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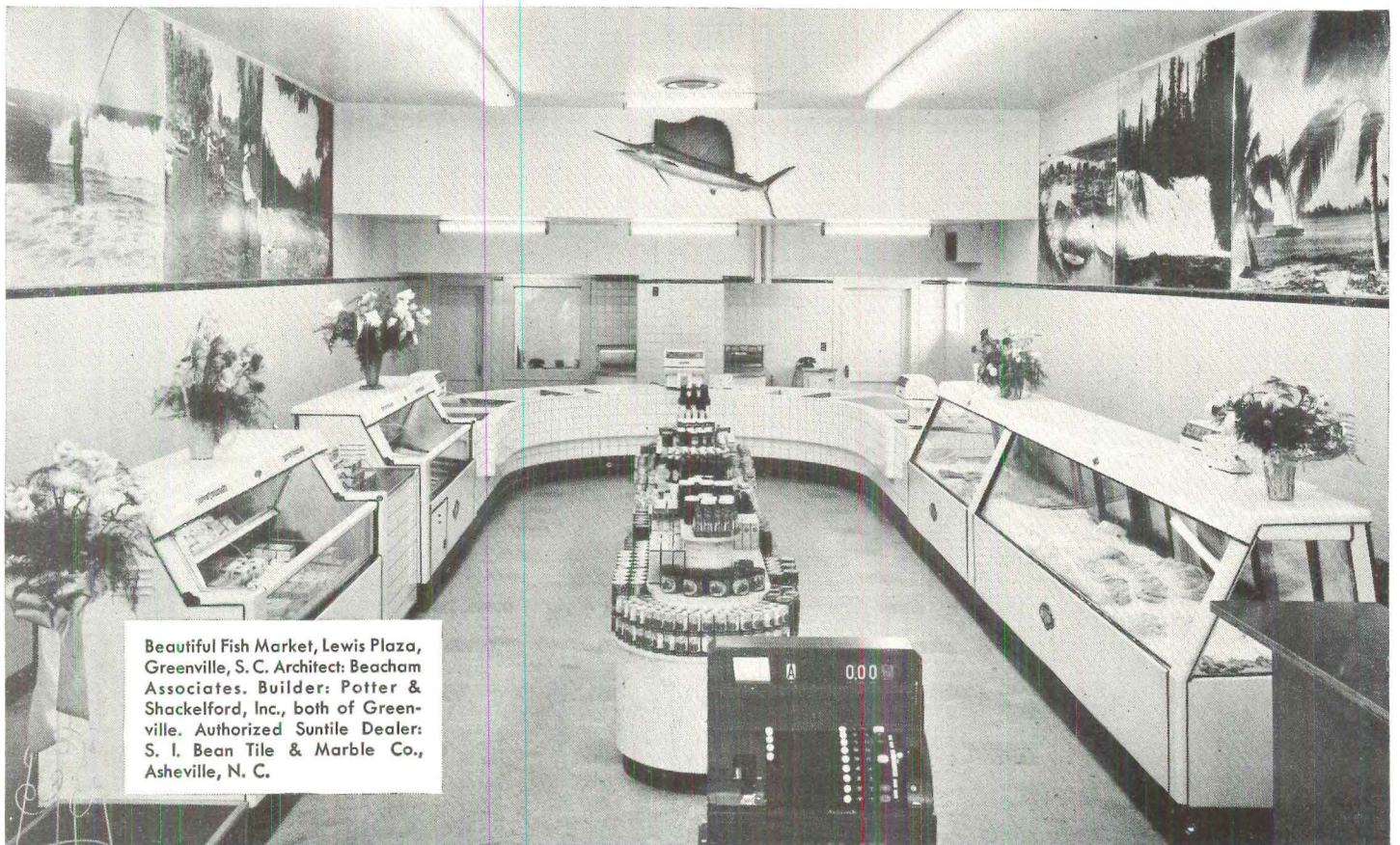
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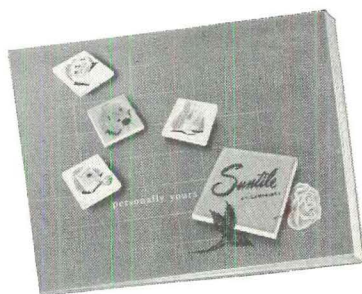
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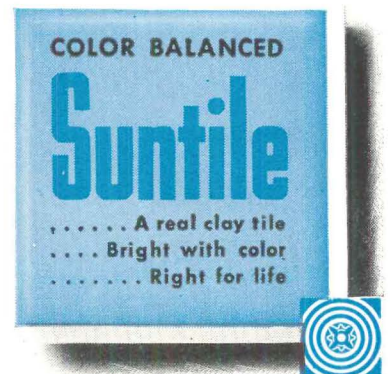
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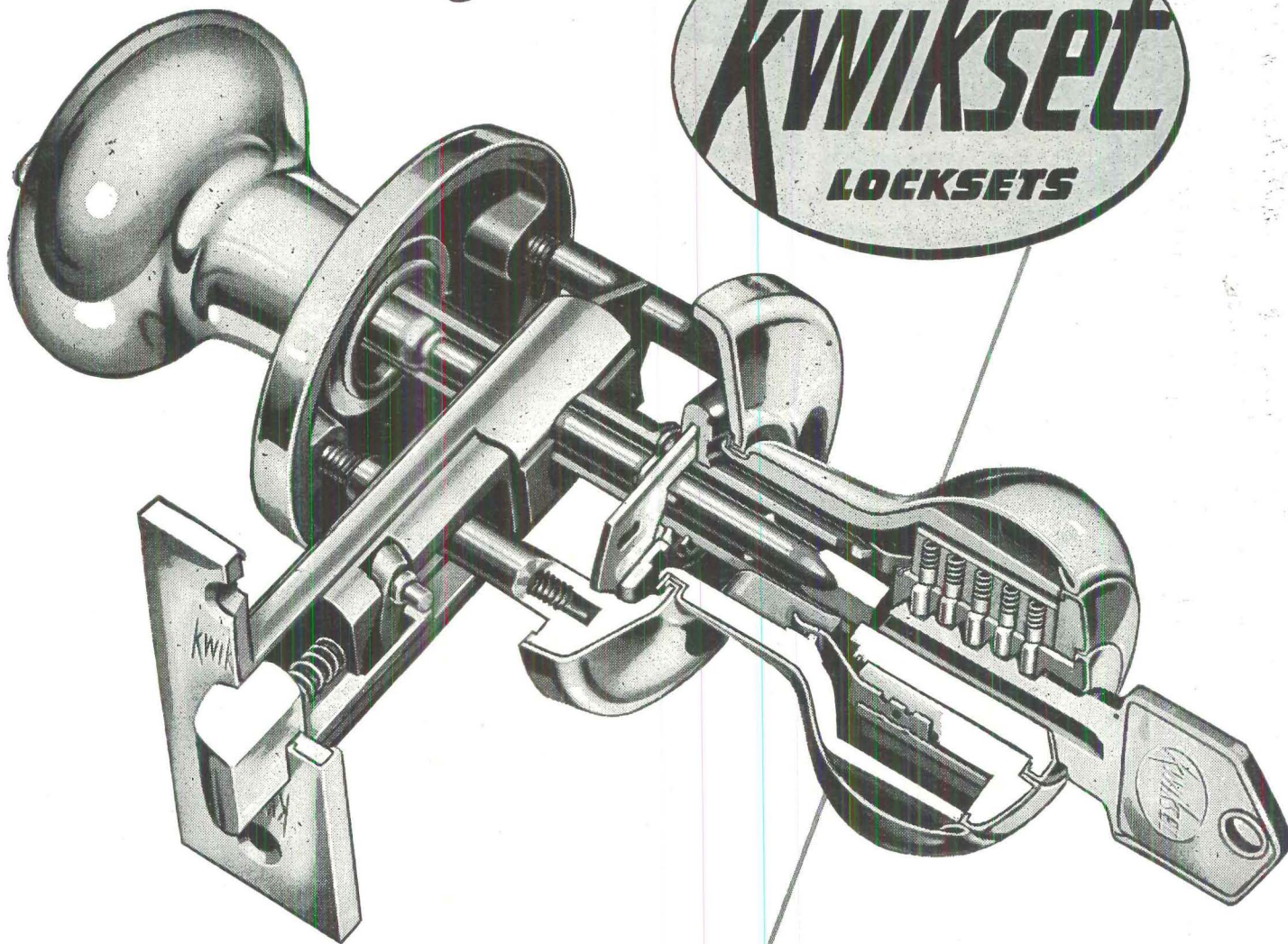
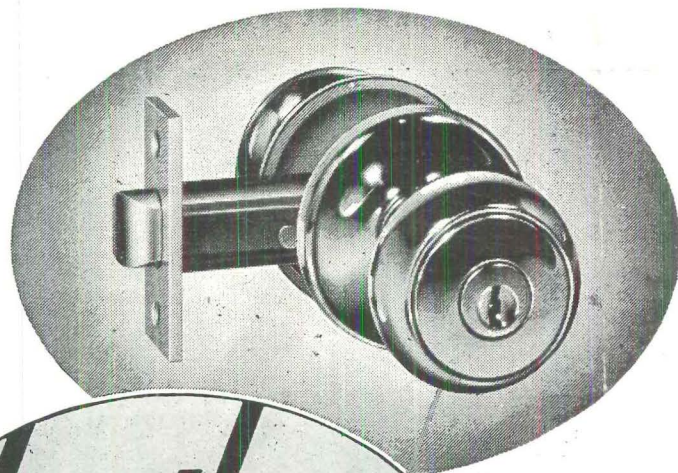
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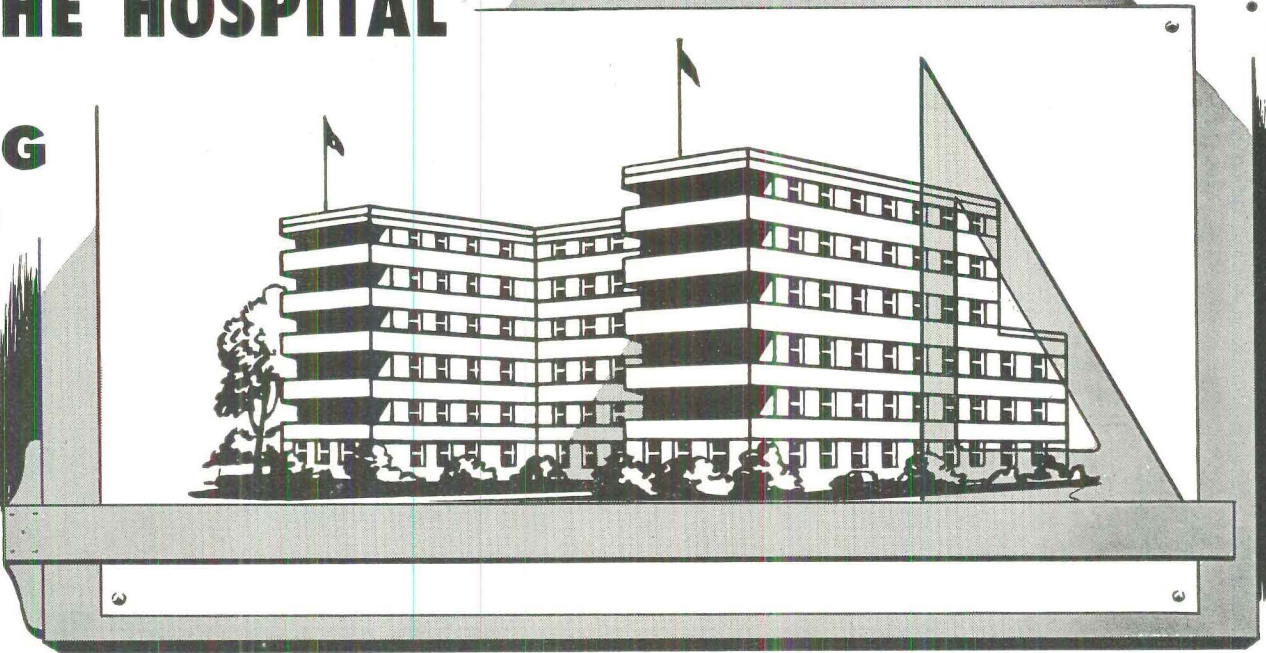
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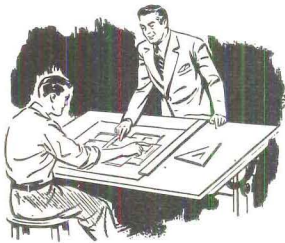
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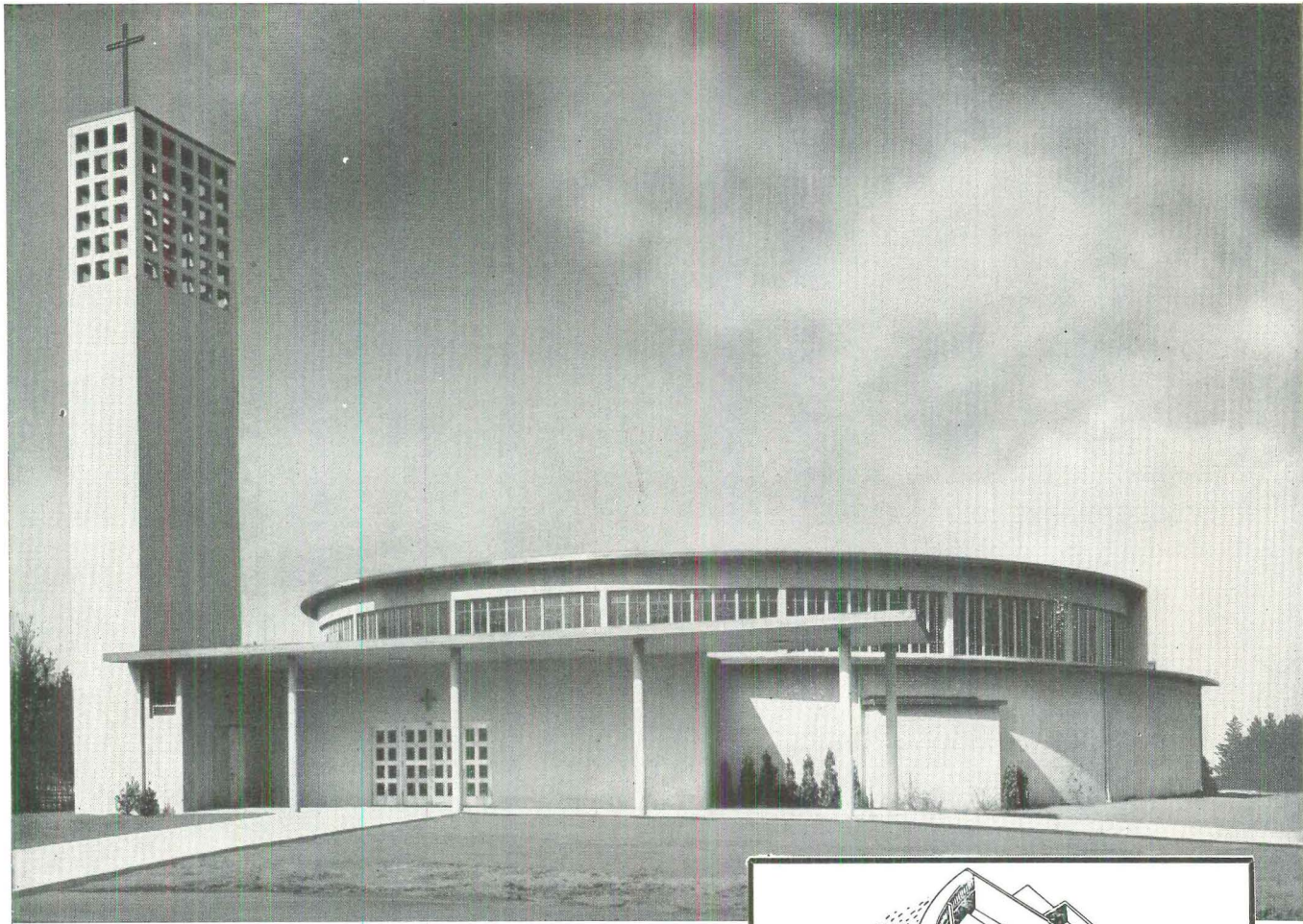
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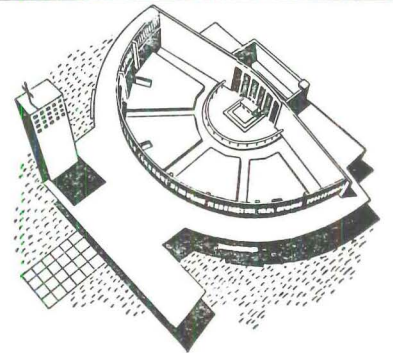
"Plywood Offered Best Solution to Form Problems,"

Says Seattle Architect Paul Thiry

CONCRETE surfaces for this Seattle, Washington, church had to be smoothly curved to carry out the simple dignity of the design. Architect Paul Thiry specified Douglas fir plywood forms.

"The panel material," he says, "offered a simple and most economical solution to the twin problems of smooth concrete and curved structure. Plywood is easy to use. It produces smoother surfaces with a minimum of finishing and is readily bent to the desired radius."

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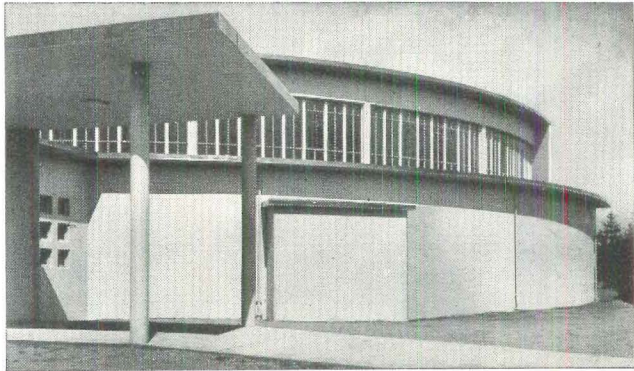


Church of Christ The King, Seattle—a striking departure from traditional treatment. Curved walls were formed with 4'x8' 5/8" plywood, nailed horizontally to 2'x12" wales, band-sawed to desired radius. Wales were placed together, 24" to 30" o.c. In no place were they sawn to less than 3 inches. Double wales were backed with 2'x4" studs, 12" o.c. The Austin Company, Seattle, were the builders.

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The half-circle shape of the structure affords a fan-shaped seating arrangement which brings the entire congregation close to the altar. Reinforced concrete construction eliminates the need for supporting columns which block vision.

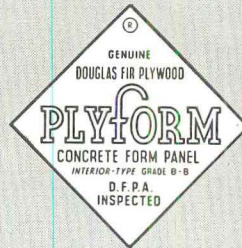
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For additional data on Douglas fir plywood for concrete form work, see Sweet's File, Architectural, or write (USA only) Douglas Fir Plywood Association, Tacoma 2, Washington. Of particular interest are two booklets: "Concrete Forms of Douglas Fir Plywood" and "Handling PlyForm."

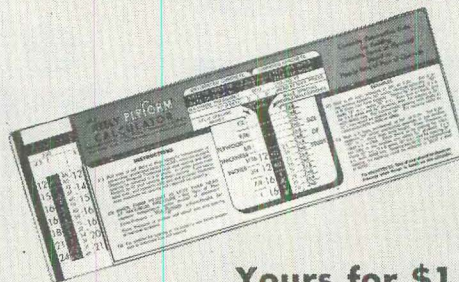
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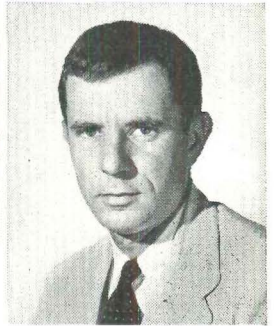
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BUILDING FORECAST FOR 1951: A drop of 14 per cent, with housebuilding suffering most. But the New Year looks just as good as prosperous 1949

When the final bill is in, total construction expenditures this year will have totaled more than \$27 billion, making 1950 about 20 per cent bigger than 1949 and therefore the biggest year in the industry's history.

Next year won't be so big. Consolidated by THE MAGAZINE OF BUILDING, the estimates of industry economists and Government prognosticators point to a total 1951 expenditure of \$23 billion. This will put 1951 about 14 per cent below 1950 but will still make it the second best year on record—a shade above prosperous 1949.

Never before has a new year's building estimate been so difficult. The industry's crystal balls are unseasonably clouded with the uncertainties of the war, the military's unknown material and manpower requirements, the unpredictable thinking of Government planners, the untried attitude of a new Congress, and finally the as yet unmeasurable effect of industry controls already on the books. However, even in this fog of uncertainty, enough facts stand out to make possible an educated guess as to the course of construction in the year ahead. It is on these facts, outlined below, that this forecast is based. It is further based on a continuation of the warm war with the Communists—full-scale war and total mobilization would kick the forecast into a cocked hat.

Public building. The first clear fact which aids the forecasters is that increasing emphasis will be placed on publicly financed construction. It is slated to increase 3 per cent to \$7 billion—compared with the previous peak of \$10.7 billion in 1942. The biggest increase (200 per cent) will take place in military and naval building which is expected to involve a \$45 million expenditure. But the estimated need for this type of building is being revised upward daily as military men discover that World War II cantonments are not in as good shape as first believed and that existing airfields must be continually expanded to make way for today's faster and bigger airplanes.

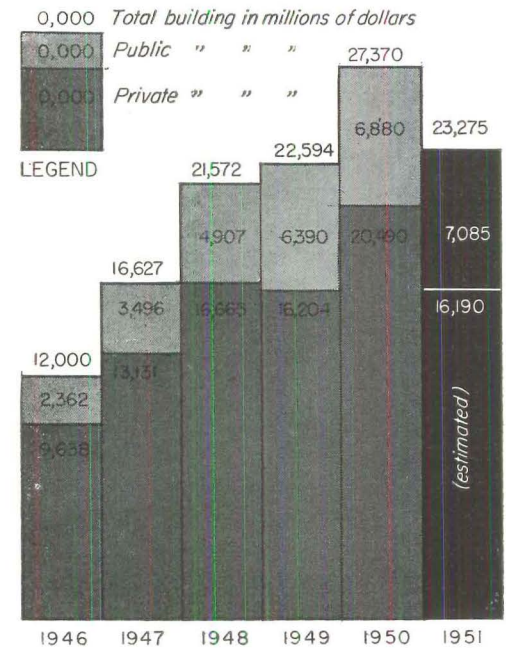
Public school construction must expand (7 per cent to \$1.2 billion) to make room for the growing horde of school-age children which will not reach its peak until 1960. Government financed industrial construction (arsenals, hydrogen bomb plants, etc.) is expected to jump 75 per cent from \$200 million in 1950 to \$350 million next year. The only other category of public building scheduled for an appreciable rise is housing—from \$335 million to \$400 million, or 19 per cent—despite the cry of private enterprise that government housing should be cut back along with other housing. However, this estimate may prove optimistic in view of the recent trouble public housers have had in obtaining construction bids within the legal cost limits of the program.

Private building. The modest rise in public construction will help offset the anticipated 20 per cent drop in privately financed work to \$16 billion—roughly the level of 1949. Practically every category of private building is expected to participate in the decline. (Exceptions: industrial and public utility construction—see below.)

Residential building will suffer most, although not as much as the industry feared when the credit restrictions were first announced. While industry spokesmen in October gloomily cried that new housebuilding would be slashed 50-70 per cent, the experts now believe the drop will be only about 33 per cent—from \$11.3 billion in 1950 to \$7.5 billion next year. Translated into dwelling units these figures mean about 800,000 starts next year as opposed to this year's estimated 1,300,000.

The big reason for the improved outlook is the great number of mortgage applications which got under the wire before the credit restrictions were imposed—most of which will not be used until 1951. Estimates of such housing finance plus post-restriction mortgage applications which will be carried over to next year range from 700,000 to 760,000 dwelling units, including 190,000-270,000 rental units. While many of these, of course, will die on the vine between now and next Spring, between 300,000 and 400,000 should become actual "starts" in the first half of 1951, including 150,000 to 250,000 rental units. Thus, 1951 is assured of a fairly good start in the residential field. And if the credit restrictions do not permit the starting of a substantial amount of additional housing next summer, the Government has promised to relax the curbs. (It is already setting up the machinery to measure the effect of the credit curbs—see p. 10.)

However, if private residential building doesn't live up to this prediction, the cause is more likely to be material shortages than credit curbs. Last month, while the Gov-



CONSTRUCTION FORECAST FOR 1951 (Millions of dollars)

Type of construction	1950	1951	% change
Total private	20,490	16,360	-20
RESIDENTIAL	12,345	8,570	-31
New dwellings	11,275	7,500	-33
Additions, alterations, etc.	900	900	0
Nonhousekeeping	170	170	0
NONRESIDENTIAL	3,755	3,290	-12
Industrial	1,065	1,250	+17
Offices, lofts, warehouses	400	350	-13
Stores, restaurants, garages	875	700	-20
Religious	400	300	-25
Educational	295	270	-9
Social and recreational...	345	300	-13
Hospital and institutional	240	20	-92
Other nonresidential	135	100	-26
FARM CONSTRUCTION ..	1,090	1,000	-9
PUBLIC UTILITIES	3,185	3,400	+7
OTHER PRIVATE CONSTRUCTION	115	100	-13
Total public	6,880	7,085	+3
RESIDENTIAL	335	400	+19
NONRESIDENTIAL	2,255	2,295	+2
Industrial	200	350	+75
Educational	1,125	1,200	+7
Hospital and institutional	455	445	-2
Other nonresidential	475	300	-37
MILITARY AND NAVAL ..	150	450	+200
HIGHWAY	2,350	2,500	+6
SEWER AND WATER ..	655	500	-24
OTHER PUBLIC CONSTRUCTION	1,135	940	-17
TOTAL CONSTRUCTION	27,370	23,445	-14

ernment was grinding out a series of orders limiting the fabrication of various critical war materials (see p. 12), housebuilders were already beginning to feel the pinch and beginning to realize that such materials as cobalt (used in finishing bathroom and kitchen equipment), aluminum, copper, steel and zinc would create their No. 1 problem for 1951. Commented Long Island Builder Bill Levitt: "In the face of impending material shortages, the credit curbs are no longer important."

Nonresidential building will fare better than housebuilding; it is due to drop only 12 per cent to \$3.3 billion. Only industrial construction is scheduled to expand (17 per cent to \$1.3 billion) to meet the growing demand for war material production. This volume of building will be swelled by such projects as the \$144 million steel plant program announced by Jones & Laughlin—the first to take advantage of the Government's new accelerated depreciation tax law (BUILDING Nov. '50, p. 13).

WASHINGTON

NEW CONGRESS promises a more sympathetic attitude towards private building

In appraising the election results, building men needed no crystal ball to tell them that their future had taken on a rosier hue. At least they could stop worrying for a while about having housing legislation of the social reform type rammed down their throats. With only a nominal grip left on Congress, the Administration would obviously think twice before having another try with its middle income family housing bill or going to bat with other proposals from its do-gooder wing.

There was always the possibility that Truman might pitch a few curves. Knowing in advance that he would not get to first base for all his efforts, he still might toss up a few proposals with a welfare slant just to let Congress swing at them. Through such strategy he could build up campaign material for the fair deal program during the next elections—seek to capitalize on how the reactionary forces had struck out when it came to progressive legislation. Also he could attempt to steal a base in the form of a defense housing bill. This device could be employed to sneak through an extension of the public housing program on the plea that private industry could not provide the needed facilities quickly enough.

Actually, the industry would find the atmosphere on Capitol Hill so wholesome that it could look forward to something better

Other categories of non-residential building are likely to drop from 9 per cent (private schools) to 92 per cent (private hospitals and institutions). In between, offices, lofts and warehouses are due for a 13 per cent drop while expenditures for new stores, restaurants and garages (the second biggest category next to industrial) will be 20 per cent below the 1950 level.

While curtailment is normally an odious word, the curtailment forecast for most phases of building activity during 1951 is not as serious as it might seem. It will usually be curtailment from a very high level—from a peak level in many cases and, in the case of house building, from a dangerous level of over-production. Thus, in view of this year's record-breaking construction activity, next year's outlook for most types of construction can be viewed with relief rather than alarm. Barring changes in the assumptions on which this forecast is based—including a continuation of the warm war—the new year promises to be a good one business-wise for the industry.

than merely being in a strong defensive position. There was already some talk about launching a counter offensive—a repealer that would shut off any more public housing.* With the southern Democrat-Republican coalition more firmly in the saddle than ever, such a measure would have a fighting chance in the House. It would have a harder time making the grade in the Senate, however, since high placed Republicans in the upper chamber are favorably disposed toward public housing. For example, Ohio's Bob Taft whose whopping plurality at the polls has given him added influence, was one of the sponsors of the public housing bill. Also other senior Republican Senators such as Tobey of New Hampshire, minority leader of the Banking Committee, and Saltonstall of Massachusetts, staunchly supported the program.

Particularly disconcerting to White House strategists was the fact that the House Banking Committee which handles all measures dealing with credit and lend-

* Projects already started or for which the federal government had signed annual contracts of assistance could not be touched. However those over the dam on both of these counts totaled only 82,825 units—a far cry from the 810,000 units authorized by the program. In view of the threat of such a crippling amendment the Administration was expected to rush as much work as possible to the contract signing stage in the interim before the new Congress takes over.

ing policies (this takes in rent control and most housing bills) would have to be given a major overhaul. Two of its Democratic members were defeated—Congresswoman Woodhouse of Connecticut and Representative O'Hara of Illinois. Another Democrat, Mike Monroney of Oklahoma, was elevated to the Senate. In addition, Frederick Smith of Ohio, John Kunkel of Pennsylvania and Rolla McMillen of Illinois, all Republicans, decided voluntarily to retire from office. All told this meant that there would have to be six new appointees.

And it was a lead-pipe cinch that practically all of them would be handpicked from the conservative side of the fence. In fact, one of the Democratic vacancies would be filled by a Republican to give the minority party the higher ratio on committees it was entitled to by virtue of its election gains. The Senate Banking Committee only lost one member. Glen Taylor, the "singing cowboy" from Idaho, (who had been given a Democratic seat on the committee even though he was Henry Wallace's running mate on the third ticket) rode to his last roundup at the polls. In the Senate too, it was expected that the Republicans would be given added representation on the committees; would fill some of the Democratic seats.

EFFECT OF REGULATION X will be measured by a three-way survey

One aspect of Regulation X that has kept the government's housing hierarchy in a tizzy—to say nothing about the apprehension it has caused in industry circles—has been the difficulty of keeping score. How was the clampdown on building credit working out? How much retrenchment would there be next year? What was the backlog piled up before the new order became effective? Until more light could be shed on these basic questions it was obvious that the program for holding housebuilding down to 800,000-850,000 starts in 1951 would be operating largely in the dark.

Fully aware of the need for more beacons, HHFA research director Richard Ratcliff in close collaboration with other key officials and with industry and labor representatives has been bending his efforts toward developing accurate statistical measures that would light the way.

