curved Panel Installation Requirements
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- How to Install Glass Blocks
- Estimating Data
- Closed Specifications

FOR YOUR HEAD
DRAFTSMAN



This handy layout scale saves time and trouble in laying out panels of PC Glass Blocks. If you would like to have this scale for your drafting room, check the coupon and we shall be glad to furnish one, free of charge.



GLASS BLOCKS

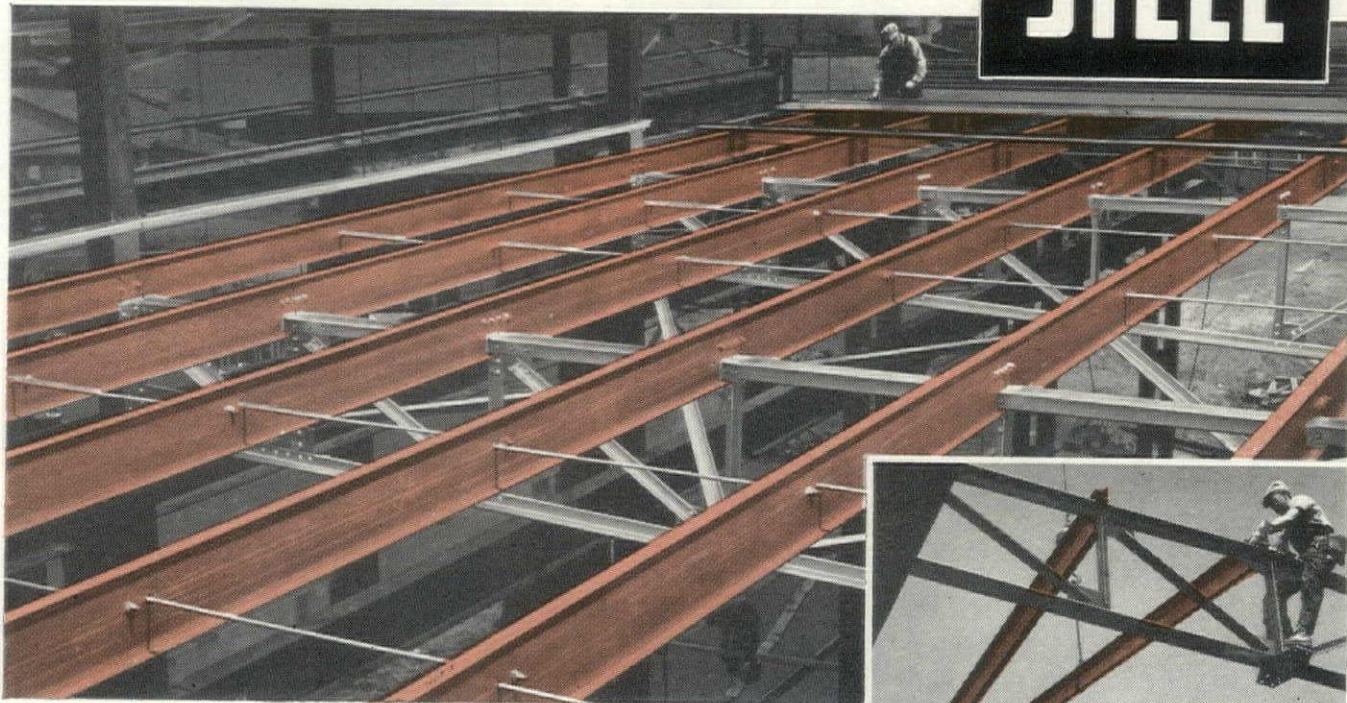
The mark of a modern building

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Please send me, without obligation, a
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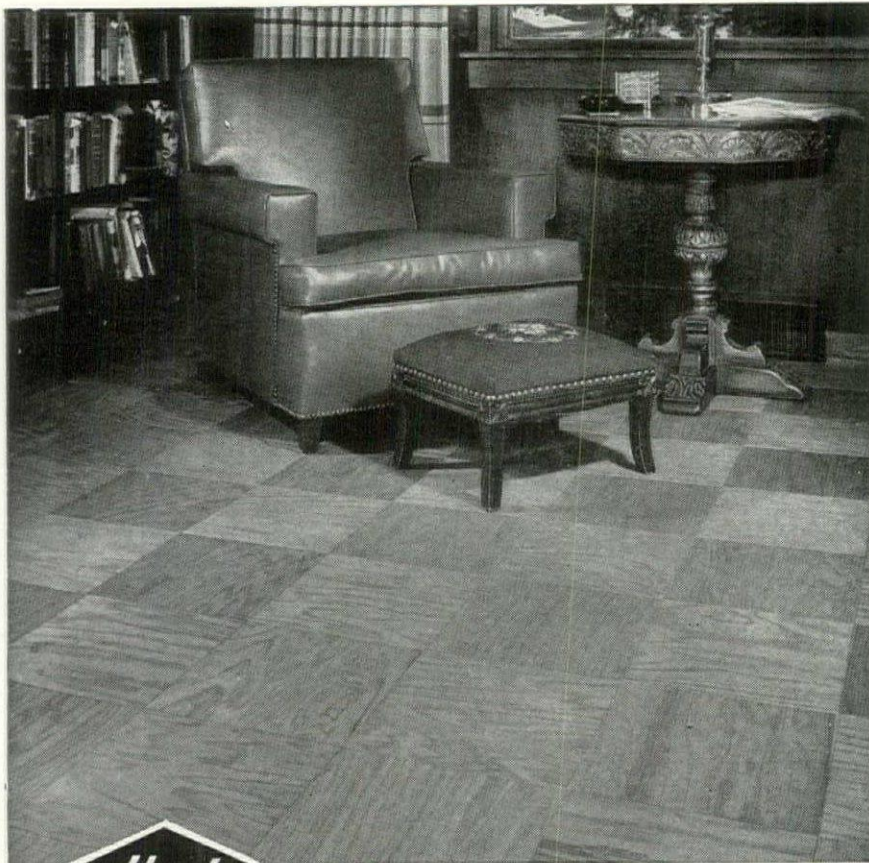
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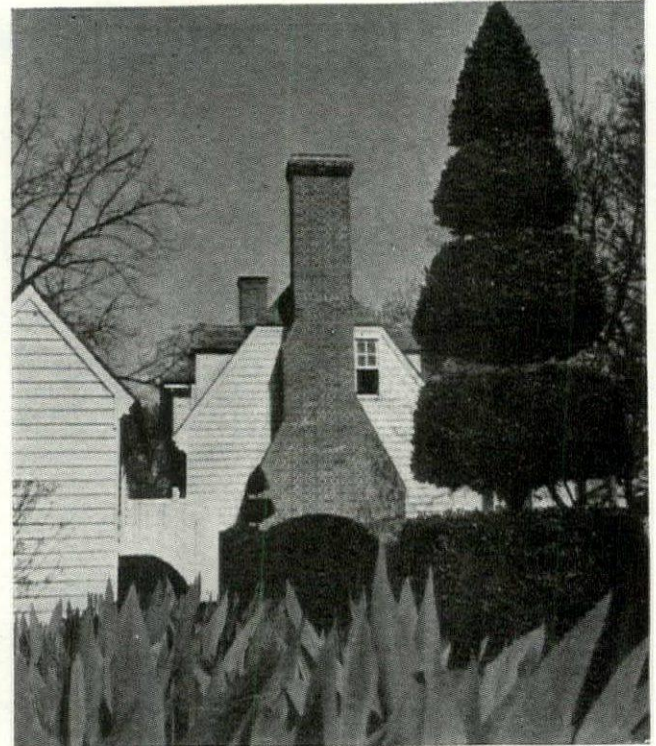


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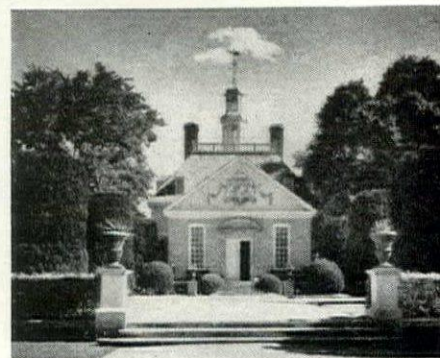
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Herbert Matter

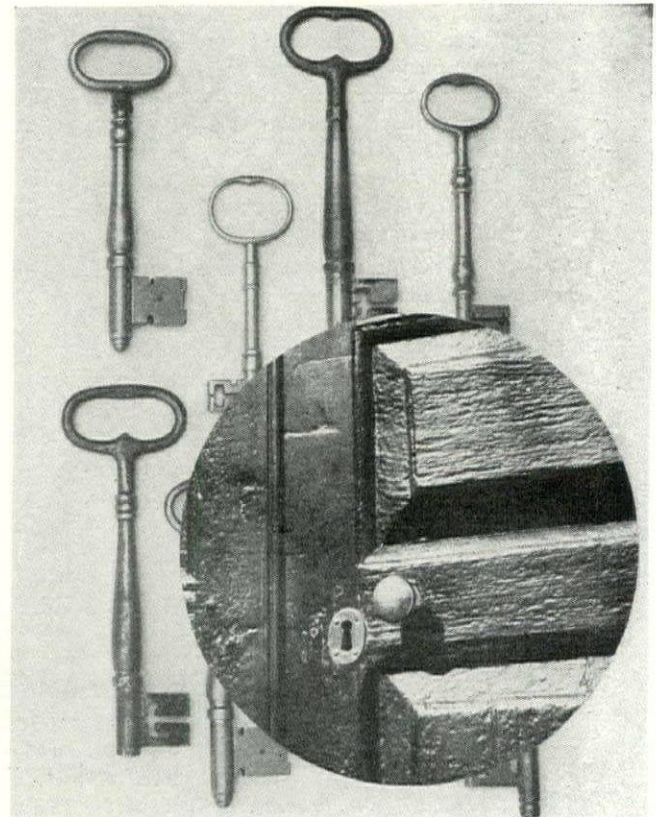


Dramatic brick chimneys and formal gardens are typical of Williamsburg homes.



Elegance of colonial Virginia is symbolized by Governor's Palace (right). Keys (below) show handsome everyday design.

Thomas L. Williams



COLONIAL WILLIAMSBURG — ITS BUILDINGS AND GARDENS by A. Lawrence Kocher and Howard Dearstyne. Pub. by Colonial Williamsburg, Inc., Williamsburg, Va. 104 pp. Illus. 9 x 10 1/4. \$2.75.

Since 1928 the little town of Williamsburg, Va. has been undergoing a storybook process. It has been turning back the clock to the period of its greatest elegance when, from 1699 to 1780, it was capital of Virginia. At length the reconstruction process has been completed and Williamsburg appears as a full-scale replica of an 18th century U. S. township.

The authors of this book (architect-advisers for the reconstruction) together with photographers Herbert Matter and Thomas Williams present a record of this unique project.

The choice of Williamsburg as a subject for renovation was far from a haphazard one. Nowhere, perhaps, in all the 13 colonies could so gracious, compact and varied a group of buildings be found. Nowhere had colonial building skills in both brick and wood been so brilliantly illustrated and combined. Its wide streets and rectangular plan exemplify 18th century planning at its best (far better than do such contemporary plans as Philadelphia and Charleston). Formal gardens and vistas of green were—and are again—at the center of the town. Three handsome public buildings—the Capitol, Governor's Palace and College of William and Mary, designed by Christopher Wren—form a triangular axis for this central green belt. Homes and shops, ranging from formal Georgian mansions to one-and-a-half-story dormered cottages, provide varied expressions of the needs and tastes of this early "tobacco" town.

As to the significance of such a project, Authors Kocher and Dearstyne very knowingly point out its limitations as well as its value: "Williamsburg in the past was a living town and it is only through constant awareness of those who made it famous that (its) significance . . . can be appreciated . . . Without this understanding the city as restored today is no more than a museum piece." Within this historical framework, however, the town is an invaluable panorama of the cultural and technical life of a vital section of the future U. S. during the years of its conception. Its graceful fusion of European and native elements indicate a standard of taste that any nation might be proud to find in its forebears.

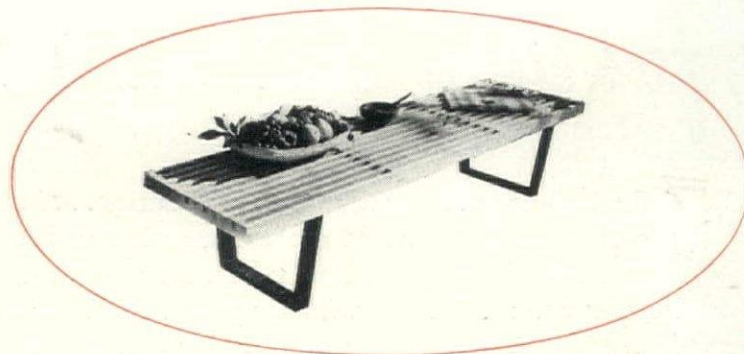
Reconstructed Williamsburg is indeed a storybook town. But the story is a true one—and it is our own.—S.K.

MARCEL BREUER: ARCHITECT AND DESIGNER by Peter Blake, pub. by Architectural Record in collaboration with the Museum of Modern Art, 11 W. 53rd St., New York, N. Y. 128 pp. 8 x 10 1/2. Illus. \$2.25.

The career of Marcel Breuer as architect and designer presents a most satisfactory spectacle. Today, at the age of 47, he can look back on more than two decades of outstanding achievement in several fields and on several continents. Moreover, as Peter Blake points out in this able new monograph, his achievement is not the result of spasmodic turns of inspiration but of steady and consistent growth—of broad talents developed and integrated by an unusually keen intelligence.

Breuer started his design career, by choice, from the bottom up. In the artistic 'boiling pot' of the Bauhaus (as Walter Gropius termed it) he worked in the carpentry shop—constructing chairs and evolving the theory on which all his later design is based. After all, he says, "the stresses on a chair are heavier than those on any factory floor." The philosophy of chairs (and buildings) which resulted from this practice

(Continued on page 138)



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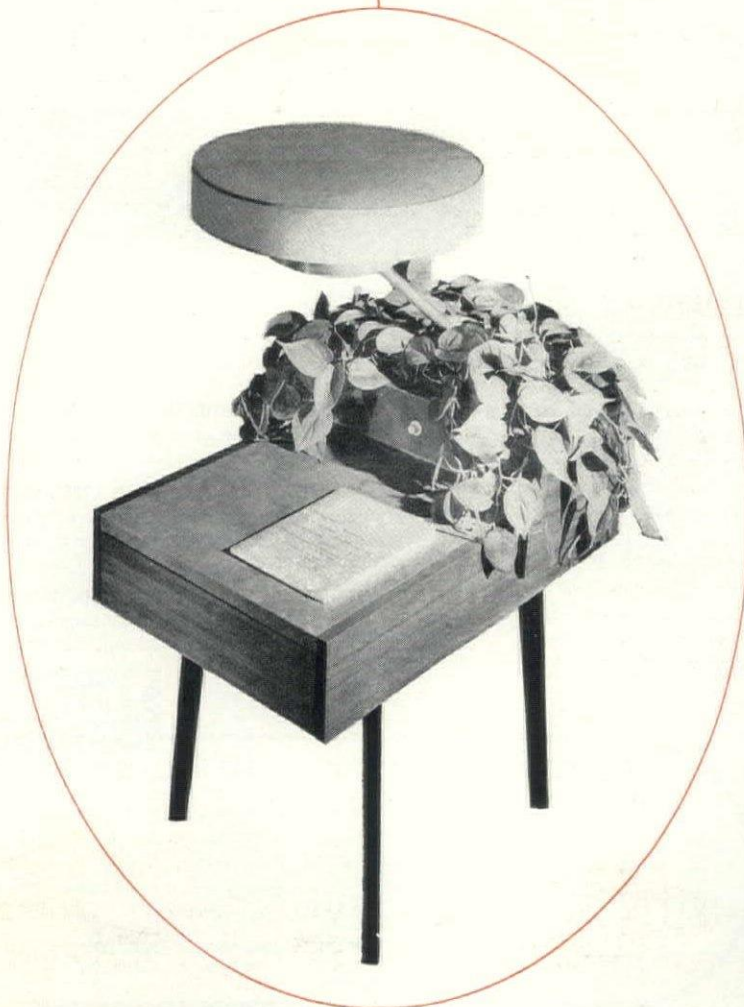
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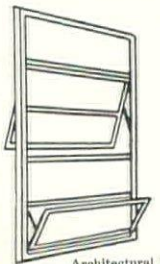
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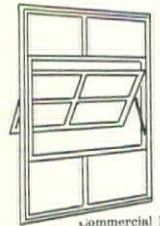


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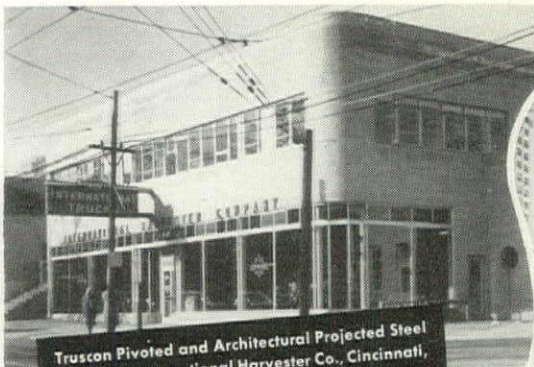
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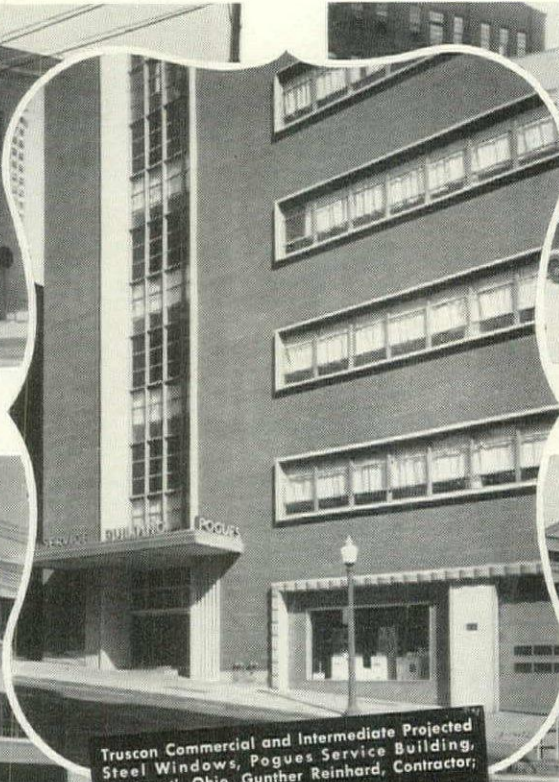
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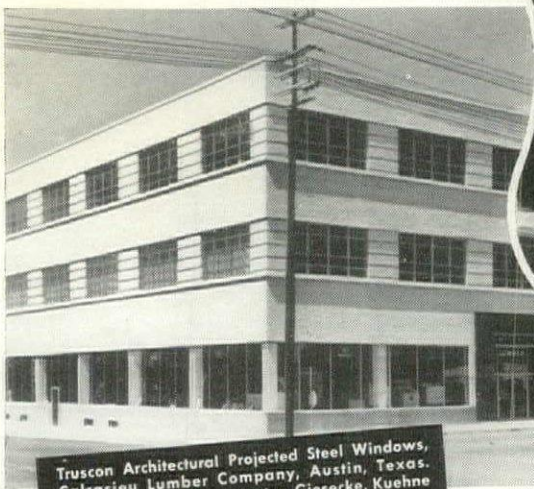
Truscon Pivoted and Architectural Projected Steel Windows, International Harvester Co., Cincinnati, Ohio. J. & E. Warm, Contractor.



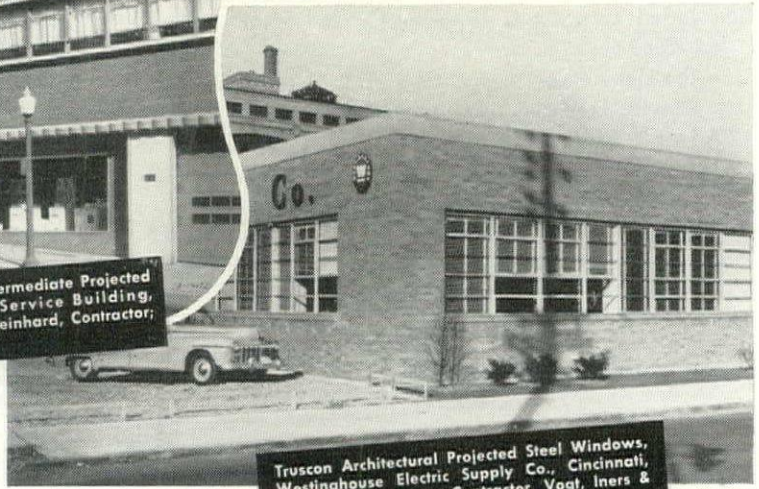
Truscon Commercial and Intermediate Projected Steel Windows, Pogues Service Building, Cincinnati, Ohio. Gunther Reinhard, Contractor; Hake & Hake, Architects.



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Truscon Architectural Projected Steel Windows, Westinghouse Electric Supply Co., Cincinnati, Ohio. J. & E. Warm, Contractor. Vogt, Iners & Seaman, Architects.

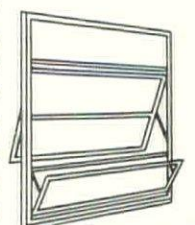


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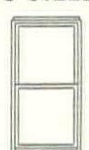
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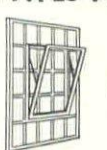
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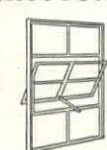
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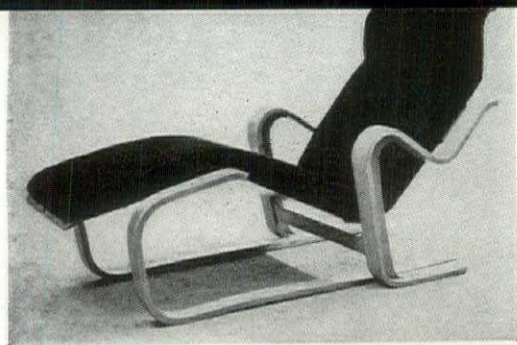
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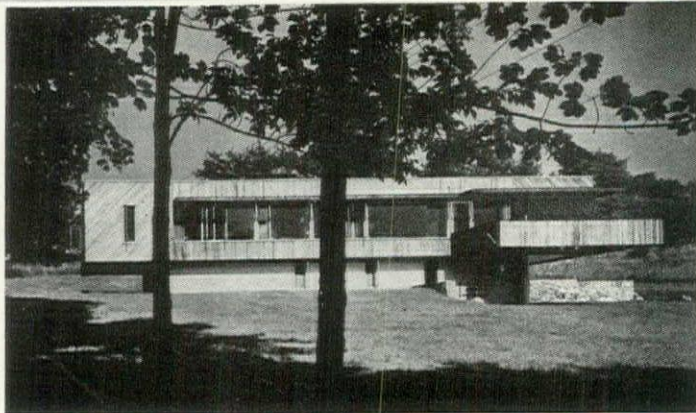
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REVIEWS



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Breuer chair (1935) and house (1948) show the same feeling for both structure and comfort.



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was simple and all-embracing: all products have two basic elements—structure and relation to human beings. Since the two are distinct, they are best expressed separately. Structure, governed entirely by physical stresses, is of course most fundamental—"the acid test of good design is whether it will stand up." Equally vital to the successful whole, however, is its satisfactory relation to the user—a chair must be comfortable, a house must be livable.

The balance apparent in Breuer's work is due to his constant balance of these two factors. His feeling for logical structure led him to assimilate LeCorbusier's building form of the raised rectangle, to apply the test of mass production to building design and materials. His sense of livability—of humanity—led to his mastery of natural materials (wood and stone, particularly), to his dramatic sense of space in building, to the careful curves of his now-classic chair designs. His logical separation of functions expressed itself most recently in his "bi-nuclear" layout of homes, with its complete separation of living and sleeping quarters.

Appended to the main text of the book is a lecture delivered some years ago by Breuer himself. This provides such a clear and well-worded picture of the man and his philosophy that it seems a pity it was not further developed in the text itself. Among the various statements of belief, one in particular illuminates the union of artist and artisan which shows itself in all Breuer's work. "Imagination," he says, "is no longer expressed in remote intellectual adventures but in the tenacity with which formal order is imposed upon the world of reality."

This tenacity, and the imaginative courage it implies, is certainly one of Breuer's great gifts.—S.K.

ENGINEERING THE NEW AGE by John J. O'Neill. Ives Washburn Inc., 29 W. 57th St., New York. 320 pp. 6 x 9. \$3.50.

Here is a book on city planning (and many other things) which approaches the problem from a new angle—straight down out of the sky. Other students of the subject, feet-on-the-ground men, even visionary uplifters, are inclined to begin from the bottom up. Science writer John J. O'Neill (of the *N. Y. Herald Tribune*) thinks they all have been overlooking a major strategem. The real trouble with today's planning, he says, is "that man hasn't taken the cosmos into partnership with his scheme of operations." His start is reassuring if a little offhand—"There is just one right way to do a big job and that is to use engineering techniques: straight thinking, sound planning, efficient methods, a set goal attained in the shortest possible time, with minimum of cost and yielding maximum benefits." But he quickly establishes a more cosmic view: "It is extremely improbable that any firm of terrestrial engineers will ever be called on to supply the earth with another moon," he concedes, "but if it should happen, it might be well to know that the material required for constructing a moon would have to equal that which would be required in building two million billion Hoover Dams or Great Pyramids." Even planners who may not follow Mr. O'Neill's orbit-blazing trail, however, may pick up a few neat phrases for council meetings. If alliteration alone could drive the money changers out of the city, here is the man for the job—"Most cities are municipal monstrosities, community catastrophes or urban ulcers exhibiting as social symbols a vast deficiency when compared with the highest ideals of their inhabitants." Planners must "so design and construct the city that it is a functioning organism on a supra-vital level and not a heap of hamburger hardware decaying in its own

(Continued on page 142)



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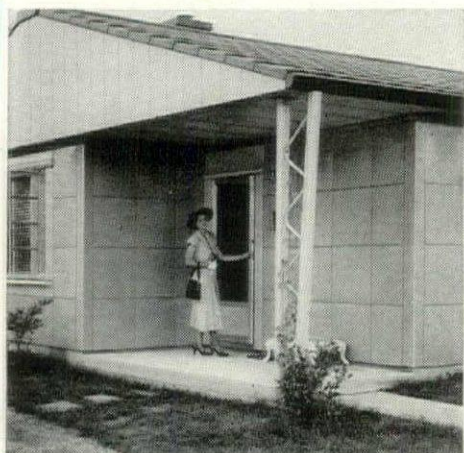
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- A teacher in suburban St. Louis . . .

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chaos and fit only as a habitation for mangy maggots and round-shouldered ants." What a mouthful! What a man!

Someone, it seems, has been skeptical enough to suggest to Mr. O'Neill that the world situation contains factors (finances, wars, atomic destruction) that might interfere with his supravital schedule. His answer, however, is reassuringly cosmic—"We can proceed as if the existing situation were merely a minor irritation."—S.K.

THE ENGLISH INTERIOR—1500 to 1900 by Ralph Dutton. Batsford Ltd., 122 E. 55th St., New York and 15 N. Audley St., London. 192 pp. Illus. 6 x 9. \$6.

Should anyone—for reasons antiquarian or otherwise—need to track down the English interior fashion of some particular period, he may find this book useful and entertaining.

Mr. Dutton begins his tale in the year 1485 when the end

of civil war discouraged the building of moats around dwellings and started the evolution from castle to countryhouse. The course of English taste since that time has been a pendulum swinging back and forth between lavishness and austerity: from medieval to renaissance; from there to puritanism; back to restoration splendor. This in turn was restrained by the classic Adams and Kent; who lost to Victorianism; which is now frowned on by the functional moderns. It is an interesting thesis—with the author in sympathy with the splendorists. The book ends at the beginning of the twentieth century timidly commending Lutyens and Baillie-Scott, because "without genius" they could not have influenced so many people.

The English Interior contains a number of varied and well-produced drawings and watercolors—six done in color—and a more or less connected fund of lore on the subject. On no phase is the book really inclusive and one would be hard put to find in it a structural scheme. It is content to wander through and around a large number of the very best English houses—pointing out the fondness for high windows in this era, for oval rooms in that one. Dutton's concentration on the handsomest houses (with not even a glance at how the other 99 per cent of the population lived) and his omission, even in that restricted field, of all but the most lavish rooms certainly limits the book's value. He makes his old guard theory clear:—"The great ages of architecture usually synchronize with ages of ill-distributed wealth. There would be little likelihood of any domestic architecture of lasting interest emerging from a properly socialized state . . . it is the men who have ruined their own and their country's exchequers by a passion for building who are now remembered with gratitude."

Englishman Dutton's pride of hall receives its most adequate comment from Englishman Noel Coward's song for penniless scions—

*"The stately homes of England we proudly represent,
We only keep them up for Americans to rent . . .
The fact that they have to be rebuilt
And frequently mortgaged to the hilt
Is inclined to take the gilt
Off the gingerbread."*—S.K.

GUIDE FOR PLANNING SCHOOL PLANTS, 1949 edition, by the National Council on Schoolhouse Construction, purchasable from W. D. McClurkin, Peabody College, Nashville, Tenn. 6 x 9. 173 pp. \$1.25.

This latest annual edition of a sensible, thoroughgoing handbook for school builders and maintenance men is now available. It discusses sanely and without bias building types, land-sites, and equipment for elementary and secondary schools, covering their use for both educational and general community.

A PROFESSIONAL GUIDE FOR JUNIOR ENGINEERS by William Wickenden edited by G. Ross Henningsers, Engineers Council for Professional Development, 29 W. 39th St., New York City. 54 pp. 8½ x 11. \$1.

One of the most recent publications of the Engineering Council, *The Professional Guide* is a labor of love prepared by William Wickenden, late President of Case University. It does a good job in answering its self-chosen question—"What is engineering? What are its implications and ramifications?" Written to guide those just edging towards professional status, it is a healthy reminder for the interested "arrived." The moral, technical and cultural heritage of engineering is re-examined.



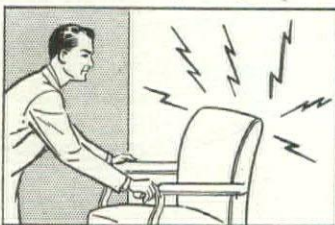
Walls, banquettes and chairs covered with "Kalistron" in new cafeteria for New York employees of Union Carbide and Carbon Corporation. Architects, Edward A. Ferraro, A.I.A., and Walter Thomas Williams, A.I.A.

NEW savings through NEW permanence ... and glowing beauty, too!

Yes, that's the beauty of it! For wherever new Kalistron is used, it effects savings because it's well-nigh indestructible . . . gives an enduring impression of beauty . . . permanently presents a richly glowing color—because COLOR IS FUSED TO UNDERSIDE OF A CLEAR VINYL SHEET.

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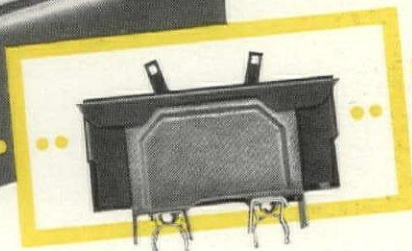
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MO PANELETTE with "PLUG-IN" Type Circuit Breaker Units

PROVIDES both switching and REPEAT PROTECTION for 12, 16 or 20 lighting and appliance A. C. circuits. Nothing To Burn Out... Nothing To Replace



Coilless
Thermal Magnetic circuit breaker units which "plug-in" on cylindrical bus bars are interchangeable with those of the popular NMO Panelboard—ONE STOCK.

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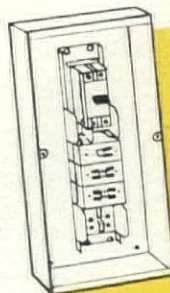
Load Center Trim. Flush or surface. Box 12" wide by 4" deep. Suitable for shallow walls and 16" center studding.

Lugs or Breaker Mains. Lugs only or main circuit breaker rated either 50 or 100 amperes. Panelboard interior.

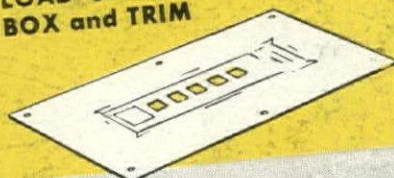
1 ϕ , 3 Wire or 3 ϕ , 4 Wire. 3 ϕ , 4 wire arrangement combines group and distributed phase advantages. Circuits are marked with both color code and letter identification.

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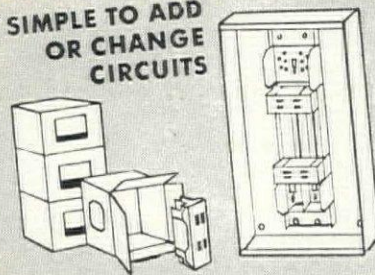
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**SIMPLE TO ADD
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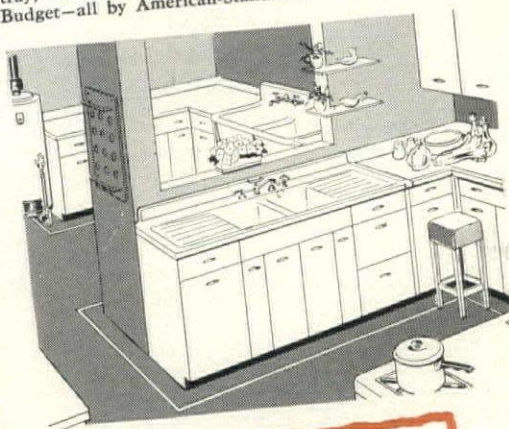
both heating equipment and plumbing fixtures

■ Selecting the *right* heating equipment and plumbing fixtures for the homes you are building is simplified when you turn to American-Standard.

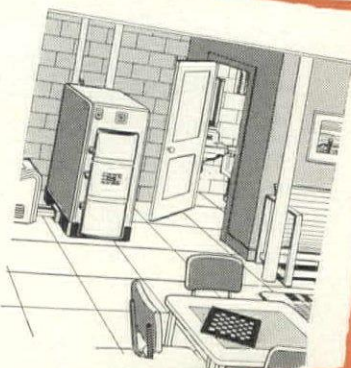
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And, remember, when you specify or buy American-Standard *throughout*, you are saying that *only the best* is good enough for the homes you build. **American Radiator & Standard Sanitary Corporation**, P. O. Box 1226, Pittsburgh 30, Pa.

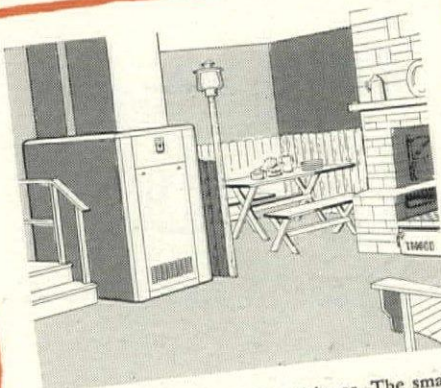
CONVENIENCE is the keynote of this first floor kitchen and laundry. The sink is the Royal Hostess; the laundry tray, the Alden; and the gas fired water heater, the Budget—all by American-Standard.



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Cleaners



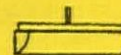
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When you have CONSTRUCTION AHEAD . . . whether residential, commercial or industrial . . . call your nearest Westinghouse District Office or Distributor for full information. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

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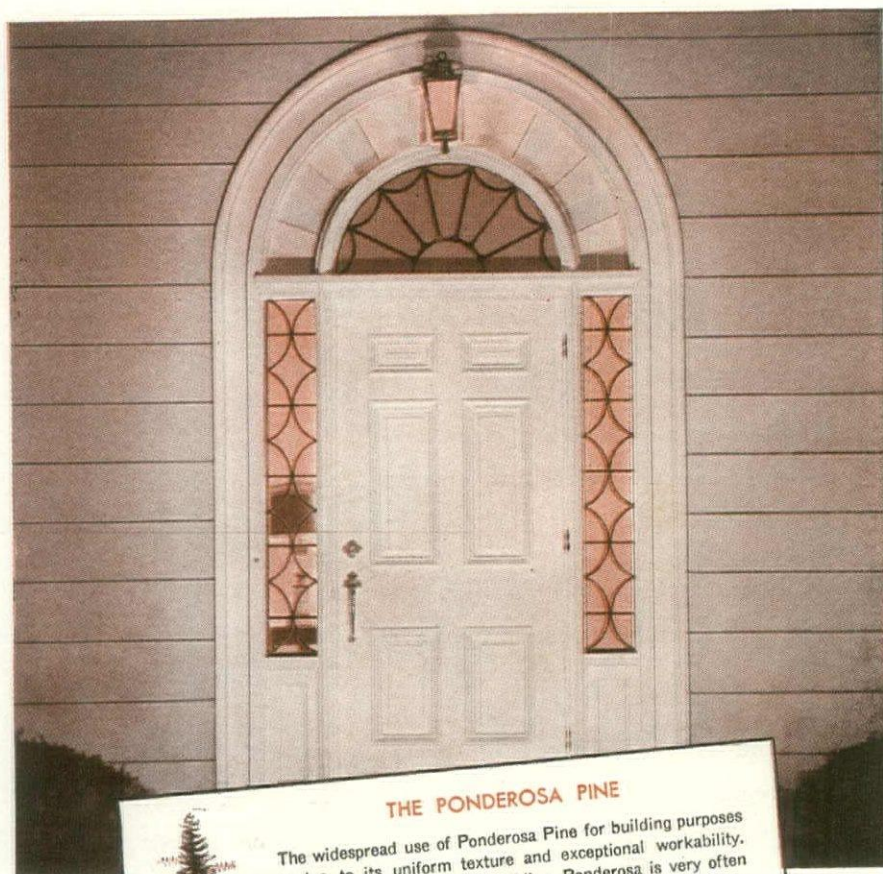
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The widespread use of Ponderosa Pine for building purposes is due to its uniform texture and exceptional workability. In house and commercial building, Ponderosa is very often used for sash and frames, doors, and general millwork.

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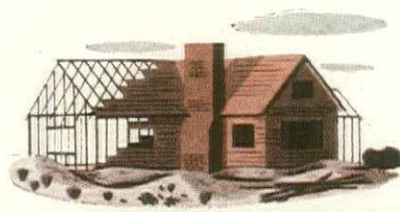
You protect your client when you specify PENTA-protected lumber. You insure that his home will be a long term investment.

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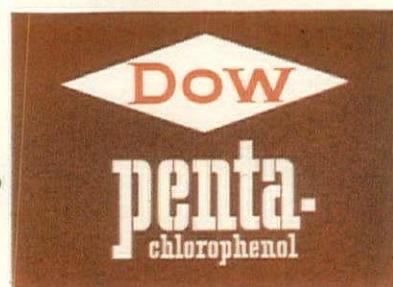
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STEEL ENCLOSURE FOR AN OPEN FIRE has advantages of easy installation plus heat radiation from all surfaces.

A sleek, effective room warmer, the Acorn Fireplace is substantially built of 16 gauge steel, of all-welded construction, and yet may be mounted very simply by means of four bolts or lag screws. The fireplace is finished in vitreous enamel, fused to the steel to provide an enduring lustrous surface which is impervious to heat and easily kept clean. Pearl gray and Chinese red are the standard colors but others may be obtained on request in lots of ten or more. Adaptable to almost any room, the Acorn may be used wherever a flue connection is available or can be made available. If the latter is the case, a prefabricated chimney is recommended by Acorn's designers, who claim that such an installation of fireplace and chimney will cost about one-half that of conventional construction. Andirons, mounting hardware and brackets and firescreen are furnished with the unit, listing at \$86, f.o.b. Concord, Mass. Discounts are allowed for quantity orders.

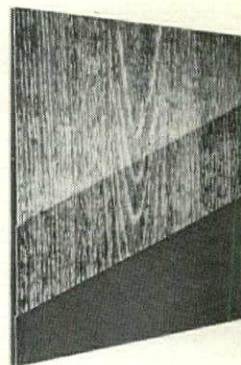


Lizra Stoller: Pictor

Manufacturer: Acorn Houses, Inc., Box 86, Concord, Mass.

WELDED VINYL FLOOR TILE combines wearing quality, style and resiliency.

Each of the layers in Interchemical's new type of vinyl flooring—a "triple-decker sandwich"—serves a specific purpose. Sanitile's top layer is a clear tough vinyl impervious to strong



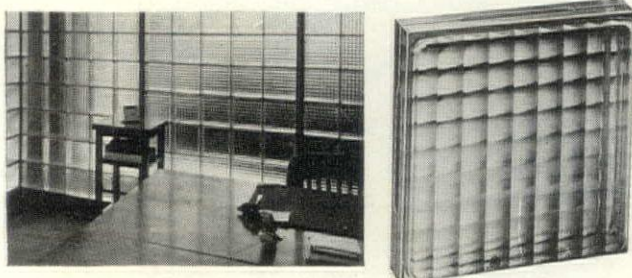
soaps, household chemicals, alcohol or grease. Because this surface is non-porous, dirt stays on top for easy removal. Its soft satin finish requires no waxing but will hold a high luster if waxing is desired. According to accelerated abrasion tests conducted by the manufacturer, this thin coating will outwear 1/8 in. total thickness of most other kinds of floor covering. The second vinyl layer is pigmented and carries the design. At present Sanitile is available in four patterns: Picture Wood, Patio Marble, Multi-Tone Spatter and a delicately etched design, Bombay Tile. Each may be obtained in several foundation colors. Still another vinyl formulation constitutes the underside. This bottom layer is the thickest of the three and provides foot comfort, resiliency and recovery from heavy furniture markings. All three layers are processed under high heat and pressure into one integrated, inseparable floor tile, equalized against expansion or contraction to prevent buckling or warping. Embossing on the

underside facilitates laying with adhesive. Adapable to commercial, institutional or residential interiors, Sanitile may be laid over wood or plywood or directly on concrete slabs. Each tile measures 9 x 9 x 1/8 in. Installation technique is similar to that for other resilient floor materials. Cost to the consumer is \$1 per sq. ft. plus installation.

Manufacturer: Interchemical Corp., 350 Fifth Ave., New York 1, N. Y.

PLASTIC BLOCK can be pressed into framework by hand.

Bloxolite, an 8 oz. plastic block for building interior partitions in homes and offices, can be installed in many places



where heavier material could not be supported. The translucent blocks insure privacy yet provide a light transmission intensity of 200 foot-candles, and offer sound resistance comparable to that of glass block. No mortar, calking or adhesive of any kind is required—unless a waterproof partition is desired. Installation consists of pressing the plastic plates, or half-blocks, into the interlocking lattice strips on either side of the framework. These strips are furnished with the Bloxolite in neutral shades and may be painted any color. Decorative effects may be achieved by varying the direction of the ribbing in the plates on either side of the panel. Bloxolite, made of Dow Chemical Co.'s Styron, will not expand, contract, warp, crack or absorb moisture. Each plate is 7 3/4 in. square and 1 1/2 in. deep. Including strips and both sides of blocks, this paneling material retails at approximately \$1.80 per sq. ft. With labor, an erected partition runs about \$2.50 per sq. ft.

Manufacturer: Bloxolite Co. of America, 706 Penn Ave., Pittsburgh 21, Pa.

ALUMINUM AWNING rolls down over window to become storm shutter, gives year-round protection.



Storm-Stop awning shutters were originally developed as exterior treatment for casement windows. (They do not interfere with the outward window adjustment.) However, because of their dual utility they have been used with all types of windows. Set in large overhanging frames, Storm-Stops shade windows from the sun and protect open windows from summer showers.

During a storm or hurricane the awning may be pulled down over the window to form a shutter—in much the same way a roll top desk is closed. Strong side channels hold the shutters securely in place. No frantic last minute

(Continued on page 152)

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Royal Barry Wills, Boston, Mass., Architect

TELEPHONE RACEWAYS BECOME A NEW ENGLAND TRADITION

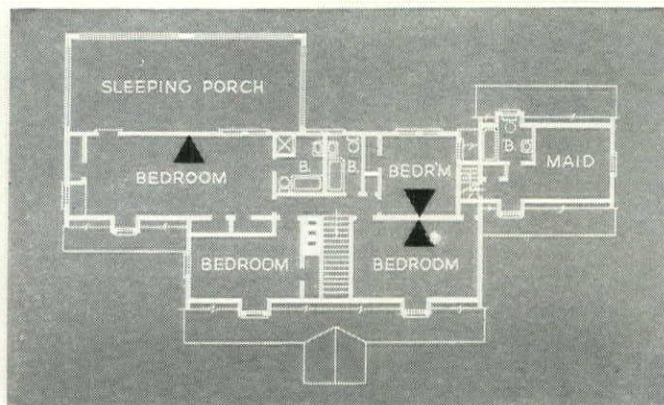
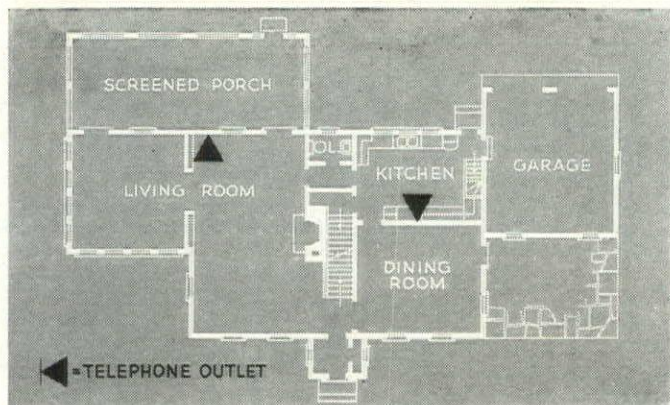
You wouldn't think of designing or building a house today with electric wires and water pipes exposed. It's just as important to conceal telephone wires.

Telephone raceways are easily installed during construction. A few lengths of pipe or tubing will carry telephone wires inside the walls to neat, convenient telephone outlets. They help to protect the interior beauty when telephones are installed, and assure the home owner of modern telephone facilities.

Your Bell Telephone Company will be glad to co-operate in planning telephone raceway systems. Just call your nearest Telephone Business Office and ask for "Architects and Builders Service."



BELL TELEPHONE SYSTEM



HORIZONTALS UNLIMITED

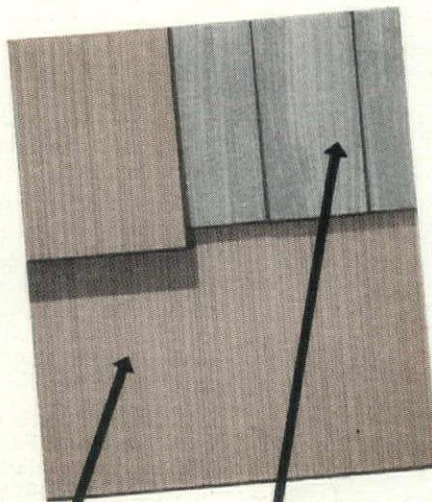
WITH STAINED *Shingles AND Shakes*

Free interpretation of design is never obstructed by horizontal exposure limitations when architects specify stained cedar shingles or shakes. Double-coursing application has extended the exposure range of these versatile wall materials to the maximum desirable height of 16 inches, making the choice of horizontals virtually "unlimited." Roof exposures, too, are adaptable to the pitch.

Excellent texture and color, low initial cost, minimum maintenance, high thermal value—these are inherent benefits of stained shake walls. Shakes are processed from edge-grain No. 1 grade cedar shingles. Vertical edges are sawn precisely parallel to permit tight, concealed joints. Butts are machine squared to provide straight, unbroken course lines. Application is wonderfully simple and rapid.

FOR SPECIFICATIONS SEE SWEET'S 8b/7a

Length of Shake	EXPOSURE RANGE	
	Single-Course	Double-Course
16"	6" to 7 1/2"	8" to 12"
18"	6" to 8 1/2"	9" to 14"
24"	8" to 11"	12" to 16"



CONCEALED JOINTS
Blended with the grooved surfaces, laid tight, joints disappear.

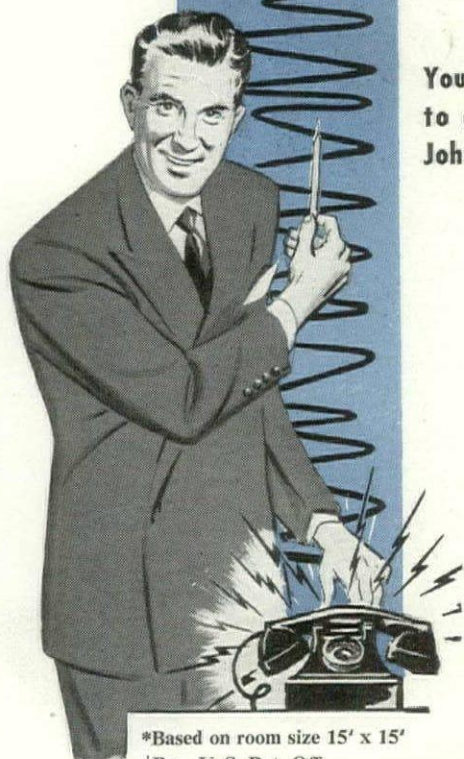
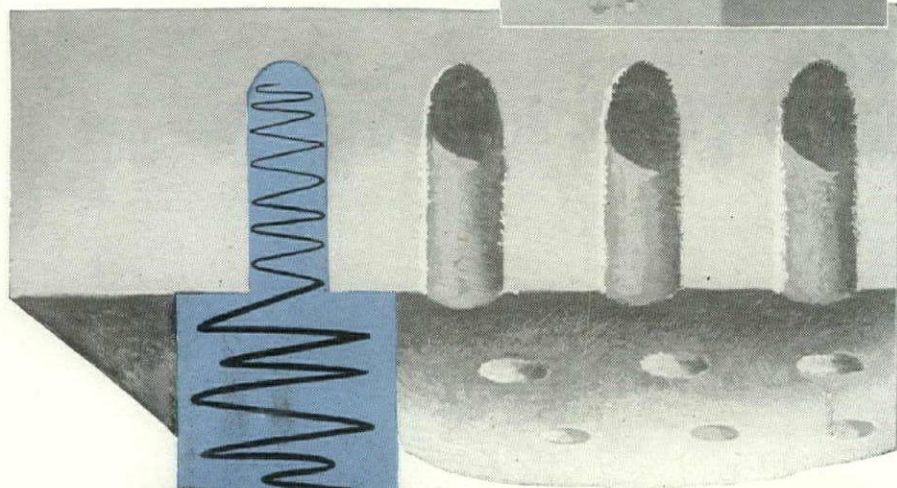
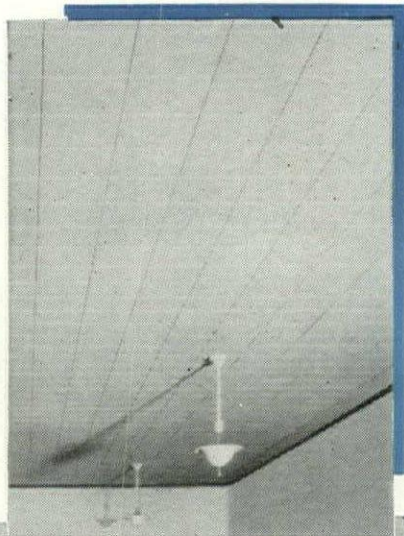
ECONOMY FACTOR
Walls are double. Hidden courses are low cost, low grade cedar shingles.

STAINED SHINGLE & SHAKE ASSOCIATION

ASSOCIATED MANUFACTURERS

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*We've built
a better
"noise trap"*



*Based on room size 15' x 15'
†Reg. U. S. Pat. Off.

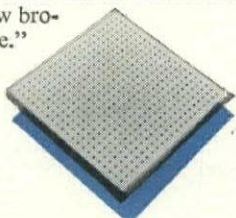
**You'll have 108,900* noise traps
to give you quiet, when you buy a
Johns-Manville Fibretone† Ceiling**

• Every 12" unit of a Johns-Manville Fibretone Ceiling has hundreds of scientifically designed "noise traps" . . . small cylindrical holes drilled in the sound-absorbing panels.

Here the noise waves are trapped and dissipated *within* the holes.

Once you experience the benefits that noise-quieting Fibretone gives . . . greater comfort, less nerve strain, increased efficiency . . . you'll never again be satisfied to have an ordinary ceiling in any busy area. You'll be surprised, too, at Fibretone's *low cost*.

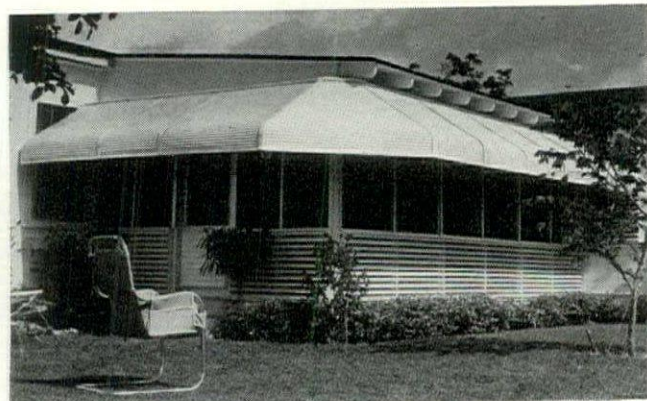
Send for Free, Fascinating Booklet: Whether you're interested in quieting an office, restaurant, bank, school, or factory, let us tell you more about Fibretone. Write for our new brochure, "Fibretone." Johns-Manville, Dept. A 7.9, Box 290, New York 16, N. Y.



Put a ceiling on noise with

Johns-Manville FIBRETONE CEILINGS

nailing is necessary, and after the blow, Storm-Stops are just as easily raised to the awning position. A rod is supplied for reaching high places. Constructed of corrugated aluminum and finished in any color, Storm-Stops are custom made to fit windows or other areas where sun and rain protection

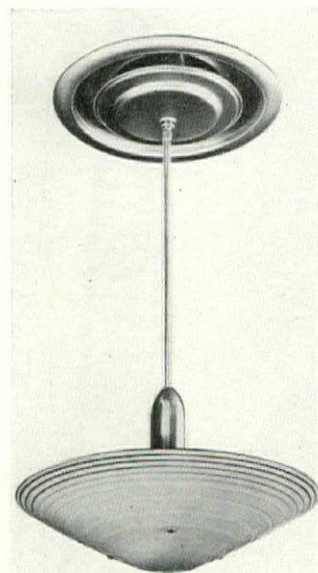


is desired. They are attached to the masonry or other structural material around the windows by means of screws placed through the back flange of the side channel. This protects the screws from the weather and so adds to the life of the unit. A sliding scale on a square foot basis is used to determine price. Total cost depends upon size and type of installation. Minimum price is \$36 per unit.

Manufacturer: Outside Venetian Blind Co., 2625 Elm St., Dallas 1, Texas.

AIR DIFFUSER will accommodate pendant light fixture.

Since architectural or decorative considerations often require that an air diffuser and light fixture be located at the same spot in the ceiling, the W. B. Connor Engineering Corp. has developed a modification of the Kno-Draft adjustable air diffuser to accommodate any pendant light. This diffuser, available in various sizes and types, with or without an air volume damper or other accessories, will retain all of its functional features when combined with a pendant light fixture. For diffusers without the volume control damper, \$1 is added to the list price. Thus, a K Model diffuser with a neck diameter of 4 in. which retails for \$14 would become \$15 with the fixture adaption; a \$170 K Model with a 36 in. neck diameter would sell for \$171. Additional charges of from \$3.75 to \$9 are made for the adaptation on the KD Models having both air direction and volume control. These KD diffusers list at \$23 to \$250.



Manufacturer: W. B. Connor Engineering Corp., 114 E. 32 St., New York 16, N. Y.

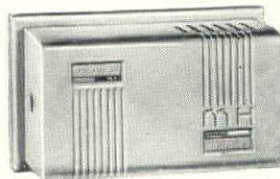
(Continued on page 154)

Honeywell Comfort begins with the blueprint...

ON COMMERCIAL ST., U. S. A.

THE progressive owners of shops and office buildings on "Commercial Street" know that comfort is essential to attract trade and keep tenants satisfied. They realize that air conditioning, for example, is no longer a luxury—it is just plain good business. So, they are installing the most modern heating, ventilating and air conditioning equipment. Minneapolis-Honeywell, in its nation-wide advertising, is urging new building owners to consult you about the proper control systems while plans are still in the blueprint stage.