The three-front approach: 1) Two advisory committees would be set up representing industry and labor organizations. One, a committee on Credit Production Statistics, would give voice to spokesmen for fifteen different trade associations

within the building industry and Building Economist Miles Colean. The other would be known as the Housing Consumers Committee and would give consumer groups their say. Labor would have seats on both because of its dual function as both a producer and consumer of housing. 2) Aided by allocations from the President's emergency fund, the Bureau of Labor Statistics would be called upon to make sample studies of how much builders were trimming their sails because of the adverse credit weather; would also be asked to supplement its monthly reports on housing starts. 3) HHFA would attempt to determine how many of the pre-X mortgage commitments could be expected to slop over into next years' building operations.

In its sample survey, BLS intends to sound out 12,000 builders but, because all of them will not be live prospects for the information it is seeking, expects to wind up with information from only about 8,000. It will ask them how much land they held last year, how much they now have on hand or under option, and seek generally to find out how Regulation X has affected their operations. To get a meaningful answer to this leading question it will try to ascertain whether any curtailment reported is due to fear of material shortages or to the credit restrictions. Because the attitude of the builder is the basic factor in house production, this survey should produce some enlightening data.

As far as next year's housebuilding volume is concerned, it will not make a particle of difference as to what caused a builder to withdraw from the game. But his motivating urge will have a tremendous bearing on the vital question of whether Regulation X should be softened. If he is impelled mainly by worries about an impending scarcity of essential materials, no amount of relaxation of the credit curbs will bring him back.

For their part, HHFA researchers hope to crack one of the toughest problems—that of measuring the backlog. By merely adding up the huge volume of housing that managed to squeeze in under the credit application ropes before the October 12 deadline for Regulation X took effect, it is easy to get an impression of the situation. But it is a faulty one. It is known, for example, that there is about a 40 per cent overlapping between the FHA and VA applications. Then too, allowance must be made for rejects and for the number that have since been converted to starts.

The Washington high command feels that builders have been needlessly jumping up and down and screaming about

what the regulation is doing to them. While it is perhaps a natural reaction, such officials as FHA Commissioner Richards believe that if they carry it too far they might scare themselves into a slump. One point he makes is that where construction costs have gone up more than 6 per cent, the old July credit rules were tighter than the ones that went on the books October 12—Regulation X. This is because the July order held appraisals down to costs as of July 1. The latter regulation imposes no such restriction.

PEOPLE

John H. Fahey, former newspaper publisher and retired chairman of the Federal Home Loan Bank died in Washington on November 19th at the age of 77. President of the Twentieth Century Fund, he was attending a meeting of its Board of Directors when stricken. During Fahey's 15 year directorship of FHLB, the Home Owners Loan Corp. and the Federal Savings & Loan Insurance Corp., millions of homeowners were saved from foreclosure, hundreds of banks from insolvency.

Early last month Miami broker **Kenneth Keyes** negotiated the purchase of New York City's well-known Hecksher Building at the prized corner of Fifth Ave. and 57th St., his fourth major coup of important commercial property in the city in recent months. Exotic note: in each case the clients were reputed to be a group of wealthy Cuban businessmen adding to a growing inventory of U. S. realty.

Two new appointees to the National Production Authority to supervise construction are **Frank Creedon** and **John Haynes**. Creedon will head a Facilities Branch to provide construction and equipment for the military (including defense plants). He was with WPB and the War Department

Van Tassel



Creedon



Haynes

during World War II, was Housing Expediter in 1947. Haynes, former Director of the Commerce Department's Construction Division, will direct NPA's Building Materials Branch, will channel construction supplies with reference to defense requirements. With James Follin's earlier appointment (BUILDING, Nov., 1950) to direct construction controls, the industry now has three able men in the NPA hierarchy.

Associated Press



Realtor Dempsey

Newest realtor in Beverly Hills is **Jack Dempsey**, pictured here in academic robes and mortarboard at graduation ceremonies of the California Real Estate School. Licensed last month, Broker Dempsey is the latest boxing champ to turn building professional, following in the footsteps of **Joe Louis** and **James J. ("Gene") Tunney**, both of whom have been merchant builders. Said Dempsey of his newest venture: "The fight business is still my first love, but the real estate business is the oldest and best in the world."

Gretchen Van Tassel



New faces on Washington's Fine Arts Commission are (l to r) Sculptor Felix W. de Weldon, Dean Joseph Hudnut of Harvard's Architectural School, Painter George Biddle, Director David E. Finley of the Nat'l. Gallery, Lands. Archt. Albert Peets, Dean Pietro Belluschi, MIT's Architectural School.

CREDIT CURBS AND STOP ORDERS: a recap of those on the books and a look ahead at those to come

Since the war in Korea began, the Government has taken numerous actions which in one way or another have affected the building industry:

- ▶ On July 19 FHA and VA boosted down payment requirements on new houses 5 per cent and froze appraisals for mortgage purposes at the relatively low July 1 cost level.
- ▶ The loosely worded anti-hoarding order holds only minor significance for large contractors.
- ▶ The granting of DO (defense order) priorities for military needs will not affect the industry until war production gets into high gear and begins to cause delays and shortages of building materials (particularly metals).
- ▶ Stepped-up stockpiling by the Government is already causing metal building material shortages and has prompted the issuance of the material orders discussed below.
- ▶ Regulation X by the Federal Reserve Board and the corollary FHA and VA regulations, effective on Oct. 12, further boosted down payment requirements and cut the amortization terms of house mortgages.
- ▶ The National Production Authority on Oct. 27 called a halt to all amusement and recreation building not already started.
- ▶ To help along the Government's stockpiling of strategic war materials, the use by fabricators of steel, aluminum, nickel, copper, cobalt and zinc has been limited to 30-85 per cent of the quantities they used during the first half of 1950. The effect of these "M orders" will soon be felt in shortages of building materials, equipment and appliances made of these metals.

More controls are in the offing. As this went to press, a credit curb on rental housing (Regulation Y) was expected momentarily. The Federal Reserve Board was seeking a sharp and uniform cut-back on all types of rental building, arguing that there was a sufficient back-log of commitments on unstarted construction to provide 200,000 rental dwelling units, including 90,000 under FHA's lenient "608" financing program which was called off last March and 60,000 under the Government's public housing program. On the other hand, the Housing & Home Finance Agency argued that a restriction of rental housing credit would not be appreciably effective before 1952. The President's counsellor, Leon

Keyserling, insisted that public housing volume should be allowed to go to the legal limit of 100,000 units in 1951. While FRB wanted the new regulations to be based on costs, the industry advisory committee (Realtors James Felt and Paul Tishman of New York City, Builder Phil Klutznick of Chicago, Insurancemen John Jewett of Prudential and Charles Baldwin of Mutual) wanted the basis to be appraised value.

With the eventual reconciling of these differences of official opinion, it was expected that Regulation Y would bring conventional (uninsured) apartment house loans controlled by FRB in line with FHA's "207" rental housing program, which limits mortgages to 85 per cent of the first \$7,000 of valuation per dwelling unit and 55 per cent of the balance. Perhaps in anticipation of the order, builders in November flooded FHA field offices with applications under the "207" program. A similar boom was building up in FHA's more lenient "213" cooperative housing program which permits 85-90 per cent loans. Thus, despite impending controls, it appears that rental housing next year will regain some of the position it lost this year during the boom in single-family housebuilding. With the cost of home-ownership boosted by the credit curbs, apartments will regain some of their former popularity.

A limitation-order control of commercial construction will probably be the next step. Indications are that it will be ready for issuance by mid-April.

DIRECT CONTROLS of materials are on the way followed by shortages for builders

How close was the U. S. to total mobilization and to complete materials control? Although the final answer was still to be forged in the conference rooms at Lake Success and on the frozen plains of Pyongyang, it was plain that we were suddenly a lot closer than we yet had been.

As they spelled out the terms of NPA Order M-12, housebuilders soberly knew that by Spring credit restrictions would be the sting of the gnat compared to the mule's kick of metal shortage. Back of the order slashing civilian copper use by more than 15 per cent loomed the even more frightening shape of a soon-to-come slash in civilian use of steel. It was no secret that the voluntary rationing plan for steel (M-6, which requires steel producers to allocate shipments among distributors according to what they got in a base period) is not working out well and that a restriction order for steel is due before January 1.

The military bad news was stacking up fast enough to promise that slashes in civil-

ian use of short metals might be followed by what those responsible for holding the civilian economy together dreaded even more: top-to-bottom materials control. Defense officials were already asking themselves if the cut in civilian use of copper, aluminum and cobalt would work without control of end products too.

It now seems probable that the dreaded direct (end-use) control of building materials will be undertaken before next summer—unless, of course, the war situation improves considerably in the meantime. This would eventually put the industry on the same austere diet under which it grew thin during World War II. It would mean the disappearance of aluminum windows, solid brass hardware, galvanized pipe and other building materials made of metals vital to the war effort. It would also force the industry once again to search for substitutes.

Copper, that indispensable minimum required after all possible substitutes had been put into use, would be even scarcer than NPA's civilian slash of 15-20 per cent promised. M-12's 80-85 per cent restriction had been calculated against a six-month base period (Jan.-June 1950) which represents the light demand months of the year. Electrical contractors say that actual slash in civilian use of copper will therefore be closer to 30 per cent of the present rate of use.

Now using 22 per cent of total aluminum production, building faces a still stiffer cut in aluminum products under the restriction order limiting civilian aluminum use to 65 per cent of the first six months of this year. Aluminum fabricators, reminding that substitutes for aluminum products can only be made at substantial cost to the building consumer, immediately raised a question along with many another manufacturer: With no military orders as yet coming from the government, how can we keep skilled workers together when raw material supply fails? (CIO claimed one big auto maker would soon let 50,000 workers go). If the lag between civilian cut-down and military out-put was really as great as many manufacturers feared, the damage to the great basic strength of the U. S.—its capacity to outproduce and outbuild any nation in the world—might be hard to repair.

EFFECT OF CONTROLS to date is measured in a survey of leading design offices

It was easy to see what metal restrictions already means to the building industry. Spokesmen for top architectural offices gave BUILDING this look at how the grip of shortage is already closing around the in-

dustry in late November—even before the Korean debacle:

Skidmore, Owings & Merrill: "So far we have been delayed on two projects on steel. We had hoped to get the steel in four to five months; now we are told it will take nine to ten months. The metals situation means that we will have to be patient and persevering. But even though there will be a lot more negotiating, the projects will be built."

Voorhees, Walker, Foley & Smith: "We have had one large institutional job deferred because of the danger of inability to obtain steel and other materials. On two other jobs, we changed from structural steel to reinforced concrete. At present steel deliveries are given as about 8-10 months after receipt of order with no guarantee that the delivery date will be kept."

Kahn & Jacobs: "Major effect on us so far is a three-month delay on aluminum sash for one job we are doing. On most jobs in the office we contracted for steel quite a while ago. On some, we are going ahead with part of the job in reinforced concrete, since reinforcing bars are easier to get than structural steel. On another job, the shopping center for Hecht's in Arlington, Va., we are digging foundations before the plans are finished. For this one, we stockpiled steel from sketch!"

Kelly & Gruzen: "On one job, American Bridge Co. (U. S. Steel fabricating subsidiary) promised us November 15 delivery. Now they say it will be January 15 and we don't know if that is the final date. We have switched to reinforced concrete on one job, a 14-story housing development. We have a job in Lodi, N. J., a two-story public housing project, that went out for re-bids and came in \$55,000 cheaper. How to interpret this, we don't know!"

Harrison & Abramovitz: "We have not yet been seriously affected by delays, but there is increasing pressure from contractors to get details and specifications out as soon as possible. We are warning clients about delays, but we have not yet reached the stage where we tell them not to build."

Sylvan Bien: "Here is how we adjusted to metals shortage on one big project: We awarded the contract for the aluminum from a sketch plan and approximation. We have enough aluminum for windows and spandrels—paid for and warehoused. By letting air conditioning contracts promptly, we did the same thing for copper piping. But on structural steel we are in trouble. At first we thought we would get the steel in four and a half months, now delivery is up to eight months because the mills are cutting allocations of steel by 50 per cent.

Because we planned for an earlier delivery, the foundations will be ready in four-and-a-half months and the building will have to wait another three-and-a-half months before the steel goes up.

"On another job we are planning to build a cellar, sub-cellar and first floor in concrete. This will be used as a garage, and will be an income-producer for the owner. Later on we will add a 23-story office building in structural steel on top."

Emery Roth & Sons: "Sheet steel for ventilating ducts, radiators, lighting fixtures, tanks and boilers is even harder to get than structural steel. For one of our apartment buildings, we are getting radiator enclosures on December 15 instead of October 15, as promised. But all of the big clients are going ahead. They don't even ask if we think they should. They seem to feel that somehow they will get their buildings built, come what may."

DESIGN

CONSULTING SERVICE instituted by New York AIA to aid the public

Latest evidence of architects' growing interest in the small house field is a brand new type of professional service introduced by the New York Chapter of the American Institute of Architects. To enable the public to obtain expert advice on any problem involved in buying, building or remodeling a home, the Chapter has set up a Small House Consulting Service composed of 28 registered architects experienced in this type of work.

Organized primarily for prospective homeowners who cannot afford to engage an architect fulltime, this panel of experts offers its services on an hourly basis. (Usual fee: \$10 per hour.) To help prospective clients select a consultant from the group, a portfolio containing examples of each member's work and background descriptions is kept available for inspection at the Chapter's office. Says Architect John H. Callender, who organized the group, "By making architectural services available on a part time consulting basis, the profession feels certain that it can save the public many dollars and troubles."

SCHOOL ARCHITECTURE comes out on top in New Orleans election

When 279 Gulf Region architects checked in at New Orleans (a record attendance) for their annual convention, the local contingent appeared with its faces beaming. Largely through its own collective effort,

Architecture in New Orleans had won a major victory on election day. Spark plug had been attractive, electric "I'm-a-special-person" Jacqueline McCullough, newspaperwoman member of the school board who in previous years had been irked by the regular 4-to-1 or 3-to-2 board votes against adequate school building.

In April, 1949, Mrs. McCullough with Prof. Charles Colbert of the Tulane school of architecture had gone to President Sol Rosenthal of the local AIA, secured the appointment of a fast-hitting architects' school committee. They then enlisted the enthusiasm of teachers, housewives and the public for up-to-the-minute schools. (The complete story will be told in a future issue of BUILDING.) When votes were counted after election day, "Jackie" McCullough's two candidates were in. With a board vote due on a \$25 million bond issue, the necessary votes were assured to give the people of New Orleans new schools as efficient and economical as any in the U. S. And, as retiring Louisiana AIA President Ralph Bodman told the architects, this kind of civic activity constitutes the best possible architects' public relations program.

ARCHITECTS' PUBLIC RELATIONS need improvement before newspapers will pay attention

Daily newspapers usually omit mention of the architect in stories about new buildings. Hoping to find out why architects are so slighted, the San Francisco AIA last month played host to five working newspapermen who formed a panel to discuss "What Does the Press Think of the Architects?" They told architects to blow their own horn, if they wanted to be heard.

Architect Bourn Hayne later reported the meeting thus in the local AIA Chapter Bulletin: "We architects have first to be educated to public relations . . . it looks as if we have a lot to learn."

Comparing neglected architects to children unable to get the attention of a busy mother, Hayne went on: "There is nothing more painful to any little child than to be ignored. The child will sulk and weep and pull tantrums to get the recognition that it feels it deserves. . . . Let it be taken for granted that as soon as the architects, as a group, learn to educate the public by proper public relations through the medium of appropriate news stories, articles, lectures, exhibits, pictures and plans, the ignoring press will be only too glad and happy to dish out all that the public demand will stomach."



Photos: Morris Bros. Photo Studio

NAREB's old timers pose proudly beneath a huge banner and a menacing hatchet wielded by Philadelphia's Phil Kiniskern. Old timer Herb Nelson stands at right. Thirty years ago, as secretary of the Minneapolis Board, he headed the Association's Secretaries' Council.

New President Alexander Summer



REAL ESTATE MEN at Florida convention play down their house building role, play up their management, broker and appraisal functions; choose an all-round realtor, Alexander Summer, as their president

Dominating the National Association of Real Estate Boards' annual convention at Miami Beach last month was a new and broader concept of the role of the realtor. The real estate fraternity was tired of having its housebuilding function stretched out of proportion to its other activities. It felt that the tail had tried long enough to wag the dog. With defense requirements forcing a curtailment of home building and with the industrial and business relocation problems stirred up by the atomic age providing new opportunities for extending professional services, it wanted to put greater stress on its other talents. It wanted to dramatize its members as creators of complete neighborhoods; as brokers, property managers, appraisers and dealers in industrial and farm real estate—not just as builders.

This trend of thinking not only helped set the pace for the general sessions in Miami Beach's recently completed municipal auditorium (NAREB was in fact the first customer) and the luncheon meetings in the swank hotels but also manifested itself in the determination of policy. It even seemed to play a part in the selection of a new president. Chosen to preside over NAREB's destinies for the new year was youngish (barely passed his mid-forties) Alexander Summer of Teaneck, N. J. who more than most recent presidents typifies the broad scope of the realtors' business. He carries well the title Mr. Realtor. In addition to running a large management office and his own mortgage company he has extensive operations in industrial and farm real estate. He arranged the financing for the

first Negro rental project in New Jersey under the FHA program—Lincoln Gardens in Montclair.

On the negative side of the ledger, the changed attitude toward those realtors' services which should receive top billing was at least partly responsible for the shelving of an ambitious program to glorify homeownership. Admen Benton & Bowles had worked up a prospectus for a publicity drive to cost one million a year for three years (the delegates bristled a little at the name of the firm because its founder, though now out of the business, had been the original rent control boss—Chester Bowles).

After a stormy session, the board of directors decided to put the program aside until January when it agreed to re-open the issue. Undoubtedly the main reason for this action was resistance to the assessment method of financing—\$25 a member plus an additional \$5 a year for each salesman. As Morgan L. Fitch of Chicago, one of the leaders of the opposition and a former NAREB president put it: "direct levies of this sort will bleed the realtors white." Presumably if a pass-the-hat way of raising the money would suffice, the scheme might still have a chance. What would help even more would be some chipping in by other industry groups in the building field—a step that so far none had been willing to take.

Looking beneath the surface, however, it was easy to see that operators from the larger cities who own or manage rental property are not disposed to be enthusiastic about a publicity broadside that would drive away customers. This fundamental clash of

viewpoint had been brought out at a pre-convention symposium at Gainesville, Fla. under the auspices of NAREB's committee on education and the University of Florida. Two of the participants in this curtain-raiser session had staged an impressive debate on the relative merits of the horizontal versus the vertical growth concept of metropolitan area development.

A recognized authority among those who believe in the upward expansion of cities, Robert W. Dowling, president of City Investment Co. of New York, presented the case for tall buildings widely spaced. Such buildings result in 25 per cent capital saving over low structures of the same tenant capacity, he contended. He poo-pooed the argument that the atomic bomb spells the doom of big cities. Declaring that "cities are here to stay," he pointed out that the same wail went up 600 years ago when gun powder appeared on the scene, yet "cities survived that menace."

The opposite view was taken by Phillip M. Klutznick, president of American Community Builders of Chicago. As he saw it, "families prefer to live next to each other, not on top of each other." Moreover he was sure that horizontal development was much cheaper.

From still another member of the pre-convention panel—James C. Downs Jr., president of the Real Estate Research Corp. of Chicago—the realtors received some blunt advice about facing the economic facts of life. His theme was that, with the government exercising virtually complete control over the housing field and able to speed up or retard activities by manipulating its pro-

grams, realtors might as well realize they are living in a new era. They should, he suggested, "figure out how they could take advantage of the situation and always be assured that the government would let them take a profit and never a loss." Pointedly he told them that this would be an awkward if not a difficult stand for the realtor to maintain if he simultaneously condemned the spending, taxing, or deficit financing required to support this new economy.

But transcending interest in the gyrations of the housing market was the new eagerness on the part of the delegates to examine economic and business trends to see where and how they could cash in with some of their other services. For one thing, the accelerated rate of the population shift toward the suburbs meant that downtown shopping districts were having to do some dispersing too. Some of the speakers hammered on this point and painted alluring pictures of the opportunities ahead in park and shop developments. Others dealt with changes in store design imposed by today's conditions. As brought out by Fred B. Mitchell, San Diego realtor, there is a marked acceleration toward larger stores—particularly in the case of five-and-ten-cent stores, department stores, and food markets.

With industry also getting itchy feet to join the decentralization parade, realtors were reminded of the vast opportunities in store for them if they prepare themselves to handle this business. Among other advice handed them in this connection was that they familiarize themselves with some of industry's problems by reading up on the basing point system of setting prices and study transportation problems generally.

Undertaking to give them the A, B, C's of industrial location, Lee L. Davis, director of industrial development for the American



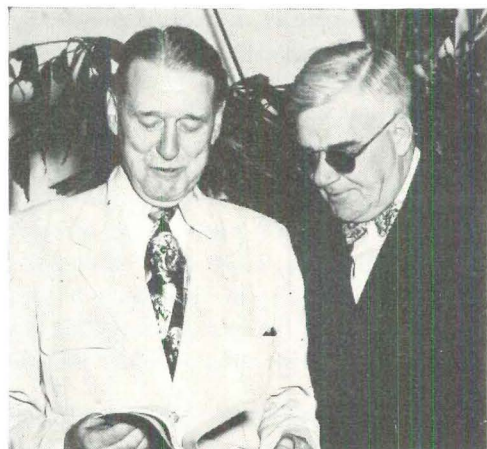
WOMEN'S COUNCIL leaders include (l. to r.) Lillian B. Moebus who operates her own real estate business in New York City, Flora Tierney of Louisville (retiring president), Elizabeth Austine of Miami (new president), Laura H. Gorton of Glastonbury, Conn., and Hazel Long of Cleveland.



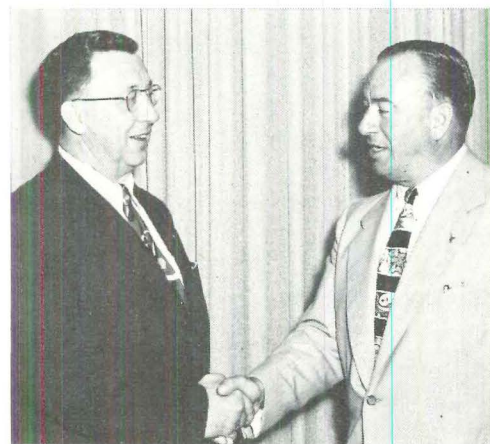
HOMEOWNERSHIP CHAMPION Walter S. Dayton (l.) of Bayside, N. Y. chairman of NAREB's homeownership committee, and Mrs. Dayton discuss his ill-fated promotional program with A. J. Stewart of Louisville, chairman of the realtors' potent Washington Committee. Dayton will soon announce an alternate way to spark his home ownership drive which, he hopes, will be less objectionable than the \$1 million-a-year membership assessment first proposed.



HOME BUILDER-REALTORS: Albert Balch of Seattle (l.), who is on the board of directors of both NAHB and NAREB, confers with Flint, Mich. Builder Robert P. Gerholz, NAREB's retiring president.



NAREB'S EXECUTIVE DIRECTOR Herbert Nelson thumbs through outline of shelved homeowner drive while Clarence Gashorn looks on. He is chairman of the Benton & Bowles ad agency which engineered the program.



CHIEF INDUSTRIAL REALTOR, Aime V. Karkhuff (l.) of Newark, N. J., president elect of the Society of Industrial Realtors is congratulated by Thomas McCaffrey, Jr. of Pittsburgh, NAREB vice president at large.



BROKERS INSTITUTE PRESIDENTS: Winn Cooper of Port Huron, Mich., newly elected head of NAREB's brokers division, gets a pat on the shoulder from retiring president Willard S. Johnson of San Francisco.

Gas & Electric Service Corp., spoke about the need for getting away from congested cities with zoning restrictions, high land costs, and insufficient parking facilities. "The only way for the industrialist to reduce costs is through new plants away from crowded sections" he said.

If the realtor was going to learn to flex other than his housebuilding muscles for awhile, those in attendance thought that the management arm of the business would be a good place to start. While they did not believe they had overlooked too many possibilities in this connection, they decided that there was such a thing as making opportunities. NAREB's veteran executive

vice president Herb Nelson had a few shrewd suggestions to make.

Real estate men should go to the government like the architects do, he proposed, and say: "Don't put us on the payroll; hire us." As he put it, they should be hired for their management skill and experience and help operate numerous government buildings. He even ventured the prediction that in ten years a realtor would be managing the Miami city hall—and doing it better and cheaper. Before adjourning, a resolution was put through seeking a regulation that would require federal agencies to avail themselves of the various services of realtors as appraisers, managers, and brokers.

SAVINGS AND LOAN MEN at Washington convention ponder war's effect on mortgage finance, predict ample funds, steady interest rates

Despite snow and wind storms which tangled transportation in much of the East and Midwest, 2,400 members of the U. S. Savings & Loan League went to Washington late last month to attend their 58th annual convention. They were confused by worsening war headlines and tightening finance controls, and wondered what the new year held in store for them. So did the rest of the industry, for the savings and loans are the most important segment of the home finance business.*

From their leaders and visiting guests they heard helpful guesses—if not documented predictions—the most that could be

expected under the fluid economic and international conditions of the day:

▶ From a panel of spokesmen for big savings and loans associations whose assets top \$15 million they were led to expect a wave of savings withdrawals during January as a result of the November-December war headlines and the scare buying they would foster. This would be followed by a compensating increase in deposits—just as the first Korean war news had caused a withdrawal spree in July (net savings losses amounted to an alarming \$61 million, one of the largest withdrawal demands in the history of the business) followed by increasingly large net savings gains during the next three months (October was one of the best months on record and November was almost as good).

* This year savings and loan association have done about 33 per cent of the home mortgage business, while their nearest competitors, banks and trust companies, have accounted for only 21 per cent of the total.

Chase News Photo



USS & LL's NEW PRESIDENT, Walter J. L. Ray (r) of Detroit, pictured in a corridor conversation with Executive Board Chairman Morton Bodfish (l) and 1950 President Henry A. Bubb of Topeka. Ray is president of the \$32 million Standard Federal Savings & Loan Assn. in Detroit.

▶ Although the prospects for continued inflation may cause S & L shareholders to spend or otherwise invest their money, the upward trend of savings is expected to continue during 1950. Increasing wages and curtailment of civilian goods production will reinforce this trend.

▶ Turnover among shareholders will be greater—particularly among investors as opposed to savers—for inflation will prompt many investors to switch their funds to common stocks. (The greatest part of the heavy July withdrawals was made from \$2,000-and-over accounts.) Savings and loan managers were therefore advised to work hard on obtaining new savings accounts from among the lower income group.

▶ Despite the likelihood of a continued excess of funds over loan demand, the S & L business will continue to encourage savings. If there are not enough mortgages to go around, government bonds will take up the slack. And, as pointed out by Chairman William K. Divers of the Home Loan Bank Board, the Federal National Mortgage Assn. has a whole warehouse full of FHA and VA mortgage for sale—\$1,100 million worth, plus outstanding commitments to warehouse another \$800 million of future home loans. Divers urged a \$2,000 million expansion in savings as a 1951 goal for the business—one third more than in 1950.

▶ The prediction that housebuilding (and, in turn, mortgage lending) would drop off during the second half of next year was ameliorated by the oft-forgotten fact that the mortgage loan business depends less on the construction of new homes than the transfer of existing homes. President George L. Bliss of New York City's Century Federal claims (somewhat wishfully perhaps) that as much as 70 per cent of the mortgage volume is on existing homes, the sales of which are exempt from Regulation X except in the relatively few cases where sales are financed with VA or FHA loans.

▶ The experts believe mortgage interest rates will remain firm, think that dividend rates will likewise continue at present levels—within the range of 2 to 2½ per cent. They look for no big change in new house prices for the next few months, but foresee a rise in the price of older houses.

▶ Due to the likelihood of continued material shortages, increasing labor costs and, ultimately, a man-power shortage, savings and loans will go slow in their construction loan business, creating a serious hardship for builders.



Fixtures illustrated in SKY BLUE are: Cadillac recess tub with mixometer shower fitting; Emerson twin lavatories and Prince reverse trap closet combination.

THERE'S GOLD IN BRIGGS *Beautyware* IN COLOR

Whether you feature only one or all four of Briggs famous decorator colors—the result is always *plus profits* for you! The reason is as simple as ABC! A: Modern families *want* colored fixtures—even though most of them are afraid they can't afford the cost. B: Briggs Beautyware gives them colored fixtures at practically *no* extra cost! C: When they find this out, you—

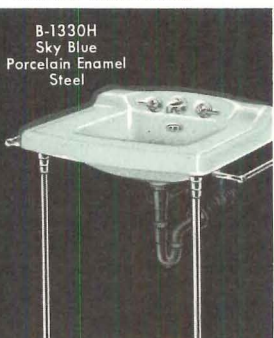
who either sell or have built a house with Briggs Beautyware in color—have a *sure sale!* No wonder the biggest builders and the most wide-awake plumbing dealers are so enthusiastic about Briggs. Follow their lead . . . let Briggs start building new profits for you—today! Briggs Manufacturing Company, 3001 Miller Avenue, Detroit 11, Michigan.



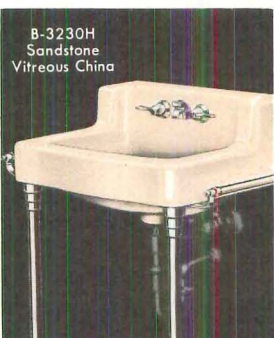
Only 10% more than white* . . . for any one of these smart new decorator colors

COPR. 1950—BRIGGS MFG. CO.

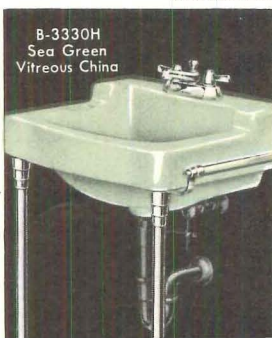
*10% additional charge for colored ware applies to complete sets including Briggs brass fittings.