Whether you specialize in commercial buildings, hotels and apartments, schools or hospitals, industrial plants, or homes, you know that no heating or air conditioning system can be better than the controls that regulate it. Since 1885, Minneapolis-Honeywell has pioneered in the development of automatic controls and control systems. Honeywell-trained engineers are available for consultation on any of your control problems. Just contact the Honeywell branch office in or near your city or write to Minneapolis-Honeywell, Minneapolis 8, Minnesota.



ROOM THERMOSTAT
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ELECTRIC, PNEUMATIC, ELECTRONIC CONTROLS:

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CONTROL SYSTEMS

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



PORTABLE AIR-CONDITIONER operates on water evaporation principle but requires no plumbing installation.

Entirely self-contained, this small water-evaporation unit is available in two sizes to meet the air-conditioning needs of large or small offices. The smaller, suitable for a single medium-sized room, measures only 10½ in. in diameter and is 13 in. high. It sells for \$28.50. The larger unit, retailing at \$39.50, takes very little more space. Discounts for quantities are allowed by the manufacturer. Both units provide an even steady flow of water over a filter area. Air passing through this area is purified, cooled and circulated back into the room through the top without causing any direct drafts. If desired a little perfume or deodorant may be added to the water to help dispel persistent odors. In the winter the unit may be placed near a heating outlet to circulate and hu-

midify warm air. Silent operation is provided by means of a rubberized exterior coating.

Manufacturer: M. D. Pure Air-Conditioning Div., Aluma-loyn Engineering Co., 1000 Pepper St., Bloomington, Calif.

SQUARE AIR DIFFUSER gives circular air pattern.

A successful square-peg-round-hole venture, the new Type E Anemostat has the straight lines which are so readily assimilated into contemporary architecture and also offers the 360° equal air distribution heretofore obtainable only from round diffusers. (See photograph of smoke test.) Installed flush, it fits readily into standard 12, 18 or 24 in. square acoustic tile or egg-crate ceilings. A simple snap-on method permits instant removal or insertion of the complete inner assembly together with equalizing deflector. Like circular Anemostats, the square unit provides 35 per cent aspiration. Room air, equal to more than one-third the volume of the supply air, is drawn into the diffuser where it is mixed with the supply air before passing slowly into the



Want *Better* RUST PREVENTION THAN RED LEAD ?

Actually more resistance to weather and chemicals than red lead . . . a tighter clinging bond that even penetrates rust! Yet Sonneborn S.R.P. (Sure Rust Prevention) is a third cheaper than good red lead paint!

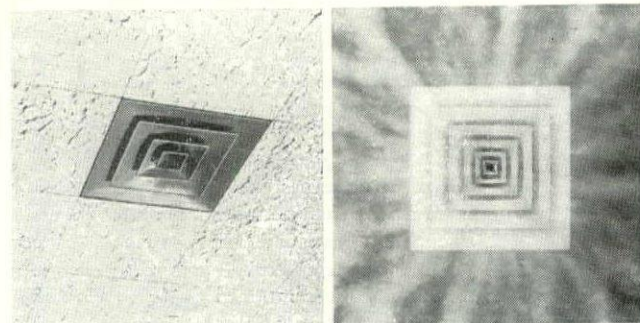
Extreme exposure conditions that destroy red lead have no effect on S.R.P. You can safely use it for temperatures up to 250°. Acrid, corrosive fumes and most industrial chemicals have no effect on S.R.P. In cold brine immersion tests, S.R.P. prevented corrosion 2½ times longer than red lead. What's more, there's no danger of lead poisoning—S.R.P. is non-toxic.

Literally double protection, too . . . the rust prevention is in both primer and finish coats . . . both S.R.P. formulas. Not just red, either—you can pick any of 7 decorative colors. S.R.P. is just one of Sonneborn's many tough-problem paints.

If you have a tough problem in protective painting, concrete treatment or dampproofing, call in your Sonneborn Man. Chances are, he has the answers, or can get them for you. If you don't have his name, write us your problem direct.

L. SONNEBORN SONS, INC.

BUILDING PRODUCTS DIVISION
80 EIGHTH AVENUE, NEW YORK 11, N. Y.

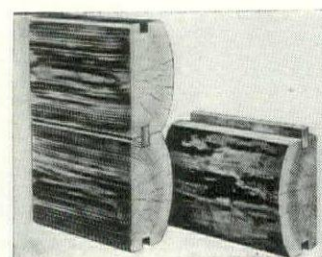


room in a series of multiple planes. This aspiration effect assures complete air distribution without drafts or stale air pockets. Type E Anemostats, available in nine neck diameters from 4 to 14 in., list at about the same prices as the Type C circular Anemostats, ranging from \$12 for the smaller sizes to \$55 for the larger units.

Manufacturer: Anemostat Corp. of America, 10 E. 39th St., New York 16, N. Y.

PRE-CUT DOUGLAS FIR BUILDING LOGS serve both as exterior and interior surfaces.

Adaptable for rustic homes as well as drive-ins, motels, lodges and recreation centers, these building logs are square-cut on three surfaces with grooves on top and bottom to receive a wooden spline or key. The bark is peeled and the outside surface treated to resist discoloration, termites, weathering and dry rot. The inside surface is planed smooth to form natural wood paneling interior surface. For decorative effects, the logs may be combined with other materials. Walls are reported to be simple and fast to lay up, and the 5½ in. thickness provides good insulation. The logs are available through authorized dealers.



Information: Log Structures of the Southwest, Inc., 344 W. Colorado Blvd., Glendale 4, Calif.

(Continued on page 156)

Kno-Draft

adjustable air diffusers

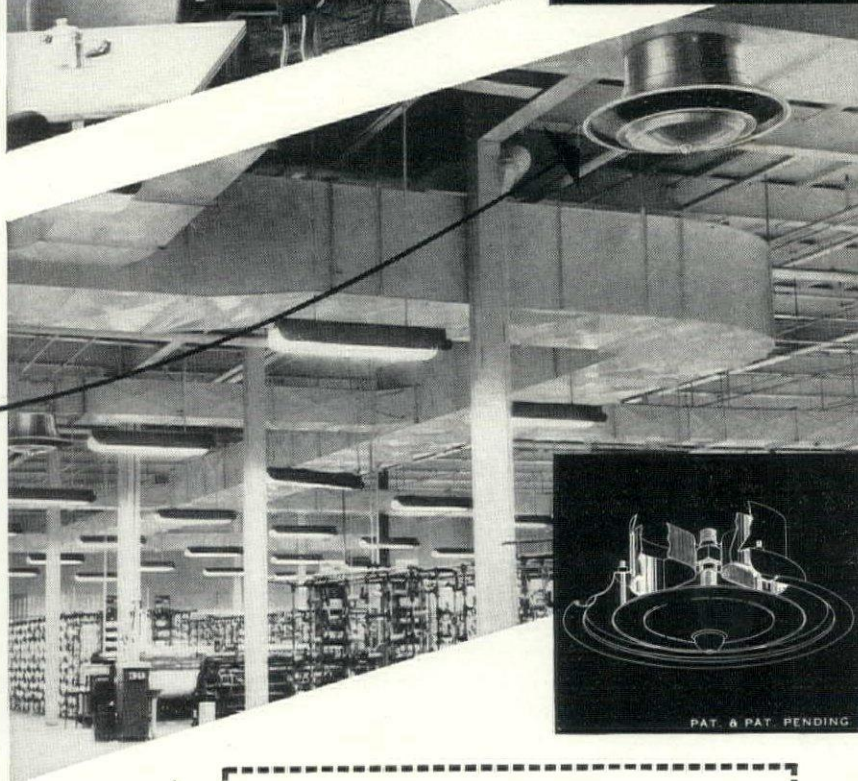
for appearance

The simple, unobtrusive design of the Kno-Draft Diffusers blends with either modern or period interiors. In original aluminum, as shown here in the new Maas Brothers Department Store in St. Petersburg, Florida, they create a minor decorative accent. When painted, they merge with the ceiling.



for performance

Air volume and direction adjustments on each Kno-Draft Diffuser provide "custom-made" air patterns to fit the requirements of customers, personnel or industrial processes. These Kno-Draft Diffusers in the American Viscose Plant at Front Royal, Virginia, were adjusted after installation to suit the final layout and process in each area of the plant.



FREE HANDBOOK: Send for your copy of our new handbook on air diffusion. Contains complete information on Kno-Draft Adjustable Air Diffusers and all necessary engineering data to help you create "custom-made" air patterns. Just fill in and mail the coupon.

W. B. CONNOR ENGINEERING CORP.

Air Diffusion • Air Purification • Air Recovery

112 East 32nd Street  New York 16, N.Y.

IN CANADA: Douglas Engineering Co., Ltd., 190 Murray Street, Montreal 3, P. Q.

W. B. CONNOR ENGINEERING CORP.

Dept. 130, 112 East 32nd Street, New York 16, New York

Please send my FREE copy of the new Kno-Draft Handbook on Adjustable Diffusers.

Name.....

Position.....

Company.....

Street.....

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



NEW BOILERS, FURNACES and combination heating-water unit for kitchen installation are introduced by Timken.

In addition to an economy line of "Duty Designed" heating units for small home installations, Timken Silent Automatic Division has recently introduced a new combination house heating and domestic hot water unit for kitchen installation. Designed to satisfy all the heat and water requirements of a four or five room house, this unit eliminates the need for a utility room and provides additional counter height work space in the kitchen. It combines an oil-fired, house-heating boiler, instantaneous domestic water heater, expansion tank, motorized circulating pump, tempering valve and complete automatic controls. It is finished in gleaming white and has a stainless steel work top surface. The new unit, built in two capacities, is priced for the small home builder market. The

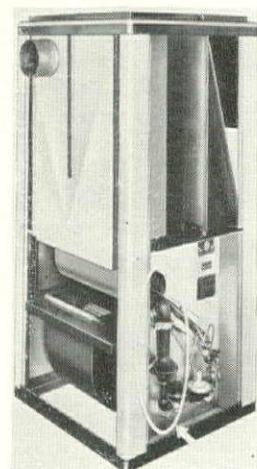
smaller model occupies a floor area 25 x 30 in., the larger unit 36 x 36 in.

The new "Duty-Designed" line includes both Hi- and Lo-boilers, Hi-furnaces, coil and tank type water heaters as well as standard design oil furnaces. Built especially for use where installation space is at a premium, the new boilers combine a wall-flame oil burner, heating boiler, expansion tank and domestic water heater in one compact unit. They are shipped complete with the combination water heater and expansion tank mounted over the boiler. The new Hi-furnaces incorporate the wall-flame oil burner, furnace, blower, air filters and optional humidifier in a compact cabinet. These units are described as exceptionally quiet, compact and economical because they operate at unusually low oil rates. Assembled and wired at the factory, Hi-furnaces are shipped ready for connection to service lines.

Manufacturer: Timken Silent Automatic Division, Timken-Detroit Axle Co., Jackson, Mich.

GAS UNIT has single orifice burner outside combustion chamber to prevent fouling by dirt or oxidation.

This new ASA approved, 85,000 Btu input winter air-conditioner uses natural manufactured, mixed or L-P gas. Features of the unit are snap-action thermal control automatic pilot and shut-off, a Minneapolis-Honeywell thermostat, combination fan and limit control, and a vent in the combustion chamber to prevent trapping of unburned gas. The Mono-Jet burner, located outside the chamber, is guaranteed for life. Pre-

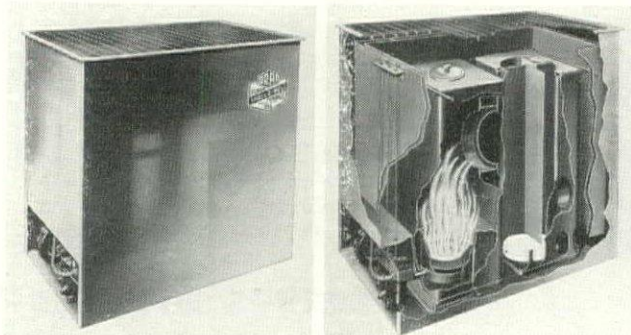


assembled, the complete system measures 27 in. x 30 in. x 62 in. It retails for \$300 not including installation.

Manufacturer: Bard Manufacturing Co., Bryan, Ohio.

OIL-FIRED FLOOR FURNACE has aluminized steel in combustion assembly for better heat diffusion.

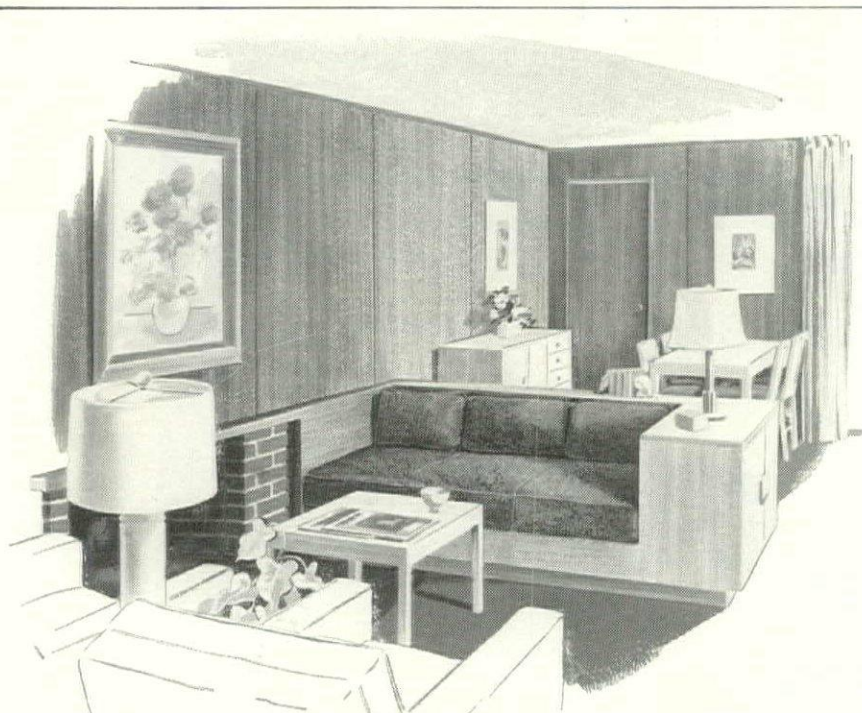
Standing less than 3 ft. high, Oran's new model O-70 Super has a Btu rating of 70,000—about 20,000 higher than the usual shallow furnace. Forced draft fan and completely automatic controls are features of this model, in addition to



a cold air return which draws cold air from hard-to-heat areas. Underwriters' approved, the O-70 sells for \$219.50.

Manufacturer: Oran Co., 2232 S. Third St., Columbus 7, Ohio.

(Continued on page 158)



New Patterns—New Beauty—New Ideas

To give your clients smart, luxurious interiors at big savings, specify the distinctive new Wood and Marble Patterns now available in Marlite plastic-finished wall and ceiling panels. Here's all the warm beauty of fine finished woods, the stately grandeur of imported marbles—plus economy of installation and maintenance. Marsh harmonizing mouldings are available in Aluminum Alloy and Presdwood for both Wood and Marble Patterns.

See Sweet's Architectural File for details on the wide range of Marlite sizes, colors, and patterns.

FOR CREATING BEAUTIFUL INTERIORS

- New construction or modernization
- Easy to install—easy to clean
- Never needs refinishing
- Sold nationally by leading lumber and building material dealers



demand **DETROIT CERTIFIED CONTROLS**



designed right
built right
proven right



When you install **DETROIT** Certified Controls you are providing your customers with the best in control equipment. **DETROIT** Certified Controls are designed and built to fit your customer's needs—giving real economy and reliability through years of trouble-free service. This is true of the entire **DETROIT** line, one of the most complete in the heating field. Add to this the fact **DETROIT** has been famous for quality for over 70 years and you have

an unbeatable combination. But **DETROIT** goes even further, certifying every control in its line—backing you, your work and your reputation. For helpful information on ordering and installing **DETROIT** Certified Controls, on oil and gas heating units, send for the colorful **DETROIT** Catalogs today.

DETROIT

LUBRICATOR COMPANY

5900 TRUMBULL AVE., DETROIT 8, MICHIGAN

Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

CANADIAN REPRESENTATIVE: RAILWAY & ENGINEERING SPECIALTIES, LTD.—MONTREAL, TORONTO, WINNIPEG



No. 300

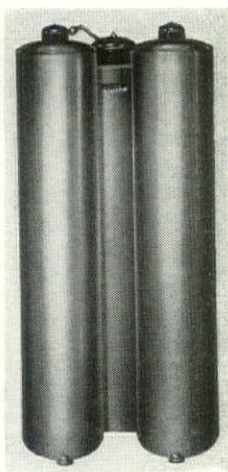
DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIPMENT • **DETROIT** EXPANSION VALVES AND REFRIGERATION ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS



No. 861

"**DETROIT**" Ideal Fast Venting Systems—For automatic low pressure one pipe steam systems. The No. 300 Adjustable Multiport Valve for radiators enables you to speed slow heating radiators—get heat quicker from all radiators simultaneously. No. 861 Hurivent for mains provides full 1/2" diameter port. Will vent 130 feet of 2" main in 30 seconds at only 4 ounces pressure. This system saves fuel, improves comfort and speeds up sluggish one pipe jobs. Write for Bulletin No. 166.

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



TWO TANK UNIT softens water and removes sediment and impurities.

Crane Co.'s Softenall, equipped with high capacity zeolite, softens the hardest water and at the same time removes iron, manganese, and sediment found in ordinary water supplies. The zeolite may be regenerated indefinitely and will not need replacement for the life of the installation. Regeneration of the Softenall is accomplished by a single-lever master control valve. The salt brine tank holds enough salt for at least six regenerations. Model CS-30, with a 30,000 grain unit softening capacity, sells for \$192. The CS-45 having a capacity of 45,000 grains, lists at \$252. Prices of the CS-60 and CS-90, having 60,000 and 90,000 capacities respectively, are \$288 and \$342. Compactly built, the largest unit requires floor space of only 22 x 38 in.; the smallest 16 x 26 in. Over-

NEW!



A complete Package Boiler for small homes—only 24 in. x 18 in. and 36 in. high! Available for all types of gas...for all types of hot water heating systems.

A Famous Name Comes to the Home Heating Field...

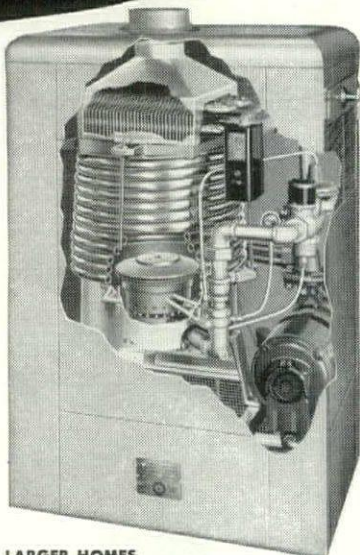
A.O. Smith FORCED-CIRCULATION, GAS-FIRED Hot Water Boiler

A complete package unit with all controls, ready to install, the A. O. Smith Boiler is exceptionally compact and lightweight—it has no cast-iron sections. All parts in contact with water are copper, brass, or bronze, for lifetime protection.

INSTANT RESPONSE—even to distant points in extended ranch-type houses. The A. O. Smith Boiler silently speeds an abundance of hot water to all parts of the heating system in *seconds*.

MAGIC-HEET CONTROL, plus the noiseless Modulator Burner, turns the gas flame up or down. It is *never* necessary to use more gas than the actual amount required to compensate for normal heat loss. Standby losses are cut to almost nothing!

SEND THE COUPON for complete specifications today.



FOR LARGER HOMES, and commercial installations, A. O. Smith Boilers up to 12 rooms' capacity.

SMITHWAY-BURKAY GAS CONVERSION BURNER

Compact 63-lb. package, with patented Modulator Burner. Now available with the revolutionary new Magic-Heat Control. Send coupon for details.



A. O. Smith Corporation
New York 17 • Atlanta 3
Chicago 4 • Houston 2
Seattle 1 • Los Angeles 14
International Division:
Milwaukee 1

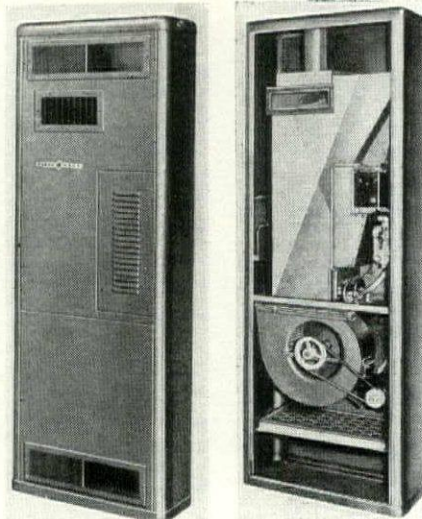
A. O. Smith Corp., Dept. AF-949, Toledo 7, O.
Send us complete specifications on
☐ A. O. Smith Boilers
☐ Smithway-Burkay Gas Conversion Burners
Name _____
Firm _____
Street _____
City _____ State _____

all heights vary from 52 to 55 in. Filters, neutralizers and purifiers are available.

Manufacturer: Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.

PACKAGED GAS-FIRED AIR-CONDITIONING FURNACE can function as a utility furnace or space heater.

Norge Heat has announced its re-entry into the gas heating industry with the presentation of a completely new, packaged, automatic gas furnace known as Model GHF 625. Measuring only 12 1/4 in. deep, 32 in. wide and 88 in. high, this new unit occupies less than 3 sq. ft. of floor space yet has an

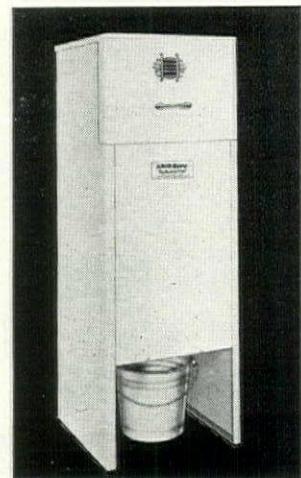


input capacity of 62,500 Btus, or an output of 50,000 Btus. It can be safely installed almost anywhere—in the wall between studs, in the utility room, closet, or basement, and may be used as either a forced air space heater or a blower driven furnace with ducts connected to the built-in plenum chamber. The new winter air conditioner features a one-piece, 12 gauge steel combustion chamber and heat exchanger and comes equipped with 100 per cent safety shut-off controls. Thermostatic operation is automatic. The silently operating, dynamically balanced blower delivers 450 to 600 c.f.m. against 0.2 static. It also provides filtered air circulation in summer. The new unit is fully approved by AGA for natural, manufactured and LP gas and meets specifications for furnaces that can be set on floors of combustible material. It retails for \$300, excluding installation.

Manufacturer: Norge Heat Div., Borg-Warner Corp., Detroit 26, Mich.

DEHUMIDIFIER removes excess moisture from 4,000 cu. ft. enclosure.

Arid-Aire is a new electrically powered dehumidifier for removing excessive moisture from basements, recreation rooms and storage areas. Of sufficient capacity to control excess moisture in a 4,000 cu. ft. enclosure, the unit employs calcium chloride flakes as its basic dehumidifying agent. Moisture laden room air is pulled into the unit from the floor area through a filter bed of coarse carbon that is saturated with calcium chloride solution. It then passes around a mesh hopper containing the flakes. Dehumidified air is forced out of the top by a motor driven centrifugal blower. Extracted



(Continued on page 160)



Lightweight, durable Bundyweld Tubing, supplied with one end expanded, is easily soldered or silver-brazed into a leakproof union.



Bundyweld... top choice for better radiant heating

Bundyweld* Steel Tubing is becoming the top choice of builders everywhere for radiant heating installations.

With good reason, too.

For it brings top performance to any radiant heating system . . . performance that no other tubing can match because no other tubing offers all the advantages Bundyweld does.

It's the only tubing that's *double-walled from a single strip*, a patented manufacturing process which gives it thinner walls, hence maximum heat conductivity. Ductile and easily formed, it still has the ruggedness to withstand the crushing and denting normally encountered in softer materials.

Bundyweld may be supplied with expanded ends, and can be readily soldered or silver-brazed. The ease with which it

can be formed on the job eliminates the need for expensive bending fixtures . . . helps cut time and labor costs in installation. Still, with all its advantages, Bundyweld is surprisingly low in cost. It's available for immediate delivery in sizes up to $\frac{5}{8}$ " O.D., in quantities to meet any job requirements.

For further information on the use of Bundyweld in radiant heating applications, write to: *Bundy Tubing Company, Detroit 14, Michigan.*

BUNDY TUBING



WHY BUNDYWELD IS BETTER TUBING



1 Bundyweld Tubing, made by a patented process, is entirely different from any other tubing. It starts as a single strip of basic metal, coated with a bonding metal.



2 This strip is continuously rolled twice laterally into tubular form. Walls of uniform thickness and concentricity are assured by close-tolerance, cold-rolled strip.



3 Next, a heating process fuses bonding metal to basic metal. Cooled, the double walls have become a strong ductile tube, free from scale, held to close dimensions.



4 Bundyweld comes in standard sizes, up to $\frac{5}{8}$ " O.D., in steel (copper or tin coated), Monel or nickel. For tubing of other sizes or metals, call or write Bundy.

condensate drips into a container which is supplied with the unit. Arid-Aire comes ready to plug into any ordinary 120 v. convenience outlet. It lists at \$59.95 f.o.b. Indianapolis.

Manufacturer: Air Appliances Co., P. O. Box 5487, Indianapolis, Ind.

CORRUGATED EXPANSION JOINT is ideally suited for use in difficult-to-service locations.

Rounding out Adsco's already wide line of slip and diaphragm types of packless joints designed to absorb expansion and contraction in steam, liquid and gas pipe lines is the Corruflex. This expansion joint is available in sizes from 3 to 24 in., single or multiple corrugation, with or without self-equalizing rings, in single or double units. It is supplied

in copper, stainless steel or other alloys and with internal sleeves if required. The traverse of the Corruflex ranges from fractions of an inch to 15 in., and will operate under pressures from vacuum to 300 lbs. and temperatures from sub-zero to 1,600° F. The copper Corruflex pictured has a 6 in. diameter, with cast iron flanges and rings. More economical installations are possible with the Corruflex, claims the manufacturer, because its compactness permits its use in trenches, tunnels or other odd spaces.

Manufacturer: American District Steam Co., North Tonawanda, N. Y.

NEW RESIDENTIAL GAS-FIRED BOILERS AND AIR-CONDITIONERS are added to York-Shipley line.