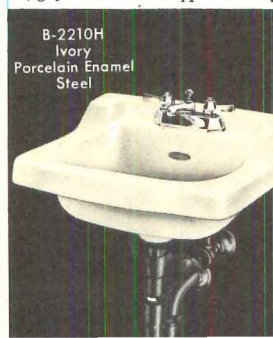
B-1330H
Sky Blue
Porcelain Enamel
Steel



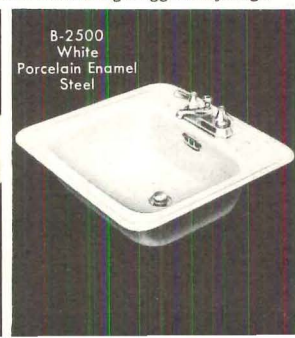
B-3230H
Sandstone
Vitreous China



B-3330H
Sea Green
Vitreous China

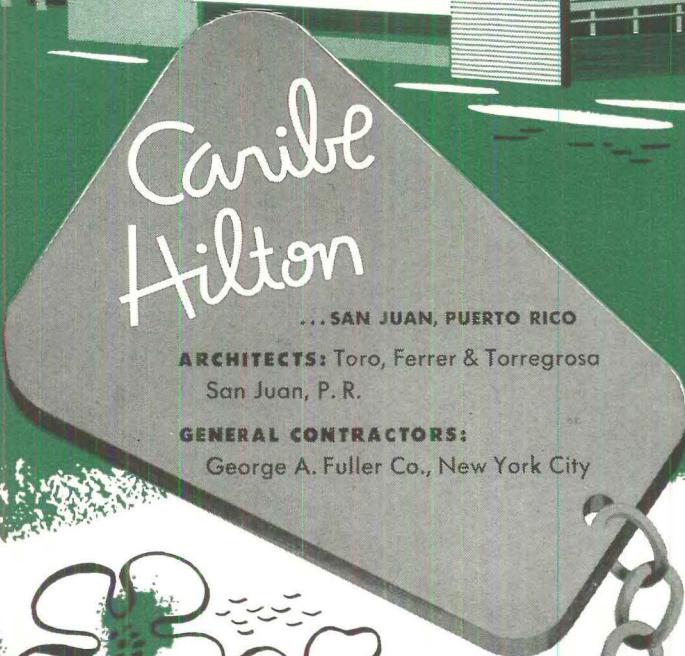


B-2210H
Ivory
Porcelain Enamel
Steel



B-2500
White
Porcelain Enamel
Steel

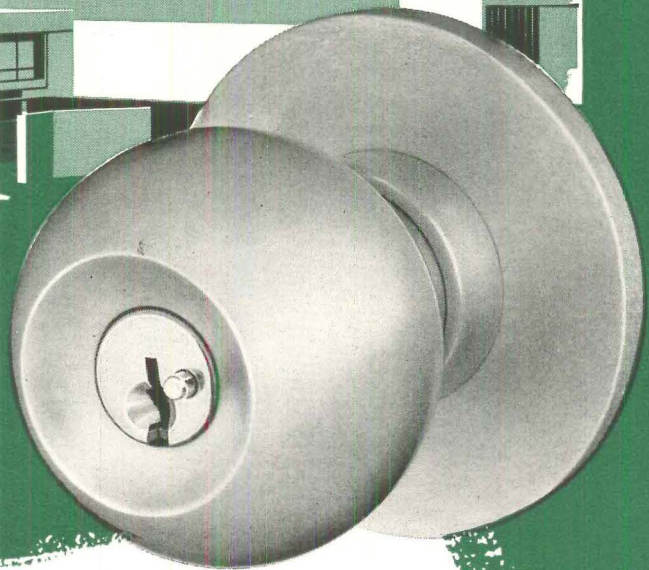
SCHLAGE® ... first name in cylindrical locks



... SAN JUAN, PUERTO RICO

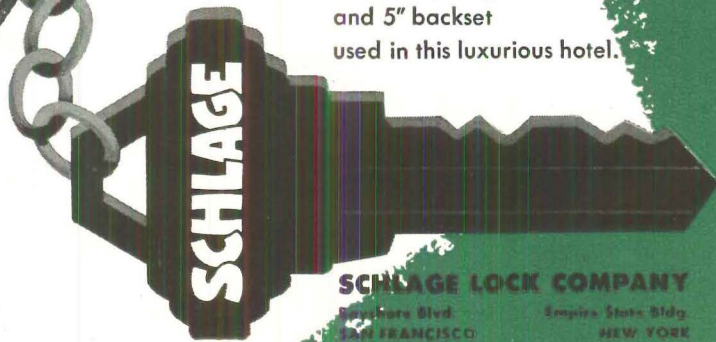
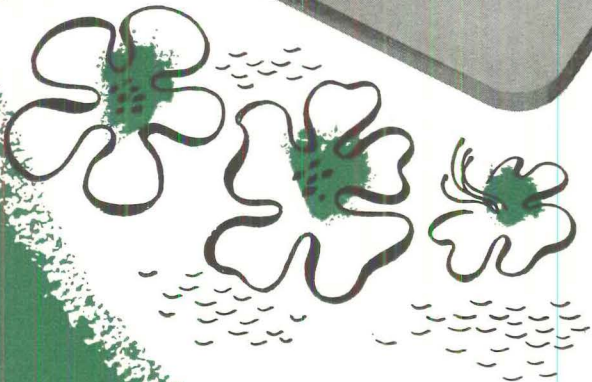
ARCHITECTS: Toro, Ferrer & Tarregrosa
San Juan, P. R.

GENERAL CONTRACTORS:
George A. Fuller Co., New York City



SATURN DESIGN

with occupancy indicator
and 5" backset
used in this luxurious hotel.



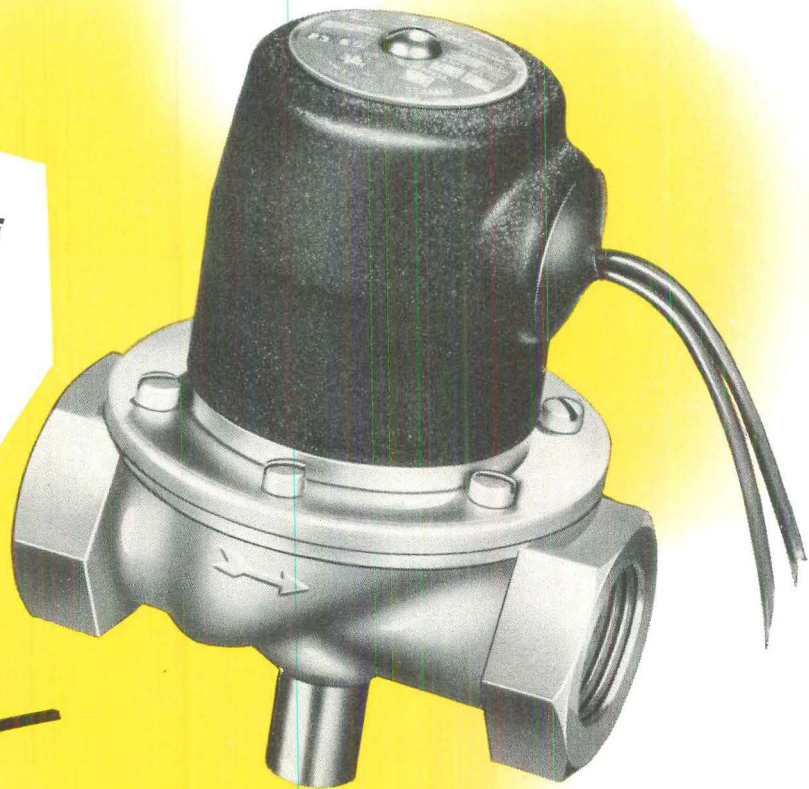
SCHLAGE LOCK COMPANY

Embarcadero Blvd.
SAN FRANCISCO

Empire State Bldg.
NEW YORK

specify
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**DETROIT NO. V-541
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 flashbacks • Absolutely quiet operation
 • Plunger seal prevents sticking • Spring
 action plunger provides smooth opening
 and long plunger life • Kick-off spring
 eliminates plunger "hang-up" • Easily
 installed and serviced.
 Voltages: 24 volts, 60 cycles; 115 volts,
 60 cycles. Sizes: 3/8" through 1".
 Can be used with either natural gas, L. P.
 or L. P. air mixtures.

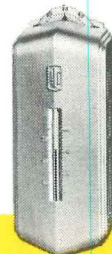


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THE NEWEST ADDITION TO A QUALITY LINE!

Here's brand new evidence of what most heating men have known for years—it pays to demand **DETROIT**! Why? Because **DETROIT** Certified Controls are designed and built with one purpose in mind... to make any heating unit better! And one sure way to make gas heating units better is to specify **DETROIT'S** new V-541 Magnetic Gas Valve. Having many new and outstanding features, the V-541 is a truly significant advance in solenoid valve design and is engineered for

use on a wide variety of gas fired units. So be sure to specify **DETROIT** Certified Controls on all your heating equipment. We guarantee you'll be doing your clients a lasting favor by bringing them the ultimate in heating performance and satisfaction. For further facts, write for Bulletin No. 234.



No. 411 Thermostat—A sensitive and accurate *Timed Cycling* thermostat for all types of heating systems. Provides close control of room temperature. Attractively styled, easily installed and adjusted. Write for Bulletin No. 193 and Form No. 1545.

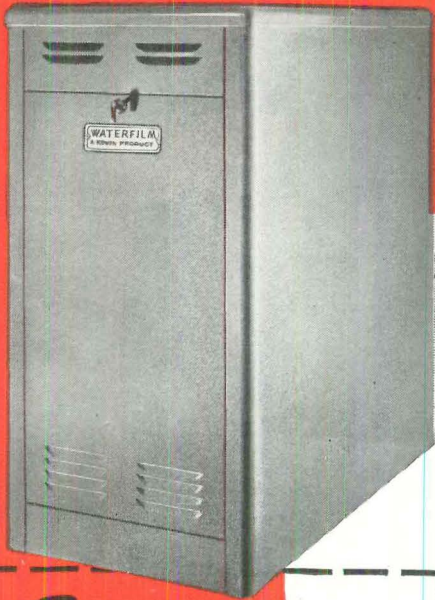
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SPECIALTIES, LTD.—Montreal, Toronto, Winnipeg



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BOILER MADE**



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WATERFILM**

for quick heat at low cost

Because its exclusive construction makes it the fastest-steaming boiler made, Waterfilm gives your customers exceptionally quick heat and efficient performance. The KOVEN Waterfilm Boiler saves fuel and money, too—gives even heat—supplies plenty of domestic hot water.

Recommended by leading architects and builders, Waterfilm is available in sizes and models for small homes, apartments, and industrial buildings. For large installations, remember that the Sectional Boiler can be taken through a 2-foot door. 500-17,850 E. D. R. **NATIONALLY ADVERTISED.** Write for free literature and newspaper mats.

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- Retards Accumulation •
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- Economical •
- Rugged Construction •
- Easily Replaced •

THE HEART
OF THE
WATERFILM
BOILER IS
THE ZIG-ZAG
SHAPED
WATER TUBE



In this tube only a $\frac{3}{8}$ " film of water has to boil to produce steam—thus heat starts rising long before the main body of water in the tank is even warm.

WATERFILM BOILERS, Inc.

A Division of L. O. Koven & Bro., Inc.
154 Ogden Ave., Jersey City 7, N. J.
Plants: Jersey City, N. J. Dover, N. J.

EVEN ROOM TEMPERATURE THROUGHOUT THE HOUSE!

**FOR AUTOMATIC FIRING WITH
OIL, STOKER OR GAS**



THE ARCHITECTS COLLABORATIVE has added a modern group of dormitories (p. 61) to the fascinating melange of architectural styles of Harvard's famous Yard. **TAC**, as the design team is called, has eight equal

partners, all architects: (l. to r.) Sarah Harkness, Jean B. Fletcher, Robert S. McMillan, Norman C. Fletcher, Professor Walter Gropius, John C. Harkness, Benjamin Thompson, and Louis A. McMillan. Three are Harvard-trained, three Yale, one Smith College. Professor Gropius heads Harvard's Graduate School of Design.



PAUL WEIDLINGER, well-known Swiss-trained structural theorist and engineer, practiced in Europe for two years with Le Corbusier and Moholy-Nagy. He came to the U.S. in 1943, is now a partner of General Engineering Assoc., consulting engineers in New York and Washington. One of Weidlinger's many daring concrete and steel structures is the stadium on p. 72.



HENRY CHURCHILL's varied career has brought him fame in 30 years as architect and city planner, author and lecturer. With a New York office as home base, he has designed countless mass housing projects, advised endless committees and numerous big cities on urban planning (p. 76), lectured at the leading universities, and authored articles, books (*The City Is the People*, 1945) and research papers galore. Since 1945 his firm has been Churchill-Fulmer Associates.



Architects **S. ROBERT ANSHEN** and **WILLIAM S. ALLEN** and Builder **JOS-EPH L. EICHLER** have given Palo Alto, Calif., one of the handsomest contemporary subdivisions in America (p.

82). Architects Anshen & Allen studied design and won fellowships at the University of Pennsylvania, have had a San Francisco office since 1940. Eichler has been building since 1947.



J. WALTER SEVERINGHAUS, of Skidmore, Owings & Merrill, is an Ohioan with an architectural degree from Ohio State University, vintage 1931. Except for three lean depression years as a medical illustrator, he has been practicing architecture in New York since graduation. He joined Skidmore, Owings & Merrill in 1937, became a partner in 1946, heads the Ford Offices project (p. 102).



Austin Co. President **GEORGE BRYANT** studied engineering at the University of Illinois, came to Austin in 1913, was named sales manager in 1922, executive vice president in 1930, and president in 1940. Early in 1949 he set up a separate Merchandise Facilities Division to apply Austin's famous industrial approach to department store problems. Result: the Lazarus Warehouse (p. 108).

How to choose acoustical materials for a modern office building



Rarely can a single acoustical material meet the needs of every area in an office building. To specify the proper materials, the architect will usually consider such factors as cost, noise-quieting efficiency, methods of installation, fire resistance, appearance, and moisture resistance. The function of each office building area usually determines which noise-quieting material is best suited for it.

In general offices and corridors, a material is desirable which will cover large ceiling areas at minimum cost. Armstrong's Cushiontone is an ideal choice. It is a low-cost perforated fiber tile with a noise-reduction coefficient of .75 for the one-inch thickness. Cushiontone units are erected by cementing, nailing, screwing, or mechanical suspension.

In highly concentrated noise centers, such as business machine areas, maximum sound absorption is important. Cushiontone can be used here, too, but greatest efficiency can be achieved with Armstrong's Arrestone (.85). Arrestone is a metal pan unit containing a mineral wool sound-absorbing pad. Suspended mechan-

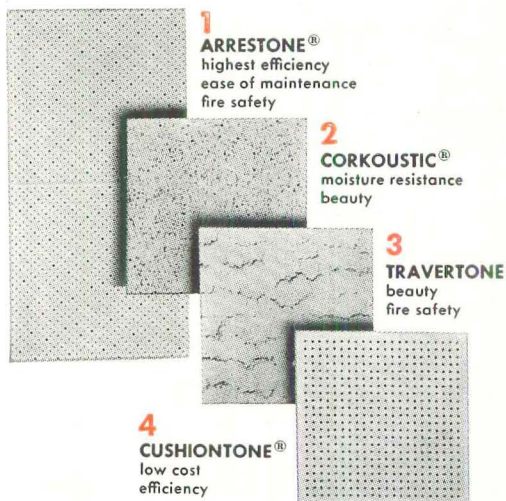
ically, Arrestone units can be removed to provide access to pipes and ducts.

Where distinctive beauty is desired, Armstrong's Travertone is an excellent choice. This mineral wool tile has an attractive, white fissured surface which adds beauty as well as quiet to the lobby, executive offices, display room, and the auditorium.

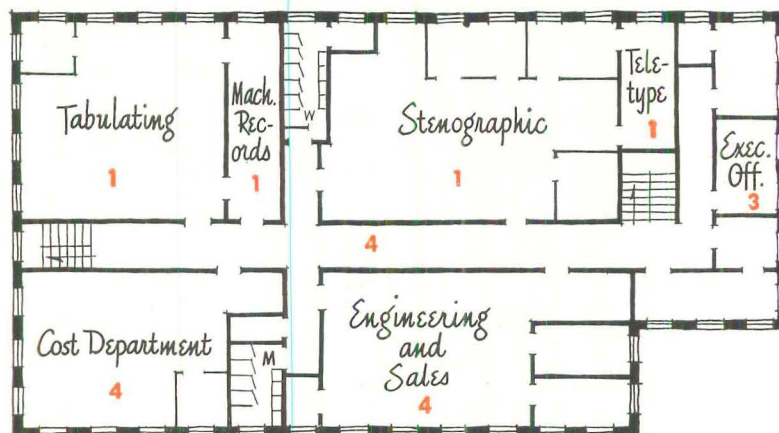
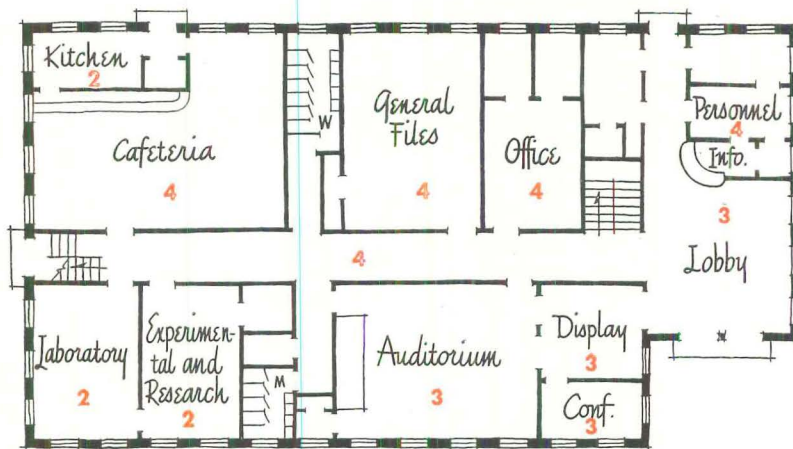
Fire-resistant ceilings are required by some building codes. Both Arrestone and Travertone are incombustible materials. Cushiontone is available with a special paint finish meeting Federal specifications for slow-burning materials.

Where excessive moisture is a problem, Armstrong's Corkoustic is recommended. Its 100% cork composition makes it highly resistant to moisture and adds valuable thermal insulation, too.

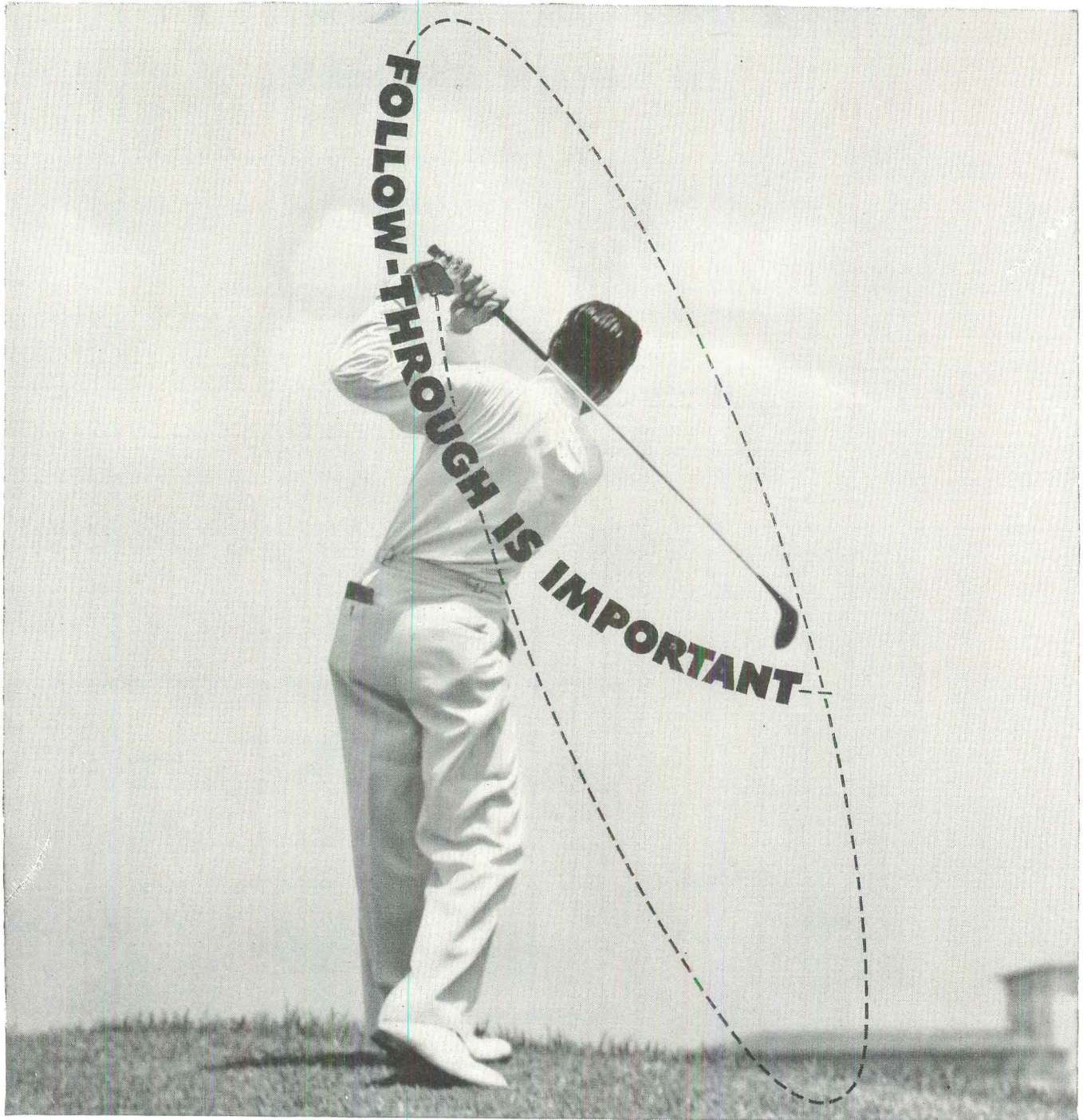
All the Armstrong acoustical materials are painted white, provide good light reflection, and are easily maintained. For complete details, get in touch with your Armstrong acoustical contractor or write directly to Armstrong Cork Company, 5412 Stevens Street, Lancaster, Pennsylvania.



Noise-quieting efficiency is not the only important consideration when selecting acoustical materials for office buildings. Other factors, such as cost, appearance, fire and moisture resistance, and ease of maintenance may be equally important. This hypothetical plan shows how the Armstrong Line of materials can be used to meet the special sound-conditioning needs of each office building area.



ARMSTRONG'S ACOUSTICAL MATERIALS



A good set of clubs and proper instruction will help your game, but without follow-through on that swing you'll never break a hundred.

Follow-through is important in air conditioning, too. Carrier engineers have years of experience and know-how behind them. And follow-through on every installation has helped to make Carrier the leader in air conditioning.

Carrier offices are located in most major cities and are ready to give prompt assistance, from planning the installation to making sure that it gives your customer dependable, low-cost service. The Carrier name is accepted everywhere as synonymous with efficient, economical air conditioning.

Carrier offers the most complete selection of air conditioning equipment on the market. For multi-room

installations there are the Weathermaster systems, which provide year-round individual control of each room. For other installations there are Carrier Weathermaker units, central air conditioners, as well as a complete line of refrigerating machines. The name "Carrier" stands for the finest engineering and the finest equipment money can buy. Carrier Corporation, Syracuse, New York.



AIR CONDITIONING
REFRIGERATION • INDUSTRIAL HEATING

THE

RUSCO

hot-dipped, galvanized

PRIME WINDOW
(VERTICAL SLIDE)

*the durable, rust-resisting
Armco Metal Unit*

**WITH ADVANTAGES THAT
APPEAL TO YOUR PROSPECTS**



Simple adjustment provides rainproof, draft-free, filtered-screen ventilation.

RUSCO is a complete, factory-assembled, factory-painted metal unit . . . contains glass, screen, weather stripping, installation members (wood or metal), self-storing insulating sash (optional).

ADVANTAGES LIKE THESE HAVE SALES APPEAL

- 1—A year 'round unit . . . no screens or storm sash to buy . . .
- 2—Built-in ventilation control . . .
- 3—Glass and screen panels removable from inside for easy washing . . .
- 4—No weights, cords or balances . . .
- 5—No binding or sticking . . .
- 6—Waterproof felt weather stripping . . .
- 7—Lumite plastic screen cloth—no deterioration or streaking . . .
- 8—Automatic locking in closed and ventilating positions.

ADVANTAGES FOR THE BUILDER, TOO

- 1—All working parts are of tubular, hot-dipped galvanized Armco Ingot Iron Zincgrip . . . Bonderized and finished with baked-on enamel . . .
- 2—No field painting required (except wood trim when used) . . .
- 3—Glazing

- and on-the-job refitting are completely eliminated . . .
- 4—Practical for any type construction . . .
- 5—Can be installed in less than half the time required by ordinary window units.

A QUALITY PRODUCT, competitive with the lowest price window unit on the market.

You can get the facts about Rusco Prime Windows from the Rusco Distributor in your territory . . . or write direct

THE F. C. RUSSELL COMPANY

Department 7-AF120 • Cleveland 1, Ohio

Manufacturer of the famous Rusco all-metal, self-storing combination screen and storm sash.

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THE F. C. RUSSELL COMPANY
Department 7-AF120, Cleveland 1, Ohio

Gentlemen: Please send me catalog of informative data and specification on Rusco Prime Windows.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Speed and Simplify BUILDING

with "Safety-Sealed" Saf-Aire Gas Heating Units

Gain Valuable floor space!

**Free your designs from chimney limitations!
Avoid expensive central heating installation!**

When you specify "Safety-Sealed" Saf-Aire units you combine safety and dependability with real economy. These attractive, space-saving Saf-Aire units require no chimney, no ducts, no electricity. Bring important installation savings.

Quickly, easily installed in any exterior wall, Saf-Aire provides healthful, even, "zone-controlled" heat with either natural, manufactured or LP gas. Assures positive safety, too, for no room air is used for combustion.



Chooses SAF-AIRE For 1500-Home Project

Mr. Barney Katzman, President of Detroit's Prudential Investment Company, says: "Important savings of space and simplification of individual home design are the two main reasons we picked Saf-Aire. We also count on their positive safety and convenient zone-heating control to be big assets in the sale and rental of these homes."



SAF-AIRE wastes no floor or closet space. The all-aluminum interior panel extends only 4 inches from wall surface. Connects directly to the small Lundstrum Vent on the exterior wall. Simple, modern design suits any interior. Both 14,000 and 20,000 BTU capacity models are available in 3 attractive finishes.

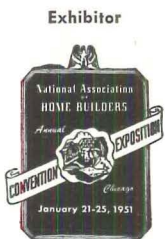
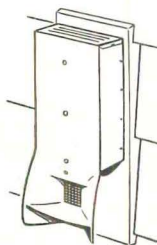
Model 991-14
18" x 24"

Model 992-20
18" x 38½"

ONLY SAF-AIRE . . . has the patented exterior wall vent that draws all combustion air from outdoors, then vents all combustion products outside for dissipation.

Approved by American Gas Association. Also listed by Underwriters' Laboratories and accepted for Veterans' Housing and F. H. A. financing.

WRITE NOW for complete free information and specifications on this latest development in modern gas heating. Mail coupon below today!



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Safety Sealed
DOMESTIC HEATING

Stewart-Warner Corporation, South Wind Division
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Please send me specifications and complete details on "Safety-Sealed" Saf-Aire Gas Heating Units.

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COUPON
TODAY!**

LETTERS

ROUND TABLE (Continued)

BUILDING:

The Round Table Conference (BUILDING's Extra Issue of Sept. 30, 1950) is an outstanding example of democracy at work, and it is to your highest credit to instigate the conference, and more important, to get the leaders of the various industries together for the outstanding planning job which has resulted.

I read the report from stem to stern, and feel rather keenly that the display of unselfish thinking at the top level of our economy deserves much wider dissemination than the MAGAZINE OF BUILDING will offer.

I trust that you have made this report available to Mr. Symington, and to some of the lesser brass. I also feel that some of the leaders in Congress should be covered. . . .

It takes leaders like BUILDING and the members of the Round Table Conference to keep our economy alive during these trying years.

KURT VERSEN
Englewood, N. J.

BUILDING:

. . . Magnificent concept. Magnificently organized. Magnificently reported. Keep up the good work. May you always see the trees and the forest. . . . BUILDING has always been good—now it's beginning to get great.

RALPH KARGER, *Architect*
New York, N. Y.

BUILDING:

This is exactly the type of information we in the construction industry need to transmit to our clients and those having questions about the immediate future with respect to construction in all its phases. . . .

ARTHUR F. SIDELLS, *Architect*
Warren, Ohio

BUILDING:

. . . You are to be complimented.

EDGAR J. KAUFMANN, *President*
Kaufmann Department Stores
Pittsburgh, Pa.

BUILDING:

. . . With but one exception I am in full agreement with the conclusions reached by the members of the Round Table.

Personally, I have some fear of suggesting to our Government that through the increase of taxation inflation can be controlled. I have strong convictions that credit control and the stopping of unnecessary Government spending are the basic factors in attacking this problem.

D. D. COUCH, *Vice President*
American Radiator &
Standard Sanitary Corp.
Pittsburgh, Pa.

BUILDING:

. . . The Round Table skates all around our main cause of inflation: deficit financing by the
(Continued on page 24)



MENDEL

*means QUALITY
in Hollow-Core*

FLUSH DOORS

- 1** Balanced seven-ply construction to provide controlled reaction in changing weather conditions.
- 2** Hardwood construction throughout—stronger, more durable, free from grain-raising, more easily and economically finished.
- 3** Exclusive Insulok grid core material has inherent resiliency, cannot cause warping, nor transfer grid pattern to faces.
- 4** Greater strength. Adequate core stock surface area provides maximum gluing surface and resistance to warpage.
- 5** Precision key-locked dove-tail joinings of stiles and rails add strength and stability.
- 6** Ready to finish. Door faces are smoothly belt-sanded. Stiles are machine-planed at factory—prefit to standard book sizes.
- 7** Fully guaranteed. Each door must meet rigid quality control standards and constant inspection throughout manufacture.
- 8** Mengel Flush Doors are economical—no mouldings to paint—no corners to collect dirt. Smooth hardwood surfaces are less absorbent and less costly to finish—easier to clean and longer-lived.

Write for complete specifications. Use the coupon.

Also see—
MENDEL STABILIZED SOLID-CORE DOORS
the finest products of their type on the market.

The Mengel Co., Plywood Division
2313 South Fourth Street, Louisville, Ky.

Gentlemen: Please send me, without obligation,
full specifications on Mengel Hollow-Core Flush
Doors; Mengel Stabilized Solid-Core Doors.

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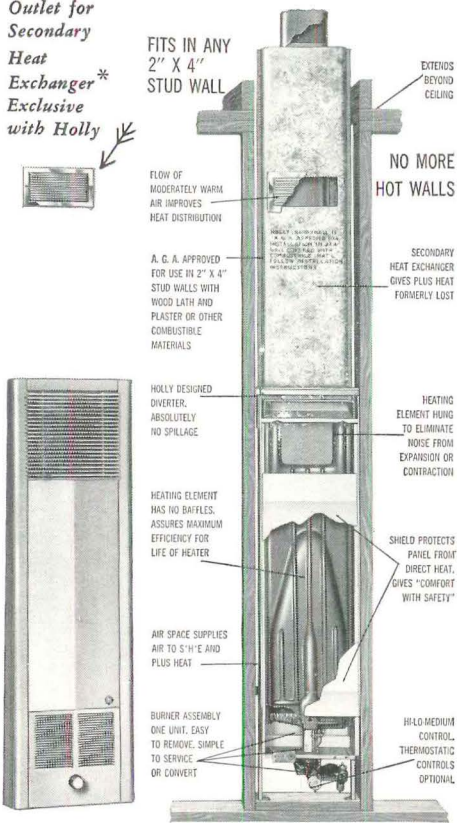
City _____

State _____

Now Secondary Heat Exchanger*

the greatest advance since Wall Heaters were invented!

Outlet for Secondary Heat Exchanger* Exclusive with Holly



Salient Features: Cool Walls . . . More Useful Heat and Higher Efficiency . . . Moderate temperature air from Secondary Heat Exchanger aids circulation and heat distribution • Burner and manifold assembly one complete unit, easily removed • Holly-designed, die-formed, electronically welded heating element without baffles • Absolutely no gas spillage • Annoying noises eliminated by unique method of mounting element • Panel fits snugly to either dry or plastered wall • Negative pressure maintained on panel avoids streaked walls.



A.G.A. approved

under latest rigid 1950 central heating requirements for use with natural, manufactured or L. P. Gas.

HOLLY MANUFACTURING COMPANY
869 S. Arroyo Parkway, Pasadena 2, California
Please send me complete information on the new Holly NarrowWall with Secondary Heat Exchanger.

Name _____
Address _____
City _____ Zone _____ State _____

New holly NarrowWall HEATER

PAT. PENDING

Circulates 25% more warm air

saves heat formerly lost through vent.

Now—an answer to all your heating problems. A gas-fired, recessed heater, fully vented, which is A.G.A. tested and approved under new 1950 Central Heating requirements. Approved for use in a 2" x 4" stud wall of combustible materials, with a minimum thickness of 4 $\frac{5}{8}$ " or maximum of 5 $\frac{1}{2}$ ". No extra floor space or utility room is necessary. There are no ducts to run, no motors or gadgets requiring service. Initial cost to purchase and install is extremely low. Available in sizes from 25,000 to 45,000 B.T.U. input.

A NEW EXPERIENCE in HEATING COMFORT with SAFETY

Return air to primary and secondary elements is taken at floor level, assuring comfortable floor temperature. Clearflo Louvers actually direct warm air away from the wall and into the room. Temperature of "plus" air from S-H-E* Clearflo Louvers is moderately warm. 10% of heater's total output is given off from S-H-E*. NarrowWall gives you heat where and when you want it.



You'll be happy with holly

LETTERS

Government has resulted in printing such a vast amount of currency that 40 per cent of it is printing press money and has largely caused the shrinkage in the value of the dollar.

The Federal Reserve Bank has the power to monetize the debt and it has done so. The Federal Reserve Bank should be abolished and we should get back onto the gold standard as quickly as we can: otherwise we are sunk in the mire of inflation to such a degree that we shall be a push-over for Russia. Inflation has been the means by which Russia has taken over most of her victims. Are we going to be dumb enough to be the next ones?

WALTER H. WHEELER, *Engineer*
Minneapolis, Minn.

BUILDING:

. . . In conducting your Round Table, you have not only pioneered for the building industry but for all industries, and I am sure that the findings will be effective.

One observation which struck me forcibly was made by Mr. Colean, "Last year we produced \$23 billion worth of construction. . . . We only used 22.4 billion feet of lumber."

This would indicate that one board foot of lumber was used for each dollar spent on construction, which means that about ten cents out of every construction dollar went into the purchase of this commodity.

DONALD W. SOUTHGATE, *Architect*
Nashville 3, Tenn.

BUILDING:

. . . I believe that this panel is entirely wrong in recommending a curtailment in the construction of individual homes. That is the one place that should be affected least. Much less harm would be done in curtailing apartment buildings to rent for \$35 a room and building of plants for luxury items. If we are going to fight Communism at home as well as abroad, let's not steer away from the one method that has proven itself to be a good antidote—home ownership! We have made a lot of progress in this direction—let's not go backwards.

S. C. SPIEGEL, *President*
Midland Development & Improvement Co.
Chicago, Ill.

BUILDING:

. . . The report contains very useful information, and I am glad to have it.

A. M. WEIMER, *Dean*
School of Business
Indiana University
Bloomington, Ind.

BUILDING:

. . . I certainly agree with the nine recommendations that were made at your Round Table. . . .

Two statements . . . deserve special mention. Mr. McDonald's statement "To float a new issue of war bonds, 'V' bonds, on a large scale, which
(Continued on page 28)

NOW — Selectomatic Plus

SYNCHRO-GLIDE LANDING

...the most perfect vertical transportation system you can buy

The complete answer to any vertical transportation problem is the new Westinghouse system—Selectomatic PLUS Synchro-Glide Landing.

Selectomatic is the unique Westinghouse supervisory control—an ingenious “electrical brain” that instantly and automatically matches cars to calls to floors.

Synchro-Glide Landing is the new Westinghouse-developed automatic landing device that makes each car in the system provide:

FASTER FLOOR-TO-FLOOR TIME—Synchro-Glide accelerates cars fast and evenly . . . slows them down quickly and smoothly. As cars are making the perfect-level landing, doors are opening . . . ready for passengers to exit. Total result—floor-to-floor time reduced by 1½ seconds per stop!

SOFTER, SMOOTHER LANDINGS—The smooth, uniform gliding stops will astound you. Synchro-Glide’s dynamic braking action lands a car so softly you scarcely feel the brake set.

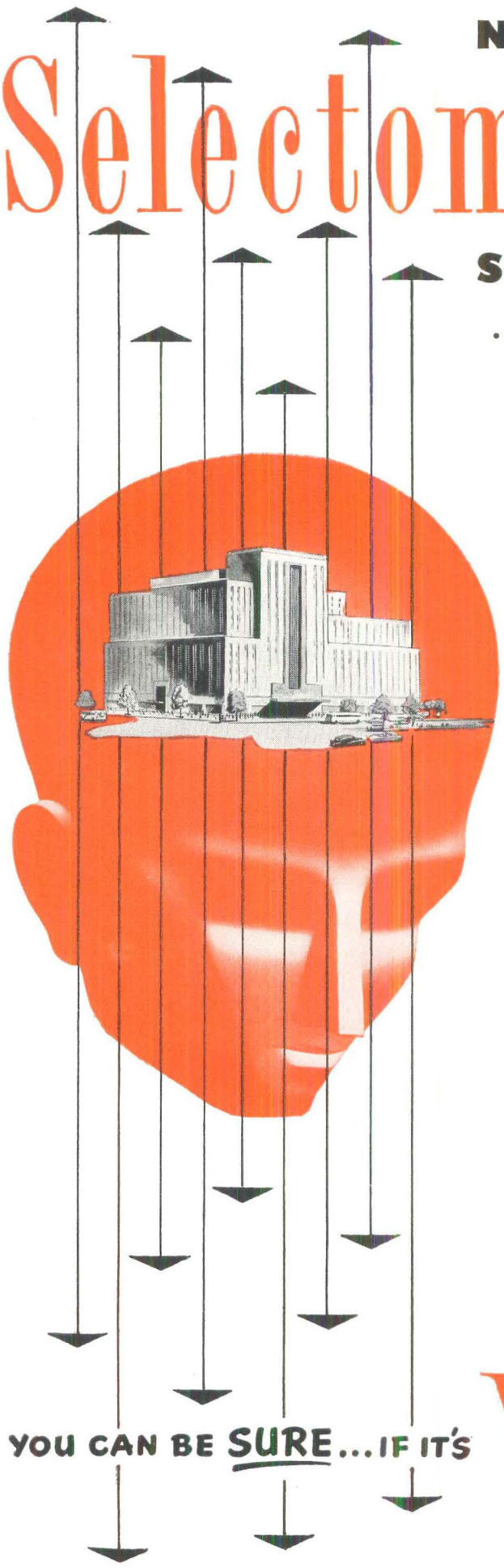
ACCURATE FLOOR-LEVEL LANDINGS UNDER ALL CONDITIONS—Synchro-Glide assures perfect-level landings regardless of load or temperature changes . . . protects this accuracy while passengers enter or leave the car.

It is the integration of Selectomatic with Synchro-Glide that gives you the most efficient vertical transportation system you can buy . . . Selectomatic PLUS.

SEE IT TODAY—right in your own office! See and hear how Selectomatic PLUS Synchro-Glide Landing solves elevator traffic problems. Write on your letterhead and we’ll gladly arrange a showing of our new, sound motion pictures “Speeding Vertical Transportation with Selectomatic Elevators,” and “Synchro-Glide Landing for Elevators.” Elevator Division, Westinghouse Electric Corporation, Dept. F-1, Jersey City, N. J.

YOU CAN BE SURE...IF IT'S

Westinghouse



Modern Stores use Norton Non-slip Floors

A terrazzo floor is a good floor for a modern store — looks attractive, easy to clean, stands up well. But one very important quality is missing if you haven't made your floor slip-proof. Positive, non-slip protection can be imparted to any terrazzo floor by using Alundum* Terrazzo Aggregate. Mixed, in proper proportion, with the marble or granite chips, Alundum Aggregate will give your terrazzo floor that important non-slip feature — a feature not impaired by water, oil or other liquids. Give yourself the benefit of permanent freedom from the slipping hazard (your insurance company will be pleased, too) by specifying Norton Non-slip Floors.

Write for free catalog No. 1935

*Reg. Trade Mark for Norton fused aluminum oxide

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MILLS AT INTERNATIONAL FALLS, MINNESOTA
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Include **INSULITE*** in your plans for '51

WHY? For many good reasons. But here's just one: INSULITE Bildrite is the first insulating sheathing that has met the rigid requirements of F.H.A. for use without corner bracing. Not only does this signify superior bracing strength but it represents an actual cash saving of \$25.00 to \$50.00 per house.

Or, figure it this way if you like: Just subtract the cost of corner bracing from the cost of Bildrite—that's actually all Bildrite costs you when compared with other quality sheathing materials.

This is only one of the many advantages offered you by INSULITE. Let us show you samples of the complete INSULITE line of double-duty building products, and proof of their advantages. Just drop us a card.

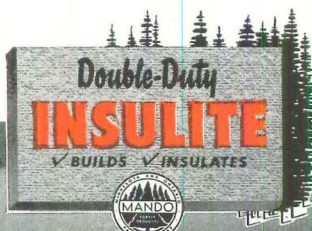
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Material	\$ 4.48
Nails	.12
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11-50



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MINNESOTA AND ONTARIO PAPER COMPANY · MINNEAPOLIS 2, MINNESOTA

Made of Hardy Northern Wood

**Proved by
1,300,000
Pair of Feet**



**PARKAY Hardwood
Floors in Model
Home Withstand
Grueling Traffic**

Over 1,300,000 visitors trod the Parkay ready-finished hardwood floors in the model home sponsored by Living Magazine at the 1950 Chicago Fair. At conclusion of the 90-day exhibit the architects—Tsuruoka, Osborne, Martini & Melun, Evanston, Ill.—wrote the following: "... although the flooring was not refinished during the Fair and had only minor daily attention, it wore beyond our expectations and retained its fine appearance ..."

Here's proof that Parkay— $\frac{3}{16}$ " thick—offers all the wear of standard floors—that its factory finish makes for lasting beauty. And remember—Parkay's speedy application to any sound subsurface with special adhesive saves valuable time on both new and remodeling jobs alike.

Parkay flooring, made of choice American Oak, is available in two styles—9" x 9" Tiles and 9" wide Broadboard. For complete details see Sweet's Architectural File or write direct for free samples and literature. Wood-Mosaic Co., Inc., Louisville 9, Ky.



PARKAY
READY-FINISHED HARDWOOD FOR FLOORS AND WALLS



LETTERS

should be done, would have to be tied to a redemption value that is based on purchasing power" is particularly interesting. If we are going to avoid inflation, it will be necessary to finance the deficit by selling bonds to nonbank investors. I am inclined to agree with Mr. McDonald that this can be done only by offering bonds with a guaranteed purchasing power. . . .

The other statement that impressed me was made by Mr. Coogan. His final sentence "Housing, in itself, even at a high volume, as long as it is conducted properly, is not inflationary" should be given more consideration. Real estate mortgage finance that does not directly or indirectly end up with commercial banks is not inflationary. I think this point should have been stressed more in your Round Table discussion. . . .

EDISON H. CRAMER, *Chief
Division of Research and Statistics
Federal Deposit Insurance Corp.
Washington, D. C.*

BUILDING:

. . . The constructive assistance you are giving the industry through the Round Table and BUILDING is most sincerely appreciated by all of us who are concerned with the health of construction.

CHARLES M. MORTENSEN
*Managing Director
The Producers' Council, Inc.
Washington, D. C.*

BUILDING:

You have made a contribution to the thoughts of the members of the Federal Reserve who . . . promulgate the regulation of real estate credit.

EDWARD LEE NORTON
*Board of Governors
Federal Reserve System
Washington, D. C.*

BUILDING:

. . . I congratulate you upon this achievement.

ERNEST M. FISHER, *Director
Institute for Urban Land Use &
Housing Studies
Columbia University
New York, N. Y.*

BUILDING:

The recommendations of the Round Table seem to me to be excellent and to represent sound and statementlike thinking, as befits leaders of so important an industry.

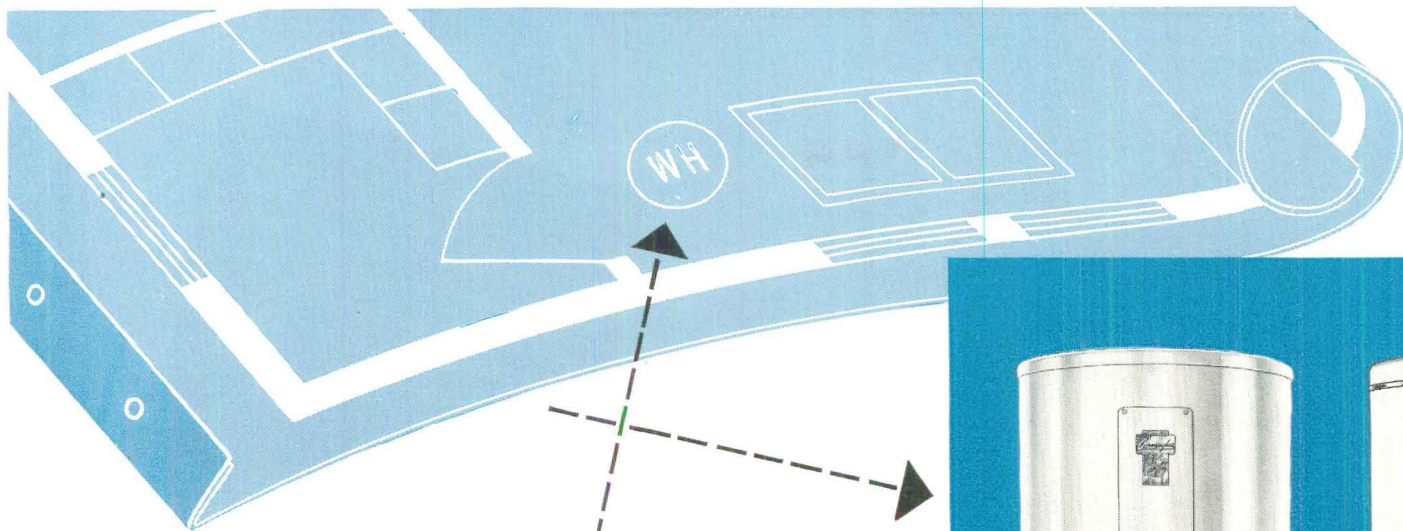
. . . I am a practising attorney specializing in housing matters, chiefly as general counsel to the National Association of Home Builders.

HERBERT S. COLTON
*Colton & Caviness
Washington 6, D. C.*

BUILDING:

. . . I compliment you upon the selection of the members of your Round Table discussion. . . . The suggestion that a permanent committee

(Continued on page 32)



Now...
all your clients can
 afford the finest!

**A.O. SMITH *Permaglas* AUTOMATIC
 WATER HEATERS NOW COST NO MORE
 THAN ORDINARY WATER HEATERS!**

ALL your clients can now afford the finest type of water heater. It's the one that means real freedom from tank-rust, and in millions of minds that means *Permaglas*. Your clients know it's the glass-surfaced steel water heater that can't rust... because *glass can't rust*.

The miracle of mass production makes possible unheard-of new low prices. More than a million water heaters have now been shipped from A. O. Smith's huge

Kankakee works! In fact, public demand has made *Permaglas* America's largest selling top-quality water heater. First in value! First in sales!

Whatever your clients' requirements, there's a *Permaglas* model and size to fit *every* home. Call your local A. O. Smith distributor for help in solving any water heating problem. He will be glad to help you.



Section $\frac{28a}{7a}$

A.I.A. File No. 29-D-2

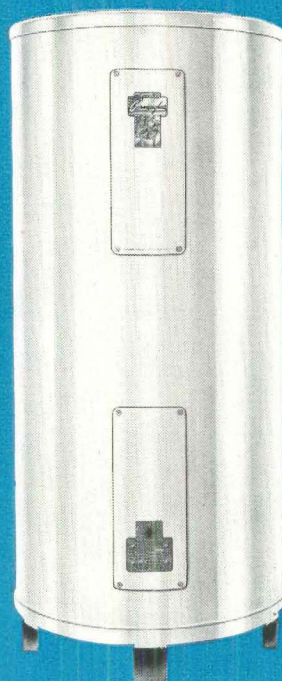


A.O. Smith

AUTOMATIC WATER HEATERS

PERMAGLAS • DURACLAD

Atlanta 3 • Boston 16 • Chicago 4 • Dallas 2 • Denver 2 • Detroit 2 • Houston 2
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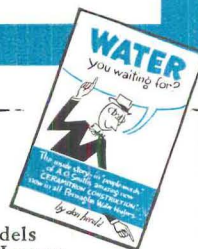
A. O. SMITH
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 AUTOMATIC ELECTRIC
 WATER HEATER



A. O. SMITH
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Glass can't rust!

NEW! EXCLUSIVE CERAMITRON CONSTRUCTION (Patent No. 2267361) assures positive protection of glass-surfaced steel tanks against attack by all corrosive waters. ONLY A. O. SMITH PERMAGLAS HAS IT! Want to know all about it? Check coupon below for free booklet!



MAIL FOR COMPLETE DATA

A. O. Smith Corporation, Dept. AF-1250
 Water Heater Division, Kankakee, Illinois

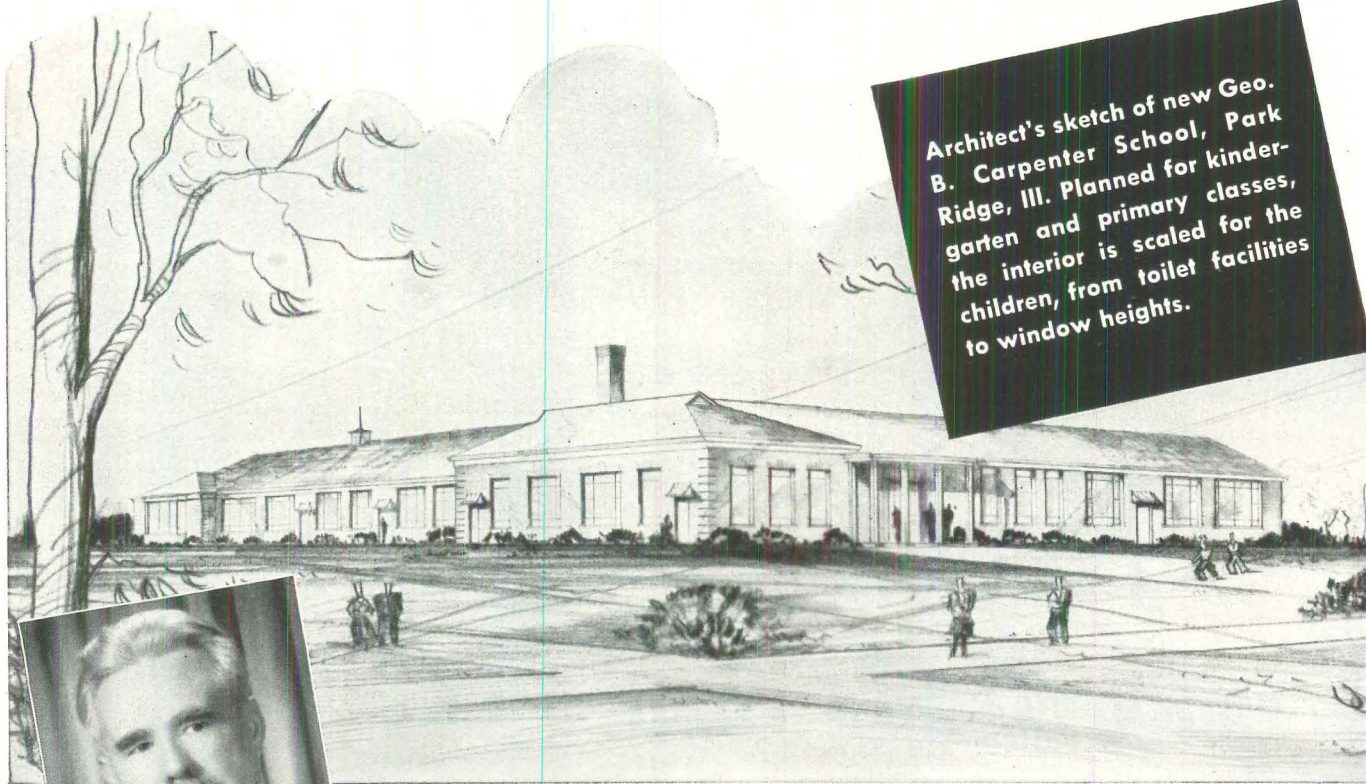
- Send me complete specifications on new models of A. O. Smith *Permaglas* Automatic Water Heaters.
- Send me booklet by Don Herold describing exclusive Ceramitron construction.
- Give me name and address of nearest A. O. Smith distributor.

Name _____

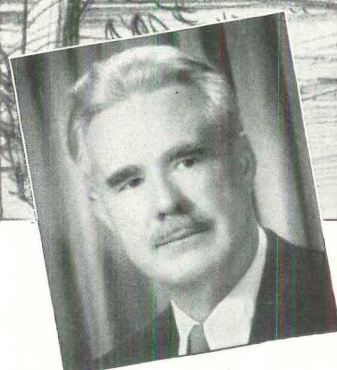
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Street _____

City _____ State _____



Architect's sketch of new Geo. B. Carpenter School, Park Ridge, Ill. Planned for kindergarten and primary classes, the interior is scaled for the children, from toilet facilities to window heights.



Architect W. F. McCaughey & Associates specify

CAREY FIRE-CHEX Shingles

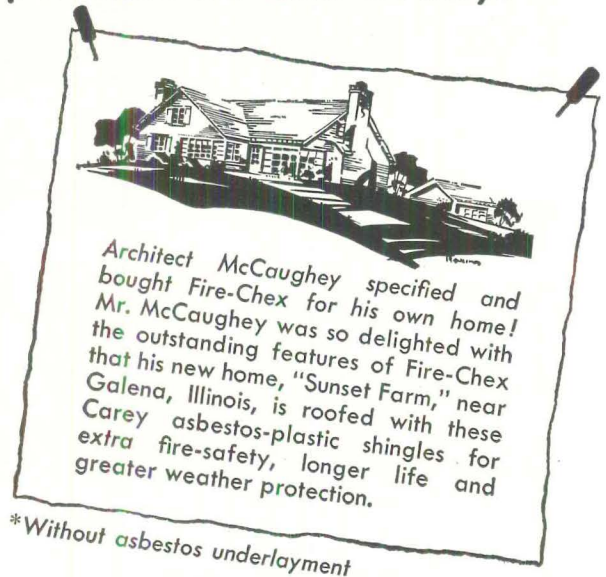
to give school greater fire-safety, permanence and beauty.

The beautiful new George B. Carpenter School, now under construction in Park Ridge, Illinois, will have a fire-safe roof of Carey *Fire-Chex* asbestos-plastic shingles.

"In selecting a roofing material for this fine new school," states architect W. F. McCaughey, "we made comparative studies based on fire-safety, permanence and beauty. The selection of Carey Fire-Chex for the roof was a natural consequence . . . for several reasons.

"Carey Fire-Chex offer fire-safety available in *no other roofing material*. They are the only shingles of any kind awarded Underwriters' Laboratories, Inc., highest fire-protective rating—Class A*; actually contain more asbestos fibers per square than conventional asbestos-cement shingles! As for permanence, Fire-Chex' extra heavyweight construction (325 lbs. per sq.) guarantees longer wear, greater weather protection. Equally important, Fire-Chex' colors and blends appealed to me because of their distinctive beauty."

Better check the advantages of Carey Fire-Chex for jobs *you* have in mind or in the works. Ask your Carey representative for all the facts, or write—



Architect McCaughey specified and bought Fire-Chex for his own home! Mr. McCaughey was so delighted with the outstanding features of Fire-Chex that his new home, "Sunset Farm," near Galena, Illinois, is roofed with these Carey asbestos-plastic shingles for extra fire-safety, longer life and greater weather protection.

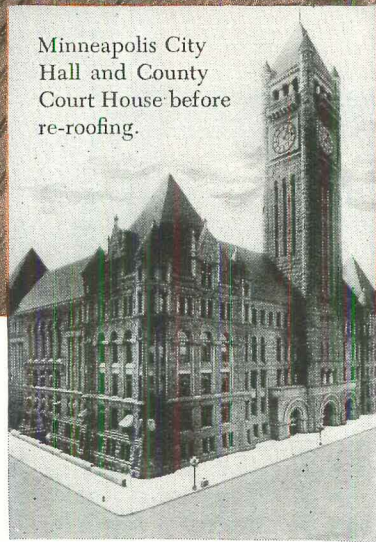
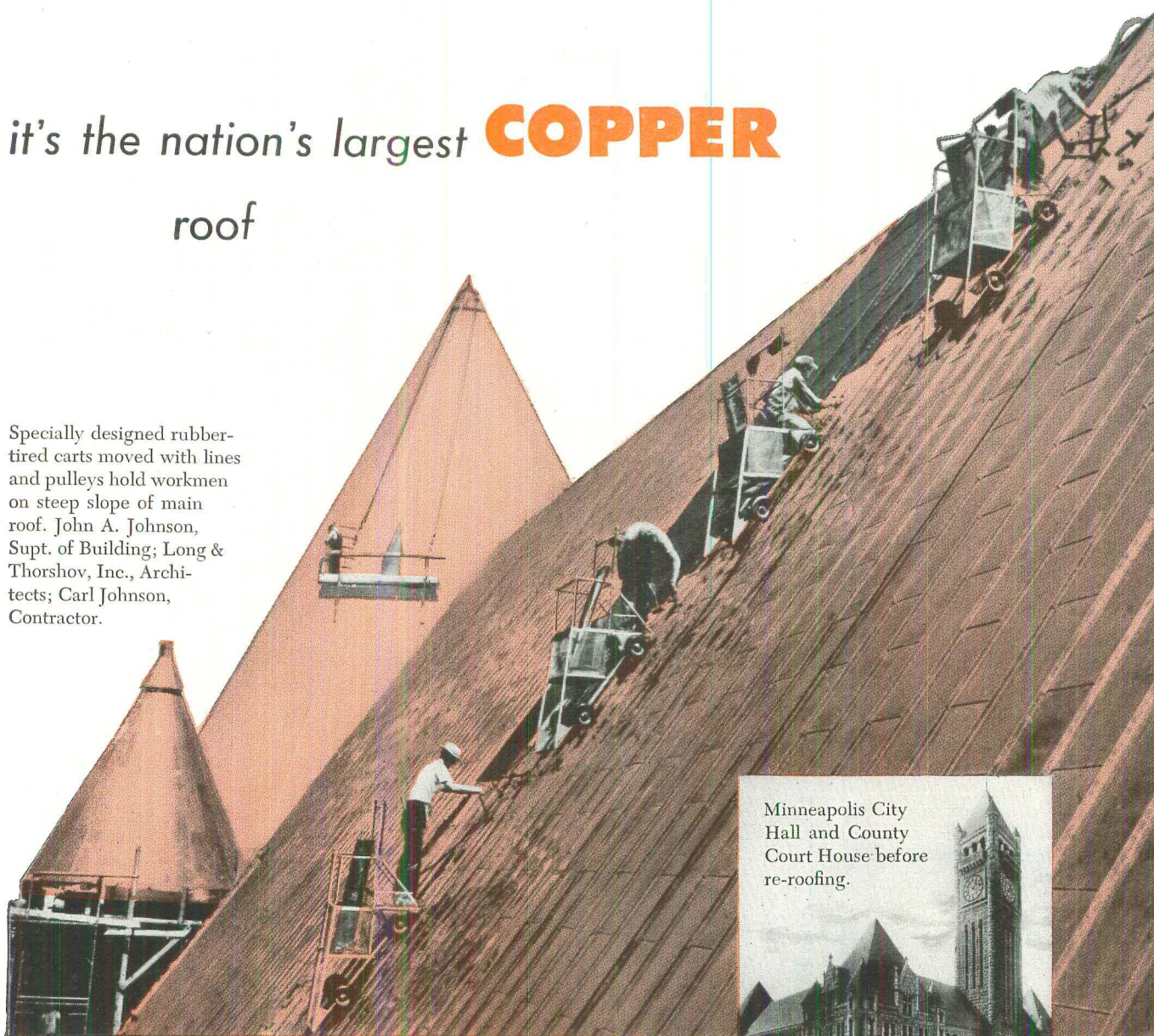
*Without asbestos underlayment

Carey

The Philip Carey Mfg. Co.,
Lockland, Cincinnati 15, Ohio

it's the nation's largest **COPPER**
roof

Specially designed rubber-tired carts moved with lines and pulleys hold workmen on steep slope of main roof. John A. Johnson, Supt. of Building; Long & Thorshov, Inc., Architects; Carl Johnson, Contractor.



Minneapolis City Hall and County Court House before re-roofing.

When the officials in charge of Minneapolis' block-square City Hall and County Court House were faced with replacing its vast roof, they decided that only a copper roof could economically match the durability of this monumental building.

This huge new roof — using 180,000 pounds of copper — is an outstanding example of the ideal combination of sound design, use of correct copper gages and tempers and intelligent workmanship that makes a copper roof unequalled for long life, low maintenance and ultimate economy.

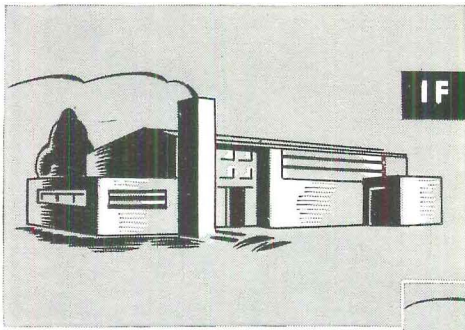
ANACONDA 20-oz. cornice temper Sheet Copper was used throughout for the standing seam roofing; 24-oz. cold-rolled, lead-coated Copper for the gutters; and 32-oz. cornice temper Copper for a deep fascia at the junction of roof and side walls at cornice level. Full provision has been made throughout for expansion and contraction.