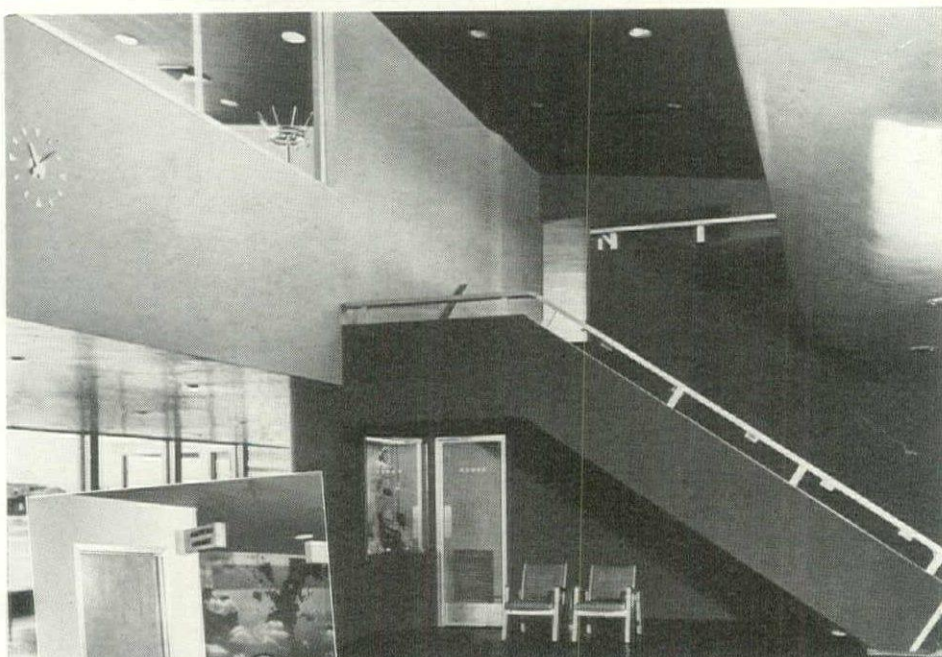
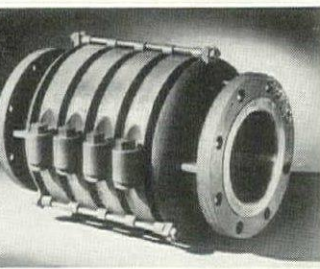
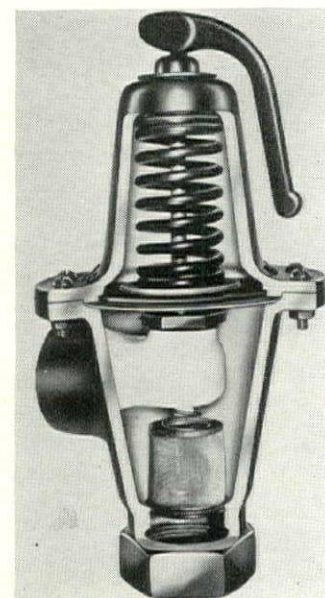
With the addition of five new gas-fired boilers and nine warm air heating units, York-Shipley is now offering 34 pieces of home heating equipment in addition to its line of industrial oil and gas fired equipment. The new boilers, available for steam, hot water or vapor heating applications, range in capacity from 350 to 970 sq. ft. of AGA rating of standing steam radiation. They have cast iron boiler sections, built in accordance with the A.S.M.E. code, and their burners can be furnished for manufactured, natural, or mixed gas. In the new warm air line, three different types of equipment are being produced for use with all of the above mentioned gases plus butane-propane. Four new Lo-Boy winter air-conditioners ranging in capacity from 56,000 to 168,000 Btus per hr. at the bonnet, two Hi-Boy conditioners with capacities of 56,000 and 84,000 Btus and three models of gravity warm air furnaces ranging in capacities from 52,500 to 105,000 Btus per hr. at the bonnet comprise this line. All of the warm air units have steel heat exchangers. Each of the 14 new pieces of equipment carry the AGA seal of approval.

Manufacturer: York-Shipley, Inc., York Pa.

COMBINATION SAFETY AND RELIEF VALVE has strainer to keep foreign matter from lodging in valve seat.

Since it is impractical to remove all foreign matter such as pipe chips, etc., from a heating system, Perrin-Paus has developed the B & G safety and relief valve with a mesh strainer which permits the valve to operate even though the strainer might be completely filled with refuse. Shaped like an upside down basket, the No. 300's strainer allows the foreign matter to drop back into the boiler. The valve has a capacity of 318,000 Btu per hr. and bears the A.S.M.E. clover leaf. At low flow, it discharges about 10 gal. of water per hr. When wide open and with 30 lbs. at the inlet of the valve, it will discharge 7 gal. per min. or 420 per hr. With 33 lb. pressure it will discharge 11¼ gal. per min.

Manufacturer: Perrin Paus Co., 8 S. Michigan Ave., Chicago 3, Ill.



St. Joseph County Airport, South Bend, Indiana. V. F. Fagan and Frank Montana, Design Archts.; Roy Worden & Associates, Construction Archts.

LIQUID VELVET highlights this DRAMATIC INTERIOR



America's newest airport terminal building offers a striking example of the dramatic use of color in modern interiors. Liquid Velvet, America's finest washable flat wall finish assures maximum beauty and protection on all types of commercial and residential work. Many colors, tints, and deep colors are shown in the O'Brien Architects Color Manual. *Specify Liquid Velvet for fine interiors!*

MADE BY THE MAKERS OF FAMOUS

Top Quality

Since 1875

O'BRIEN PAINTS

SEND FOR O'BRIEN COLOR MANUAL. Full-page swatches—over 100 standard and easily-mixed Liquid Velvet colors—exact mixing instructions. See O'Brien Dealer or send \$1.50 to O'Brien Corporation, Dept. A-9, South Bend 21, Indiana.

BLONDE WOOD finish (O'Brien's Penchrome) controls color of natural wood for better harmony.



INTERESTING CONTRASTS with warm grey ceiling, rich, deep green and bright yellow on walls.

*Made with
WHEELING
Expanded Metal
at low cost...*

A Distinctive Store Front

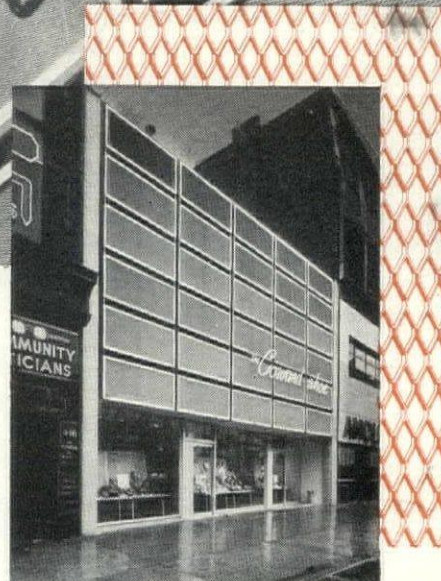


Sanders and Malsin, Architects

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

ExM panels, shipped cut to size, framed and painted by Wheeling, were installed by two men in a day. Total cost was nearly $\frac{1}{3}$ less than any alternate type of treatment. A feature is the ease of mounting special store front displays attached to the rigid mesh, or even by substituting other panels bolted to the supporting steel.

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



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

WHEELING CORRUGATING COMPANY **WHEELING, WEST VIRGINIA**

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



BUILDING REPORTER



STREAMLINED VERSION OF LAUNDROMAT automatic washer sells for \$80 less than deluxe model.

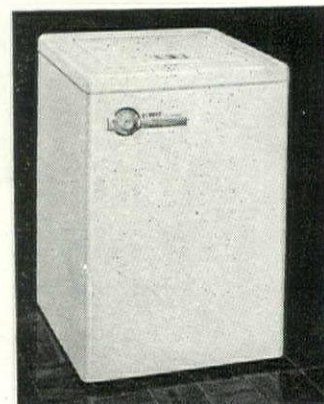
Having the identical washing cycle and self-cleaning action, sloping front for easy loading and unloading and single dial control as the deluxe Laundromat, the recently introduced RL-1 will retail for approximately \$220. Designed to be bolted down for permanent installation, this new entirely automatic Westinghouse washer retains the deluxe model's sealed-in-steel transmission with a five-year guarantee. By means of the single dial control which selects washing time and water temperature at one setting, any part of the washing cycle can be stopped, started or repeated.

Manufacturer: Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa.

AUTOMATIC WASHER has flexible tub and plastic agitator, needs no floor fastening.

Besides its attractive price of \$179.95, the Bendix Economat features a really new type of washing action. A plastic agitator works in conjunction with a dynamically shaped metalexaloy tub to create a powerful undertow sudsing action. At the end of the washing period a pump extracts the air from the top of the tub. As air is exhausted through the hollow centerpost of the agitator, atmospheric pressure causes the flexible tub walls to close in from all sides forcing dirty suds and water up, then down through the agitator. Simultaneously, sediment which has settled is flushed out through the bottom of the tub, and so dirty water never strains through the clothes. Vacuum pressure is then exerted evenly by the tub to "squeeze dry" the clothes without causing deep wrinkles in them. Its pliability makes the soft but durable metalexaloy tub more resistant to abrasion than steel or aluminum. Since no spinning action requiring balancing and leveling is involved, the 164 lb. Economat may be set on casters for convenient placement while in use and for easy storage.

Manufacturer: Bendix Home Appliances, Inc., 3300 W. Sample St., South Bend 24, Ind.



HASTINGS alumitile IS THE ANSWER!

SOLVE YOUR STRUCTURAL PROBLEMS WITH THIS AMAZING NEW WALL TILE!



HASTINGS ALUMITILE OFFERS YOU quality, permanence and dependability in a lustrous modern wall covering that can be easily and quickly applied to any flat surface. Properly installed, it becomes an integral part of the wall itself, proof against fire, water, rust, heat and cold.

HASTINGS ALUMITILE CAN SAVE YOU tons of structural weight, hundreds of man hours of labor and thousands of dollars. Fabricated of sturdy aircraft aluminum, it is remarkably low in price, easy to handle and fast to install. Yet it holds all of the advantages of conventional wall tile.

HASTINGS ALUMITILE COMES in 15 vital decorator colors for interior use and 7 specially embossed color finishes for exterior use. It offers a wide range of distinctive designs and unlimited possibilities for residential and commercial installations.

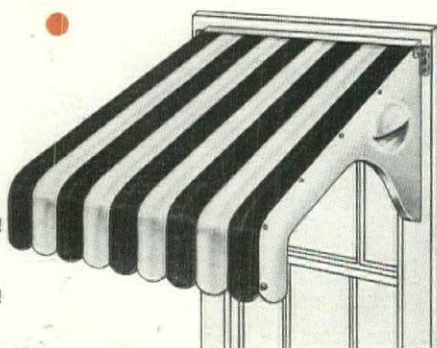
and HASTINGS alumi SHIELD

Awnings will complete the job!

WINDPROOF! WEATHERPROOF! FIREPROOF!

Alumi-SHIELD Awnings are built for a lifetime of comfort, beauty and service. They will not sag, tear, rot, rust or flap noisily in the wind. Well designed louvers in the side panels guarantee adequate cooling and ventilation without weakening the structure or adding unnecessary weight. Interchangeable units in choice of colors allow wide latitude for color combinations — and this interlocking strip design means that the awnings can be tailored to fit individual window and door openings. The method of assembly is so simple that full installation can be made in a matter of minutes.

For complete data see Sweet's File or MAIL THE COUPON for the story of alumitile and our amazingly priced awning.



Metal Tile Products, Inc., Hastings, Mich.

Please send me complete data on Alumitile and your Alumi-Shield Awnings, without obligation.

Name

Business

Address

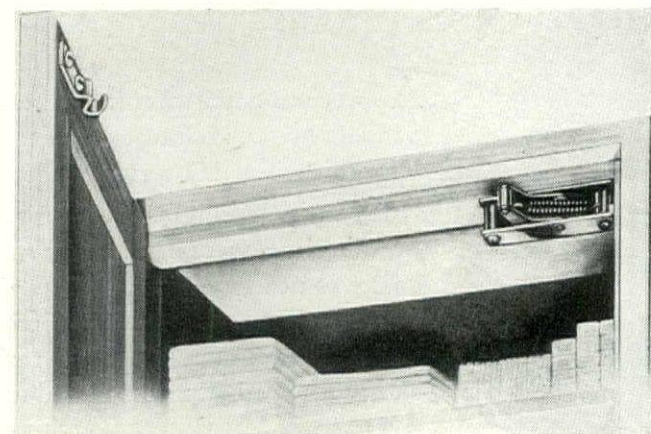
City State

METAL TILE PRODUCTS, INC.

HASTINGS, MICHIGAN

EASILY INSTALLED DOOR CATCH keeps all doors tightly closed.

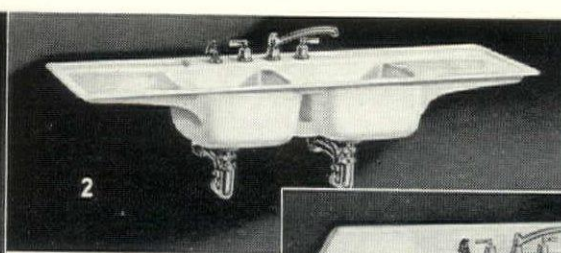
Snugger, as this new maintenance-free, easily installed catch is known, keeps cabinet, cupboard, closet and all types of doors, even warped doors, shut tightly. The new hardware consists of a housed keeper actuated by a sturdy steel spring, and a hook. The housing attaches to the inside of the door



frame: the hook on the door itself. When the door is open, Snugger's keeper finger extends from the housing $\frac{1}{2}$ in. ready to grab the hook on the door as it approaches with one positive strong pull. Installation requires only a few minutes work with a screwdriver. All that is needed on a Snugger-equipped door is a pull knob on the outside for opening. Different size catches are available to accommodate every door.

Manufacturer: Casement Hardware Co., 406 N. Wood St., Chicago, Ill.

(Continued on page 164)



A line to fit every home KOHLER Enameled Iron FIXTURES

WHATEVER your clients want, in capacity, and convenience, this line of Kohler sinks, sinks and tray, and laundry trays, will provide—together with the lasting satisfaction identified with the name Kohler. Each sink is of nonflexing iron, cast for rugged strength and rigidity—

the ideal base for the lustrous, durable surface of pure white Kohler enamel, which is thoroughly acid-resisting. Remind your clients, too, that Kohler fixtures deserve Kohler chromium plated brass fittings. Kohler Co., Dept. 14-H, Kohler, Wisconsin.

1. WILSHIRE K-5505-A. Double drainboard, double compartment ledge sink on cabinet, 60x25", 72x25". K-8605 fitting with lever-control sprayer and 2 Duostrainers.

2. CLEARFIELD K-5520-A. Double drainboard, double compartment flat rim ledge sink for building-in. 60x21". K-8605 fitting with lever-control sprayer and 2 Duostrainers.

3. CAMBERLEY K-5555-A. Double drainboard, single compartment ledge sink on cabinet. 54x25", 60x25". K-8605 fitting with lever-control sprayer and Duostrainer.

4. WINFIELD K-5560-A. Double drainboard, single compartment flat rim ledge sink for building-in. 54x21". K-8605 fitting with lever-control sprayer and Duostrainer.

5. CYMBRIA K-5576-A. Single drainboard, single compartment, ledge sink. 42x25". K-8605 fitting with lever-control sprayer and Duostrainer. Sink at left, K-5575-A.

6. CHATFIELD K-5580-A. Single drainboard, single compartment, flat rim ledge sink for building-in. 42x21". K-8605 fitting. Sink at left, K-5579-A.

7. WELLWIN K-5595-A. Double compartment ledge sink on cabinet. 42x25". K-8605 fitting with lever-control sprayer and 2 Duostrainers.

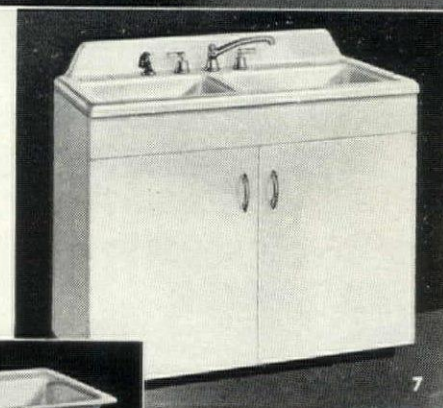
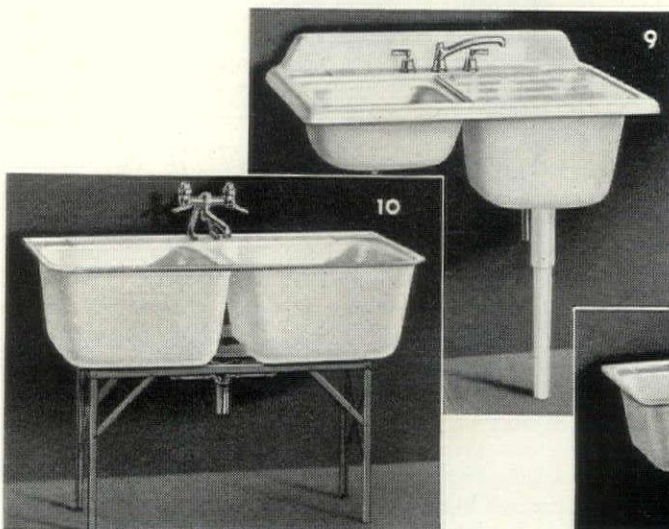
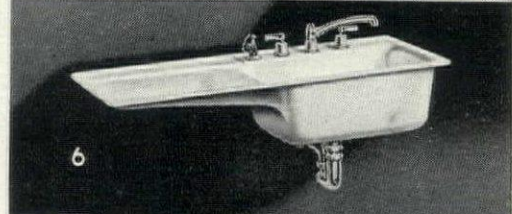
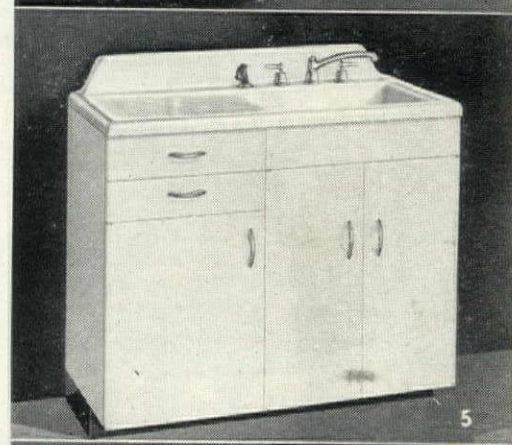
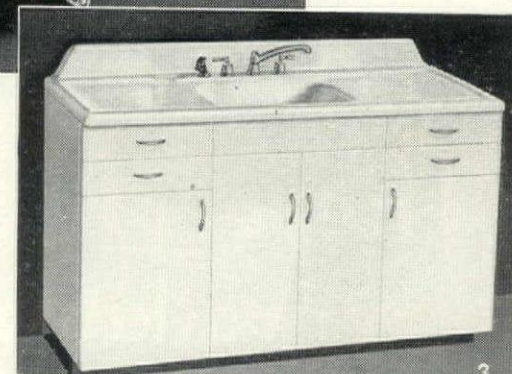
8. DELAFIELD K-5610-A. Double compartment flat rim ledge sink for building-in. 32x21", 42x21". K-8605 fitting with lever-control sprayer and 2 Duostrainers.

9. SEA CLIFF K-6909-A. Ledge sink and tray with movable cover and enameled leg. 42x25". K-8601 fitting with Duostrainer for sink compartment. Sink at right, K-6610-A.

10. TWIN FALLS K-6750-A. Double compartment shelf laundry tray on angle iron support. Length over rim 48". Width over rim 25". K-8948 swing spout faucet.

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS



There *is*
available a
Fully
Guaranteed
hollow core
flush door
The
PAINE
REZO

T. M. REGISTERED

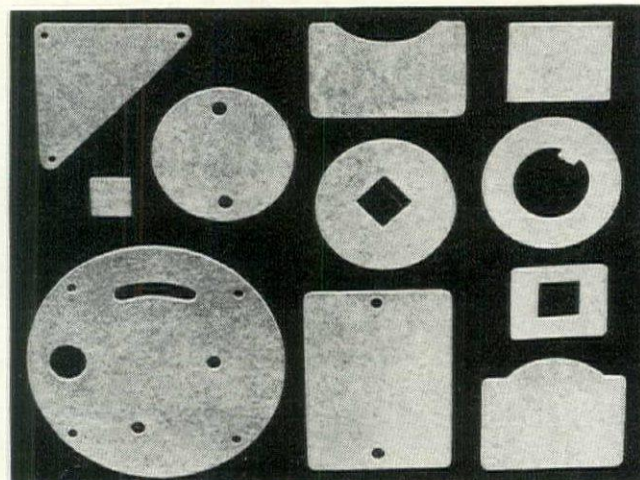
Made entirely of wood, by the world's largest producer of flush doors, this resin-bonded trouble-free door with the patented construction has been time-tried and time-proved by over three million installations in buildings of every type from coast to coast.

Rezo doors are now available
to all dealers.

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

FLEXBOARD OBTAINABLE IN PREFABRICATED SHAPES to meet requirements of manufacturers.

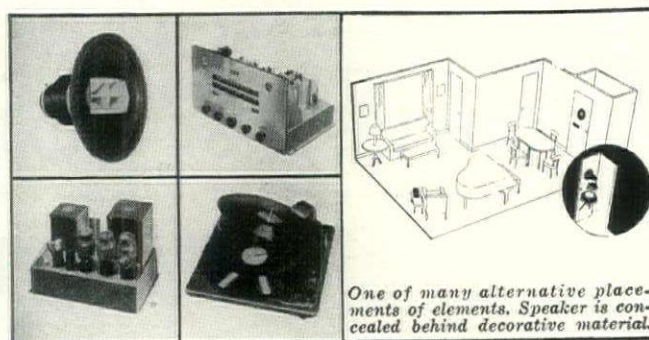
Already widely used in industry, Johns-Manville's asbestos fiber and cement composition, Flexboard, is now being prefabricated by the H. K. Metal Craft Mfg. Co. Since certain items of a single manufacturer will not always cut economically from the sheet, Flexboard users may find this company's facilities very practical. Also, they will no longer find it



necessary to store full-size sheets or install machinery for stamping, sawing, beveling or drilling.

Manufacturer: H. K. Metal Craft Mfg. Co., 3775 Tenth Ave., New York 34, N. Y.

(Continued on page 166)



One of many alternative placements of elements. Speaker is concealed behind decorative material.

AN IMPORTANT NEW SERVICE FOR YOUR MUSIC-MINDED CLIENTS

For clients who demand for their homes everything that modern science now contributes to more gracious living, the Altec Lansing home system, comprising AM-FM Radio-Phonograph with or without Television, makes available for the first time supremely high quality sound reproduction which today's commercial radio-phonograph cannot approach. Each unit of professional equipment is custom-installed in the wall, closet, door, book shelves or some other appropriate place designed into the

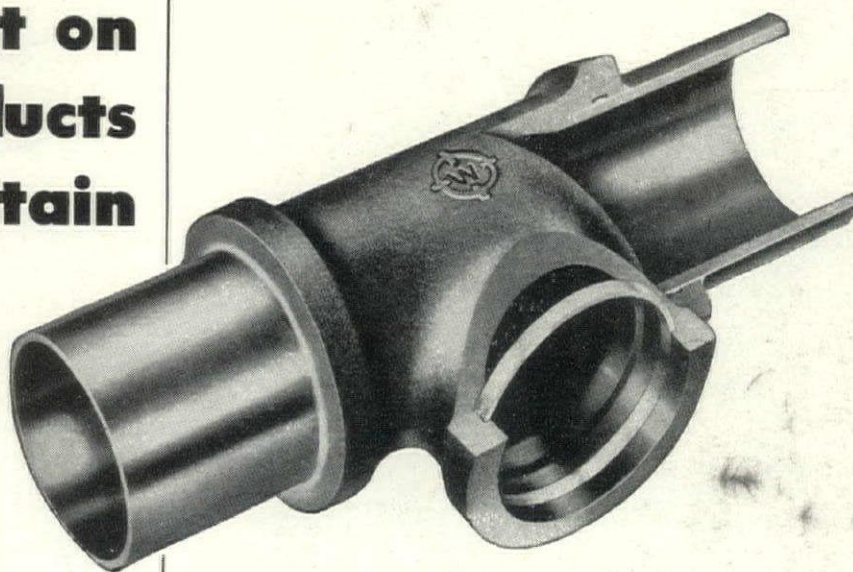
building by the architect. Cumbersome radio cabinets are eliminated. Price is surprisingly moderate, and installation is simplicity itself. Write for illustrated brochure showing how this sound system of tomorrow can be fitted into your architectural plans.



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1161 N. Vine St., Hollywood 38, Cal.

**DON'T BE SATISFIED
WITH HALF-WAY MEASURES...**

**insist on
Walseal® products
and be certain**



**— the FACTORY INSERTED Ring insures FULL PENETRATION
of the Silver Alloy . . . a perfect joint**

Today, contractors . . . builders . . . architects are using brazed connections, in ever increasing numbers on their brass and copper pipe runs. However, they must be certain that the correct brazing alloy is used; that the joint has penetration of alloy up the shoulder of the fitting.

That's why more and more are turning to Silbraz® joints made with Walseal valves, fittings and flanges which assure the proper amount of alloy with no waste. They know that the finished joint not only will withstand hydrostatic pressure, but it will also withstand terrific impact and vibration — in fact, no correctly made Silbraz joint has ever been known to creep or pull apart under any pressure,

shock, vibration or temperature which the pipe itself can withstand.

Furthermore, it is a relatively simple operation to make a Silbraz joint — no heavy scaffolding need be erected . . . just cut the pipe, flux, assemble, then braze, following the technique recommended by the Walworth Company. A silver brazing alloy — FACTORY INSERTED — in each port flows out when heated with the oxyacetylene torch, making a joint that is stronger than the pipe itself . . . a one-hand operation, with the mechanic out of the path of the deflected heat — at all times.

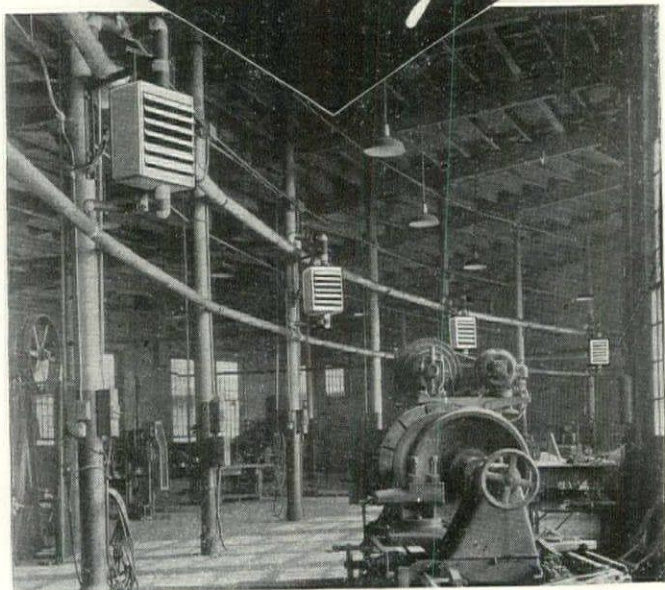
For full information about Silbraz joints made with Walseal products, write for Circular A-1.

WALWORTH
valves and fittings

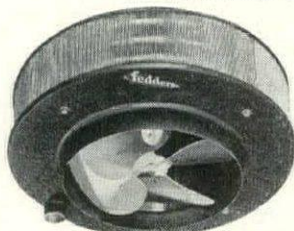
60 EAST 42nd STREET, NEW YORK 17, N. Y.

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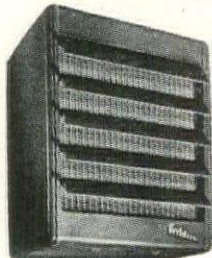
FOR **HIGH** OR
LOW
Ceilings



Showing installation of Fedders Unit Heaters in large railway maintenance machine shop.



Fedders Series 16 Downblow Unit Heaters available in capacities up to 2050 EDR.



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A Great Name Since 1896

fedders

● You will find it easier to standardize on the complete line of Fedders Horizontal and Downblow Unit Heaters for normal and high ceiling installations.

Customer satisfaction is spontaneous and contagious wherever Fedders Unit Heaters are installed. They meet the exacting conditions of industrial and commercial heating requirements everywhere.

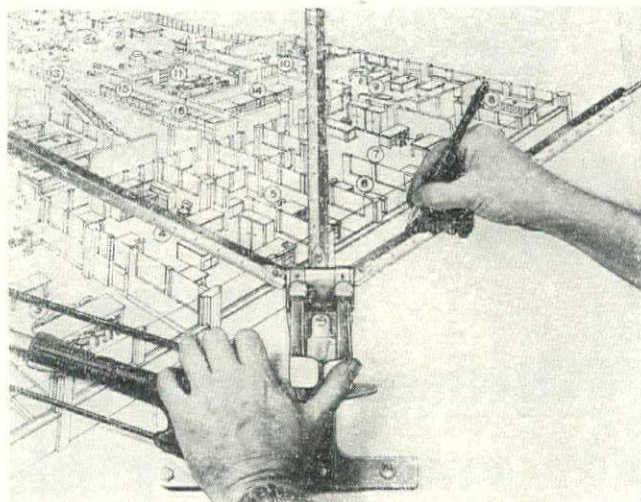
Whether ceilings are high or low specify Fedders.

WRITE FOR CATALOGS
FEDDERS-QUIGAN
CORPORATION

Dept. AF-H2
BUFFALO 7, N. Y.

DRAFTING INSTRUMENT SIMPLIFIES the drawing of perspective and isometric views.