Anaconda Technical Department specialists were privileged to consult with the various officials and groups charged with the design and construction of this important roofing job. Their counsel is equally available to you in all problems involving sheet copper design and construction. The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

you can build it better with—

ANACONDA[®]

COPPER

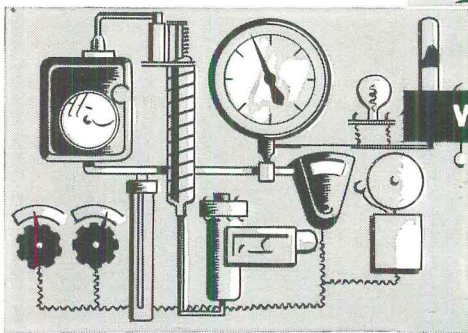
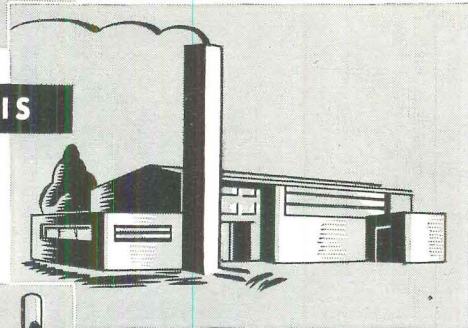


IF YOU WANT THIS

The modern functional school is characterized by trim lines and concise design . . . a low chimney.

INSTEAD OF THIS

Conventional types of horizontal, return-flue or tube boilers require tall, long-draft chimneys out of keeping with building style.

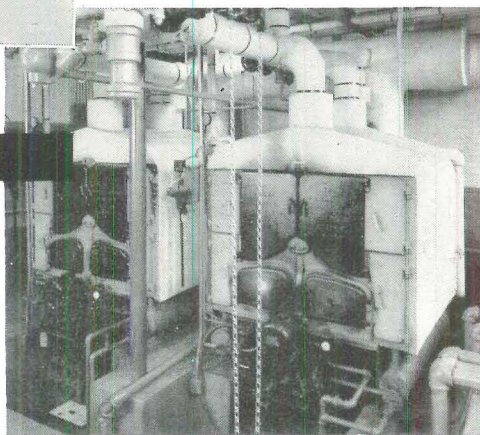


WITHOUT THIS

Complicated controls and noise of operation are necessary adjuncts when a "package unit" boiler is used with a low chimney.

USE THIS

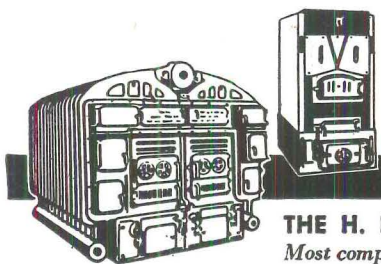
H. B. Smith *low-draft* cast iron boilers meet all heating requirements without tall chimneys or extra controls. This installation is in a Connecticut school.



Minimum draft resistance is assured in the design of H. B. Smith boilers. The hot gases rise between the gray iron vertical water tubes before passing into the side flues. Maximum heat is transferred from the gases to the water in the tubes.

Boilers of the return-flue, or long-fire-tube type, require stronger draft — call for tall chimneys or mechanical draft with elaborate controls . . . none of which are needed with H. B. Smith low-draft boilers.

Result? Low chimneys and freedom from noise, vibration or the danger of draft-control instrument failure. Add space saving, extra long life, economy of operation, low maintenance costs—and sectional construction features that permit the boiler to *grow with the need* — and you see why architects, engineers and contractors recommend H. B. Smith Boilers with full confidence.



H. B. *Smith*

CAST IRON BOILERS

THE H. B. SMITH CO. INC., WESTFIELD, MASS.
Most complete line in the world of cast iron boilers for heating

be formed is excellent. Obviously, with practical people participating in the Round Table, the recommendations flow out of actual experience in the different fields of endeavor, and I wholeheartedly agree with all of the conclusions.

. . . In the building and real estate financing fields, lack of applicable statistics hamper arriving at statistical results with accuracy. It seems to me that this is going to be the problem with reference to gauging the effect of controls cutting back housing production. We therefore will have to depend to a great extent upon conclusions reached out of practical experience because of lack of applicable formulae. . . .

Your publication has certainly contributed to an understanding of the overall picture in the face of an indefinite period of rearmament.

HARRY HELD
*Assistant Vice President
 The Bowery Savings Bank
 New York, N. Y.*

BUILDING:

. . . I have read the report with the interest it deserves. My personal views are in remarkable agreement with the recommendations of the Round Table. You are to be congratulated in bringing together such an authoritative and representative group of leaders in the industry, and for a brilliant job of reporting the results of their work.

VICTOR ROTERUS
*Assistant Chief
 Area Development Division
 U. S. Department of Commerce
 Washington, D. C.*

BUILDING:

. . . A most interesting report. . . . The recommendations are, in the main, very constructive.

J. R. DUNKERLEY
*Deputy Manager
 The American Bankers Assoc.
 New York, N. Y.*

BUILDING:

. . . The job has been completely and well done.

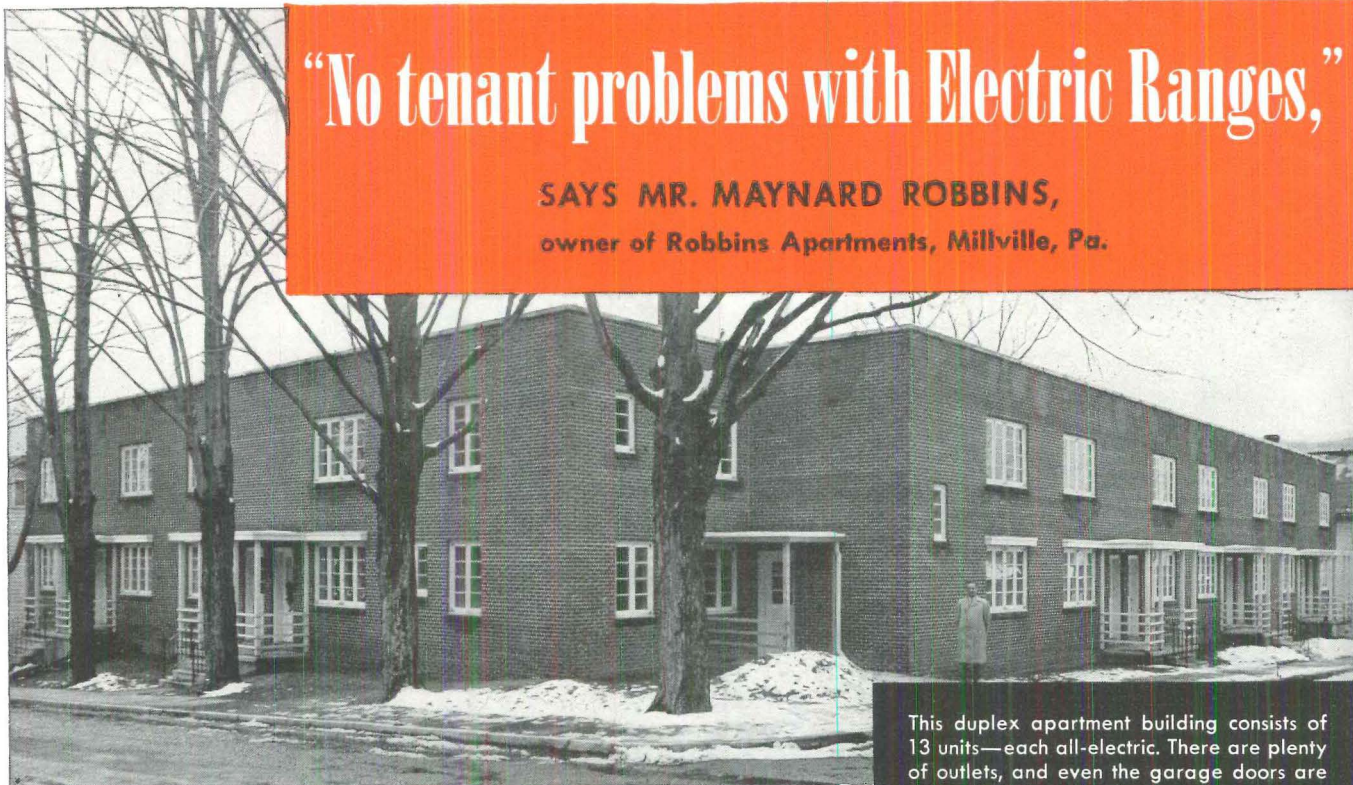
The Round Table agreed that the real roadblock will center about inflation and that it must be attacked at its source . . . My observation is that among the powers given to Congress is the right to fix the Standards of Weights and Measures. In this emergency it may be well to let American labor and management study the possibilities of a new standard for measuring *time*. How about having the dial on the clock show 10 hours and the day thus divided into a total of 20 hours. With 72 seconds to a minute and 60 minutes per hour, the same quarter and half past the hour. But eight hours of labor would actually give under this change in clock more than nine and a half man power hours per day.

There are today some 60 million people voluntarily changing the clock to get along with daylight saving. This suggested adjustment seem-

(Continued on page 36)

"No tenant problems with Electric Ranges,"

SAYS MR. MAYNARD ROBBINS,
owner of Robbins Apartments, Millville, Pa.



This duplex apartment building consists of 13 units—each all-electric. There are plenty of outlets, and even the garage doors are operated by an electric eye.



In the kitchens of the Robbins apartments there is no manual dishwashing, no garbage problem. Electricity performs all the major tasks. Equipment includes Electric Refrigerator, Electric Water Heater, Electric Dishwasher, Electric Food Waste Disposer, and the Range—of course, it's ELECTRIC!

"There are no vacant apartments here. Electrical convenience has eliminated many of the usual tenant problems," says Mr. Robbins.

You can take a tip from him—as well as from builders everywhere who have found that it pays to include modern, automatic Electric Ranges with other electrical equipment during construction.

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

ADMIRAL • COOLERATOR • CROSLY • DEEPFREEZE • FRIGIDAIRE • GENERAL ELECTRIC • GIBSON
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EQUIP
YOUR HOUSES WITH
ELECTRIC
RANGES



One of the Nation's finest
home developments is equipped
with **AllianceWare** Bathtubs
PORCELAIN ON STEEL



A vista of the attractive homes in Park Forest, Illinois.



An AllianceWare bathtub photographed in a Park Forest Home. Park Forest Homes are also equipped with AllianceWare sinks.

Park Forest is being erected by
American Community Builders, Inc.
Loebl, Schlossman & Bennett, Architects
Consoer, Townsend & Associates, Consulting Engineers
Warren Barr Supply Co., Plumbing Wholesalers
Charles Thumm, Plumbing Contractor

“Plan for ideal family living in spacious beauty, comfort and safety”—this is the aim of the developers of Park Forest, Illinois.

When completed, this extensive home building project will embrace a total of 7500 dwelling units. The first 3,000 rental units consisting of five- and six-room duplex houses with one, two or three bedrooms have been completed. All of the completed homes are equipped with AllianceWare bathtubs—evidence that AllianceWare meets the exacting demands of progressive builders.

There are sound reasons for the choice of AllianceWare by leading architects and builders. Modern styling, stainproof surface and a choice of colors in AllianceWare enhance the beauty of bathrooms, large or small.

Practical details of AllianceWare construction, such as exact dimensions, wall guard flange that stops water leaks around the tub at the wall line, and anchor lugs which prevent shifting or settling of tub are added values of great importance.

Specifications and dimension sheets on the complete AllianceWare line are yours for the asking.

AllianceWare, Inc. Alliance, Ohio

Bathtubs • Lavatories • Sinks

AllianceWare
PORCELAIN ON STEEL

folks who get paid off,' ne ourselves of greed and bias and harmful error."

Owners Vie for Tenants With Latest in Building

MINNEAPOLIS, MINN.—Multiple housing rental operators are commencing to discover that special inducements are becoming increasingly necessary in attracting desirable tenants into their folds. Evidence of the keener competition which prevails in many areas today, is indicated by the offers from management, of such attractions as automatic dishwashers, automatic garbage disposal units, individual apartment heat control, community playgrounds, television outlets, etc. As a result, prospective tenants are selecting their new abodes wisely, shopping with purposeful determination until they find the apartment that offers them the most for their money in the way of comfort and convenience.

Of all the features available to the modern apartment building, today, PHC (Personalized Heating Control) probably offers the owner the greatest value for his money. Because Honeywell's Personalized Heating Control permits each tenant family to govern its own temperature requirements, individually, there's no need to fire the heating plant to capacity just to satisfy a few occupants. One apartment is never too cold, another too hot. As a result substantial fuel savings are assured . . . an important item to the person who pays the bills.

Two groups probably would fight against a free press guar-

HONEYWELL PERSONALIZED HEATING CONTROL

... has been installed in thousands of apartments, both new and existing, throughout the country. Familiarize yourself with all the facts.

Send for the
FREE BOOKLET

"Modern Methods of Apartment Heating and Heating Control" is the title, A. I. A. File 30-E. Address Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Toronto 17, Ontario.

MINNEAPOLIS
Honeywell

FIRST IN CONTROLS

**DEPENDABLE CONTROLS
COST LESS THAN SERVICE**



When you plan the building of a new home or the modernization of an old kitchen, you can be sure that you will please your clients, if you consider these three important features:

Beauty because the housewife wants the hours she spends in her kitchen to be in cheerful, colorful surroundings.

Utility because she wants the kitchen to be sanitary in order to reduce kitchen drudgery to a minimum.

Durability . . because she wants her investment to give her a lifetime of service and satisfaction.

Just Line Radiiluxe Custom Built Stainless Steel **Cabinet Sinks and Tops**

give her all these advantages. In addition, they harmonize perfectly with any color and decoration scheme and add the final touch of elegance and refinement to any modern kitchen.

Note these Exclusive **JUST Radiiluxe** Features:

- Custom Built to meet every Personal Taste
- Patented In-Built Anti-Splash Rim in bowls
- Patented Double Pitched Drainboards
- Seamless Electrically Welded Construction
- Rounded Corners in Sink Bowls
- Die Formed Raised Edges
- U-Type Steel Reinforcing Channels under Drainboards
- Sound Deadened Drainboards and Bowls

Write today for Illustrated Literature F-12 and
Name of Nearest Factory Representative



JUST *Manufacturing Co.*
4610-20 W. 21st Street, Chicago 50, Illinois

LETTERS

ingly would bring on a "reflation" in the economy, quite painless and without the use of castor oil. (Only a while back Russia, I believe, put the reverse split on their monetary system giving one for ten Rubles.) Because of the emergency the fear of prolonged international negotiation might be sidestepped. . . .

WILLIAM H. BEADLING
Rochester, N. Y.

HIGHBALL, HOT SUPPER AND BED

BUILDING:

The material of the architect is *people*. . . . I'll pass on a few obvious observations that an architect would pick up if he was given even a wee bit of training in scientific note-taking and observation.

Today the major wash comes from the bedroom and bath. In the kitchen today there are only a few dishtowels and a few small napkins and placemats—obviously the laundry should be in the bathroom. . . .

If architects used the brains they were born with they would long ago have made a few discoveries about children. . . . For example, the younger the child the more room he needs. The old and more mature person needs less and less space. In fact a very mature person can live in a cell on his own resources—but an architect always gives the adult the biggest and best bedroom—and he has the whole house to roam in! !

I attended a round table of four architects at the Seattle Art Museum on the "Mid-Century Home," and *each one* of them referred to the home as a "retreat"—that is no right-minded sane thing to say—especially to a lot of women. . . . A home is a lot more than a quiet 5 o'clock highball, a hot supper and bed, with a few kitchen gadgets thrown in . . . it is an enclosure where the greatest amount of creative living is made possible by all members of the household, including the cats and dogs—I want plenty of space to move in, and I want the arrangement to shorten my labor so I can enjoy every possible minute with my family and friends in living a creative life. . . .

ANNE HAUBERG
Seattle, Wash.

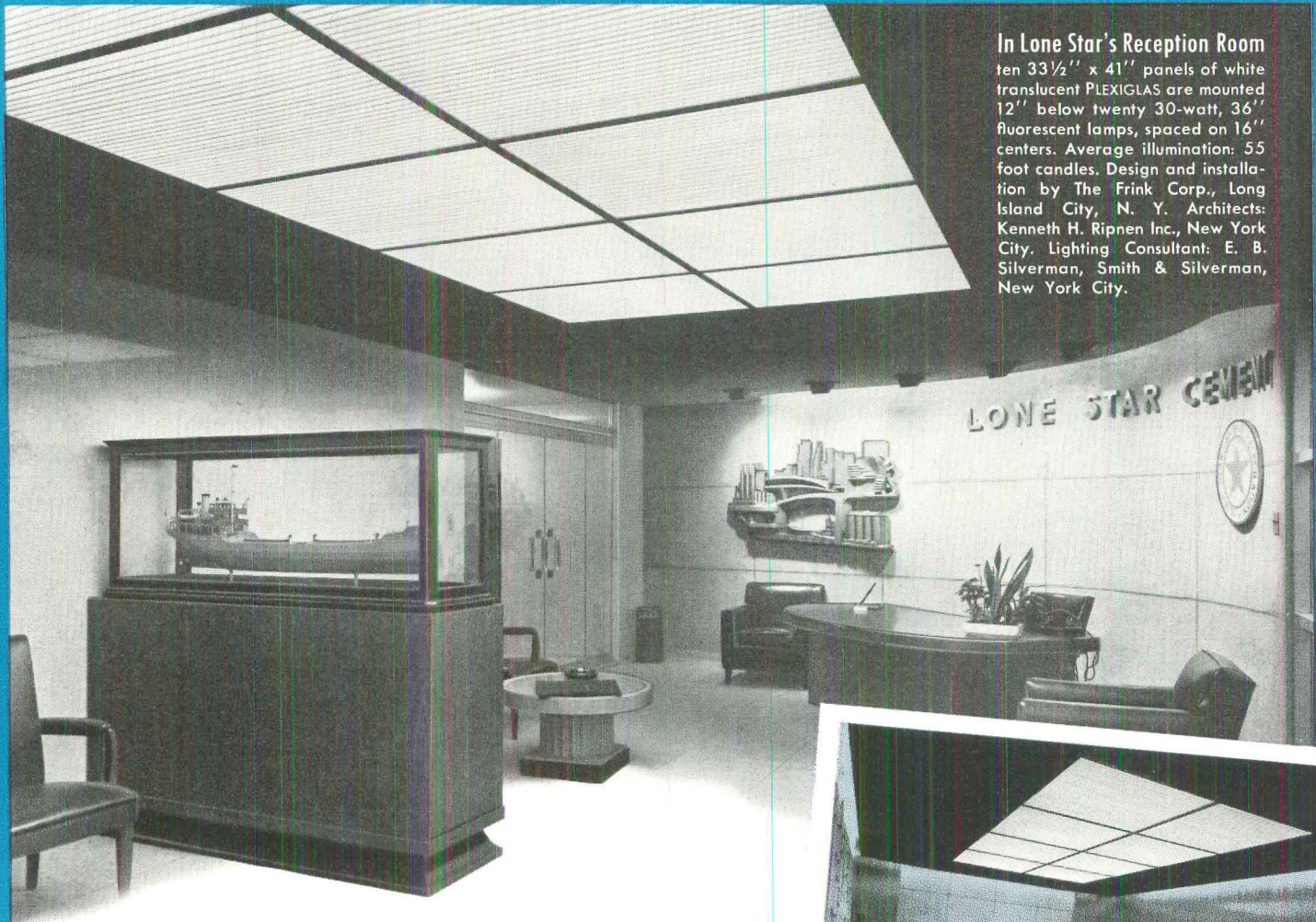
HELP WANTED

BUILDING:

A committee has been authorized to select architects for the construction of the Mary E. Sawyer Memorial Auditorium in La Crosse. Approximately \$600,000 has been left to the city for the erection of this memorial. We welcome hearing from qualified firms in this vicinity who have had experience in building auditoriums.

ROBERT A. FARNAM, *Chairman*
Auditorium Committee
212 State Street
La Crosse, Wis.

(Continued on page 40)



In Lone Star's Reception Room
 ten 33 1/2" x 41" panels of white translucent PLEXIGLAS are mounted 12" below twenty 30-watt, 36" fluorescent lamps, spaced on 16" centers. Average illumination: 55 foot candles. Design and installation by The Frink Corp., Long Island City, N. Y. Architects: Kenneth H. Rippen Inc., New York City. Lighting Consultant: E. B. Silverman, Smith & Silverman, New York City.

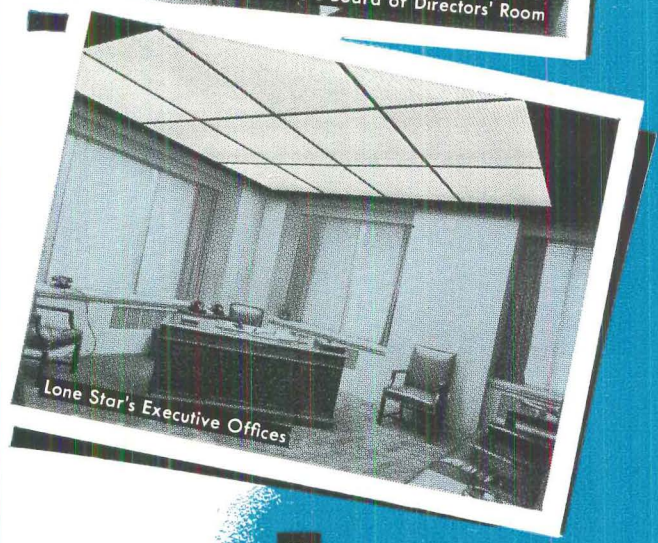
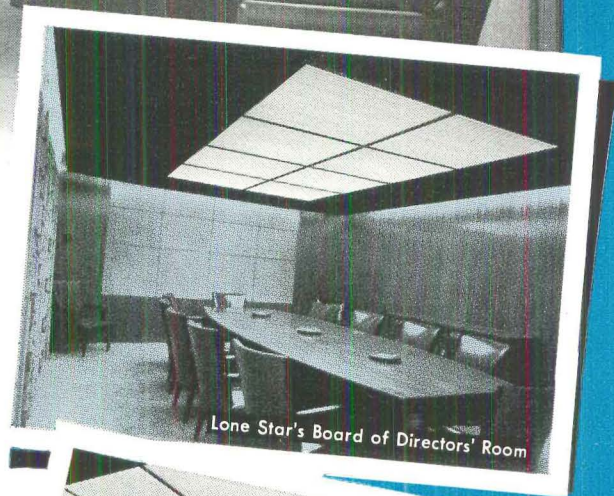
Skylighted Office? No!
 It's a
PLEXIGLAS
 Luminous Fixture


Man-made daylight—soft, even, glare-free—is a functional and decorative feature of Lone Star Cement Company's new offices in New York City. In nearly every room, PLEXIGLAS Luminous Ceilings diffuse light so perfectly that a *luminous environment* is created, easy on the eyes and nerves.

PLEXIGLAS simplifies the design, installation and maintenance of other lighting fixtures, too. Because this acrylic plastic is easily cut, shaped and fabricated, it adapts readily to coffer, cove or trough lighting, completely enclosed units, wall or overhead lighting of all kinds. Lightness and strength make it easy and inexpensive to ship and erect. Resistance to breakage and discoloration cuts maintenance costs to a minimum.

Get Full Details Today. Free information on PLEXIGLAS Quality Lighting for offices, homes, stores, drafting rooms, public buildings, is yours for the asking. Send for our new brochure, No. 77, "As Light as Day the PLEXIGLAS Way," and tell us about your lighting problem. The counsel of our Design and Fabrication Laboratory Staff is yours without obligation.

PLEXIGLAS is a trade-mark, Reg. U. S. Pat. Off., and in principal foreign countries.
 Canadian Distributor: Crystal Glass & Plastics, Ltd., 54 Duke Street, Toronto, Ontario, Canada



CHEMICALS  FOR INDUSTRY

**ROHM & HAAS
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Tulsa, Oklahoma

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*General Contractor . Manhattan Construction Co.
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*Plastering Contractor . . . Fournier Stucco and
Plaster Co., Tulsa, Oklahoma*

RESULTS GUARANTEED BY GOLD BOND!

IT'S BEAUTIFUL *inside*, too—the new \$6,000,000 First National Bank of Tulsa. One of the finest buildings in the Southwest, another in the long line of fine Gold Bond jobs dotting the country. Over 600 tons of Gold Bond Plaster were used for the walls and ceilings.

The use of Gold Bond products assures complete satisfaction to the architect, builder and owner. There are over 150 of these products, each one guaranteed to do a specific job *better*. When they are used exclusively, the entire responsibility is centered in *one* reputable manufacturer—National Gypsum Company. You'll find Gold Bond products fully described in Sweet's...and available through local Gold Bond lumber and building supply dealers.

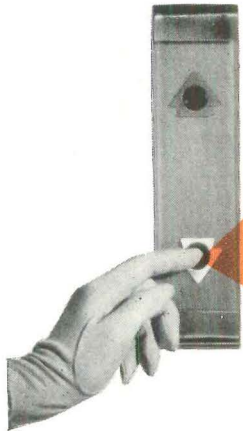
**You'll build or
remodel better with
Gold Bond**

NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

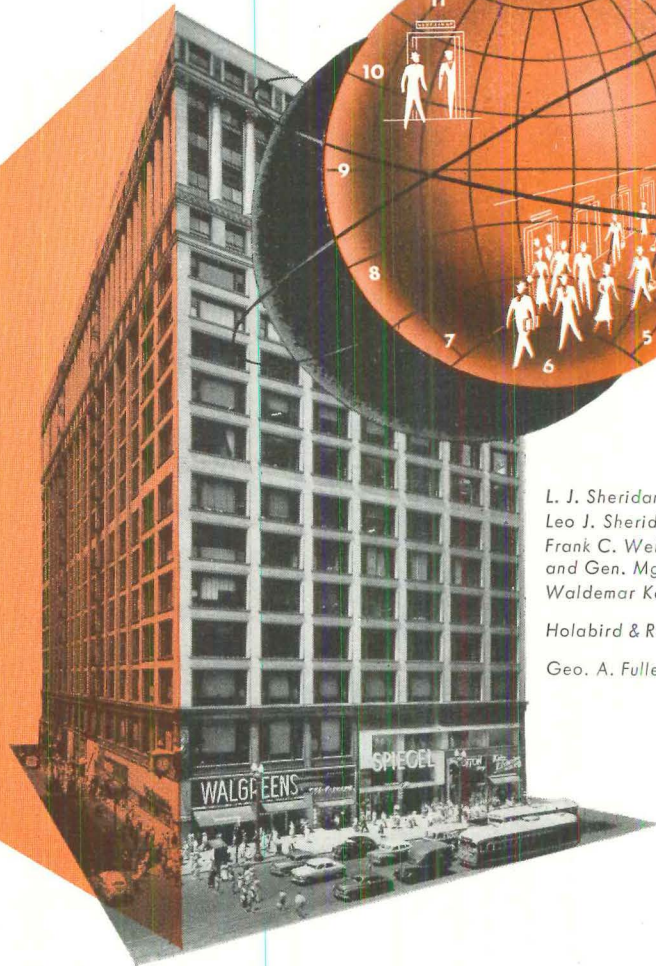
*Lath, Plaster, Lime, Sheathing, Wall Paint, Rock Wool Insulation, Metal Lath, Sound Control Products,
Fireproof Wallboards and Decorative Insulation Boards.*

STATE-MADISON BUILDING

Chicago, Illinois



CONVERTED
from
Department Store
to
Offices
Shops
Showrooms



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Leo J. Sheridan, President
Frank C. Wells, V. P.,
and Gen. Mgr., State-Madison Bldg.
Waldemar Karkow, V. P. and Eng.
Holabird & Root & Burgee, Architects
Geo. A. Fuller Co., Gen. Contractors

OTIS PLANNING helps make huge conversion a success with AUTOTRONIC ELEVATORING

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

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

"There was never any guesswork about elevator operation."

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

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

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



AUTOTRONIC
Traffic-Timed
ELEVATORING



residential

commercial

industrial

to make sure the light will be right check with **GraybaR**

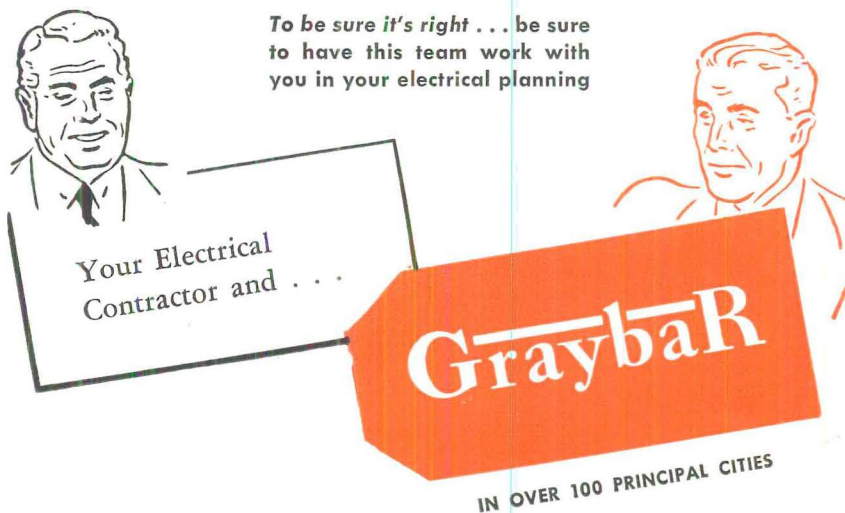
As distributor of the nation's most complete selection of lamps and lighting units, Graybar can give you really helpful and complete assistance in planning any lighting layout.

Simply by calling the near-by Graybar office, you or the electrical contractor with whom you work can get complete, up-to-date information on light for any application. Because the Graybar Lighting Specialist has such a complete selection of lighting equipment from which to choose, he can impartially recommend the best for your use. This same Graybar Specialist can be a help in providing all of the information you need about necessary conduit, wiring and supplies.

Help on other electrical systems too!

Graybar distributes nationally more than 100,000 carefully selected electrical items for wiring, power, ventilation, communication, and other needs. When you specify anything Graybar distributes, you can rest assured it'll be right for the job. Moreover, when the electrical requirements are scheduled ahead with Graybar, everything will be on the job site when it's needed. There'll be no waiting for fixtures to come from one supplier, switchplates from another . . . wire from a third. And, Graybar Specialists stand ready to help you and your electrical contractor in the planning of any electrical system. *Graybar Electric Company, Inc. Executive offices: Graybar Building, New York 17, N. Y.*

5094



To be sure it's right . . . be sure to have this team work with you in your electrical planning

Your Electrical Contractor and . . .

GraybaR

IN OVER 100 PRINCIPAL CITIES

LETTERS

ARCHITECT'S AD

BUILDING:

. . . A local newspaper recently carried a headline that a large industrial plant for a company manufacturing architects' and engineers' supplies was designed by a real estate office.

As part of a program to offset this sort of thing, and to begin to acquaint the public with the existence of the architect and his function, the Architects League of Northern New Jersey has embarked upon an advertising campaign consisting of a display advertisement to be run once a week in the leading newspapers covering this end of the state—see cut. . . .

**IT PAYS TO
CONSULT AN ARCHITECT
BEFORE YOU BUILD**
FOR FREE INFORMATION ADDRESS
ARCHITECTS LEAGUE OF NORTHERN NEW JERSEY
5 LIVINGSTON PL., WEST ENGLEWOOD, N. J.