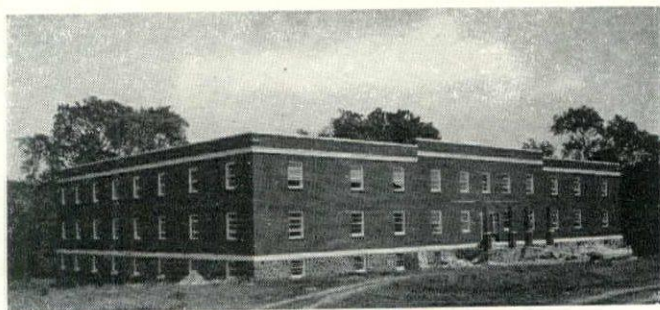
The Perspect-O-Metric is a very useful attachment to any standard drafting machine or parallel ruling straight edge. The new instrument automatically guides the draftsman's



pencil toward the established vanishing points from any position on the drawing board by means of three scale arms. To prevent scales from shifting, a left and a right brake lever are provided. The central arm remains perpendicular to the established base line. Special scales reduce distant portions of the subject to their correct proportions.

Manufacturer: Charles Bruning Co., Inc., 4700 Montrose Ave., Chicago 41, Ill. (Continued on page 168)

Another SCHOOL...



Another BEAUTEX Job

The high proportion of Keene Cement in Beautex Interior Plaster makes it stone hard and so smooth and dense that dirt and dust do not readily cling to it. Smudges can be easily removed with ordinary pencil eraser or the walls can be washed with soap and water without damage to finish or color.

Read what this contractor has to say about Beautex—

"I have just finished a job with Beautex Colored Plaster at the Lancaster Mennonite School. Beautex was very easy to work with and went on easily right over the dry brown coat and gives wonderful coverage. There was no variation in quality or color in the many bags I used on this job.

The School Board was extremely pleased to find that no painting or papering was needed and they appreciated how much Beautex saved in labor and the cost of other decorating materials. I know that their satisfaction will increase later because their Beautex walls will require no redecorating in spite of the wear and tear that school children hand out.

I have used and enthusiastically recommend Beautex for walls and ceilings in every type of structure from residences to public buildings."

Very truly yours,

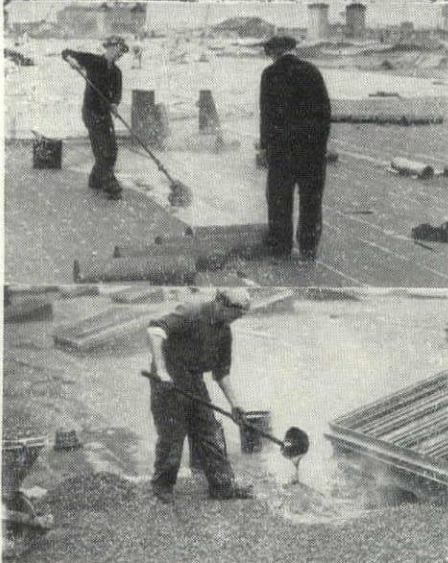
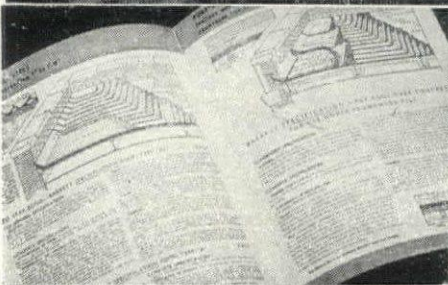
Write today for free chart of 9 permanent colors available.

BEAUTEX PLASTER COMPANY, Lebanon 7, Pa.

LORD & TAYLOR

BUILDS ANOTHER SUBURBAN STORE

BARRETT AGAIN PROVIDES THE ROOF



Latest of Lord & Taylor's new branch stores in suburban shopping centers is this handsome unit in Millburn, New Jersey. Like its predecessors in Manhasset and Westchester, it is modern inside and out, and has a Barrett* roof of coal-tar pitch and felt. Barrett Specification* Roofs carry Fire Underwriters' Class "A" rating, are the longest-lasting, best-value roofs that can be built, usually outlasting their 20-year guaranty by many years.

- 1 Barrett Specification* roofs are applied by Barrett Approved Roofers according to rigid Barrett specifications developed through years of successful roofing experience.
- 2 They are built up of alternate layers of finest grade coal-tar pitch and felt. Barrett* pitch, the *life-blood* of the roof, is impervious to water and unexcelled as a waterproofing agent.
- 3 Top quality felt of Barrett's own manufacture holds the pitch in place and permits the use of greater quantities of this waterproofing than would otherwise be possible.
- 4 Final steps are a triple-thick coating of pitch—*poured*, not mopped—plus an armored surface of gravel or slag. Result is a roof so good it can be bonded for 20 years.

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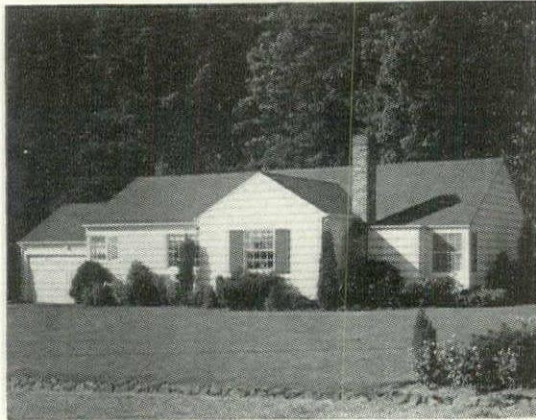
1327 Erie Street
Birmingham 8, Alabama

In Canada: The Barrett Company, Ltd.
5551 St. Hubert St., Montreal, P. Q.

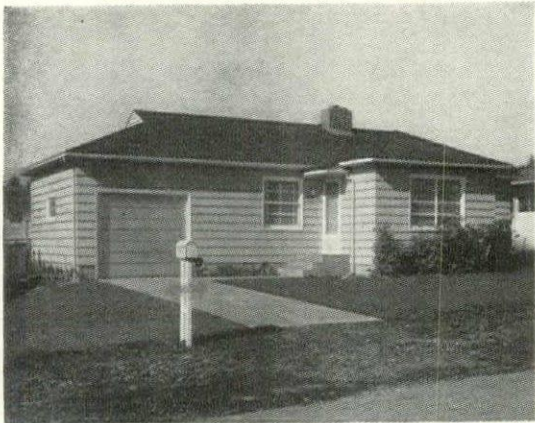


*Reg. U. S. Pat. Off.

LOVELY AND LOW COST



ECONOMY SIDINGS



• Architects and builders can beat high cost and get exteriors of distinction by specifying and using **ECONOMY SIDINGS**. They're lumber of sound knotted grades but provide the appearance and durability of more expensive materials plus low initial and maintenance costs. They are carefully milled and come in a variety of pleasing patterns.

Knots pose no paint problem when treated with Knot Sealer WP-578 (see below). **ECONOMY SIDINGS** look luxurious, paint easily and gracefully reflect through the years the charm designed and the comfort built into a home.

Western Pine **ECONOMY SIDINGS** promise homeowners rich satisfaction and pride in living there. They fight the battle of costs and help answer the riddle of how to satisfy good taste that must be gratified on a thin purse.

For helpful **FREE** literature on **ECONOMY SIDINGS** write Western Pine Association, Dept. 213-V, Yeon Bldg., Portland 4, Oregon.

• For further information refer to — 1949 Sweet's File, Architectural, Section 5a-4.

KNOTS ARE NOT A PAINT PROBLEM — when Knot Sealer WP-578 is used! Developed by Western Pine Association to prime knots and prevent paint failure, WP-578 has consistently outperformed all other sealers. It's made and distributed by 73 manufacturers from coast to coast. If your dealer does not have it, write Western Pine Association.

THESE ARE THE WESTERN PINES

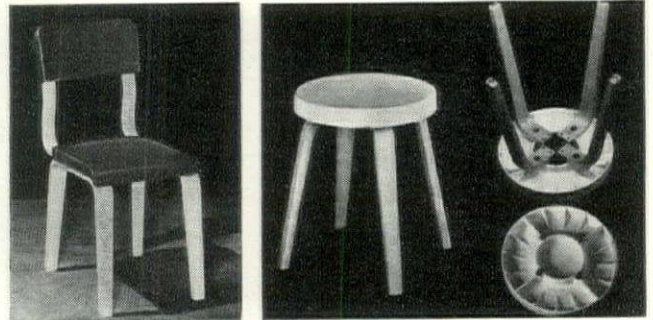
*IDAHO WHITE PINE
*PONDEROSA PINE
*SUGAR PINE

These are the Associated Woods

Larch • Douglas Fir • White Fir
Spruce • Cedar • Lodgepole Pine

PLASTIC ALL PURPOSE CHAIR stands indoor and outdoor use, can be wiped clean.

Thonet Bros., manufacturers of "Bentwood," "Tubular Steel" and "Laminated Wood" furniture, have recently introduced a new chair with molded plastic parts. Designed primarily for hotels, restaurants and institutions, this modern, func-

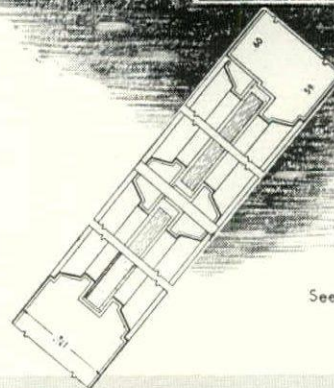


tional furniture piece is suitable for either indoor or outdoor use. The plastic back and seat are furnished in a selection of permanent colors that can be easily wiped clean with a wet rag. The legs and back supports, of laminated wood, are available in natural finish or enameled to match the colored plastic parts. Thonet's new chair is furnished with either straight or tapered legs. Another new product being offered by the company is a bathroom stool with a plastic seat and laminated wood legs.

Manufacturer: Thonet Bros., Inc., 1 Park Ave., New York, N. Y.
(Technical Literature, page 172)

Hollow

Metal



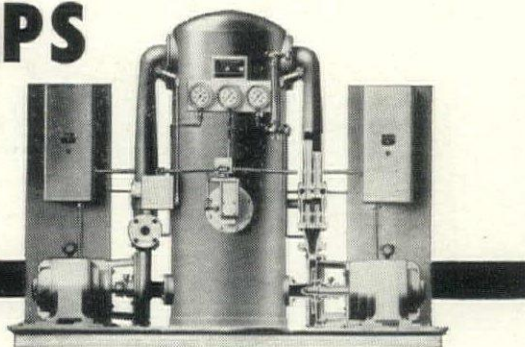
See Our Catalog in Sweet's

JAMESTOWN METAL CORPORATION

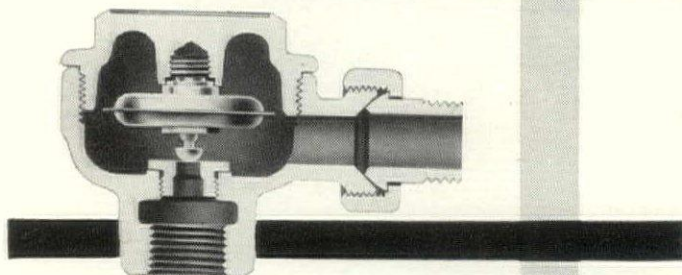
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From VACUUM PUMPS



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DUNHAM HEATING PRODUCTS

work better . . . last longer

Increase operating efficiency . . . cut operating costs

There's really nothing amazing about the consistently good performance of Dunham heating products. After all, they are engineered by heating specialists to do a specific job—and are ruggedly constructed to operate efficiently year after year with minimum maintenance.

Dunham Vacuum Pumps, for example, are specially designed to rapidly remove air and condensate. Installed in a heating system, they provide complete and positive steam circulation throughout the entire building. Available in a full range of sizes to meet the most varied heating demands, each Dunham pump is ready for operation on delivery.

Products Like These Help Dunham Differential Heating Cut Fuel Costs up to 40%
Yes, it's job-proved products like these that make Dunham Vari-Vac*... the heating system

selected for Fresh Meadows, Rochester General Hospital and other nationally famous buildings . . . the sensational buy it is today.

Whether your client's need is for a thermostatic trap for high pressure or low pressure applications, or for all the elements required to heat an entire building . . . it will pay you *and him* to investigate the Dunham line.

SEND FOR THIS CONDENSED CATALOG

Write today for your free copy of Bulletin 634B. See why value-wise architects, engineers and building owners are specifying and installing Dunham products. Contains complete information on Dunham steam specialties, unit heaters, pumps, cabinet and baseboard convectors.



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In Canada: C. A. Dunham Co., Ltd., Toronto.
In England: C. A. Dunham Co., Ltd., London.

*Variable vacuum

SALES ENGINEERS

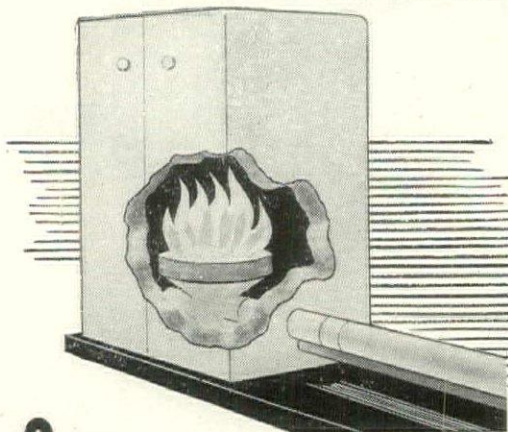


HEATING MEANS BETTER HEATING

AND JOBBERS IN ALL PRINCIPAL CITIES

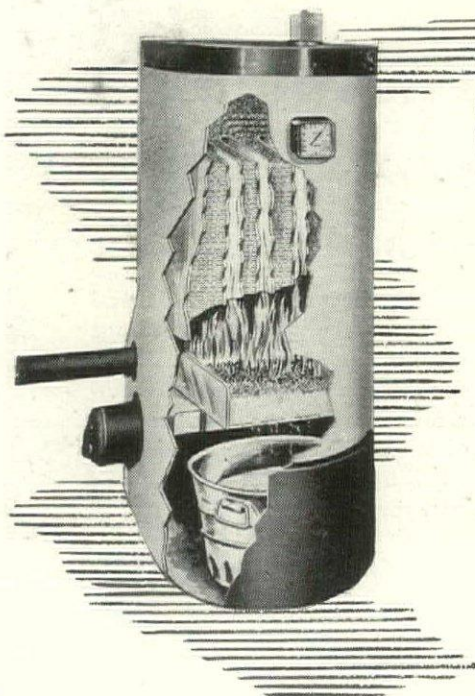
Offer Your Clients All Three

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Anthracite heat



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

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

For complete information about (1) New Anthracite Stokers (2) Revolutionary Anthratube or (3) Anthra-Flo boiler-burner unit, just fill in and return the coupon below.



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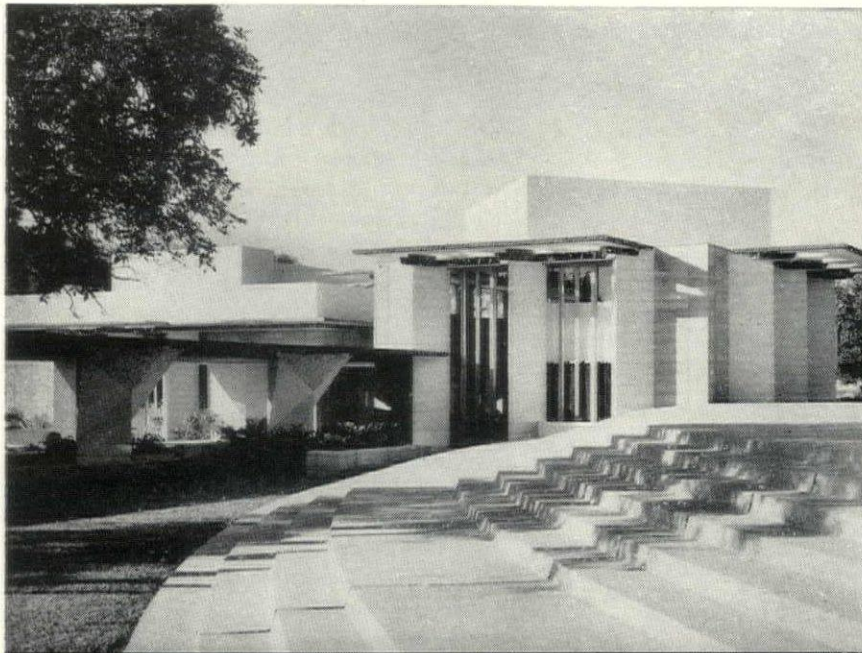
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2. Revolutionary Anthratube
3. Anthra-Flo boiler-burner unit

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**Above
Surface**

ON THIS BEAUTIFUL BUILDING, WORLD-FAMOUS ARCHITECT FRANK LLOYD WRIGHT HAS DEMONSTRATED WITH NEW DESIGNS WHAT CAN BE DONE WITH THOROSEAL AS A PROTECTIVE COATING FOR STRUCTURAL CONCRETE AND MANUFACTURED BLOCK MASONRY, "ABOVE THE SURFACE."

**Below
Surface**



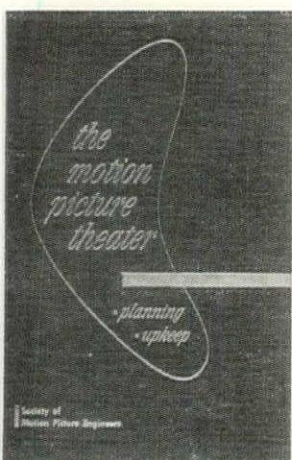
THE WATERPLUG CREW AT WORK IN ONE OF THE LARGEST TUNNELS, IN NEW YORK CITY. THE WORKMEN WILL SEAL OVER TWO MILES OF TUNNEL, 86 FEET BELOW POOL LEVEL OF THE EAST RIVER, SHOWING "HOW TO DO IT", BELOW THE SURFACE.

Today, the architectural and engineering profession realize the importance of substantial materials to co-ordinate, seal and beautify their general construction plans; THOROSEAL, to fill, seal and beautify any type masonry, above or below the surface; WATERPLUG, to prevent and correct every type of water problem, no matter how great the pressure. The THORO System products give to the architect and engineer, materials of sufficient structural strength with which they can plan with confidence and satisfaction.

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Write for
Our No. 17
Brochure
with Chart



MOTION PICTURE THEATERS. The Motion Picture Theater—Planning and Upkeep. Society of Motion Picture Engineers. 342 Madison Ave., New York City, N. Y. 428 pp. 6¼ x 9¼ in. Price \$5.00.

Smartly bound and well illustrated, this comprehensive theater engineering handbook details the requirements of the motion picture theater from blueprint to curtain time. A wealth of data is presented in non-technical language on numerous phases of theater design, construction, modernization and maintenance under eight major headings: *Physical Construction, Auditorium Design, Ventilating and Air-Conditioning, Acoustics, Lighting, Floor Coverings, Promotional Display, and Television.* Planned as a reference work for architects and others concerned with theater construction and maintenance, the volume consists, for the most part, of papers presented

and discussions which took place at the 62nd semiannual convention of the Society of Motion Picture Engineers in New York City, October, 1947. At that time it became evident that architects assisting in plans for theater construction and remodeling had not had much opportunity to exchange information regarding novel features with other designers throughout the country. Those interested in this aspect of building now may read or review all of the technical papers on major phases of theater design as they were presented and the ensuing discussions which took place at the conference.

WALLBOARD. Laminated Sheetrock Wallboard. U. S. Gypsum Co., 300 West Adams, Chicago, Ill. 11 pp. 8½ x 11 in.

The structural details of a new method of Sheetrock dry wall construction are contained in this pamphlet. Diagrams and black and white photographs accompany the step-by-step directions for applying two layers of wallboard, job laminated with a special adhesive, to walls and ceilings. Among the advantages listed for the system are greater fire protection and bracing strength, and reduced sound transmission.

FLOORING. Azrock Asphalt Tile. Uvlade Rock Asphalt Co., San Antonio, Texas. 8 pp. 8½ x 11 in.

Easy maintenance, durability, attractiveness and low initial cost are aspects of Azrock asphalt tile floors noted in this colorful booklet. A diagram of the marbled colors is presented and a suggestion of the infinite pattern variations possible is given through photographs of installations in offices and stores. Of most value to the architect are the listings of flooring specifications for the asphalt and greaseproof Azrock tile. The latter is available in eight marbled colors and in black and white strips.

CORK APPLICATIONS. Korfund Cork Products. The Korfund Co., Inc., 48-35-T 32nd Place, Long Island City 1, N. Y. 4 pp. 8½ x 11 in.

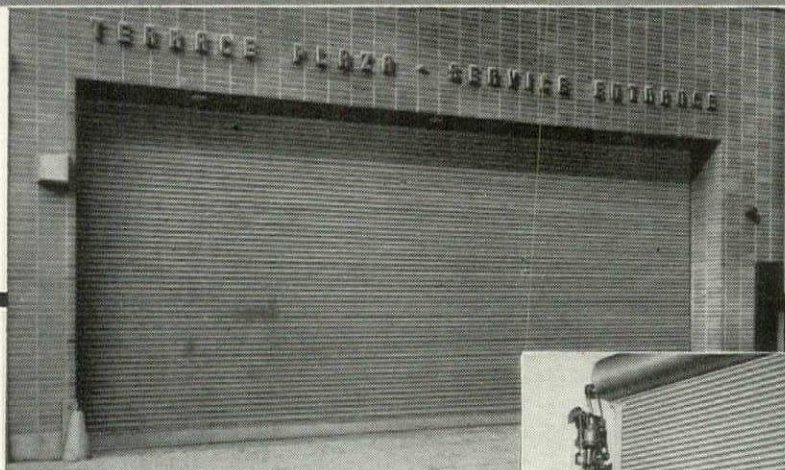
This bulletin shows various installations in which cork may be used satisfactorily to control transmission of noise and vibration; and gives outlined descriptions, including static load ranges, of five forms of Korfund cork, listing dimensions in which they may be obtained.

LIGHTING. Fundamentals of Light and Lighting. Bulletin LD-2. General Electric Co., Engineering Div., Lamp Department, Nela Park, Cleveland, Ohio. 86 pp. 8½ x 11 in.

Beginning with well illustrated descriptions of the visible wave lengths and ultraviolet and infrared spectra, and the workings of the human eye, this book covers every phase of lighting, from laboratory and field measurement, through color, quantity and quality, to the design of lighting systems. The various terms used by the lighting engineer are explained in regard to function. Thus, the reader learns the basis for the word "foot-candle" as it relates to brightness, and how the quantity of light relates to quality. On the subject of color, *Fundamentals of Light and Lighting* offers a full-color diagram of the three primary colors and an illustrated discussion of the major color systems: *The Maerz and Paul Dictionary of Color*; the *Munsell and Ostwald Color Systems* and the *I.C.I. Chromaticity Diagram*. Photographs are employed to supplement the text throughout the book.

(Continued on page 174)

Reasons Why it Pays to Insist on KINNEAR ROLLING DOORS



The Interlocking Steel Slat Door - was originated by Kinnear!

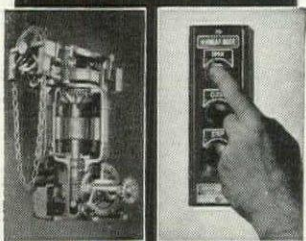
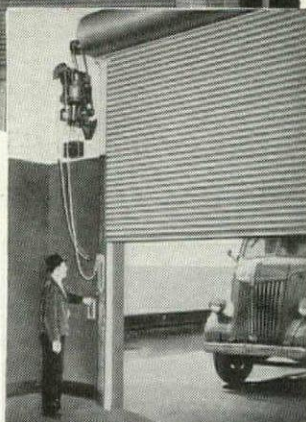
KINNEAR ROLLING DOORS feature the famous interlocking steel-slat curtain that brings highest efficiency to service openings of every type. With smooth, easy coiling upward action, they glide out of the way overhead, safe from damage.

All surrounding wall and floor areas are fully usable at all times. Materials can be stored within an inch or two of the door curtain, on either or both sides, without impeding its action.

The tough, all-steel construction gives Kinnear Rolling Doors longer service life, cuts maintenance costs, assures extra resistance to weather, wear, fire and intrusion.

For added ease and speed of operation, Kinnear Steel Rolling Doors can be equipped with Kinnear Motor Operators. Pushbutton controls may be used at any number of convenient points, if desired.

Kinnear Rolling Doors are built to fit any opening, in old or new construction. Manual, chain, or crank operation available where advantages of motorized doors are not required. Write for the Kinnear Catalog, or for recommendations on your particular door needs.



The husky Kinnear Motor Operator, controlled by pushbutton, permits you to raise, lower or stop the door from any number of points.

The KINNEAR Manufacturing Co.
 FACTORIES: 1640-60 Fields Ave., Columbus 16, Ohio; 1742 Yosemite Ave., San Francisco 24, Calif.
 Offices and Agents in Principal Cities

SAVING WAYS
 IN
 DOORWAYS

KINNEAR
 ROLLING DOORS

Crane makes it **COMPLETE** ... in more ways than one!



The Crane Oxford Bathroom Group

Complete as a *room*, of course. Crane supplies everything for the bathroom—fixtures, piping, even many accessories. But Crane bathrooms are complete in other ways, too:

Complete in Choice . . . Crane offers bathroom groups in every cost range . . . a style for every taste, a price for every budget.

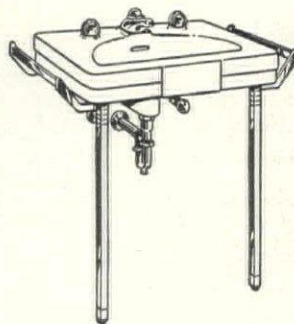
Complete in Quality...one high quality throughout . . . every part made for every other.

And, most important, *complete customer satisfaction* . . . customers themselves have named Crane the plumbing brand they prefer.

This completeness is typical of the whole Crane line. In kitchens, where Crane makes the right sink for every space requirement.

In home heating, where Crane supplies everything for any system, any fuel.

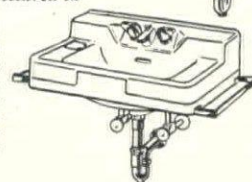
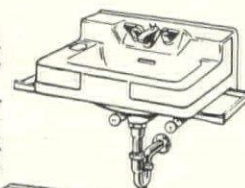
See representative selections in Sweet's Builders' File. And ask about the *complete Crane line* at your Crane Branch or Crane Wholesaler.



De Luxe! In your finer homes, nothing could be finer than the Diana Lavatory, left, style leader in the Crane line.

Happy Medium! Just right for most home owners. This Oxford Lavatory may be wall-mounted as indicated, at right above, or on legs as pictured in the room.

Dial-ese Here, Too! Designed for modest budgets, this Crane Neuday Lavatory has many features of the Diana and Oxford—including finger-tip Dial-ese controls.

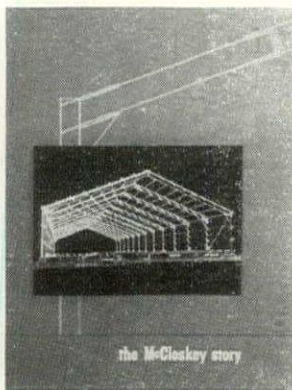


CRANE

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

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

PLUMBING AND HEATING •
VALVES • FITTINGS • PIPE



STEEL CONSTRUCTION. The McCloskey Story. McCloskey Co., 3400 Liberty Ave., Pittsburgh 1, Pa. 8 pp. 8½ x 11 in.

By means of concise, readable text and picture captions, and diagrams tastefully drawn and arranged, this booklet describes the Rigidsteel design principle of building construction. The Rigidsteel method, according to the manufacturer, affords economical and speedy construction without a network of trusses. Special applications for industrial, municipal and commercial buildings—conventional or imaginative—are discussed and illustrated.

STEEL CHANNELS. All Purpose Unistrut Metal Framing. Catalogue No. 500. Unistrut Products Co., 1013 W. Washington Blvd., Chicago 7, Ill. 23 pp. 8½ x 11 in.

Compacted neatly into the latest Unistrut catalogue are pic-

tures and details on how to frame, hang, support and mount all kinds of equipment without drilling or welding by means of the manufacturer's slotted steel channels. The booklet contains factual product data for the contractor, wholesaler, architect and purchasing agent seeking information on what Unistrut is, the many ways it may be used in industry and where it may be procured. Also included in the catalogue are the new Unistrut spring clamps designed for use with tubing.

STEEL MESH AND METAL GRATING. Ryex Expanded Metal. Joseph T. Ryerson & Son, Inc., Box 484, Jersey City 3, N. J. 8 pp. 8½ x 11 in.

Engineering data load deflection, air flow comparison and free openings for both standard and flattened mesh types of expanded steel are given in this folio. Also included are a list of sizes with dimensions and weights, illustrations of mesh and typical applications, and data on expanded metal grating.

STEEL FORMS FOR CONCRETE CURBS. Blaw-Knox Steel Street Forms. Blaw-Knox Div. of Blaw-Knox Co., Box 2, Blawnox, Pa. 28 pp. 8½ x 11 in.

Compiled to ease the problem of selecting and using the proper forms for the construction of any type of concrete curb, curb and gutter, integral curb, special curb or sidewalk, this booklet describes pictorially sixteen types of forms which embody a complete standardized and interrelated system. An illustrated guide shows how to set and strip the forms.

NEW USES FOR RUBBER. Rubber Developments, Vol. 2, No. 1. Rubber Development Bureau, 1631 K. Street N.W., Washington 6, D. C. 36 pp. 6 x 8½ in.

The use of powdered rubber in asphalt roads results in increased durability, according to an article in the current issue of this publication. Other articles tell of new uses for rubber on barn floors and in the laying of subway track. The history of the latex foam industry is also described.

PREFABRICATED HOMES. Better Homes by Better Methods. Prefabricated Home Manufacturers' Institute, 908 20th St. N. W., Washington 6, D. C. 14 pp. 8½ x 11 in.

The booklet explains briefly the construction, erection, financing and distribution of prefabricated homes. Photographs of typical houses manufactured by 34 different U. S. and Canadian companies are shown.

GLAZING. Facts about Glazing. Dicks-Pontius Co., Dayton, Ohio. 10 pp. 8½ x 11 in.

Glazing contractors, architects and builders can get firsthand information here that will help them on all types of glazing jobs. The booklet is written in compact style for practical application on the job.

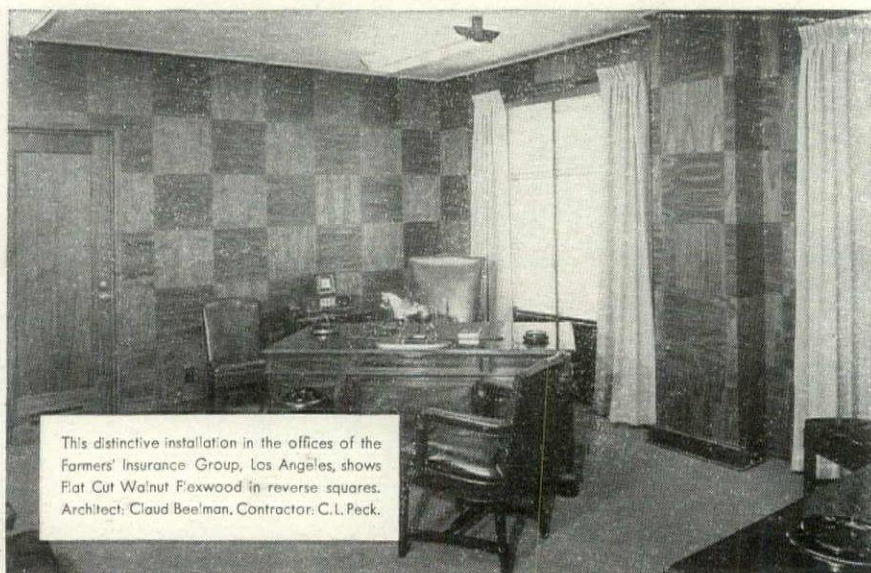
INSULATION. Johns-Manville Decorative Insulating Board. Johns-Manville, 22 East 40th St., New York 16, N. Y. 8 pp. 8½ x 11 in.

The brochure pictorially describes Johns-Manville insulating material made in various forms for ceiling, walls and building board. Color sketches suggest the many types of residential and commercial interiors which can be constructed or remodeled with these versatile products. Information is provided on sizes, application and finishing.

(Continued on page 178)

FLEXWOOD GIVES YOUR CLIENTS . . .

3 OUTSTANDING ADVANTAGES



This distinctive installation in the offices of the Farmers' Insurance Group, Los Angeles, shows Flat Cut Walnut Flexwood in reverse squares. Architect: Claud Bee'eman, Contractor: C. L. Peck.

● STRIKING DESIGN

You have a whole galaxy of bright ideas right at your pencil's point . . . when you design with Flexwood.

The fact that this modern material is made from fine veneers of *real* wood, permanently mounted on strong fabric backing, gives it flexibility . . . physically and design-wise. Use it on curved surfaces or flat . . . for traditional or modern motifs. Its unusual versatility makes Flexwood fit. Anywhere!

● EXTRAORDINARY DURABILITY

Flexwood's beauty never grows old. Indeed, like all fine woods, it takes on a

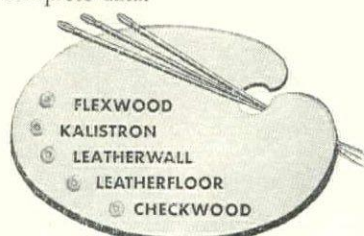
rich patina as the years go by.

And keeping Flexwood installations in their rich, glowing, beautiful prime is merely a matter of following an easy, economical maintenance routine that calls for a minimum of care.

● SIMPLE INSTALLATION

Because Flexwood is quickly installed over any smooth, firm surface, you can plan extensive renovation with a minimum of expensive structural changes.

Get full details on Flexwood, and how you can use it to your clients' advantage. Write today for a list of available woods and complete data.



UNITED STATES PLYWOOD CORPORATION

Dept F, 55 West 44th Street, New York 18, N. Y.

Flexwood is manufactured and marketed jointly by United States Plywood Corporation and The Mengel Company.



MORE THAN A WALL...

MORE THAN A WINDOW... IT'S AN

ANDERSEN
Windowall *

ANDERSEN WINDOWALLS perform two functions simultaneously. They function as WINDOWALLS in that they admit sunlight and fresh air and frame an outdoor view. They function also as walls, protecting the inside from outside discomforts.

Almost the entire facade of this well-designed Minnesota home is made with WINDOWALLS, in this instance a series

of Andersen Gliding Windows. The result: a masterpiece of "open planning"—a comfortable, livable home in a region that sees an annual temperature range of more than 125°F.

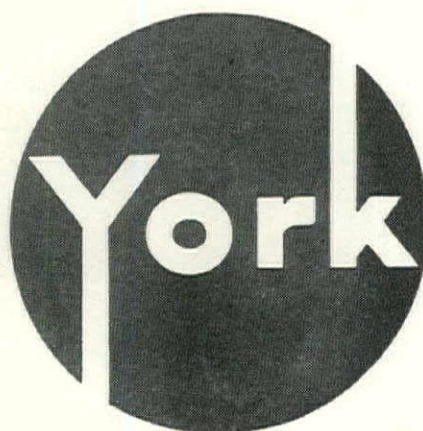
Specification data on ANDERSEN WINDOWALLS is in Sweet's Architectural and Builder's Catalogs, or will be sent by us upon request. See your local lumber or millwork dealer for further information. *TRADEMARK OF ANDERSEN CORPORATION

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

Andersen Corporation
 BAYPORT • MINNESOTA

IT'S TO YOUR ADVANTAGE . . .

TO SPECIFY AND INSTALL



BECAUSE YORK offers architects, engineers and contractors authoritative assistance from start to finish, York is your logical choice of equipment to specify or install. York's record of accomplishment and continuous promotion of new applications for air conditioning with old and new users has made the York trademark the symbol of the best in cooling equipment and engineering know-how, assuring better human comfort and greater industrial efficiency.

Such recognition—by architects, engineers, contractors and users—is no accident. It is because York's program of assistance and York's standard of achievement has far more to offer. It is also the result of policy of channeling contract air conditioning work through *you* as the representative of the ultimate user. This is a far-sighted policy which fits the market like a glove.

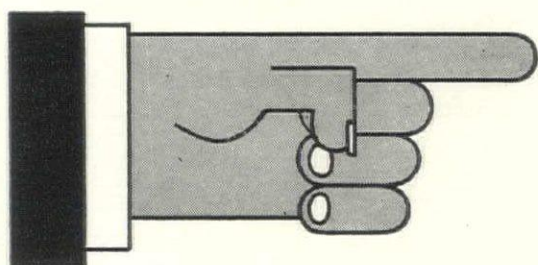
There's a complete range of York equipment. And, within easy reach of your office, there's a York-trained engineer ready to give you practical assistance in planning and layout. At his fingertips is a wealth of technical information, gathered from thousands of successful York installations. Through his services, this information is also made available to you. Every York man knows that his job . . . and yours . . . is to give the owner the finest system possible. On that firm foundation rests both York's reputation and yours.

IF you are "planning" any job involving air conditioning or refrigeration, call your York District Office. An experienced York engineer will be glad to work with you. York believes in interpreting technical equipment and application data through the *personal assistance* method. York knows experience counts. York Corporation, York, Penna.

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AIR CONDITIONING

EXAMINE



THIS PROGRAM CAREFULLY:

- **A complete line of engineered products.**

York has a complete range of equipment to meet every need.

- **Competitive prices.**

York equipment compares favorably with equipment of similar capacity and construction.

- **Accurate and dependable product ratings.**

Information is clearly presented.
Predicted performance is always realized.

- **Technical assistance including case histories to help planning.**

Full application data qualifies York to give authoritative assistance in systems for many uses and conditions.

- **Background of architect, engineer and contractor cooperation.**

York experience proves the soundness of such cooperation with you to *all* concerned.

- **Practical help from York-trained Engineers.**

And every man is a specialist in the field of mechanical cooling.

- **A national organization to call on.**

The largest and most complete national organization in the industry.

- **A continuous program of product research and development.**

York offers you the benefit of up-to-the-minute know-how based on more than three score years of research and development.

- **Certified Maintenance Contracts.**

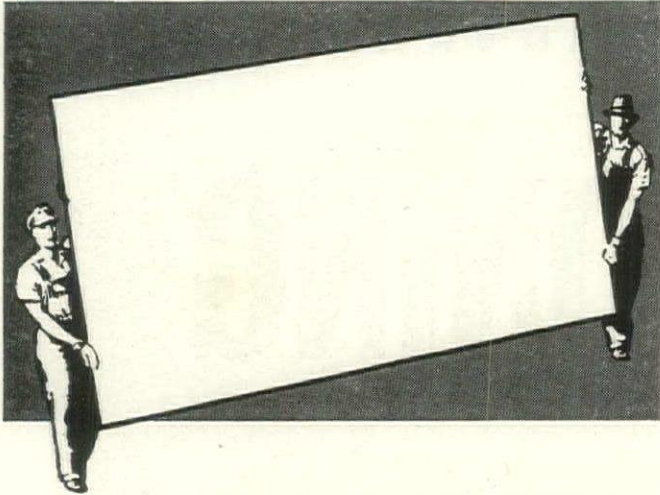
York's distinctive maintenance plan takes all the guesswork out of operating expense and assures lasting satisfaction in performance.

PIONEERS IN INVENTION AND DEVELOPMENT SINCE 1874



Refrigeration and Air Conditioning

HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885



DRY WALL CONSTRUCTION *has come of age!*

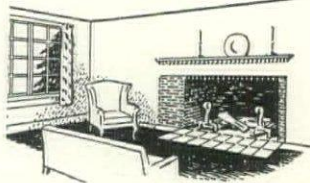
Homasote permits dry wall construction with the average wall in one piece

HOMASOTE COMPANY has long been one of the pioneers and strongest advocates of dry wall construction.

Today the average home owner knows a good deal about this sensible, modern method of building. For the past 32 years, Homasote has been

structural strength and insulating value. You are giving him walls that are permanently crackproof. (You save yourself the time of waiting for plaster to dry.) You give him a quieter, drier house with dependable insurance against musty closets and mildewed walls.

Today you can specify dry wall construction—with Homasote—in complete confidence. We invite architects and builders to send for illustrated booklet—giving physical characteristics, performance charts, specification data and application instructions.



steadily replacing plaster and has now been used in millions of dollars worth of private homes.

The average wall is covered with a single piece of Homasote. If a wall runs longer than 14' the joint is made at the door or window and covered with an architectural panel. Ceilings larger than 8' x 14' are beamed or paneled so that every detail is a desirable architectural feature. Many an architect has acclaimed Homasote the perfect base for either paint or wallpaper. When you design and build with Homasote you are giving the home owner tops in both



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

**HOMASOTE COMPANY
Trenton 3, New Jersey**

WATERPROOFING. Exterior Masonry Waterproofing Manual, Wurdack Chemical Co., 4951 Fyler St., St. Louis 9, Mo. 30 pp. 5½ x 8½ in.

After extensive testing and research, these complete directions for applying Crystal, an invisible one-coat silicone masonry water repellent, were compiled into booklet form. As stated in the manual, Crystal does not plug the pores on exterior building masonry but instead coats the surfaces of the capillary openings so that water is actually repelled. On such a silicone surface, water stands in nearly spherical drops and does not flow out.

SOLID FUEL USE. Homes Planned for Coal or Coke. Circular G3.61. Small Homes Council, University of Illinois, Urbana-Champaign, Ill. 12 pp. 8½ x 11 in. Price: 10 cents.

Ways to simplify the handling of coal or coke in homes has been under study at the University for three years by Rudard A. Jones, research associate professor of architecture. The findings of the study, sponsored by the solid fuel industry, are contained in this non-technical circular. A summary of the conclusions reached is that planning homes for solid fuel use calls for the placement of the driveway next to the fuel bin, the fuel bin next to the heater room, the heater room next to the ash-removal route, the ash-removal route next to the driveway. This arrangement—the publication explains—must be planned in advance. To demonstrate the ideas, plans are given for a one-story basementless house, a one-story house with partial basement, a split-level house and a two-story house.

(Continued on page 180)

WHY *Bennett Bilt* FLUORESCENT LIGHTED MEDICINE CABINETS

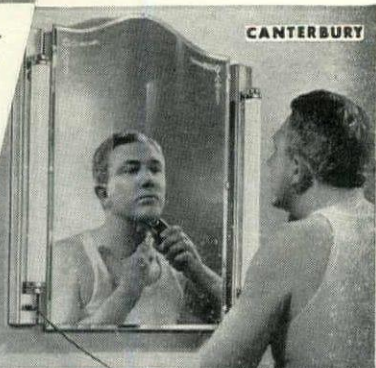


Cost Less

Complete Bennett Bilt Fluorescent Lighted Medicine Cabinets cost less to buy and install than separate electrical wall fixtures and cabinets of equal quality. These cabinets increase the attractiveness of modern rooms by providing a more finished, self-contained, compact installation.

Nothing has been overlooked for convenience and quality. No other medicine cabinet has all 18 built-in premium features. That's why you should specify and buy Bennett Bilt Fluorescent Lighted Medicine Cabinets.

It costs you nothing for the fully-illustrated complete line catalog ... it may mean many dollars to you. Write today.



THE BENNETT MANUFACTURING CO., ALDEN, N. Y.
CUSTOM METAL CRAFTSMEN SINCE 1906



Wherever beauty must be ageless...use

VITROLITE walls

Correlated Colors Suggest
Stunning Decorative Themes

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

Beauty that endures... and requires no upkeep! That's what *Vitrolite** walls assure.

Vitrolite is glass paneling. All that's needed to keep it sparkling like new for years is quick washing with water or ordinary window cleaner. Even pencil, pen and crayon marks whisk right off. No painting, no refinishing is needed. *Vitrolite* will not fade or craze, rust or warp. And its mirror-like, nonporous surface can not absorb dirt, germs, moisture, odors.

In washrooms, lobbies, corridors, kitchens... wherever beauty must be practical... many leading architects specify walls of *Vitrolite*. Applied in large ashlar, it assures a smooth, luxurious surface. Joints can be fine and true, because *Vitrolite* is cut to exact specifications. For details, write for our *Vitrolite* book.

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VITROLITE

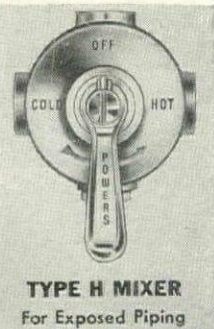
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4199 Nicholas Building, Toledo 3, Ohio

TECHNICAL LITERATURE



Scalding Hot
one minute . . .
Ice Cold the next!
What this
shower needs is a
POWERS Thermostatic
Shower Mixer

That's right. Surest way to end shower bath complaints and possibility of accidents is to use POWERS thermostatic shower mixers. They're SAFE both ways . . . give sure protection against scalding or jumpy shower temperatures caused by **pressure** or **temperature** changes in water supply lines. Circular H48 describes the safest shower mixer made. Write for a copy. THE POWERS REGULATOR CO., 2735 Greenview Ave., Chicago 14, Ill. Offices in principal cities. (HN)



HEATING. Ten Ways to Heat Your New Home. Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave. S., Minneapolis, Minn. 23 pp. 8½ x 11 in.

This guide, designed to help home planners select the heating system most suitable and economical for the type of dwelling they plan to build, discusses all types of fuels—including solar energy—and heating systems in popular use throughout the country. Written in non-technical language and illustrated with simple diagrams, the booklet contains a list of "do's and don'ts" and offers tips to home builders who wish to talk over heating arrangements with architects, contractors and heating equipment dealers. The various types of heating discussed include: forced and gravity warm air; forced and gravity hot water; one- and two-pipe steam; radiant floor and ceiling panels; solar heating; and a heat pump which can be used for both heating and summer air-conditioning. Among the control systems described are a newly developed electronic control (which is claimed to be 100 times more sensitive than standard thermostats) and specialized controls for radiant panel heating.

KITCHENS. Blueprint for Better Kitchens. Mullins Mfg. Corp., Warren, Ohio. 12 pp. 8½ x 11 in.

In addition to full color illustrations of typical Youngstown kitchens, this booklet contains specifications for all the Youngstown equipment and dimensioned diagrams. Two pages are devoted to testimonials from builders and photographs of homes constructed by each and the kitchen installations. The Mullinaider electric garbage disposer is featured in the booklet.

(Continued on page 184)



Stainless Steel Equipment for the Institution of Tomorrow

When planning new hospitals, institutions, schools, and industrial plants. Sanitation and Durability should be your first consideration. That is why leading architects specify

Just Line Stainless Steel Equipment

Its smooth, seamless, easy-to-clean-and-keep-clean stainless steel surfaces assure you of the utmost in sanitation, while its sturdy, all-steel, electrically welded construction

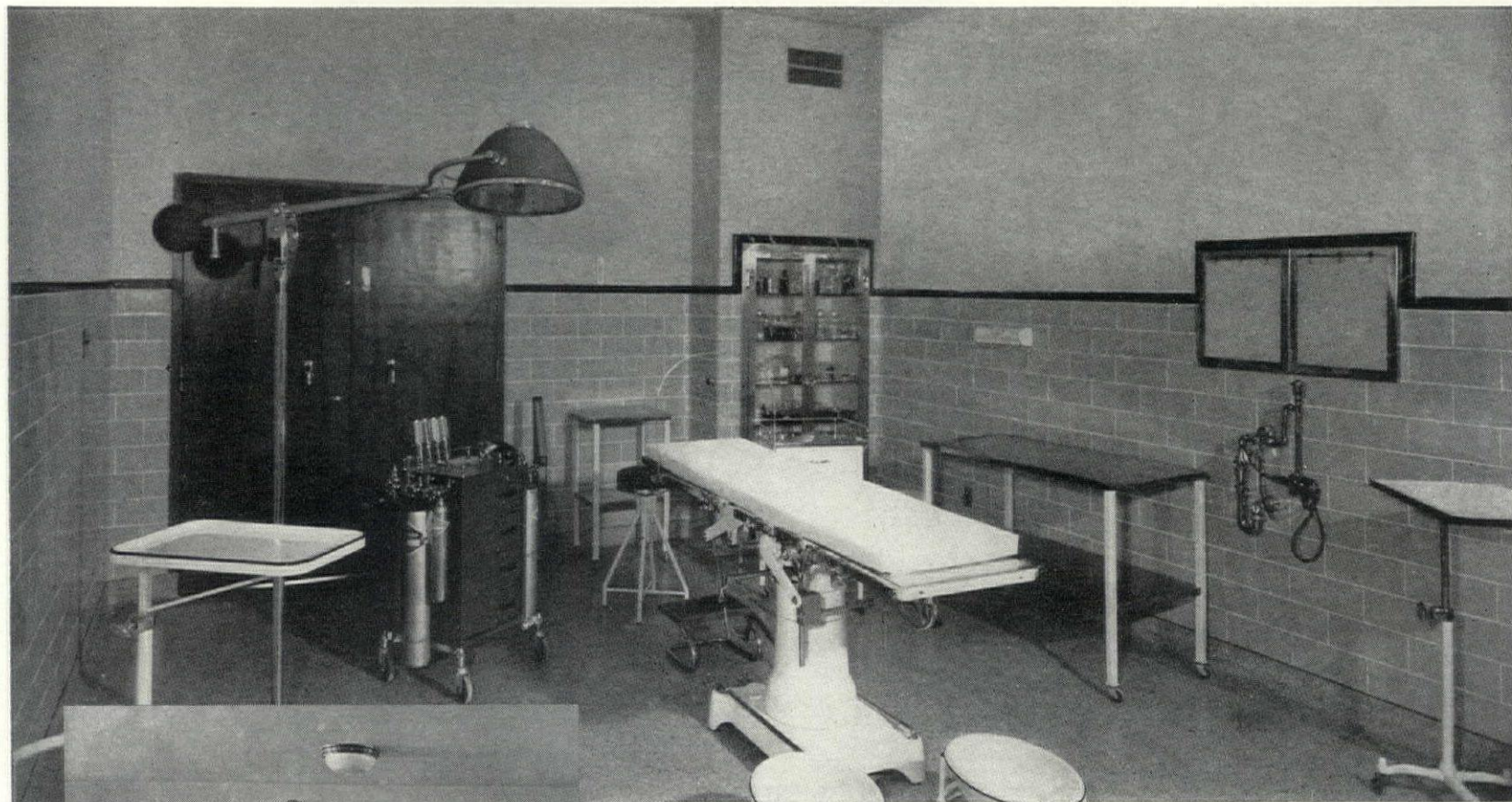
assures you of uninterrupted lifetime service at lowest maintenance cost.

Write today for illustrated Literature F-9 and send us your specifications. Our Engineers will gladly cooperate with you in developing your plans.

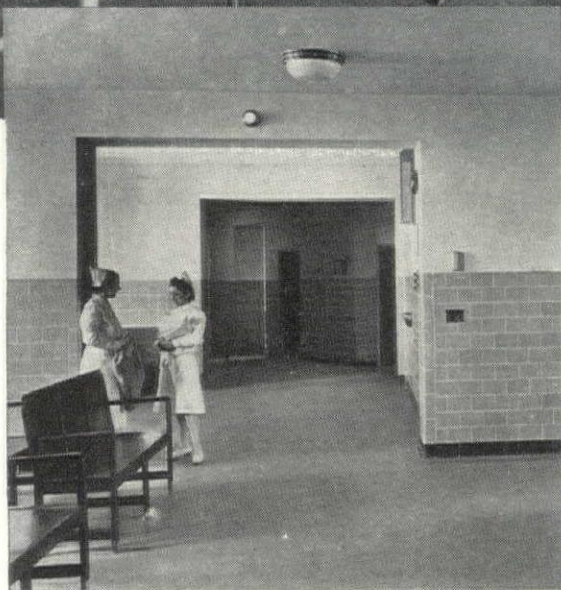
JUST Manufacturing Co.
4610-20 W. 21st Street, Chicago 50, Illinois

"Successful operation" for budget-strain in hospitals

economical interiors of *Facing tile*



Glazed Facing Tile



Glazed Facing Tile

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"Tile Engineering" is a handsomely bound, 450-page handbook of design, full of valuable information for the architect. It includes detailed data on properties, specifications, uses and construction techniques for Structural Clay Tile. Send \$2.50 with your name and address to Facing Tile Institute, Dept. AF-9.

FACING TILE INSTITUTE

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

Tough, durable, easy-to-clean Facing Tile can help make an anemic hospital budget positively *radiant* with health!

Being radiant itself, glazed Facing Tile creates a cheerful "get well" atmosphere that helps patients, too!

In short—Facing Tile means "successful operation" in hospitals.

You can use Structural Clay Facing Tile *throughout* the hospital—in corridors, wards, kitchens, laboratories, operating rooms. It will stand up to years of hard wear and never crack, scratch or decay, never require redecorating!

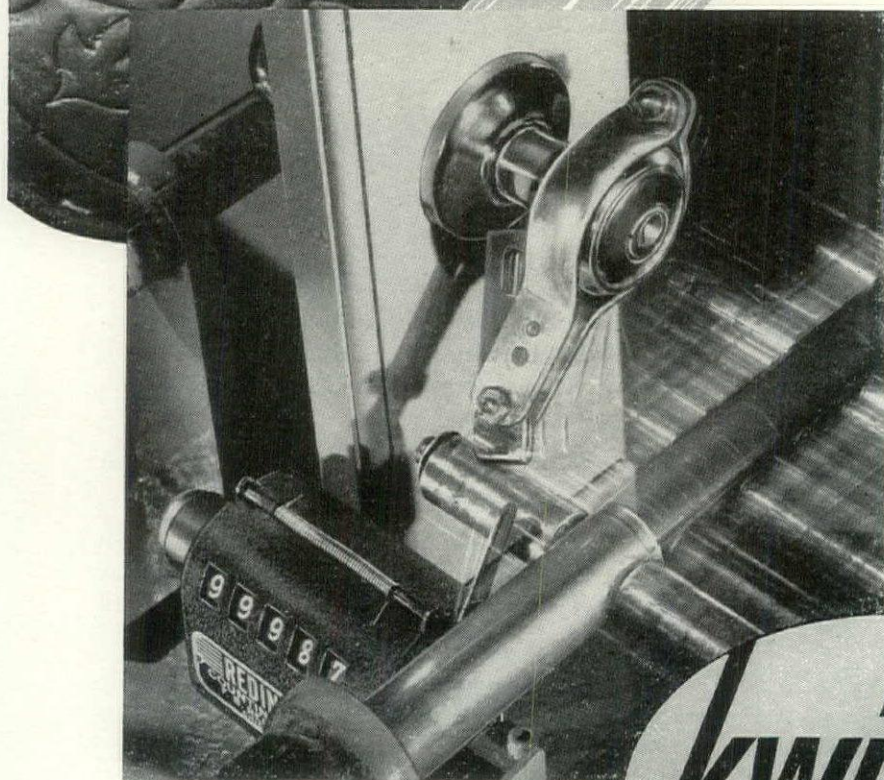
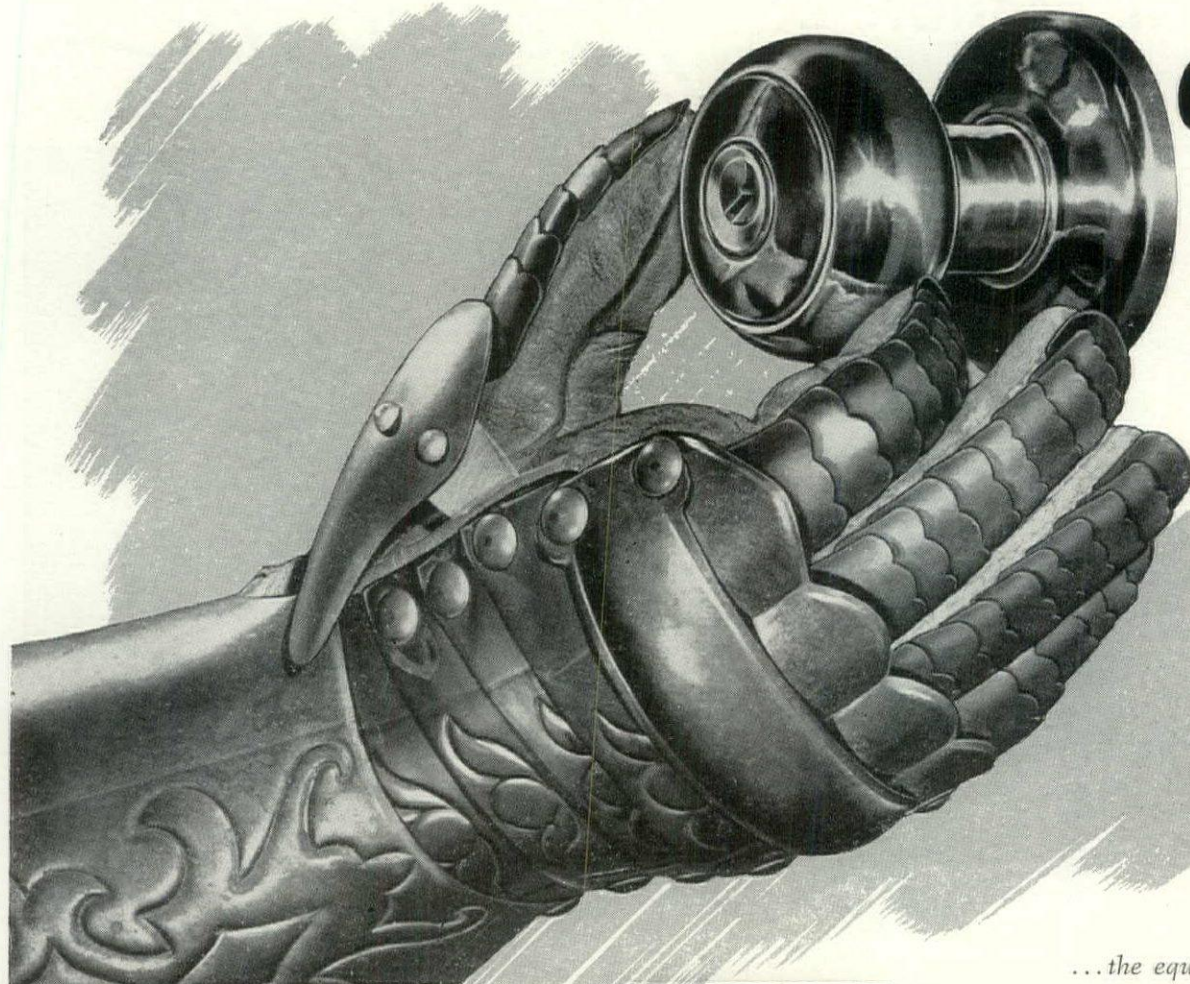
Expose Facing Tile to dirt, grease, steam, or almost any acid. It will wash down *clean* and quickly, because it's *impervious*—even to bacteria!