Advertising by the architectural profession has been frowned upon for years; however, considering that the American Medical Association has just embarked upon a \$25 million advertising program, and that the Bar Association has used advertising space to carry its message to the public, the Architects League is running this series as a try-out. . . .

HARRY ALLAN LUCHT

Executive Secretary

*Architects League of Northern New Jersey
West Englewood, N. J.*

AIA QUESTIONS

BUILDING:

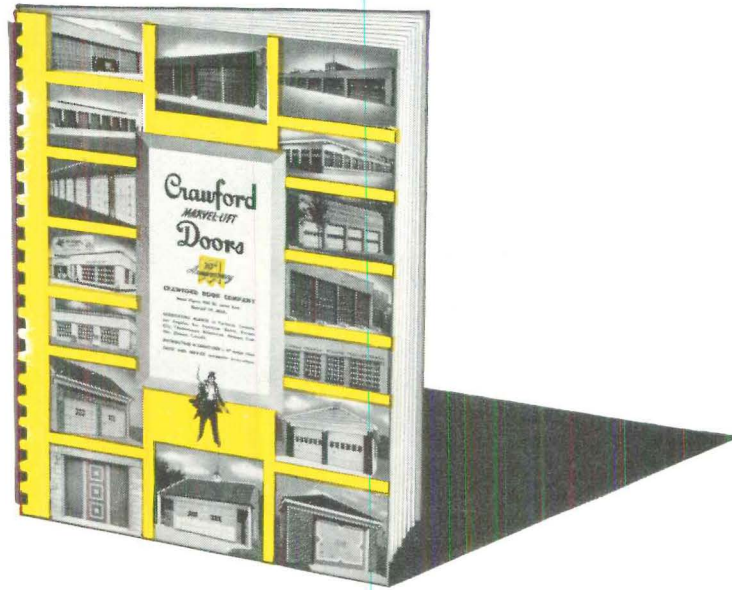
Your August report expressed doubt that the general questionnaire of the AIA (a professional and education census) will "throw light on (a) the swift change in the type of architectural employment or (b) the growth of new attitudes in education."

Regarding (a) the problem of change in type of employment is covered by 15 of the 49 questions. Regarding (b) two questions including 36 sub-items will record the opinion of registered architects regarding education. There are four additional questions which pertain to interne experience and registration examination, all of which relate to education.

In addition, special questionnaires are going to the deans and directors of all collegiate schools of architecture, and separate individual questionnaires are going to all teachers of architecture for return directly to the commission, not through the deans and directors.

There will be individual interviews and correspondence from members of the commission with persons inside and outside the profession representing a wide range of opinion. Many special comments have been received from the respondents to the questionnaire. There will be

(Continued on page 44)



Crawford

presents the Perfect Combination

THE CRAWFORD 60-Second DOOR SELECTOR *plus*
 A NATION-WIDE ORGANIZATION for CONSULTATION,
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Crawford Door Sales Companies are Established in the Following Centers:

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 DES MOINES, 1209 Keo Way
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 ELKHART, 1714 S. 7th St.
 EVANSVILLE, 421 Fulton Ave.
 HARRISBURG, PA., 31 S. 31st St.
 HOLLYWOOD, FLORIDA, P.O. Box 65
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LOUISVILLE, 2425 Lexington Rd.
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 OMAHA, 4601 Dodge
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 PHOENIX, Box 2268
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 PORTLAND, OREGON, 936 S. W. First St.
 ROANOKE, 615 Salem Ave. S. W.

ROCHESTER, N. Y., 622 Scio St.
 ST. LOUIS, 1617 Lafayette
 ST. PAUL, 180-184 E. 6th St.
 SALT LAKE CITY, 155 W. Second S. St.
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 SAN FRANCISCO, 693 Mission St.
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DISTRIBUTING WAREHOUSES in 79 major cities.

SALES AND SERVICE companies everywhere.

Reading this one page
can help you design
LONGER LASTING ROOFS
and **GUTTERS**

When metal roofs and gutters expand and contract, due to temperature changes, this movement sets up stresses in the metal that correspond to the loading of a structural column. Unless the stiffness of the metal section is sufficient to transmit these stresses from the fixed end to an expansion joint, the metal will buckle; and where it repeatedly buckles, it will soon crack.

Thus, one basic factor in non-ferrous* sheet metal construction usually determines how long the installation can last . . . and this factor is the stiffness, or columnar rigidity, of each section.

WHAT GOVERNS COLUMNAR RIGIDITY?

The columnar rigidity of a sheet metal section is determined almost entirely by the shape of the section and the thickness of the metal. Studies have proved that such factors as tensile strength of the metal are either of no importance or of relatively minor importance in determining columnar rigidity of a sheet metal section.

The amount of stress which builds up in any section depends, of course, on the length of the section. Thus, when length and columnar rigidity are in balance, there will be no buckling of the metal and the installation will last indefinitely.

"COPPER AND COMMON SENSE"

Revere's manual of sheet copper construction, "Copper and Common Sense", describes in detail the research upon which the above statements are based. It is complete with charts, illustrations and detailed information so arranged that you can read and apply final figures that insure the finest sheet metal construction.

"Copper and Common Sense" has been widely distributed to architects and sheet metal contractors, and there is probably a copy in your files. In addition, a Revere Technical Advisor will always be glad to consult with you without obligation.

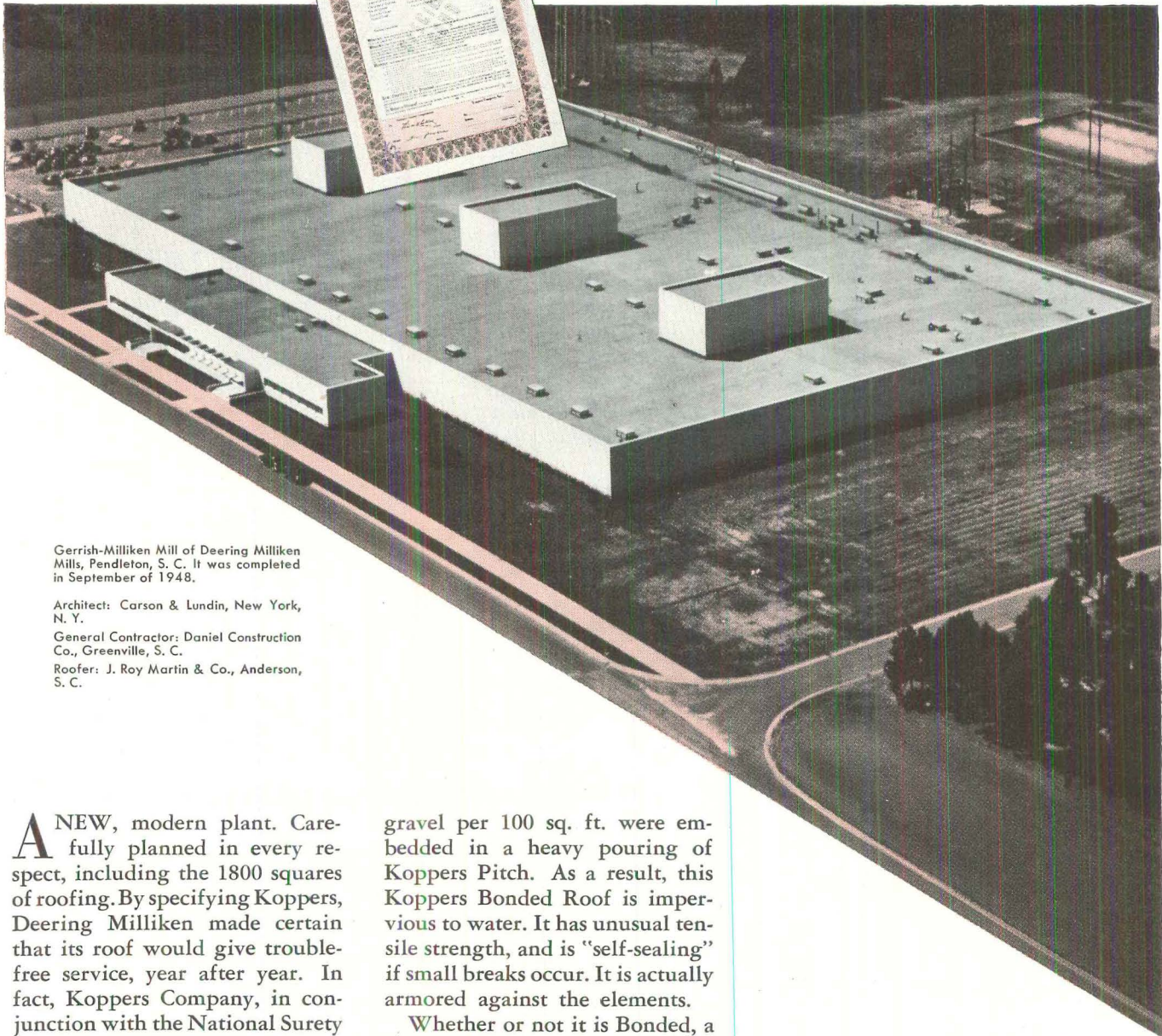
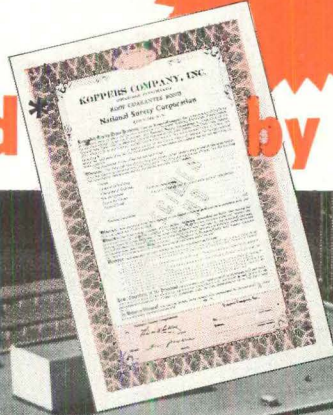
*Erosion and corrosion seldom cause premature failures in sheet copper construction. When failures do occur, 9 out of 10 of them are due to lack of balance between the length and columnar rigidity of the section.

REVERE
COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
230 Park Avenue, New York 17, New York

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

a roof with an *assured* future . . .

It's Bonded by Koppers for 20 Years!



Gerrish-Milliken Mill of Deering Milliken Mills, Pendleton, S. C. It was completed in September of 1948.

Architect: Carson & Lundin, New York, N. Y.

General Contractor: Daniel Construction Co., Greenville, S. C.

Rofer: J. Roy Martin & Co., Anderson, S. C.

A NEW, modern plant. Carefully planned in every respect, including the 1800 squares of roofing. By specifying Koppers, Deering Milliken made certain that its roof would give trouble-free service, year after year. In fact, Koppers Company, in conjunction with the National Surety Corporation, has *guaranteed* the performance of this roof for 20 years.

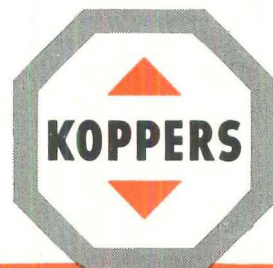
Alternate plies of Koppers Approved Tarred Felt and Koppers Coal Tar Pitch were used to build up this roof. Then, 400 lbs. of

gravel per 100 sq. ft. were embedded in a heavy pouring of Koppers Pitch. As a result, this Koppers Bonded Roof is impervious to water. It has unusual tensile strength, and is "self-sealing" if small breaks occur. It is actually armored against the elements.

Whether or not it is Bonded, a Koppers Built-Up Roof is a *good* roof. So specify Koppers Roofing Materials. It's the *sure* way to turn out better roofing jobs.

*Koppers issues Roof Guarantee Bonds for 10, 15 or 20 years in such sections of the United States as are covered by its inspection service.

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

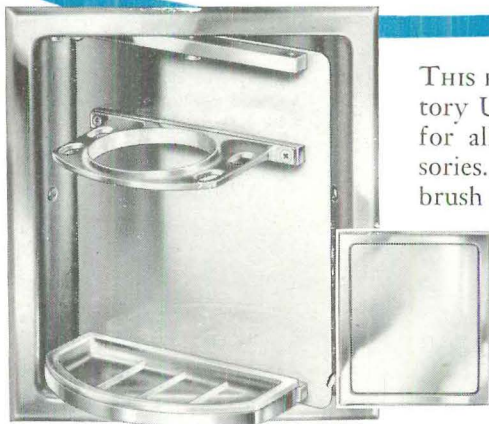


• SPECIFY KOPPERS FOR LONG-LIFE ROOFING •

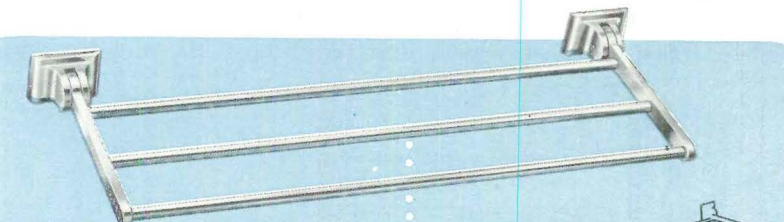
There's something **SPECIAL** about bathrooms when accessories are

HALL-MACK
TRADE MARK REG U S PAT. OFF

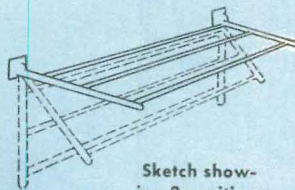
In Hall-Mack's complete selection of bathroom accessories you'll find unique special accessories like these—made to add the final touch of convenience and appearance to any bathroom...



THIS BEAUTIFUL Concealed Lavatory Unit is a perfect companion for all other Hall-Mack Accessories. Soap, tumbler and toothbrush are ready at the touch of a finger—yet smartly concealed when not in use. These bathroom necessities are mounted on a revolving panel, and only a polished chrome surface flush with the bathroom wall is visible when the unit is closed...

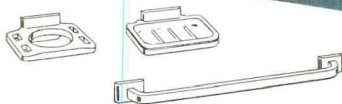


AND HERE IS A three-bar Adjustable Towel Rack—a real space-saver. It's instantly adjusted to any of three positions (horizontal, 45°, or down) and is ideal for drying hosiery, for displaying guest towels, and for bath towel storage. Drops down out of the way when not in use, yet provides so much extra convenience when needed.



Sketch showing 3 positions of Towel Rack

LOOK FOR all of the extra qualities in bathroom accessories—and you'll choose Hall-Mack! Remember—there is a complete line to give you the right accessories for every bathroom need. Hall-Mack also makes a full selection of fine Medicine Cabinets and other recessed specialties. Write for details. Hall-Mack Company, 1344 W. Washington Blvd., Los Angeles 7, California.



LETTERS

special short questionnaires to all state registration board members and state registration board secretaries. The commission has also requested comments from Honorary Corresponding Members of the Institute and from all Fellows of the Institute regarding changes in practice observed to date and prediction of future trends. The commission welcomes comments from unlicensed men in the architectural field.

WALTER A. TAYLOR, *Director*
Department of Education and Research
American Institute of Architects
Washington, D. C.

• No one will be more pleased than the editors of BUILDING if the survey turns up the promised full information. And let all unregistered architectural men respond to the Commission's invitation to express their opinions, addressing them to the Commission for the Survey of Education and Registration, in care of Mr. Taylor at the AIA offices, 1741 New York Ave., N. W.—Ed.

DISPLAY EXPERTS DREAM

BUILDING:

In the September presentation of the Contemporary Arts Association museum in Houston, it was stated that most display experts will question the suitability of the triangular structure regarding the lack of backdrops, movable partitions and flexible lighting. . . .

The neutral soft tones of the asbestos and natural plywood provide an excellent backdrop. Movable partitions are continually available for exhibits . . . and they can be suspended or hung at will from the sloping sides or set on the floor to achieve any kind of imaginative scheme. Extreme flexibility for artificial lighting is obtained by the traveling fixtures overhead together with accessible connections from the floor and sides.

After more than a year's operation in this new building in which we showed a wide variety of exhibitions, the suitability of the type of structure to its function has been determined as obviously good.

Flexibility for installing displays and exhibits is the prime feature of the Contemporary Arts museum. It has actually turned out to be a display expert's dream!

RICHARD GONZALES, *President*
Contemporary Arts Association
Houston, Texas

• The primary function of a museum is to display objects that are interesting in themselves. To retain this interest, such objects should be placed against neutral backdrops—neutral in color, lighting and neutral in form. The handsome little Houston building is fine as to neutral color and light, but seems too dynamic, too restless and, perhaps, too interesting a piece of architecture to serve as an ideal neutral backdrop. On the other hand, the Houston museum is a fine show of a fine piece of architecture, and there aren't enough of those exhibits around to satisfy our taste.—Ed.

ERRATA

The KLM (Royal Dutch Airlines) Ticket Office, incompletely credited on page 134 of the October issue, was designed by Architects Louis Shulman and James Casale.—Ed.

● AN ARCHITECTURAL ASSET INSTEAD OF A BLEMISH!

pre-fabricated
ready to drop
in place!

WASCOLITE

Plexiglas

DOMESKYLIGHT UNITS

At last a skylight that adds to rather than detracts from architectural design! Gone the dingy appearance, the hundreds of maintenance and installation problems of the old-type skylights. Neat and attractive outside, WASCOLITES flood interiors with clear, unobstructed light and sunshine. Inside, *nothing but the sky is visible!*

Simple to specify and unbelievably easy to install, WASCOLITES are strong and shatter-proof, easy to clean and absolutely watertight. Here is today's answer to the widespread need for improved skylighting.

Send for our A. I. A. Folder for the full story. And ask the name of your nearest WASCO representative. He has a WASCOLITE sample to show you.

WASCO FLASHING COMPANY • CAMBRIDGE • MASS.

It's Decidedly Better Lighting...without the ginger bread!



Dallas' new Employer's Insurance Building, opened July 10. Architect—George Dahl

Tricky ornaments won't beautify a lighting fixture. Architects look, first, for *simplicity*—functional design that affords maximum light, attracts least attention.

That's why 4,891 Day-Brite parabolic troffers were chosen for Dallas' new \$3,700,000 Employer's Insurance Building—one of the most modern structures in the Southwest.

Architects know that Day-Brite fixtures impart an atmosphere of elegance and discrimination . . . are easily installed and maintained . . . made to give years of low-cost, trouble-free service.

If *you're* looking for quality lighting, without the 'ginger bread,' look to Day-Brite. There's a Day-Brite answer to every lighting problem. And, the price is right.

Day-Brite recessed troffers for

FUNCTIONAL DESIGN . . .

Clean, simple lines, appropriate to any setting. No "dated" ornamentation

SOUND CONSTRUCTION . . .

All fixtures Underwriters Approved, stress-engineered for durability

EASY INSTALLATION . . .

A one man, 60-second operation. No holes to drill, no bolts

LOW-COST MAINTENANCE . . .

Designed for fast, easy cleaning, re-lamping, starter replacement

LONG-SERVICE . . .

Famous Day-Brite quality guarantees years of faultless performance

DIVERSIFIED LINE . . .

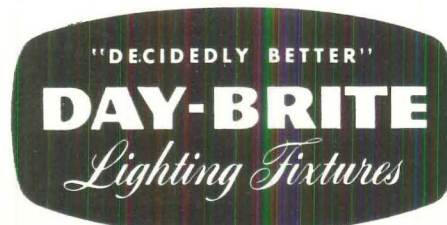
Six basic groups to choose from. An easy answer to every lighting problem



DISTRIBUTED NATIONALLY BY LEADING ELECTRICAL WHOLESALERS

Day-Brite Lighting, Inc., 5471 Bulwer Ave., St. Louis 7, Mo.

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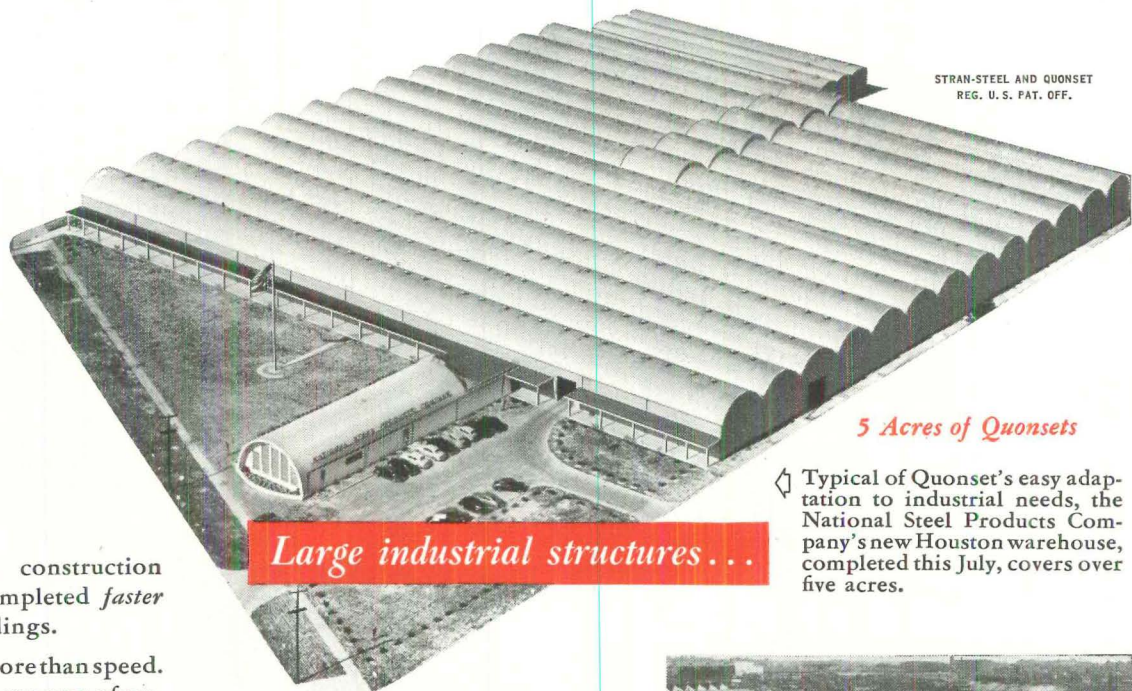
Premium Quality without Premium Cost

*The answer to the nation's need
for fast industrial construction!*

**STRAN
STEEL**

QUONSETS

For **FACTORIES • WAREHOUSES • MACHINE SHOPS • STORAGE BUILDINGS**



STRAN-STEEL AND QUONSET
REG. U. S. PAT. OFF.

5 Acres of Quonsets

Large industrial structures...

Typical of Quonset's easy adaptation to industrial needs, the National Steel Products Company's new Houston warehouse, completed this July, covers over five acres.

TODAY'S urgent construction jobs can be completed *faster* with Quonset buildings.

Quonsets give you more than speed. You get maximum economy of material, all-steel fire safety, adaptability, construction ease, and the durability of N-A-X alloy steel.

Today's Quonset is the product of widespread experience gained in use by the Armed Forces in World War II, plus experience acquired by industry, agriculture and commerce in peacetime. Under any circumstances, Quonsets are the best bet in buildings.

Quonset dealers are located all over America. For information, see the one nearest you. Or, write us or phone VInewood 3-8000 in Detroit.

GREAT LAKES STEEL CORPORATION
Stran-Steel Division • Ecorse, Detroit 29, Mich.

... and smaller ones, too!

The Arco Company, producer of industrial paint, needed maximum fire safety for its lacquer manufacturing division at Cleveland. It chose Quonset buildings, centering production in the Quonset 40x80 in foreground. Nitrocellulose and other combustibles are stored in nearby smaller Quonsets.



An example of Quonset speed

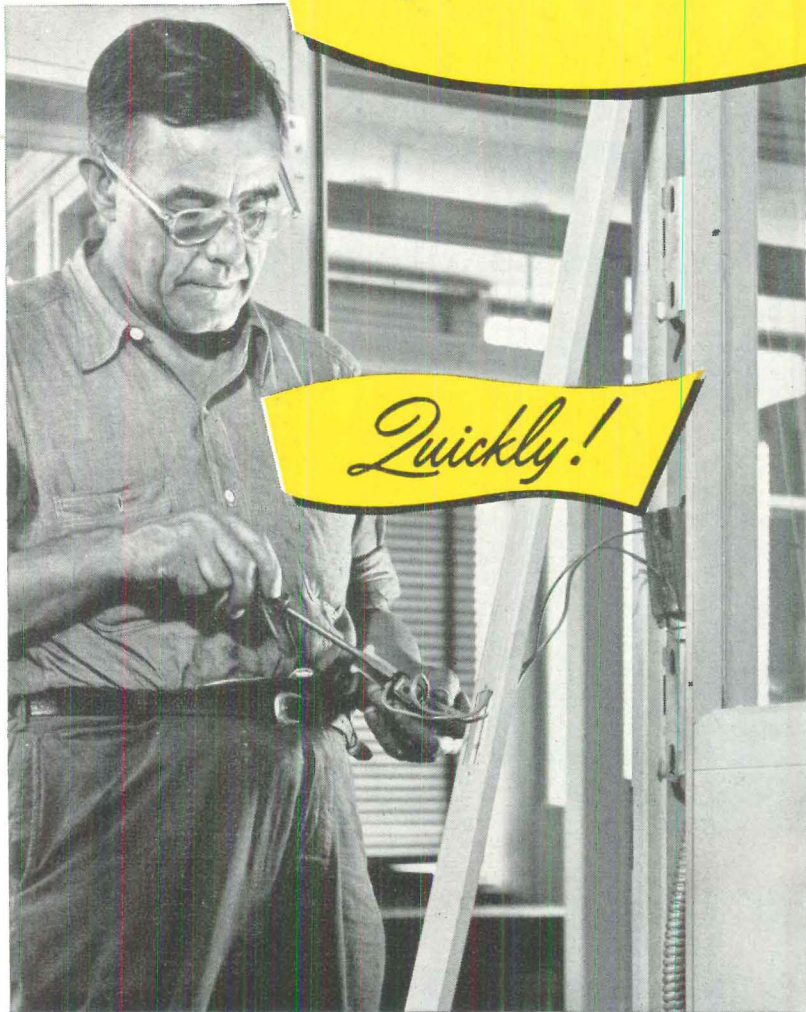
88,000 SQUARE FEET OF STORAGE SPACE COMPLETELY BUILT IN ONLY 45 DAYS — This grain storage depot at Beresford, S.D., was part of last fall's Department of Agriculture program. More than 2,500 Quonsets were erected at 803 different mid-western locations, providing storage space for over 80 million bushels.



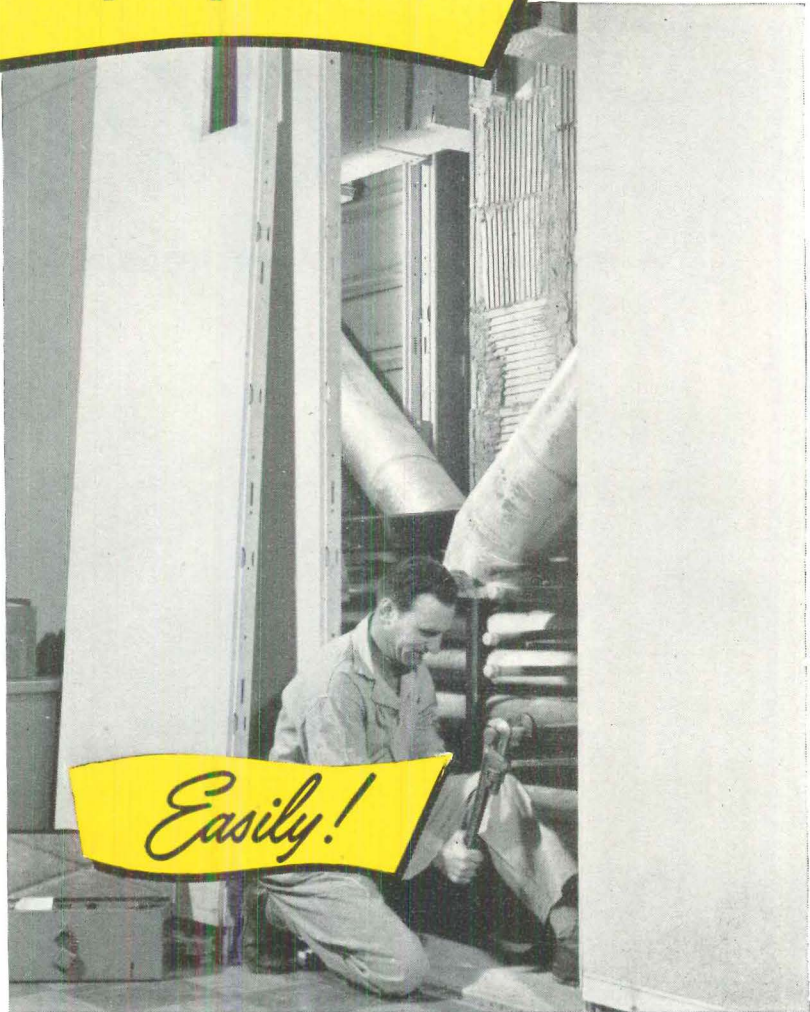
NATIONAL STEEL CORPORATION



with HAUSERMAN *Movable Steel Interiors*
you can make utility repairs...



Quickly!



Easily!

Need to make an electrical wiring change? Just slip off a post cap in a jiffy and there's the job right before your eyes!

Need to make a heating, air-conditioning or plumbing repair? Out comes an entire wall panel in a minute and the whole project is at your fingertips!

There's no messy digging up or tearing down with Hauserman *Movable Steel Interior* units. No costly, time-consuming delays. No interruption of regular operating routine.

The unit type of steel wall construction pioneered by Hauserman permits easy removal and replacement of individual rigid panels for access to utilities. It is the neatest,

quickest, most efficient method of wall construction . . . for installation in new or old buildings . . . in the office, factory, school, hospital, laboratory and other non-residential fields.

Other Hauserman *Movable Steel Interior* advantages include: Rich Decorators' Colors and Authentic Wood Grain Finishes • Rigid Construction • Excellent Sound Control • Earlier Occupancy • Incombustible Materials • Rock-bottom Maintenance Costs • Easy to Move.

Discuss your specific requirements with the Hauserman office or representative nearest you, or write *The E. F. Hauserman Company*, 6769 Grant Avenue, Cleveland 5, Ohio . . . for new, fully illustrated catalog.



Organized for
Service Nationally
Since 1913

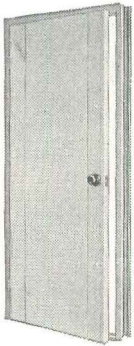


Partitions • Wainscot
Railings • Acoustical Ceilings
Complete Accessories

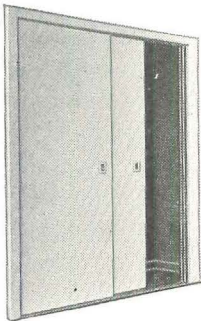


TRUSCON
Residential Interior
STEEL DOORS
 Swing and Slide Type

sex appeal...



SWING DOORS AND FRAMES — Series 50
 Designed to compete in cost with doors of any other material or design, Truscon's new line of 6'-8" high interior flush type steel doors, in five (5) width dimensions from 1'-8" to 3'-0", are available from warehouse stocks, complete with choice of either 4 1/4" or 6 1/4" depth frames and four types of locksets.

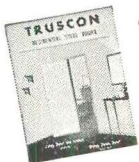


SLIDING CLOSET DOORS — Series 50A
 Outstanding economy of construction cost with maximum convenience of operation commend this space-saving door design to the architect, builder and home-owner. Sliding closet doors are stocked in two widths of 4'-0" and 5'-0". The complete door package is delivered in a protective carton.



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Trim, clean-cut lines and modern beauty... operating convenience and efficiency of space... these outstanding features are acclaimed by men and women in every installation of Truscon Residential Interior Doors and Frames. They're the newest note in smart home design. Long life... smooth, trouble-free operation... no warping, shrinking or sagging... these advantages are assured by Truscon precision engineering and manufacturing. Economy of installation is an additional important feature. Write for Truscon Residential Interior Door catalog giving complete range of sizes and full details.

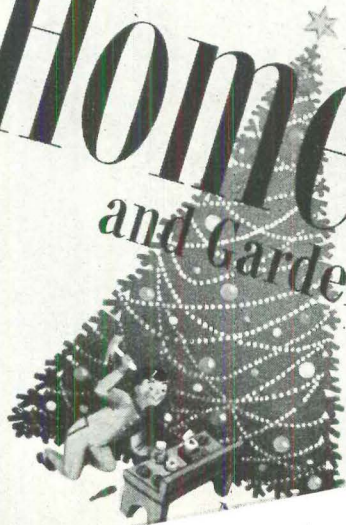


FREE Book on Complete Line of Truscon Residential Steel Doors. The Truscon Steel Company Manufactures a Complete Line of Steel Windows and Mechanical Operators... Steel Joists... Metal Lath... Steel-deck Roofs... Reinforcing Steel... Industrial and Hangar Steel Doors... Bank Vault Reinforcing... Radio Towers... Bridge Floors.

TRUSCON STEEL COMPANY
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Better Homes and Gardens

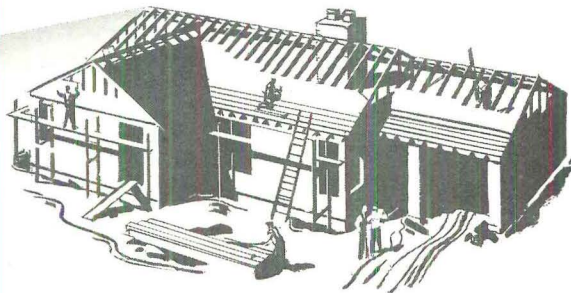
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Over and above its 3½-million circulation,
Better Homes & Gardens is plenty **BIG** in many ways that benefit your business

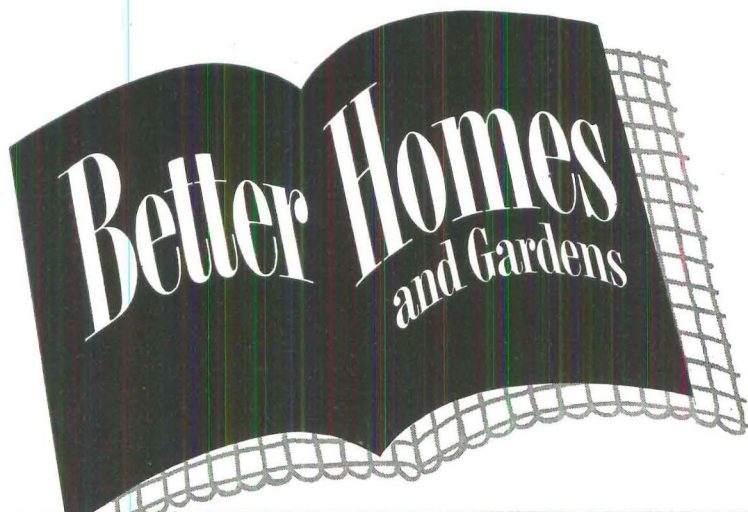
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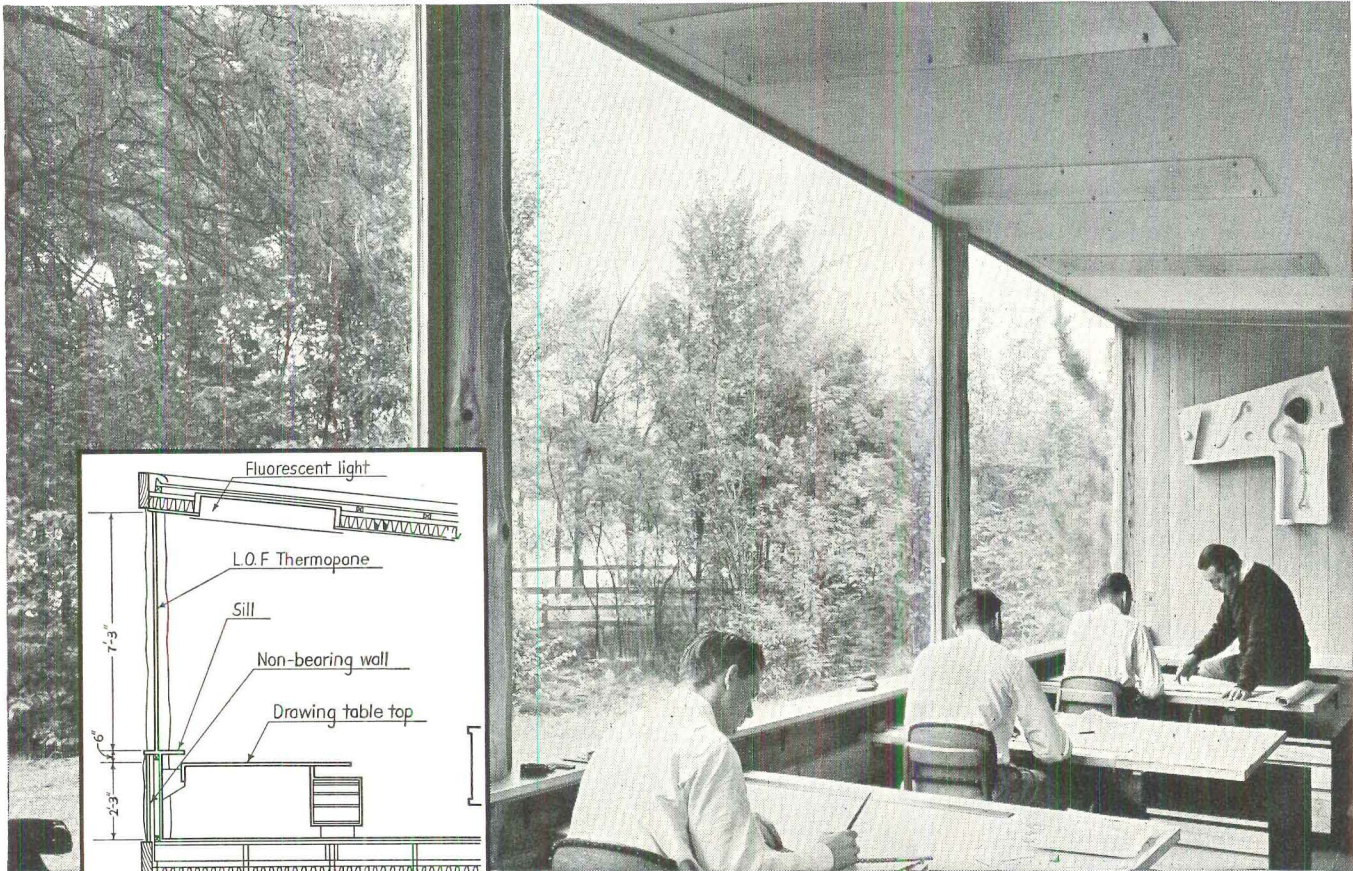
BH&G is so BIG it has sold over a quarter of a million Five Star Home Plans. Imagine how much home building has resulted from this one activity!

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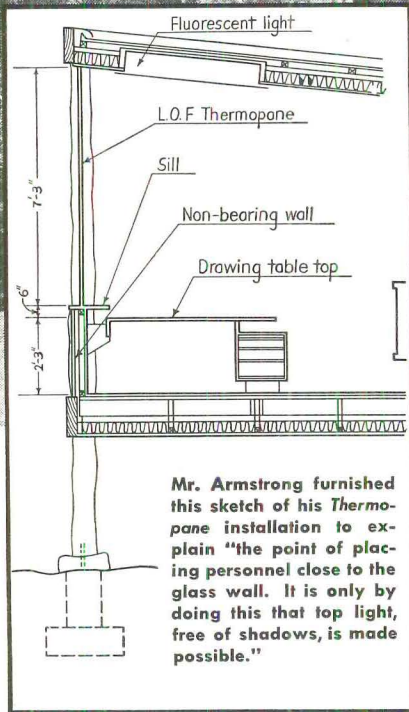
You can bet on it that your brands move faster, too, when they're advertised to Better Homes & Gardens' 3½-million families!



Serving a **SCREENED MARKET** of 3½-Million Better Families



The drafting room in the guesthouse-office designed by Harris Armstrong, AIA, of Kirkwood, Missouri, for his own firm.



How This Architect Designed ... for His Own Business

Here an architect has designed a perfect use of *Thermopane** insulating glass. The north side of his drafting room is a seven-foot window wall. By seating his staff close to the windows, he provides them the benefit of top light. Yet the men remain comfortable and free from winter chilliness. *Thermopane* with $\frac{1}{2}$ " hermetic air space, provides approximately twice the thermal insulation of single glass.

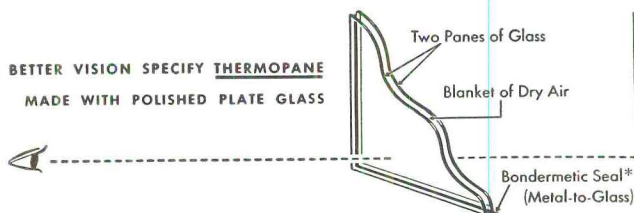
Harris Armstrong writes, "*Thermopane* in the other areas is not so important (for personnel comfort) but was used for economic reasons. Since I use electric

heat and cooling, the additional cost will probably pay for itself in a very few years in reduced power bills.

"Since the *Thermopane* installations I have made between 1940 and the time I built my office have been all that is claimed for the material, I used it on my own personal work with confidence that it would do a good job, and it has."

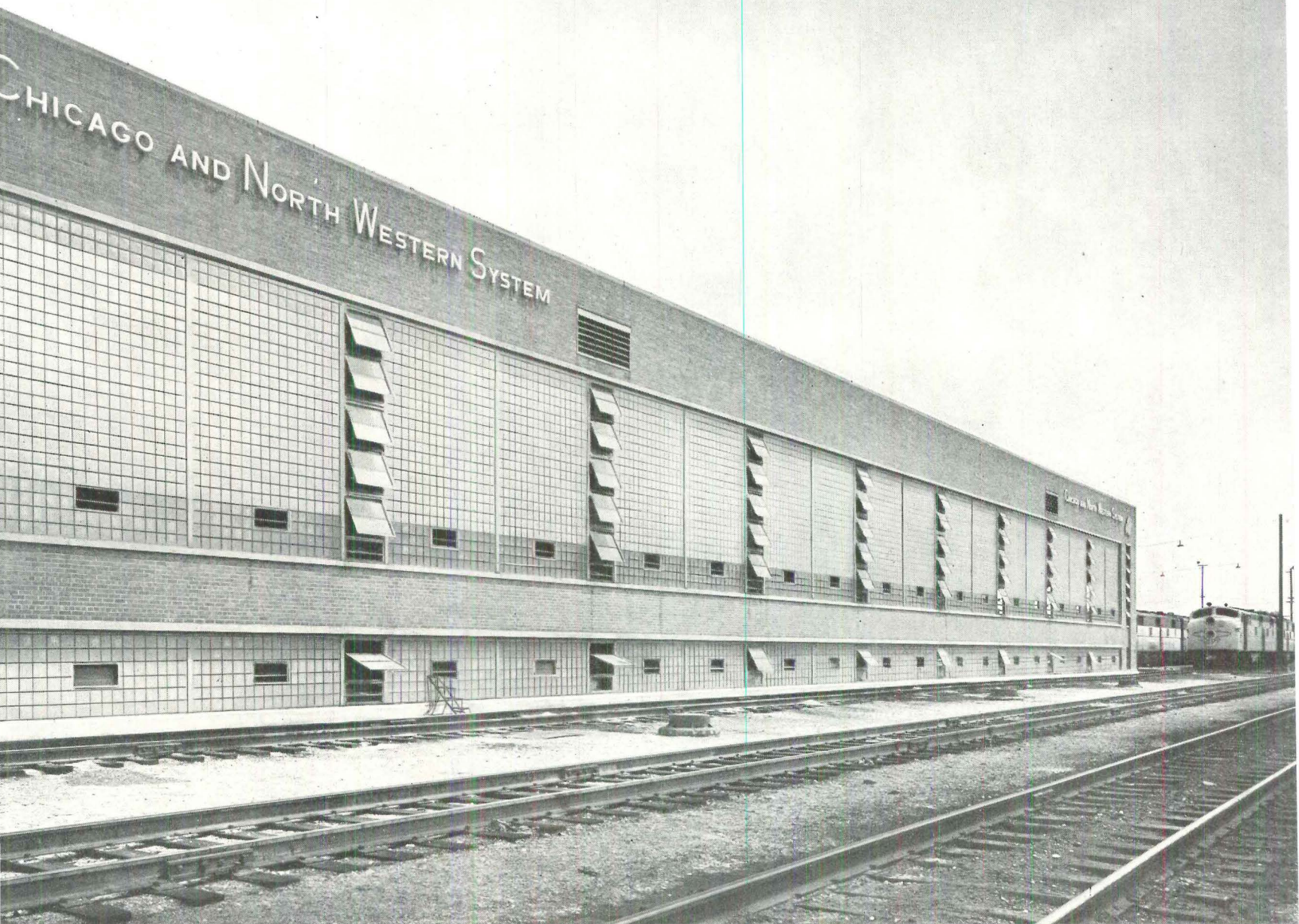
Need any information on *Thermopane*? Or on kinds of sash in which it can be used? Our nearest branch office will gladly supply it, or write us direct if you prefer. *®

FOR BETTER VISION SPECIFY **Thermopane**
MADE WITH POLISHED PLATE GLASS



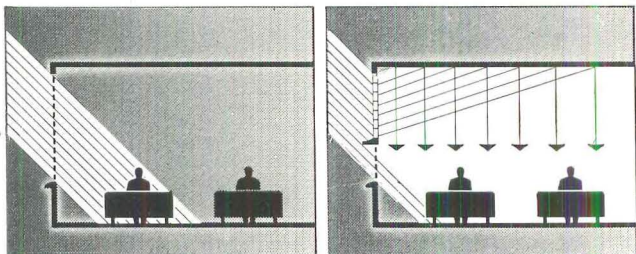
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For rugged railroad demands, Insulux resists smoke, rust, rot, seldom needs washing, insulates like an 8-inch brick wall. Service Depot designed by De-Leuw Cather & Co., Architect: Chief Engineer E. C. Vanderburgh, Consulting Architect: A. N. Rebori.

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Why install windows to let daylight in, then cover most of the openings with blinds, shades or curtains to keep out the glare? That is a wasteful, old-fashioned way of handling free light. Rapidly becoming outmoded, too.

Now Daylight Engineering with an Insulux Fenestration System shows you how to use daylight most effectively . . . morning, noon and afternoon as though your building turned with the sun.

An Insulux Fenestration System lets you provide light with privacy—light with insulation—light through a tough, durable product that never rusts or rots, is highly fire-resistant.

To let daylight into dark places under scientific control, ask for a Daylight Engineer's help. Write our Daylight Engineering Laboratory, Dept. AF12, Box 1035, Toledo 1, Ohio, for professional service. *Insulux Div., American Structural Products Co., subsidiary of Owens-Illinois Glass Co.*



INSULUX FENESTRATION SYSTEMS

—by the pioneers of Daylight Engineering



CUSTOMER COMPLAINTS

From this point, the primary responsibility for clearing up the complaint is up to one of the two "complaint adjusters" who do the field work for the department. Both men are assigned full time to handling complaints. Both are mechanics qualified to do almost any kind of small-house repair job. Five years experience with the complaint department has taught the firm that mechanics are better than carpenters in handling complaints since the majority of complaints involve adjusting equipment rather than repairing the frame of the house. "Above all," says Robbins, "we find that our adjusters should be *diplomats*. Half the trouble can be minimized if our man convinces the houseowner that we want to help him, not fight him."

Robbins wants to get all legitimate repairs made within 48 hours and, so far, his complaint adjusters have been able to meet this schedule. There are exceptions: if, for instance, there is some additional grading to be done on a block, the complainants usually must wait until the grading machine is scheduled to do the whole block. When there are such delays, the houseowner is called and told why there is a delay and how soon it will be before the work is done.

One of the most difficult things that the complaint adjusters have to do is to decide which adjustments and repairs are the builder's responsibility and which are not. Most of the house buyers in Robbins' subdivisions came from apartment houses where they had janitor service. Many of them have the mistaken notion that the Robbins' complaint department is a convenient substitute for a janitor. Up to now, he has been tolerant in handling minor repairs and adjustments for which he is not legally or morally responsible but in a few cases he has put his foot down.

A more touchy problem, however, is that of the chronic complainers. Or as Robbins calls them: "that very small percentage of our buyers who expect us to maintain their houses for the life of their mortgage." Once a customer has complained three or four times for trivial reasons, he is asked to put his complaints in writing. This generally discourages him. If he keeps making what the Robbins considers unjustified complaints, the builder lets them take their complaints to the VA or FHA. This tosses the ball to an interested third party who can then decide which complaints are the legitimate responsibility of the builder and those which are not.

The biggest single cause of complaints, stems from the fact that wood is not a precision material. During the first rainy spell after a large group of families have moved

(Continued on page 58)

THESE CHINCHILLAS WON'T HAVE CHILLY CHINS

When you pay \$1600 for a pair of creatures not much larger than mice, keeping them healthy becomes important. That's why Trane air conditioning equipment was installed in the eastern Chinchilla ranch where this little fellow is being raised.

These small, expensive animals—all potential fur coats—need low humidity and moderate temperatures, constantly, to thrive and produce perfect pelts. The Trane installation attends to that. Likewise, in thousands of big buildings, stores, factories and homes from coast to coast, Trane-engineered products are heating, cooling, and conditioning air for greater comfort, health and efficiency.

Trane representatives are engineers . . . ready to work with architects, consulting engineers and contractors in solving heating and air conditioning problems.

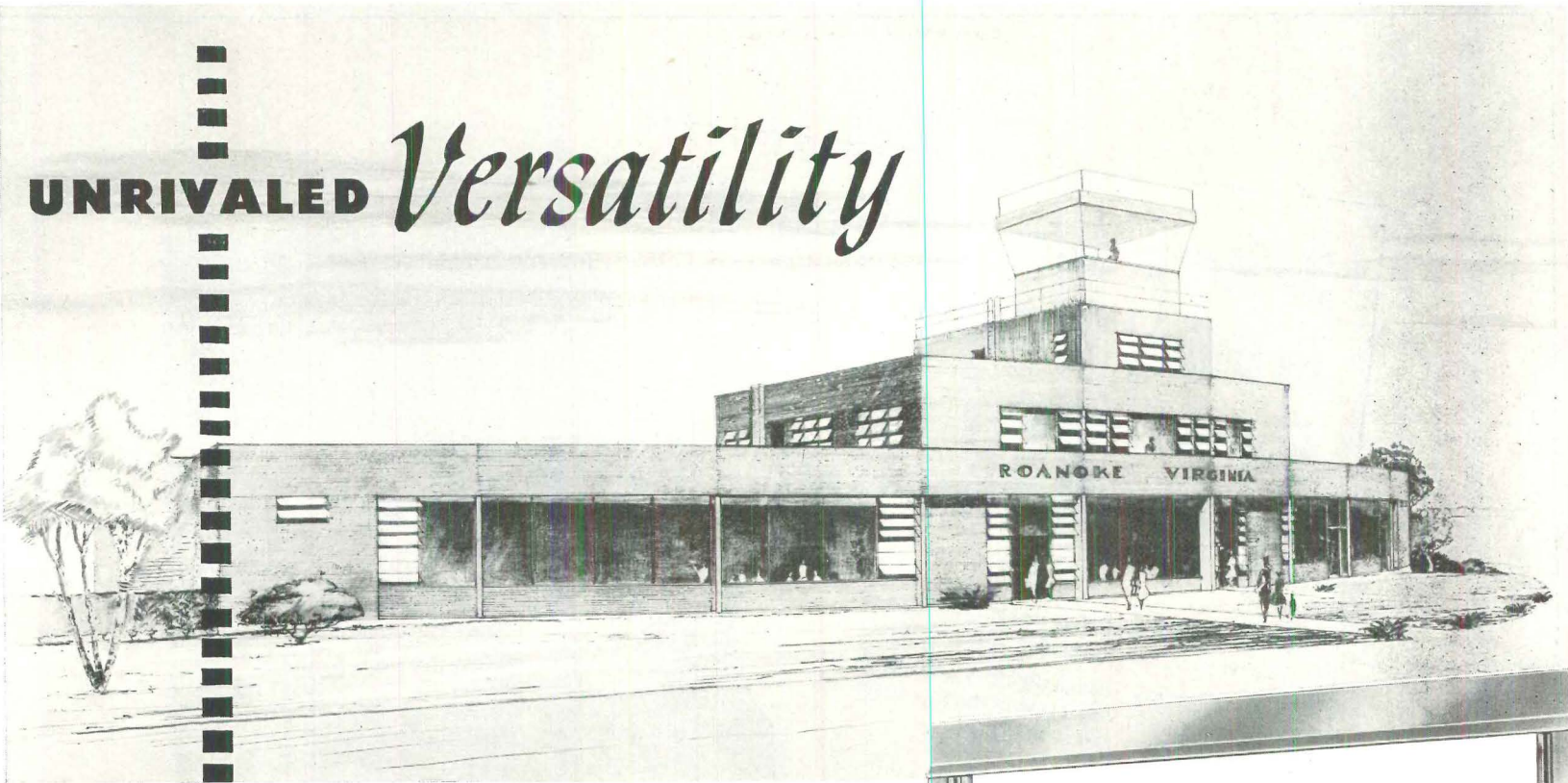
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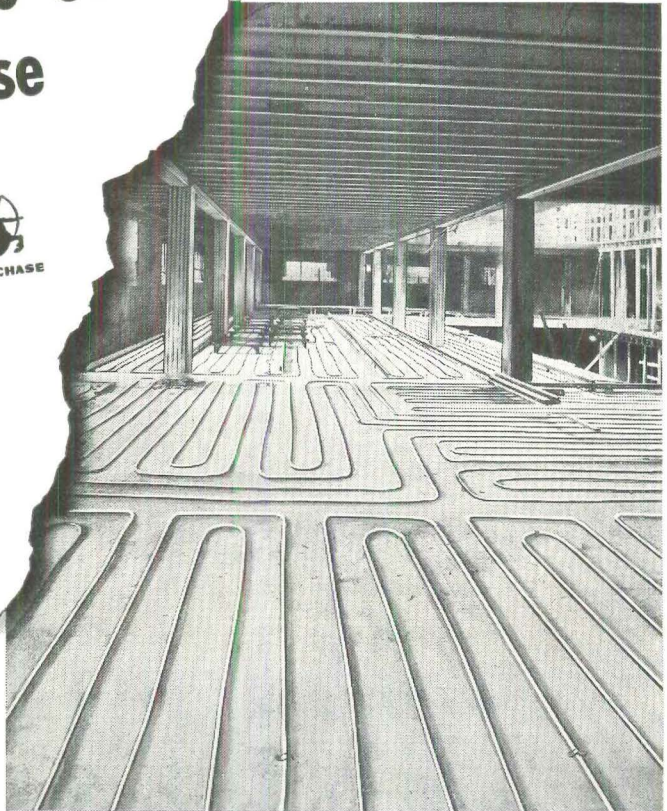
3-Story San Francisco Office Building Installs Chase Copper Tube Radiant Heating!



HERE'S WHY you too will want Chase Copper Tube in your Radiant Heating Installations!

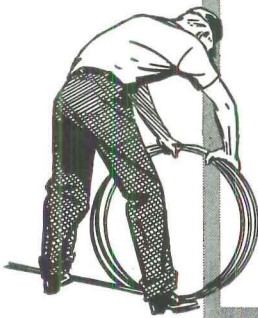
EASY TO BEND • LONG LENGTHS • LOW COST
LIGHT IN WEIGHT • SOLDERED FITTINGS • LONG LIFE • SMALL DIAMETER

60,000 feet of Chase Copper Tube were used in this concrete floor radiant panel heating installation in the National Red Cross Building in San Francisco. Architect: Gardner A. Dailey & Associates. General Contractor: Swinerton & Walberg. Heating Contractor: Robert Bruen & Son, Oakland, Calif.



CHASE COPPER TUBE means easier installation in large radiant heating applications. Long coils, in 60 and 100 foot lengths, reduce number of connections... soft temper, small-diameter tube bends by hand... joints quickly made with solder-joint fittings.

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SEND FOR FREE BOOK. Just mail the coupon for helpful information on the design of radiant heating installations.

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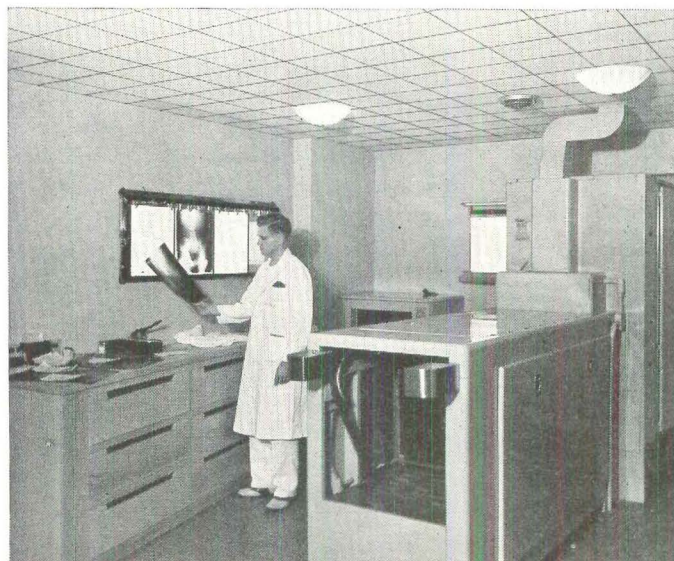
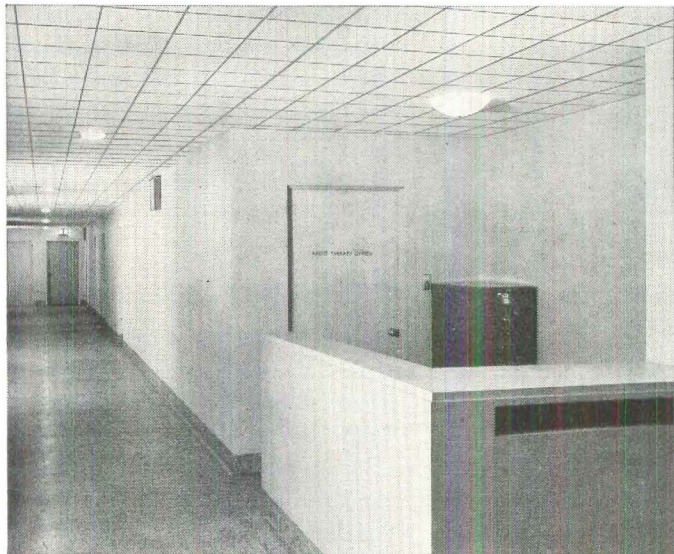
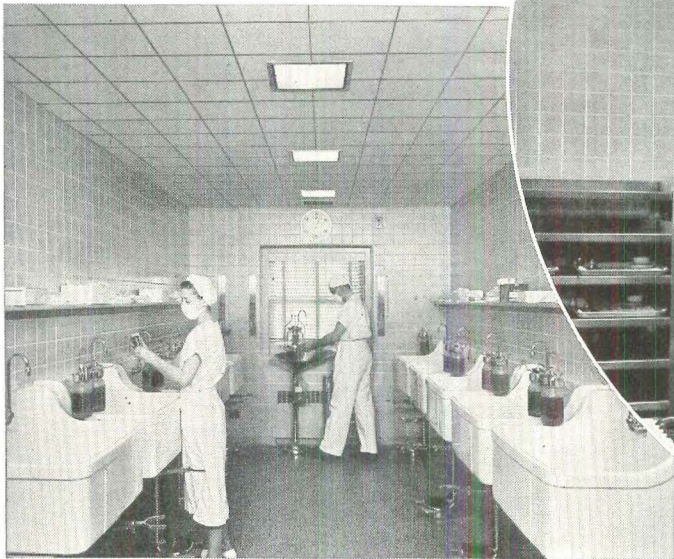
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Where fire-safety is a must, more and more Fiberglas Acoustical Tile is being specified. Incombustible, it is also *inherently* sanitary and dimensionally stable. Will not warp or shrink under high humidity—provides no sustenance for bacteria or vermin. Other important advantages:

- High Acoustical Value
- Good Light Reflection
- High Insulation Value
- Ease of Application
- Decorative Beauty
- Washable—Paintable

For complete specification information on Fiberglas Acoustical Tile, call your Fiberglas acoustical contractor, listed in the yellow pages of the phone book. Or, write to Owens-Corning Fiberglas Corporation, Dept. 67-L, Toledo 1, Ohio.



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

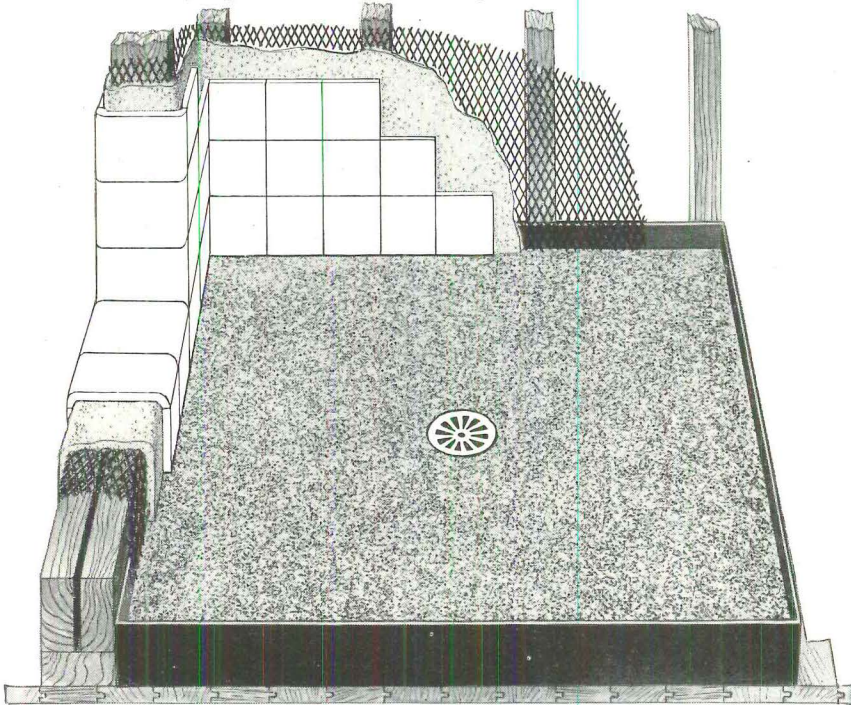
- BUILDING INSULATION
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- ROOF INSULATION
- FORM BOARD

Fiat Precast Receptors

(Regular black & white or special colored terrazzo)

...for Built-up Tile Showers

Save money and speed up the job by eliminating the difficult lead pan and tile floor



Details of suggested construction in building up a tile shower on a Fiat precast receptor. Metal lath and foundation plaster are brought down inside the rust-proofed metal flange. The tile setter starts directly with the wall construction without the delay involved in laying a tile floor and waiting for it to harden to a working surface.