With Facing Tile you provide the additional economy of a permanent finish and a permanent wall, *in one material!* It's strong, firesafe and modular sized for fast building. Many light-reflecting colors are available, both glazed and unglazed.

When you plan new hospital interiors, remember that economical Facing Tile helps keep the budget healthy. For complete information write the Institute, Desk AF-9, or contact any member.

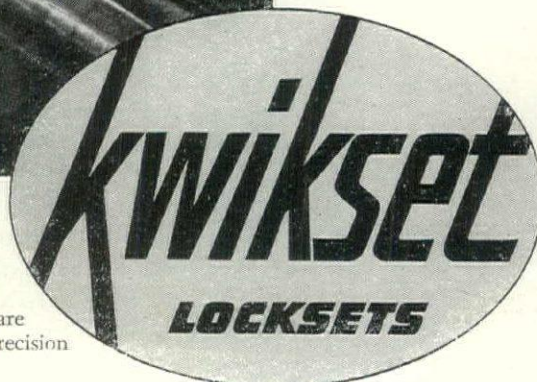
INSTITUTE MEMBERS Belden Brick Company, Canton, Ohio ★ Continental Clay Products Co., Kittanning, Pennsylvania ★ Charleston Clay Products Co., Charleston 22, West Virginia ★ Hanley Company, New York 17, N. Y. ★ Hydraulic Press Brick Co., Indianapolis, Indiana ★ Mapleton Clay Products Company, Canton,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

The **IRON FIST** that does a million good turns!



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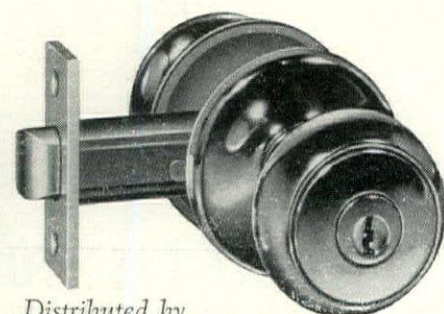
Kwikset performance is built in! Working parts are of brass stampings or sturdy Zamak No. 5. Trim parts are wrought bronze, wrought brass or Zamak No. 5, all precision engineered for trouble-free service.



More than a million times in 30 days
...the equivalent of 70 years' wear and tear in a
front door... the knobs of random-chosen Kwikset locksets
are yanked back and forth by a mechanical hand in a
routine factory test. It's brutal treatment, but it's the only
way we can constantly check the "in-use" life of our locks.
So they take this punishment and prove Kwikset endurance.

But endurance isn't the whole story. These locks are
handsome... beautifully hand-finished in polished or satin
brass or chrome, or satin bronze, to enhance the
appearance of any door. Further, their cost is pleasingly
low, and simplified 2-hole installation saves time on
the job. Available with or without deadlatch for standard
residential installations. Write for file-size catalogue.

Manufactured by KWIKSET LOCKS, INC. Anaheim, California

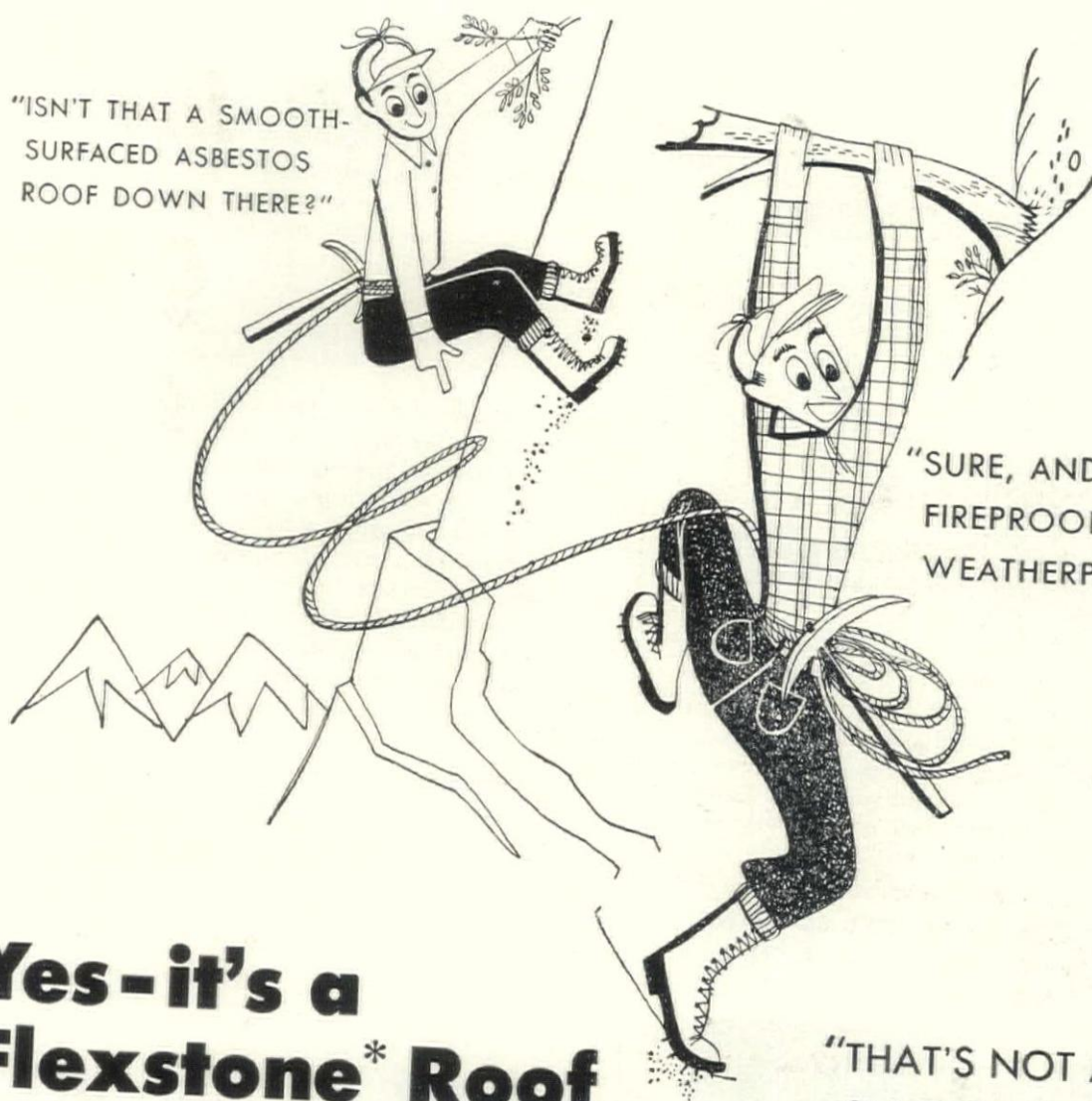


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"ISN'T THAT A SMOOTH-SURFACED ASBESTOS ROOF DOWN THERE?"



"SURE, AND THAT MEANS FIREPROOF, ROTPROOF, WEATHERPROOF FELTS"

Yes - it's a Flexstone* Roof

Each ply is a flexible covering of stone!

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

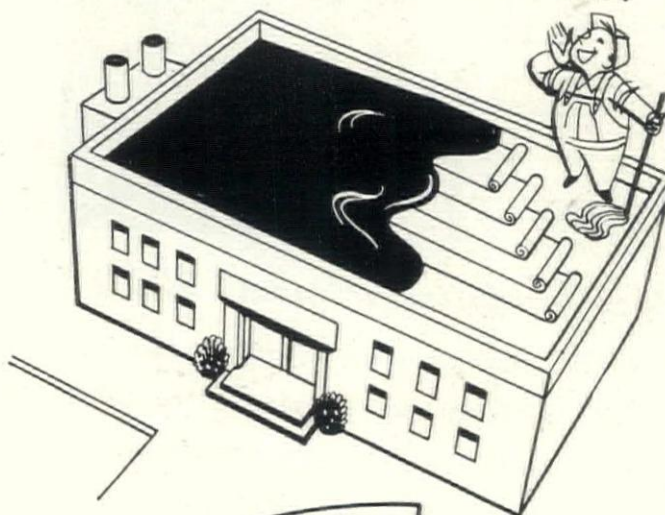
Flexstone Built-Up Roofs won't dry out from the sun . . . need no periodic coating. They're smooth-surfaced, too—permit thorough drainage . . . make any damage easy to locate and repair. They are engineered to each job . . . applied only by J-M Approved Roofers.

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

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



"THAT'S NOT ALL. NO SLAG OR GRAVEL! NO EXCESS WEIGHT!"



Made of ASBESTOS

Johns-Manville FLEXSTONE* Built-Up Roofs

CORRUGATED TRANSITE* • ACOUSTICAL CEILINGS

DECORATIVE FLOORS • *TRANSITE WALLS • ETC.

TECHNICAL LITERATURE

SHEPARD Home LIFT

The QUALITY RESIDENCE ELEVATOR . . .



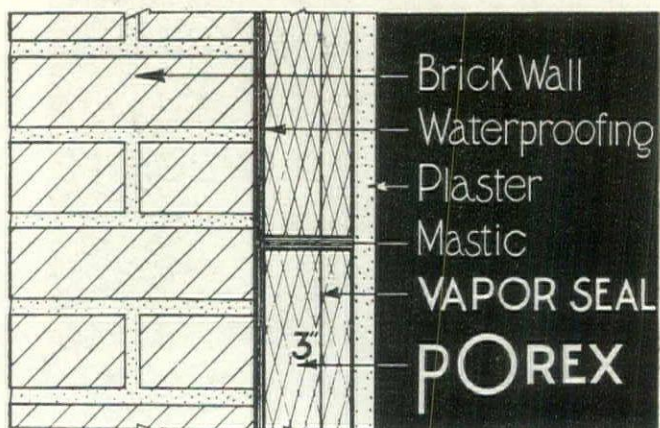
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residence
plans
"a lift"

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SHEPARD Home LIFT

You add to a home's convenience and utility when your plans include a Shepard HomeLIFT.

It is priced within the *average* purse and for the *average* home. This Top Quality Residence Elevator serves hundreds of new and remodeled homes and is a favorite with architects. Write Dept. A today for operational, installation and dimensional details.

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Porex saves valuable building dollars, reduces heating costs 50%. Lightweight fire-and-water-resistant slabs of mineralized wood fiber and Portland cement are used for furring and insulating the walls of apartment and hospital buildings. They make a good plaster base. Write today for full information.

PORETE MANUFACTURING CO.
North Arlington, New Jersey

KITCHENS. Beautiful Kitchens. Kitchen-Kraft Kustomized Steel Kitchens. Midwest Mfg. Co., Galesburg, Ill. 4 pp. each. 8½ x 11 in.

The first of these two folders on "Kustomized" kitchens illustrates and gives dimensions of the manufacturer's complete line of steel cabinets and counter tops. It has been designed primarily for the use of architects, builders and appliance dealers. The second shows how these cabinets may be grouped efficiently into the average kitchen.

POWER WHEELBARROW. Kwik-Mix Moto-Bug. Kwik-Mix Co., Port Washington, Wis. 4 pp. 8½ x 11 in.

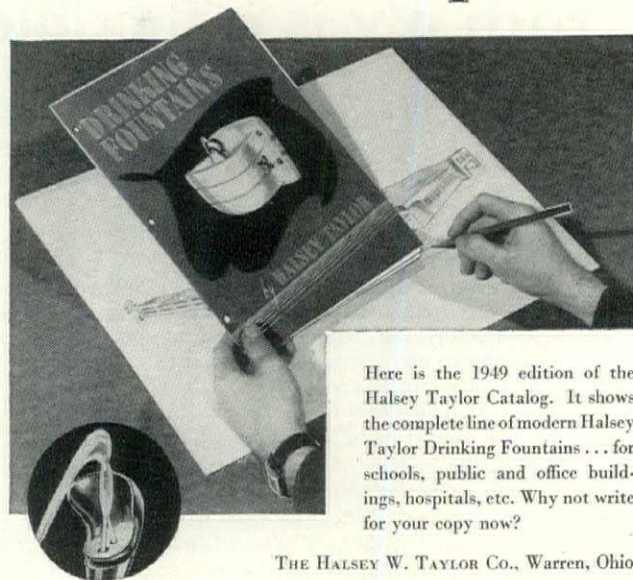
Reducing the cost and taking the hard work out of materials handling is the topic of this brochure, which describes the Moto-Bug, a new power wheelbarrow. Photographs illustrate many actual adaptations of this handsome machine in construction and industrial work, and a concise summary of its design and performance is presented through schematic diagrams and engineering specifications. According to the folder, the Moto-Bug travels at speeds of 2 to 4 m.p.h., both forward and reverse, and has a rated hopper capacity of 10 cu. ft. Other features listed are a controlled gravity dump and a direct steering device for easy handling.

CONDUIT, BUILDING WIRE AND CABLE. Triangle Condensed Catalogue No. 49. Triangle Conduit & Cable Co., Inc., 1921 Jersey Ave., New Brunswick, N. J. 10 pp. 8¾ x 11¼ in.

Detailed specifications of many items in the extensive Triangle line of conduit, wire and cable are given in this new catalogue.

(Continued on page 188)

Now off the press



Here is the 1949 edition of the Halsey Taylor Catalog. It shows the complete line of modern Halsey Taylor Drinking Fountains . . . for schools, public and office buildings, hospitals, etc. Why not write for your copy now?

THE HALSEY W. TAYLOR CO., Warren, Ohio

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A-3



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Cincinnati's new Terrace Plaza Hotel was "conceived and constructed for the sole purpose of rendering guests the most modern conveniences known to science and the ingenuity of man." Every detail of construction was selected for its ability to provide the finest service.

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It will also pay you to install such other long-lived Revere materials as Red-Brass Pipe; Sheet Copper and Herculoy for tanks, ducts, pans and trays; Dryseal Copper Refrigeration Tube (dehydrated and sealed); Copper oil burner, heat control and capillary tubes.

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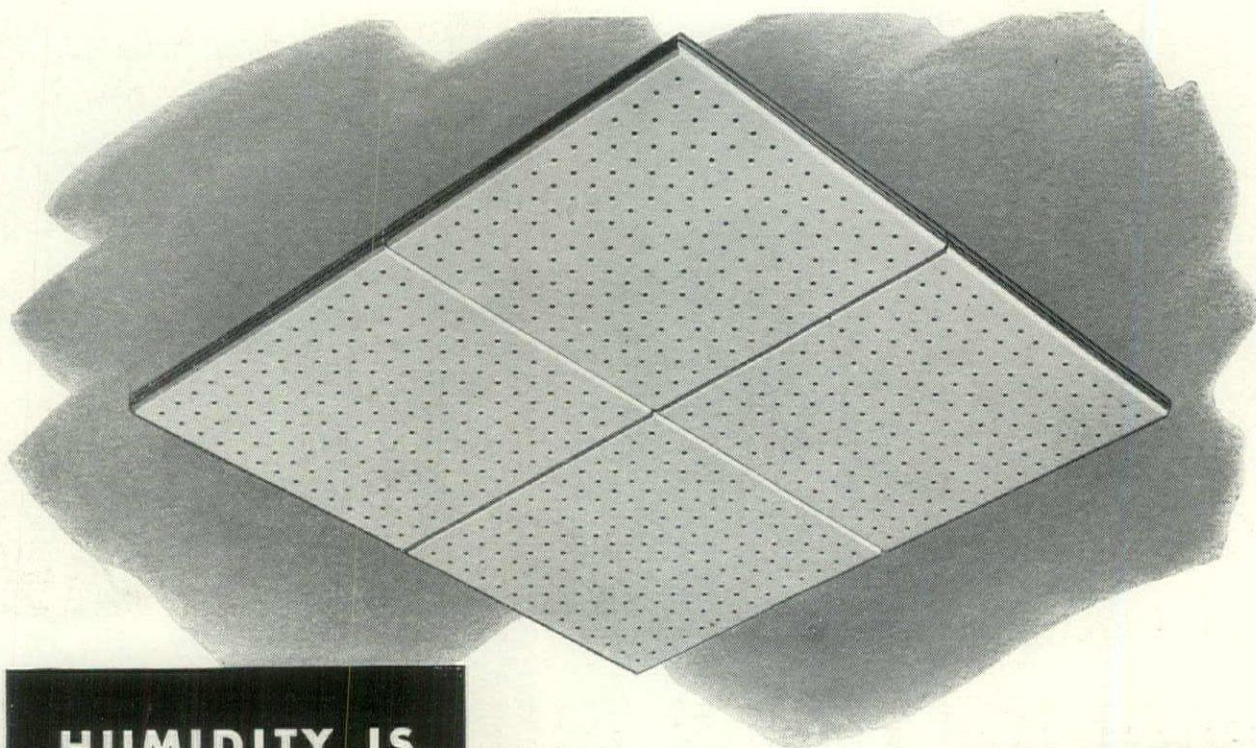
230 Park Avenue, New York 17, New York

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

TERRACE PLAZA HOTEL

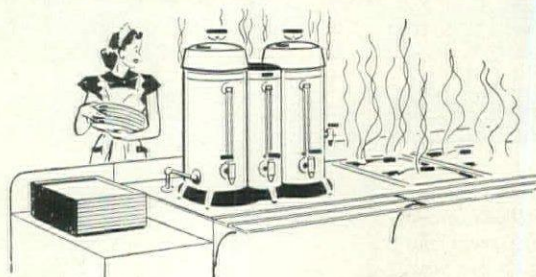
Cincinnati, Ohio

Skidmore, Owings & Merrill—Architects; Jaros, Baum & Bolles—Engineers; Frank Messer & Sons, Inc.—General Contractor; E. J. Nolan Corp.—Plumbing and Heating Contractors; Carrier Corporation—Air Conditioning and Refrigeration; Mutual Manufacturing & Supply Co.—Revere Distributor.

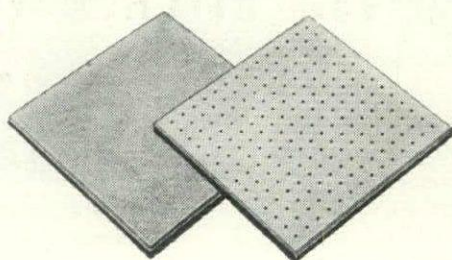


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For specification information, write for our new manual: "Fiberglas Acoustical Materials" . . . Standards AC6.C1. Owens-Corning Fiberglas Corp., Dept. 830, Toledo 1, Ohio.

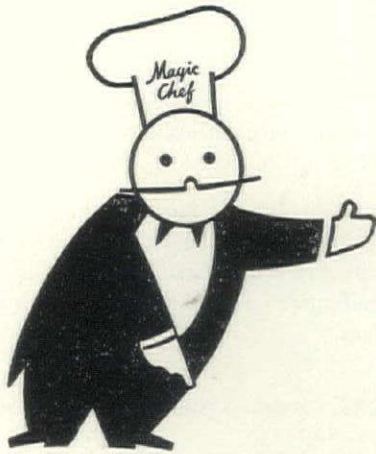
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Magic Chef

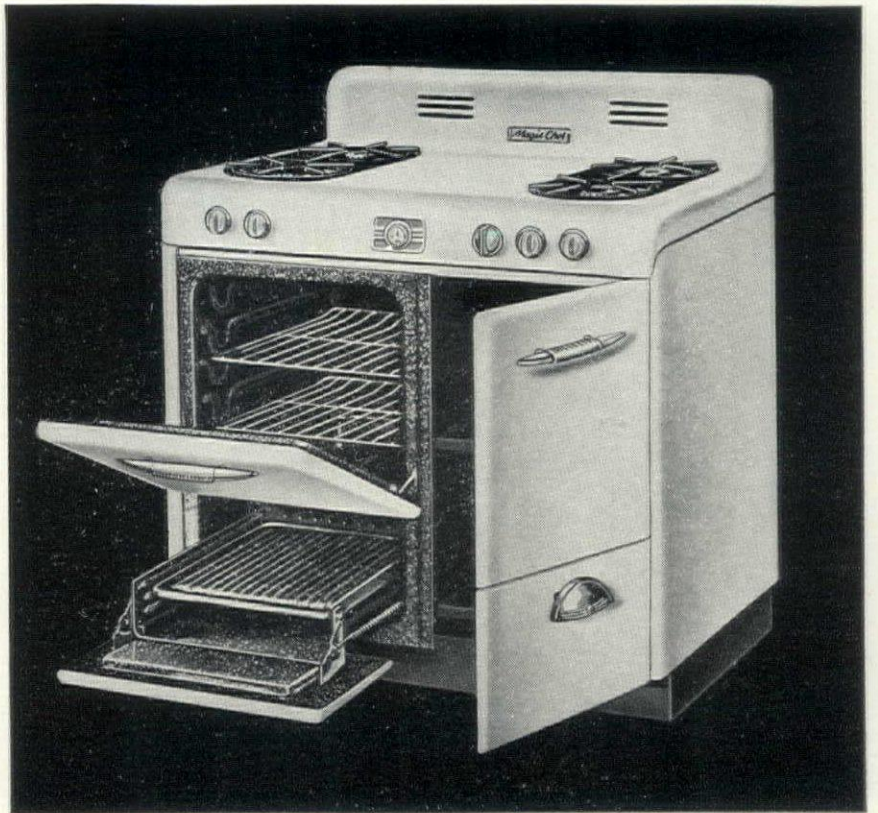
GAS RANGE with the

DIVIDED-TOP DESIGN THAT WOMEN PREFER!

The convenient working space arrangement of the new Series 1500 Magic Chef is just one of the features that is making it a popular range.

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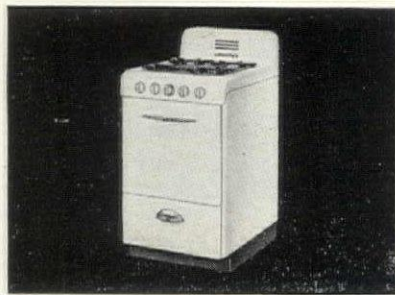
FOR FINE HOMES—the Magic Chef 1000 Series. 62-inches wide, 6 top burners, two large ovens, high-level broiler and a 23" x 24" griddle.

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THE MOST-WANTED gas range is the Magic Chef 1300 Series. 39 inches wide, divided top design, famous Magic Chef Swing Out Broiler.



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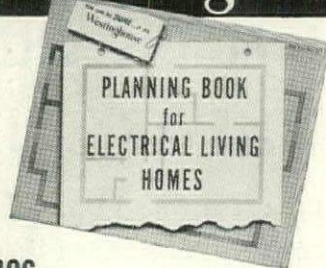
ric-covered (21 decorator's colors) and metal-framed, it's the answer to your closure problems. And it answers your space flexibility problems, too—because you can use it as a "movable wall." Write for full details.

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Features kitchen standards with two layouts: An "Economy Kitchen" that is minimum in space and equipment requirements; and an "Ideal Kitchen" that offers an arrangement of equipment, counter and storage space for those who want the best.

Suggests laundry layouts developed to take advantage of modern automatic laundry equipment.

Gives simplified wiring data, with chart that outlines recommendations on outlet requirements, illustrates how to compute wiring needs and suggests wiring and control center layouts.

Lighting suggestions are illustrated, together with complete case studies.

Design data on electric appliances and equipment is also included. Here is both an idea and reference book that every architect should have.

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Gentlemen: Please send me a copy of Planning Book for Electrical Living Homes, B-4326.

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AIR CIRCULATION. Emerson-Electric Exhaust Fans for Business, Industrial and Institutional Buildings. (Unit X6259.) Emerson Electric Mfg. Co., St. Louis 21, Mo. 16 pp. 8½ x 11 in.

Where and how to use exhaust fans, and how to determine size fan required and methods of installation are some of the helpful subjects treated in this catalogue. Details of design, construction, specifications and performance data are given for all Emerson fans.

COMMUNICATIONS. Autocall Paging Systems. Autocall Co., Shelby, Ohio. 36 pp. 9 x 12 in.

Compiled for manufacturing plants, offices, hospitals, etc., this kit on Autocall paging systems is a good reference for architects, engineers and anyone concerned with locating personnel for emergencies, phone calls and visitors. Comparisons of cost and maintenance among various types of systems are contained in the kit as well as catalogue pages covering sizes of bells, chimes, whistles, horns and various models of Autocall central sending stations.

DRAINAGE. Zurn Building, Plumbing, Drainage Products. J. A. Zurn Mfg. Co., Dept. Z-7, Erie, Pa. 7 pp. 8½ x 11 in.

The manufacture's plumbing drainage products from roof to basement are highlighted in this brochure. Two principal types of Zurn's new cloudburst type roof drain, especially designed for flood water conditions, are described in detail: (1) for prefabricated steel deck and (2) for wood, concrete, or other roof construction. Also shown are the company's floor drains, grease interceptors and wall closet fittings.

The Seventh of a Series in the interest of more efficient use of steel... a vital American resource

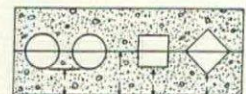
For the BEST ANCHORAGE
don't put "square pegs"
in "round holes"...



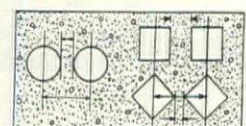
Square reinforcing bar corners break the normal annular gripping of steel by the concrete.

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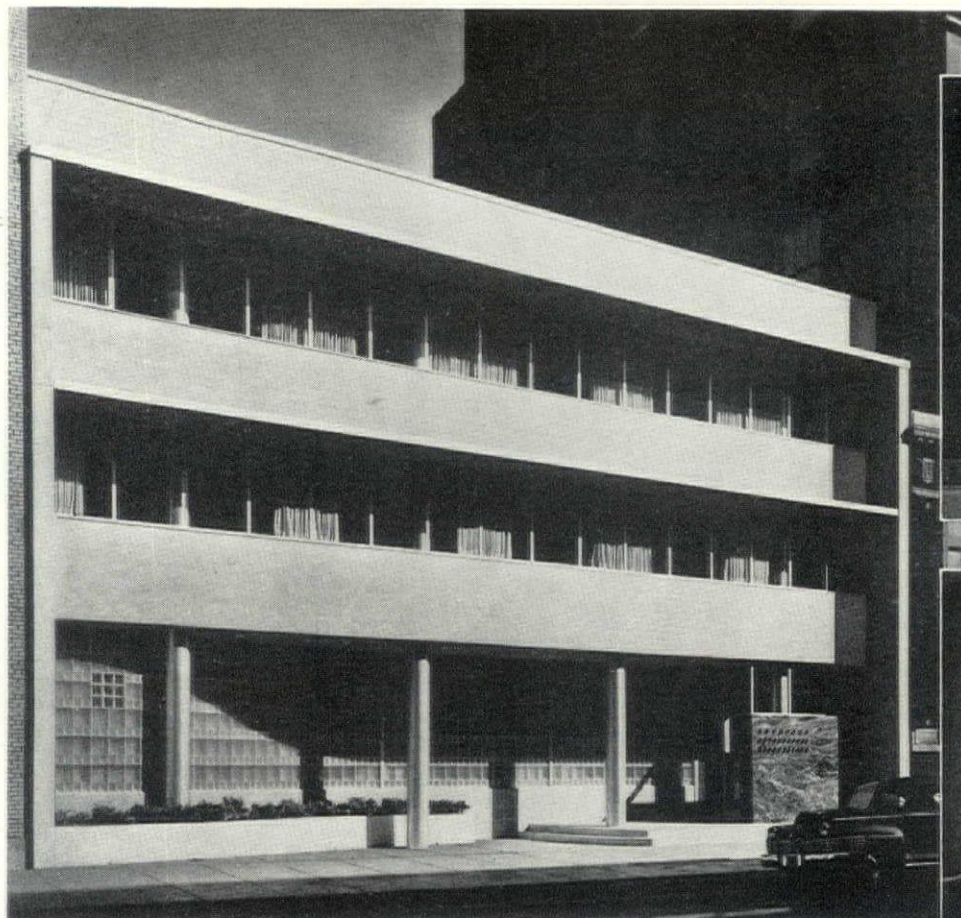
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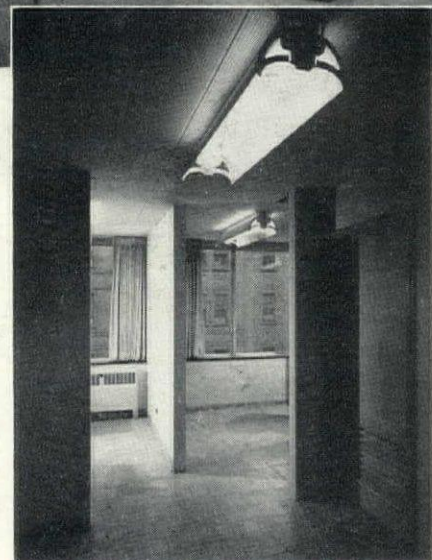
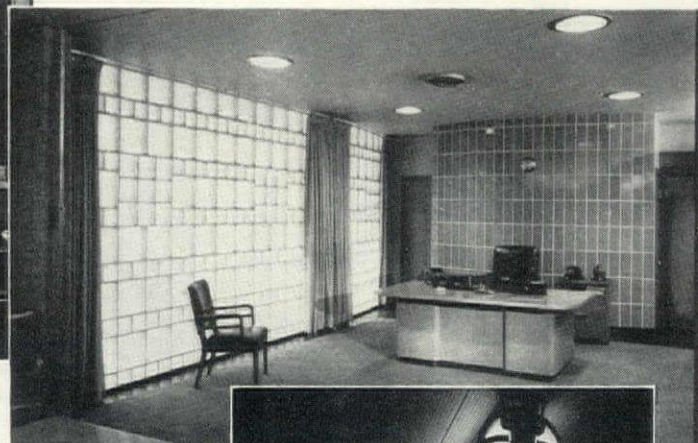
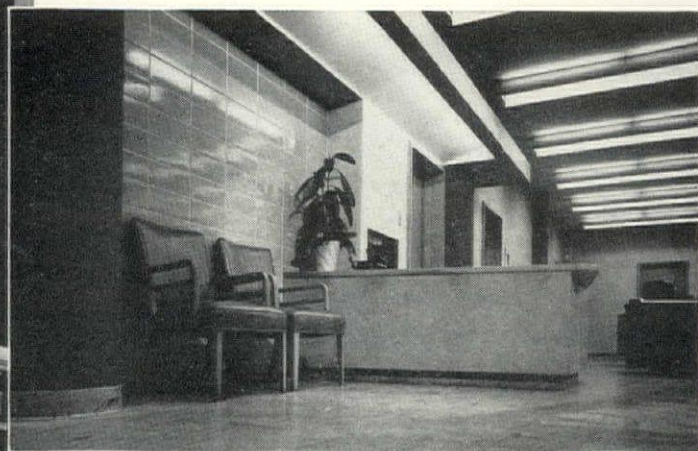
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 PERKINS & WILL, Architects and Engineers, Chicago • GEORGE SOLLITT CONSTRUCTION COMPANY,
 General Contractor, Chicago • ASSOCIATED PAINTERS AND DECORATORS, Chicago



THIS building at 214 East Ohio Street, Chicago, is the new headquarters of the American Osteopathic Association. Surrounded by taller buildings, its facade gets sunlight only in the warmer months. The architects sought the maximum utilization of the rather limited natural light, with continuous windows, shading them with sun visors and drapes, and using a type of glass which filters out much of the solar heat.

The basic construction is reinforced concrete frame with a glazed tile and glass block exterior fronting on Ohio Street, and aluminum sash. The large granite block marking the entrance and identifying the building, is basically gray, with black and red markings.

Because of its interesting and functional design, the building has been visited by many architects, engineers and contractors.

The distinctive colors of Pratt & Lambert Lyt-all

Flowing Flat were used on the walls to impart a warm and cheerful atmosphere.

On request to the nearest office, the Pratt & Lambert Architectural Service Department will aid you in planning authoritative decoration.

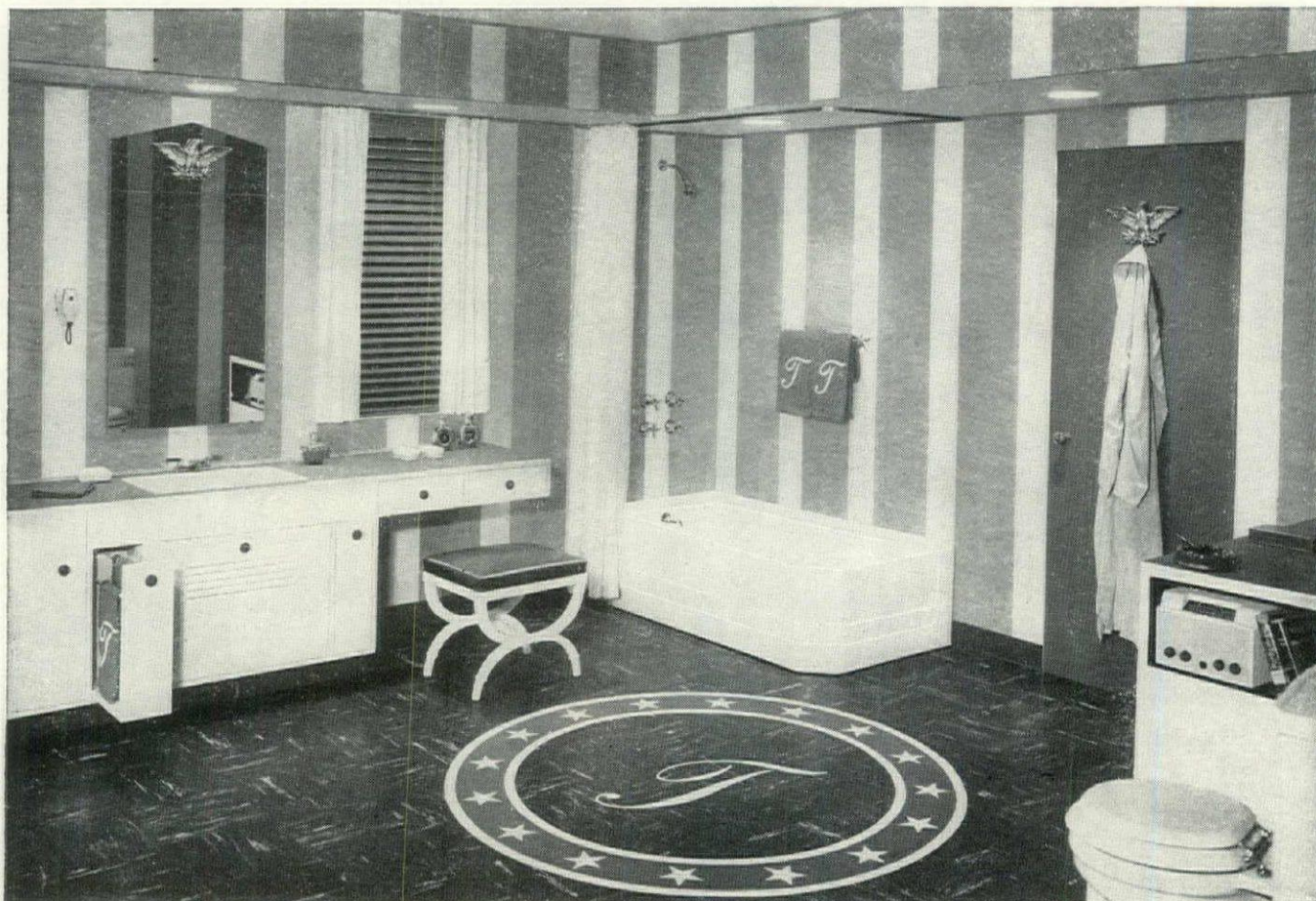
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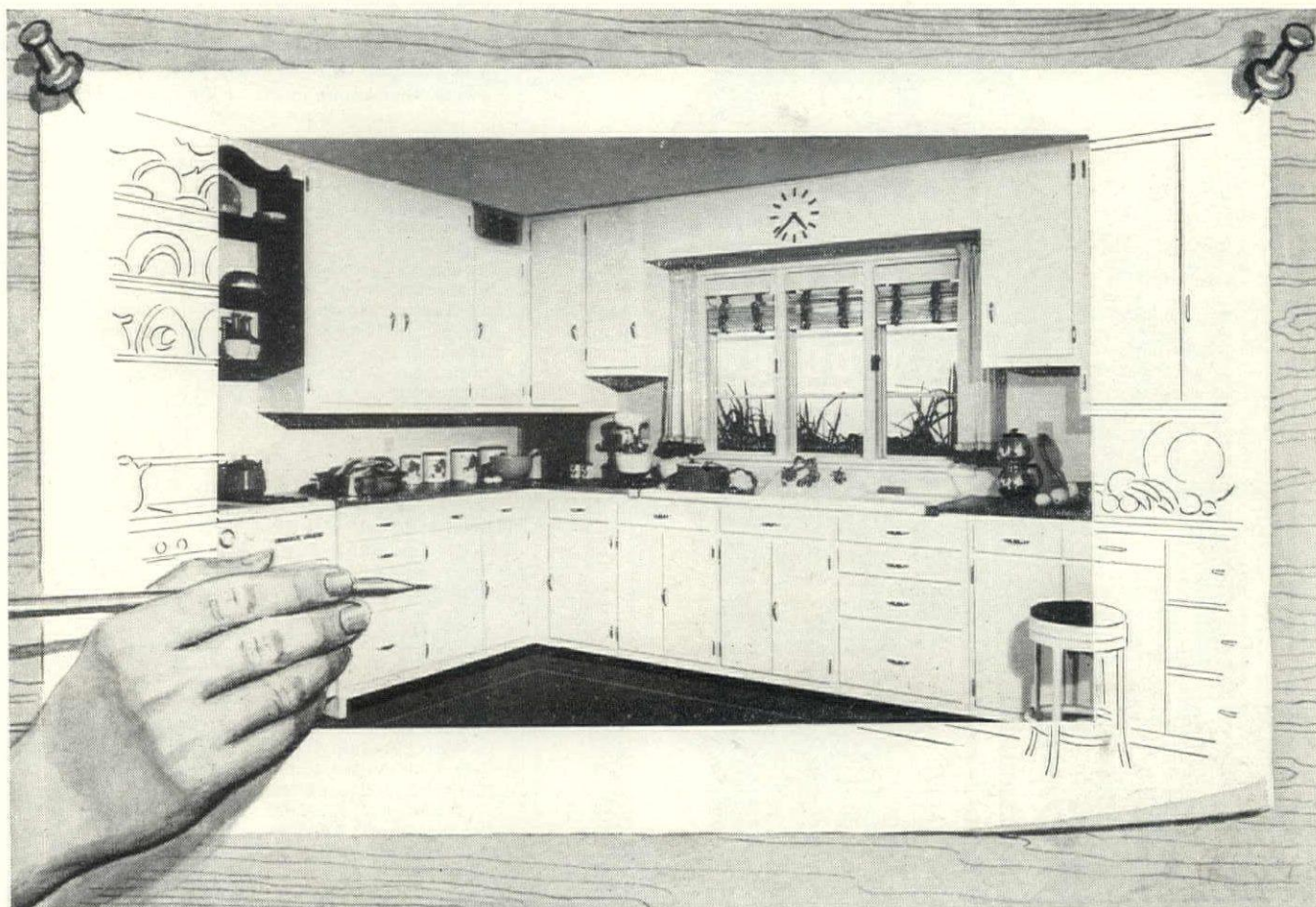
FLOORS AND WALLS

Cleaning is quick and easy... especially important in a bathroom, where moisture and constant high humidity leave water spots and film.

And Tile-Text walls and floors are as durable as they are beautiful. You need never worry about recommending a sound investment for your clients when you specify *Mura-Text* and *Flexachrome*.

Your local Tile-Text contractor is a trained specialist in the installation of these modern wall and floor materials. He has complete specifications and product data on every Tile-Text product. Look in your telephone directory for his name, or write us. We'll rush the information to you immediately. THE TILE-TEXT DIVISION, The Flintkote Company, 1237 McKinley St., Chicago Heights, Illinois.

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the easy way to plan a kitchen

..Any Kitchen!



Today's trend is toward color in the kitchen—and Curtis cabinets make it easy for owners to have a color scheme they want, and to change it at will. Curtis wood cabinets have satin-smooth surfaces that take paint finishes readily—and hold them lastingly.

Freedom unlimited! That's what Curtis sectional kitchen units mean in planning any size or shape of kitchen for step-saving convenience. What's more, you can plan exactly the color scheme that suits the owner's taste. For these wood cabinets come prime coated in white—one finish coat of any desired color completes their decoration and satisfies the housewife.

Curtis kitchen units are made like fine furniture—for durability and easy maintenance. They are quickly and easily installed, not only in homes, but in institutional and commercial buildings as well—schools, churches, hospitals, hotels, restaurants, etc. Wherever storage space is required, you'll find the problem solved with Curtis cabinets.

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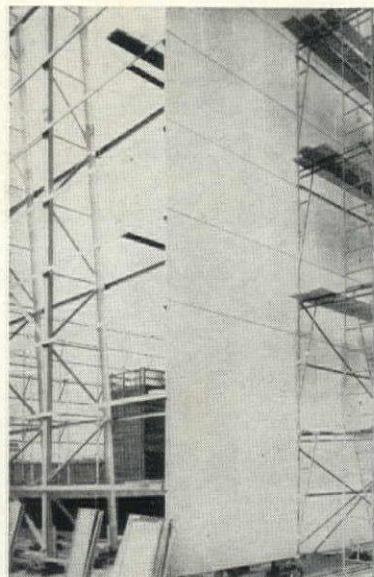
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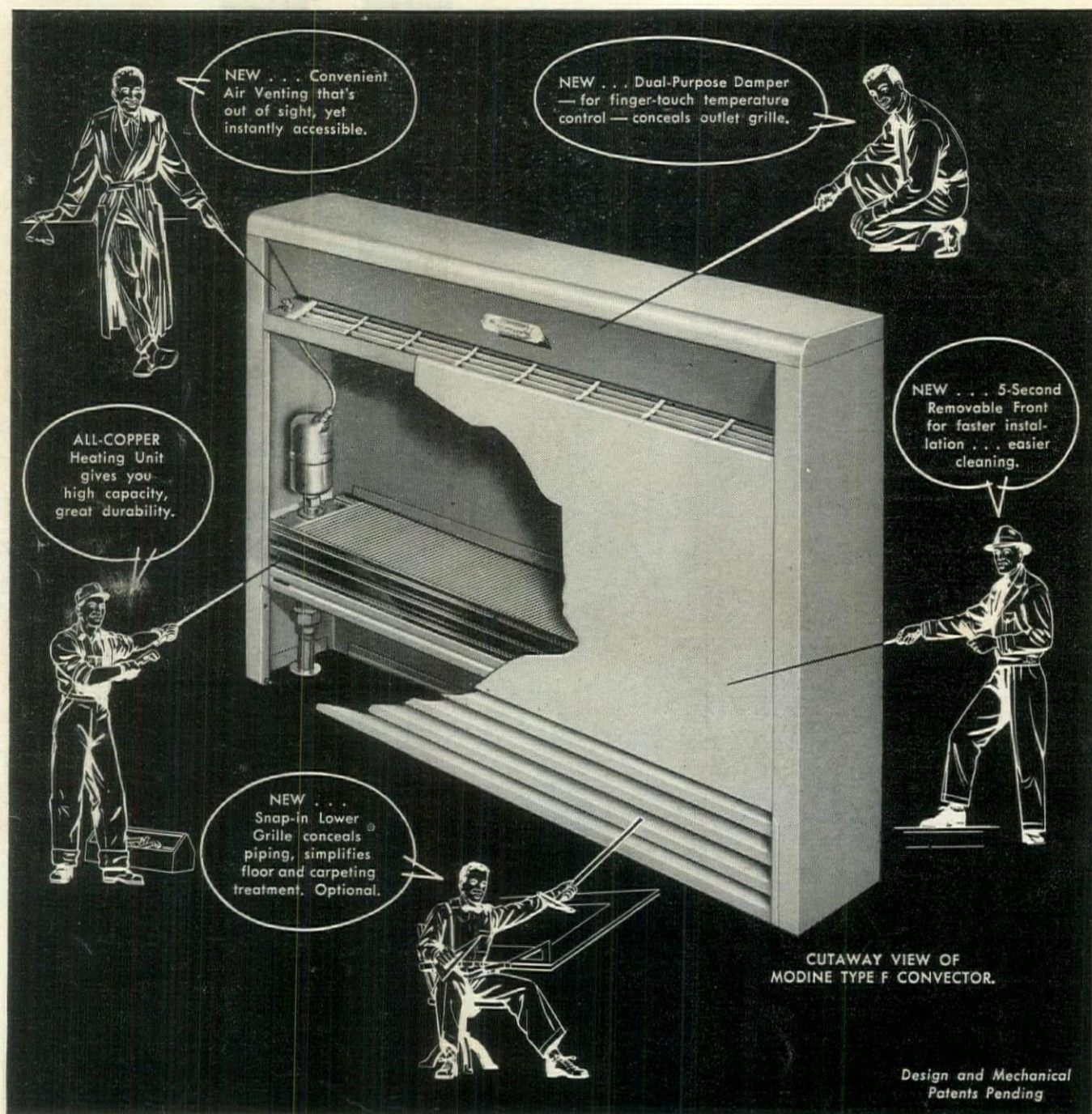


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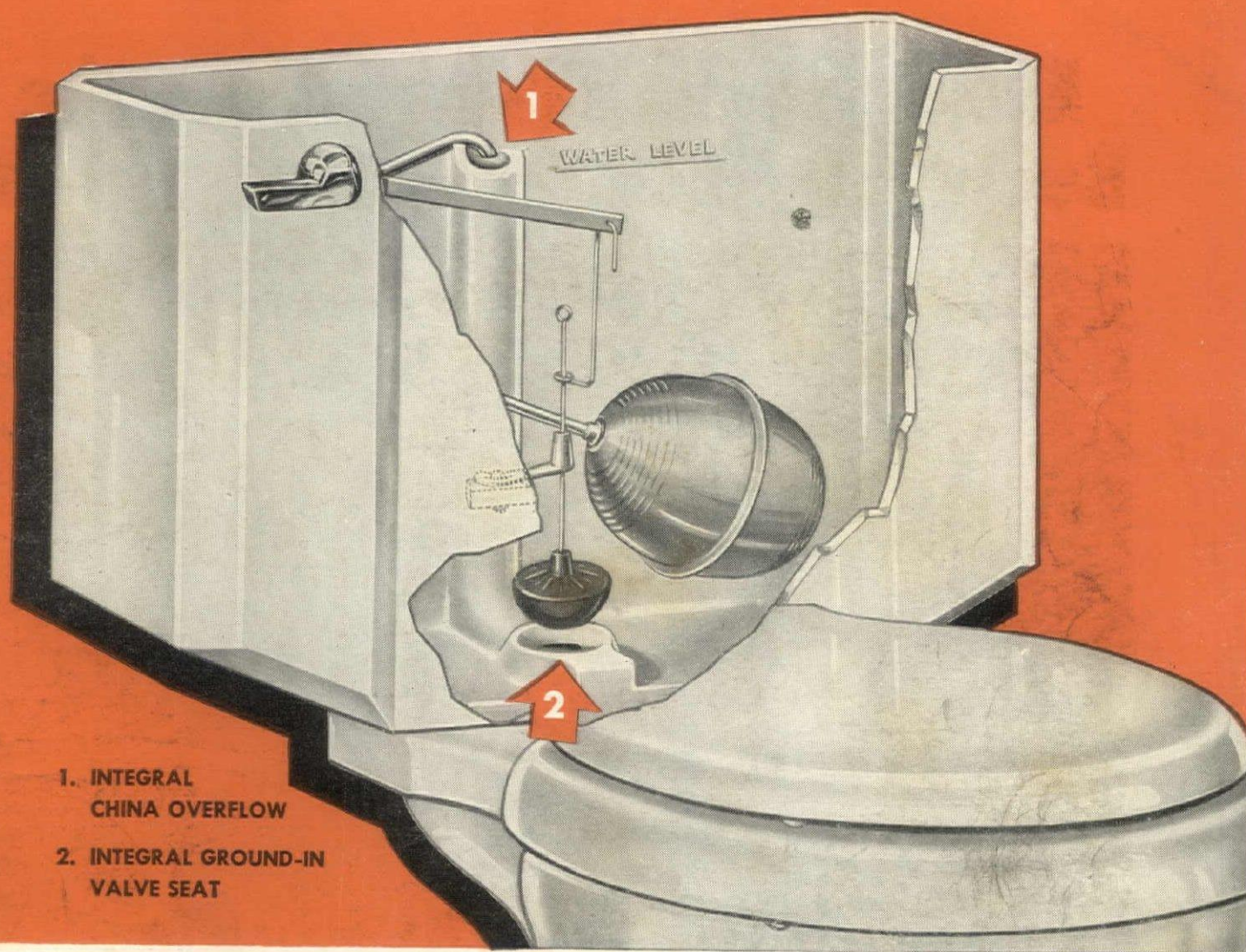
THAT'S the new Modine Convector. For new construction or remodeling, its entirely new features make it the *better* way to heat apartments, homes, schools, offices or hospitals. Choose from four types, many sizes, for one- and two-pipe steam and hot water systems. For the full story, call your Modine Representative. He's listed in the "Where-to-Buy-it" section of your phone book. Or write direct. Modine Mfg. Co., 1507 Dekoven Avenue, Racine, Wisconsin.

Send for New Modine Convector Catalog Today!
Special 1-Pipe Steam Convector Bulletin Also Available.



Modine CONVECTORS

R-1025



1. INTEGRAL CHINA OVERFLOW
2. INTEGRAL GROUND-IN VALVE SEAT

SELL THESE FEATURES...WIN CUSTOMER SATISFACTION

Your customers can easily see *why* the construction of Eljer Water Closet Tanks is the finest available.

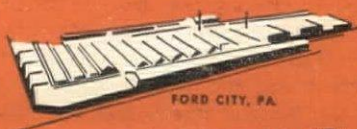
The Eljer *integral china overflow* and *ground-in valve seat* are made of real vitreous china . . . a part of the tank itself. This eliminates thin metal tubes and metal seats that wear and corrode. The construction is *foolproof* . . . built to last the life of the closet. Vitreous china cannot corrode. An Eljer Fixture with

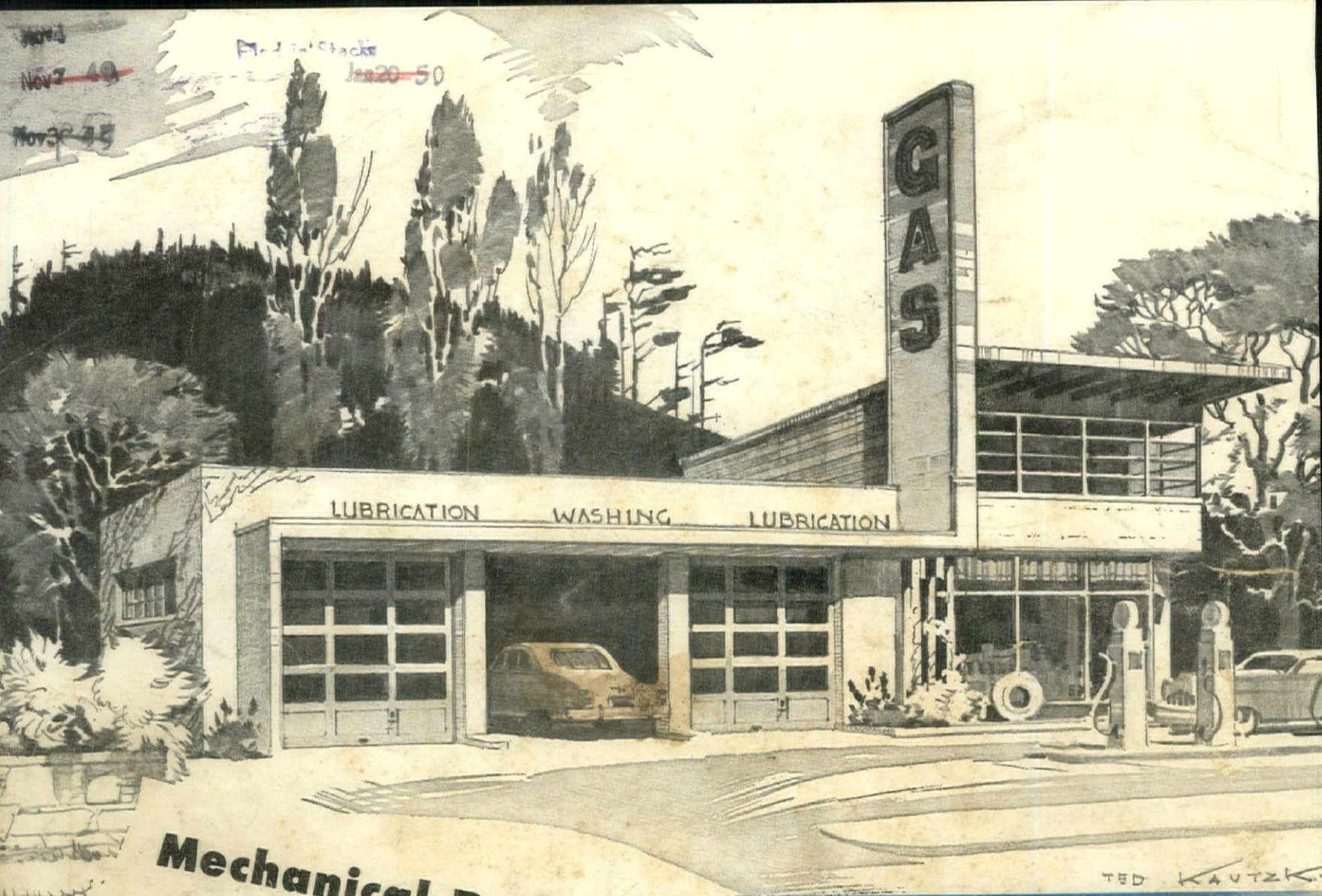
this extra quality costs no more than an *ordinary* fixture . . . even less, considering the resulting savings in maintenance expense.

Any plumber who points out these extra values to homeowners will make extra sales . . . and have satisfied customers. To have quality customers, sell quality plumbing fixtures. Sell Eljer . . . see your Eljer Distributor or write Eljer Co., Box 192, Ford City, Pa.

It pays you, it pays us - because we specialize in Plumbing Fixtures and Brass

ELJER





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Perfect Performance!

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These are among the features which have led to selection of The "OVERHEAD DOOR" by millions of satisfied users. Specify this door for unexcelled performance in commercial, residential or industrial use. Any "OVERHEAD DOOR" may be manually or electrically operated.

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MIRACLE WEDGE

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