Fiat precast terrazzo receptors are made of black and white marble chips and white cement, ground and polished. A rustproof galvanized reinforcing flange and a 2" brass drain fitting are cast integral with the receptor to form a strong, leakproof, slip-proof, non-absorbent floor for the shower.

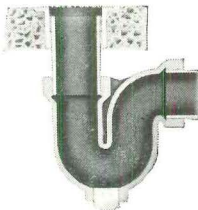
The use of a precast receptor eliminates the easily damaged lead pan and the labor consuming job of laying a tile floor. It enables the contractor to complete the shower faster and produce a better job at a lower cost.

Fiat precast receptors reduce the danger of leaky cracks developing in the tile shower walls by providing a solid, rigid foundation that is not affected by shrinkage of supporting wood framing or settling of the building.

The attractive appearance of terrazzo makes a beautiful floor that is in perfect harmony with tile walls. Various colored terrazzo is available on special order, to blend with tile colors.

Your plumbing contractor can get quick delivery of a Fiat receptor as many plumbing wholesalers have Fiat receptors in stock. Standard square type sizes—32" x 32", 36" x 36", 40" x 40". Corner type—36" x 36", 40" x 40".

Section through 2" waste pipe and "p" trap precast in receptor



FIAT METAL MANUFACTURING COMPANY

Three complete plants

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Long Island City 1, N.Y.

Los Angeles 33, Calif.

In Canada: The Porcelain and Metal Products, Ltd. Orillia, Ontario

CUSTOMER COMPLAINTS

into one of its subdivisions, the firm is flooded with phone calls from house buyers complaining about sticky doors. In most of these cases, the complaint department explains dutifully that there is no known solution to the problem of wood expanding during wet weather. (In flagrant cases, where the door warps badly, repairs are made.) Recently, the Robbins' company shifted from wooden kitchen cabinets to metal cabinets to minimize such complaints. A new, highly-touted sliding window is no longer on the Robbins' specification sheet as a result of numerous complaints from house buyers that the window did not work right. A plastic kitchen-counter top has been substituted for linoleum for the same reason.

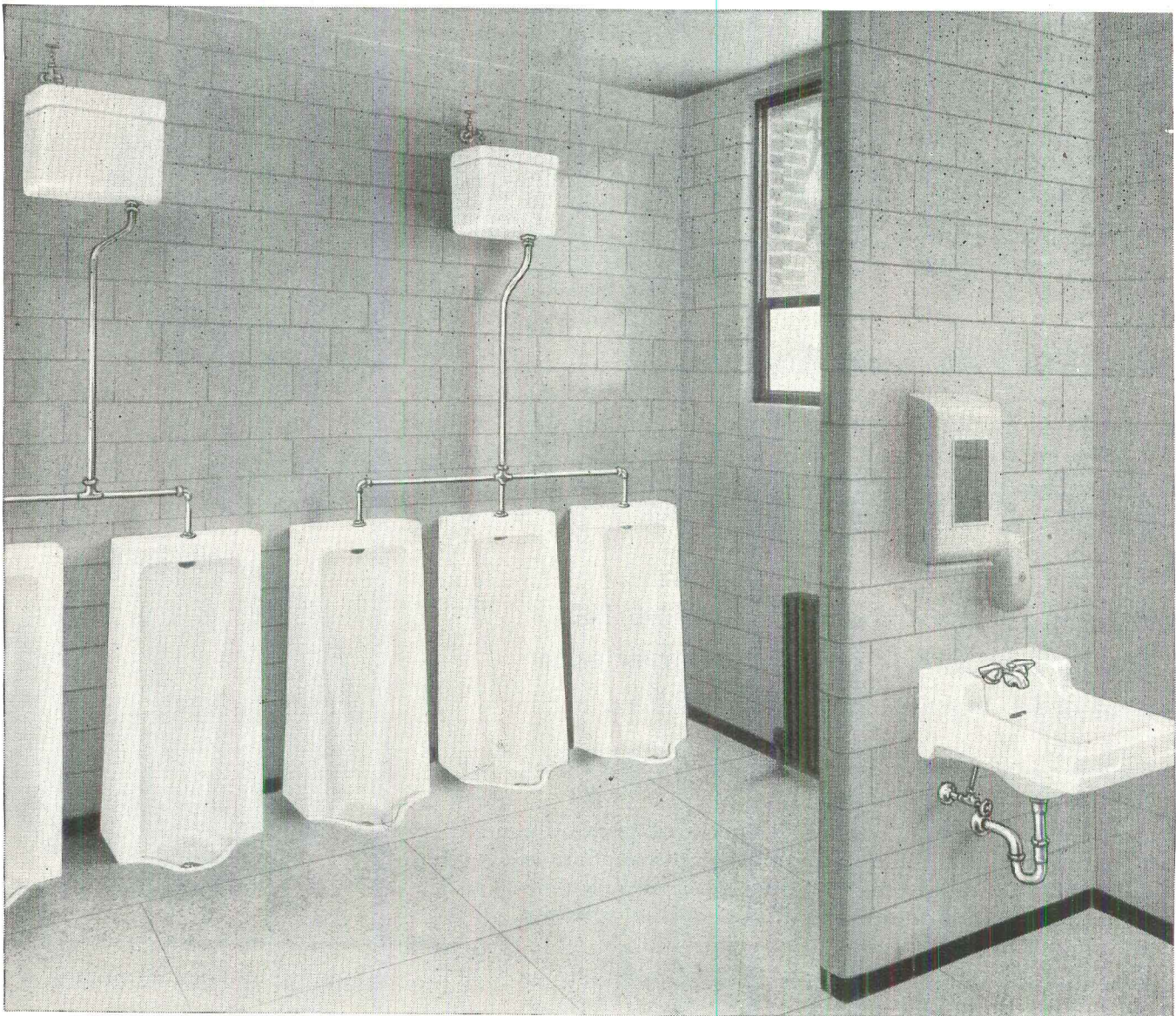
The next most common complaint involves the heating system. In most cases, these come from former apartment-house dwellers who are coping with a heating system for the first time in their lives. Generally, a few simple instructions on how to regulate the heating system and bleed the radiators are all that is needed. However, the Robbins' organization has done a large number of radiant-heated slab jobs this year and most of the complaints here involve balancing out the system to get rid of "cold spots" in the floor—a common occurrence when radiant heating systems are started up for the first time.

Profitable complaints

Like all the other departments in the Robbins' organization, the complaint department is expected to pay for itself and make a profit. Every house the firm builds includes in its price a complaint charge—even though no complaints may be made. In a cost breakdown for each of its houses, a flat \$10 is allotted as a contingency for repairs and adjustments. This figure is, admittedly, on the high side: the department has yet to have a repair job which took one man more than a day to finish. The \$10 fee usually covers the labor involved in repairing any house but it does not include any extra materials that the complaint department's mechanics may have to use. These are provided, when needed, out of the funds of the Robbins' subsidiary which built the house being repaired.

The Robbins' organization doesn't use its complaint department as a big sales point in advertising its houses but Lester Robbins knows that it has an effect. "We don't want to give potential house buyers the impression that we have a man running around on a motorcycle 24 hours a day repairing leaky faucets and the like. But we do want them to know that we will fix any legitimate faults in their houses."

THE PREFERRED SCHOOL PLUMBING

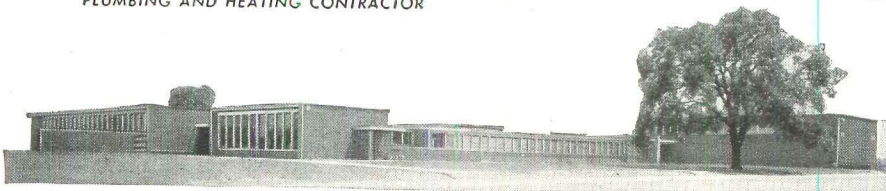


at **Wapakoneta Elementary School, Wapakoneta, Ohio**

STRONG, STRONG & STRONG, Lima, Ohio
ARCHITECT

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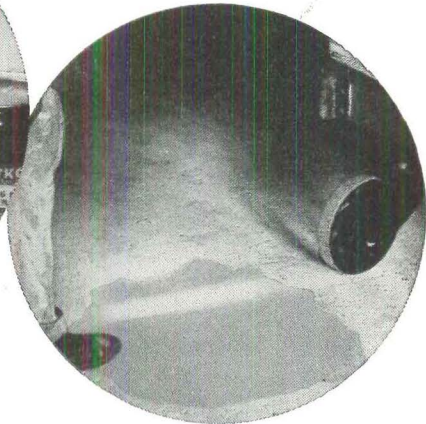
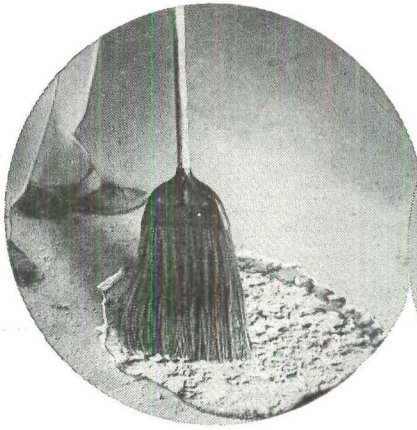
Pictured in boys' washroom: Crane *Sanitor* Urinals, Crane *Oxford* Lavatory. *Sanitor* Duraclay Urinal has slope front design for maximum sanitation, lower maintenance. Available with seam covers for one-piece appearance, easy cleaning. *Oxford* vitreous china Lavatory features high shelf back . . . rectangular basin with splash lip . . . supply fitting has finger-tip *Dial-ese* control. From the complete Crane line of quality school plumbing.



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make them truly heavy duty. They absorb shock from heavy
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Service life is long and pleasant. You'll get years of trouble-
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cause these floors offer a comfortable surface on which to
work. They're resilient and quiet... serve to insulate against
cold floors.

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obtain the floor that gives you top quality... while it saves you
money. Comprehensive literature is yours for the asking.

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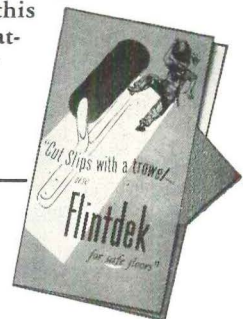


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Building

ARCHITECTURAL FORUM
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Photos (except p. 63): Damora

HARVARD BUILDS A GRADUATE YARD

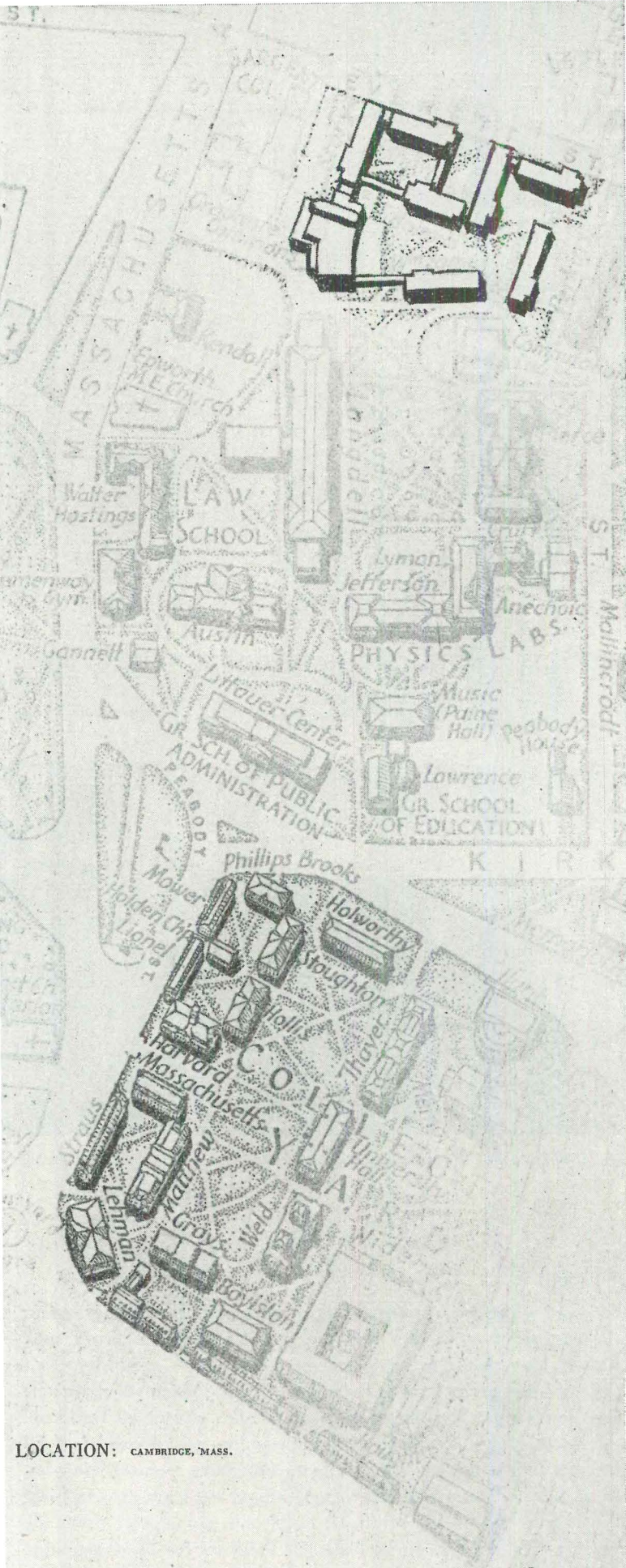
New dormitory center retains quadrangle pattern, recasts student life in a modern mold

This Christmas several hundred friends of Harvard President James Conant will be in for quite a surprise; for the Christmas cards which they will place on mantlepieces all over the world carry a photograph similar to the one on this page.

The photograph, of course, shows a view of the new \$3 million Harvard Graduate Center, a group of eight buildings arranged to enclose a series of large and small quadrangles. In seven of these buildings there are now housed some 575 students specializing in law, arts and sciences; the eighth building is the Graduate Commons. Its dining rooms can serve at least 1,200 students simultaneously at every meal, up to 3,000 students in shifts. Its lounge can be converted into a meeting hall for 250 people, including graduate students from older, adjoining dormitories.

But more significant than the bare function of the group is the new spirit it has brought to America's oldest and most respected educational institution. It is a spirit that has grown

out of many contributing ideas: Chief among them are the concepts evolved during the past 40 years by the new Graduate Center's principal architect: Professor Walter Gropius (who describes himself as the "job captain" on the new Center) has come a long way from the fighting days of the first decade of this century when the new architecture was still in its infancy. And all along this way, he has absorbed ideas, both old and new, and fitted them into his own system of building and education. Together with his seven young associates of The Architects Collaborative (TAC), he has now produced a synthesis of these ideas—and given it a form that is as orderly as the original Harvard Yard and yet as free and easy-going as a modern community center. If some critics felt that the buildings seemed a trifle cold or barren, they should remember that time would give to this group a warm patina similar to that of the original college quadrangles.



Roger Burke

The Harvard pattern: living rooms under the sky

The form of the new Graduate Center—just like the form of any group of buildings—can be described in two ways: First there is the shape of the architecture itself, the masses of buildings and the relationship between these masses. But in a *group* of buildings a second consideration is even more important: The form of the space enclosed by the buildings.

In this sense of space-enclosure, the new Graduate Center is both traditional and modern—and both in the best manner.

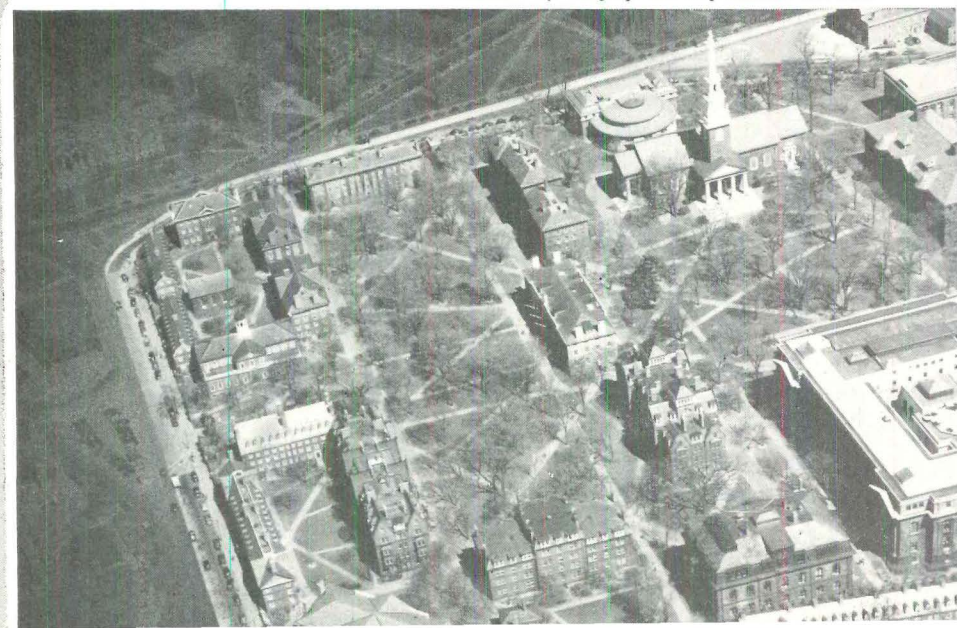
The original pattern of the old Harvard Yard, started in the 17th and 18th Centuries and located some 1,200 ft to the southeast of the new Center, is one of large and small courtyards open at the corners, criss-crossed by footpaths, banishing all vehicular traffic, and beautifully balanced in size so as to avoid the claustrophobic effects of too small a subdivision, as well as to avoid the giantism of spaces that exceed a reasonable human scale. Many of the buildings that make up Harvard Yard are rather tall and narrow, suggesting enclosure more than spaciousness; their facades are like the walls of a series of outdoor living rooms, whose carpets are the lawns, and whose furnishings are the trees. If some of the quadrangles were never used very much for outdoor living, the fault lies, perhaps, in their formality. They are quite rigid in character. Just like the real living rooms of the 18th Century, they are somewhat severe. They interlock only in the most tentative fashion, just as if there were narrow doorways leading from one quadrangle to the next.

Job-captain Gropius and his TAC associates recognized, however, that the basic pattern was good and that it should be accepted with several important modifications.

Space in motion

In describing the new Center Gropius will continually stress the basic principle of “motion or the illusion of motion.” In the architecture of individual buildings, this “illusion of motion” has been produced by the open plan, by the apparent dissolution of walls, by the merging of spaces with different functions into one continuous

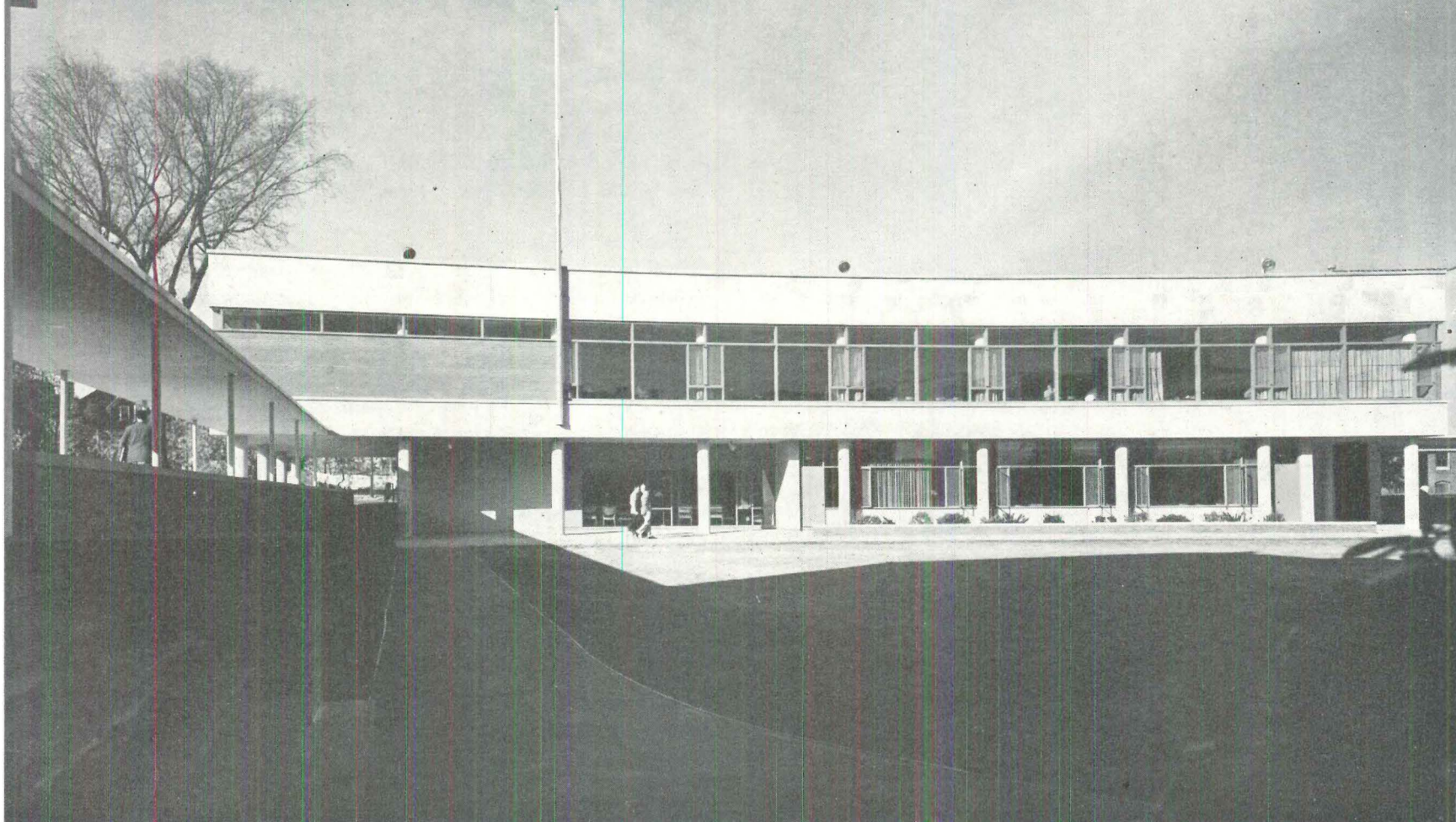
Institute of Geographical Exploration: Harvard



LOCATION: CAMBRIDGE, MASS.

THE ARCHITECTS COLLABORATIVE, Architects
 WALTER GROPIUS, Job Captain
 NORMAN FLETCHER, Commons Building
 ROBERT McMILLAN, Dormitories
 BENJAMIN THOMPSON, Furniture & interiors
 LOUIS McMILLEN, Site improvements

BROWN, LAWFORD & FORBES, Technical Associates
 MAURICE A. REIDY, Structural Engineering
 CHARLES T. MAIN, Mechanical Engineering
 GEORGE A. FULLER & CO., Contractors



Commons Building is faced with limestone. Occasional brick panels are painted bright blue. Dining rooms are upstairs, lounges below. Cost per student was \$4,365

flowing space, and by the extension of this flowing space to the outdoors. Now, in the Graduate Center, Gropius and his associates applied this same principle of flowing space—of the “illusion of motion”—to the arrangement of outdoor living rooms.

The Graduate Center has four or five such outdoor living rooms. But unlike the closed-off quadrangles of Harvard Yard, these living rooms are always open at one end. (This opening corresponds, in a sense, to the glass wall—the “picture window”—frequently found at one end of a modern interior.) Through this wide opening, the onlooker becomes immediately aware of more space—and more architecture—beyond; and in each of these vistas, the building seen in the distance continues to the left or to the right beyond the spectator’s range of vision, so that he is tempted by curiosity to walk around into the next space.

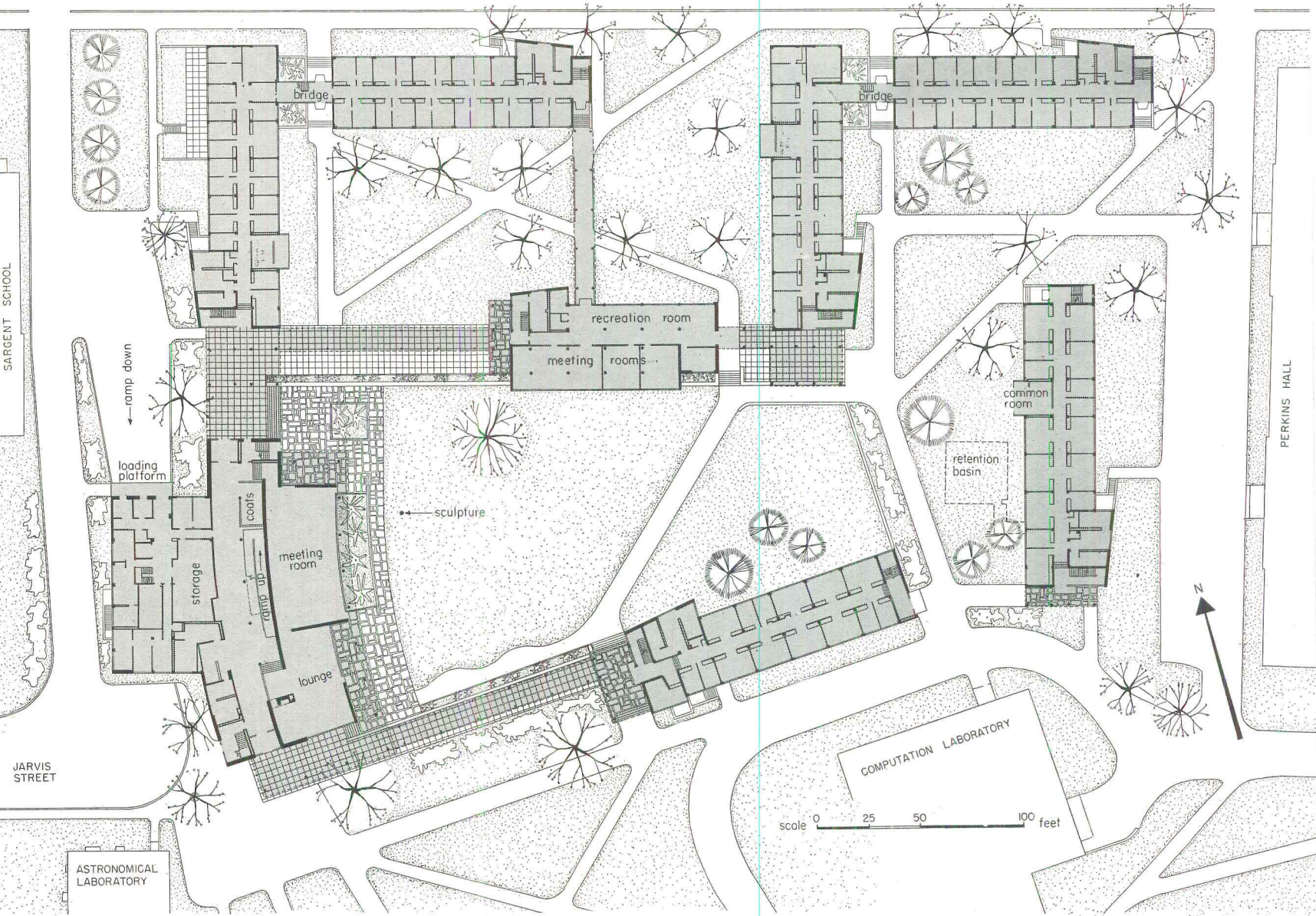
There is a further difference from the old Harvard Yard: None of the buildings is more than four stories tall, and all are emphatically treated as horizontal units of varying heights. As a result, there is a play of different levels as well as one of different vertical planes and spaces, so that each outdoor living room is different in height (as well as in width and length) from the next—and thus quite different in character.

Focal point

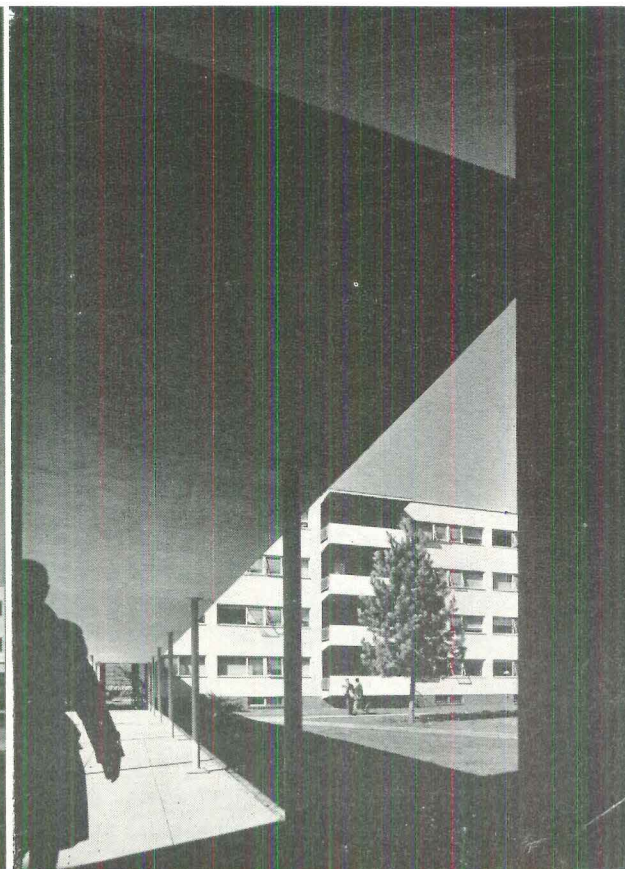
Yet even with such variations a group of similar buildings would be in danger of appearing dull and monotonous. To avoid such monotony, there must be some sort of focal point—a building that forms the heart of the group, or a symbol that reflects its character.

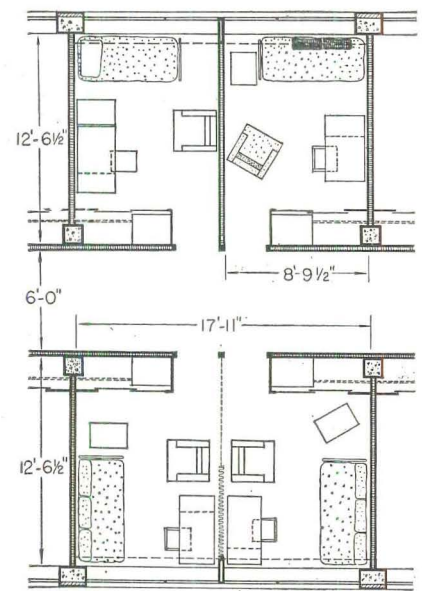
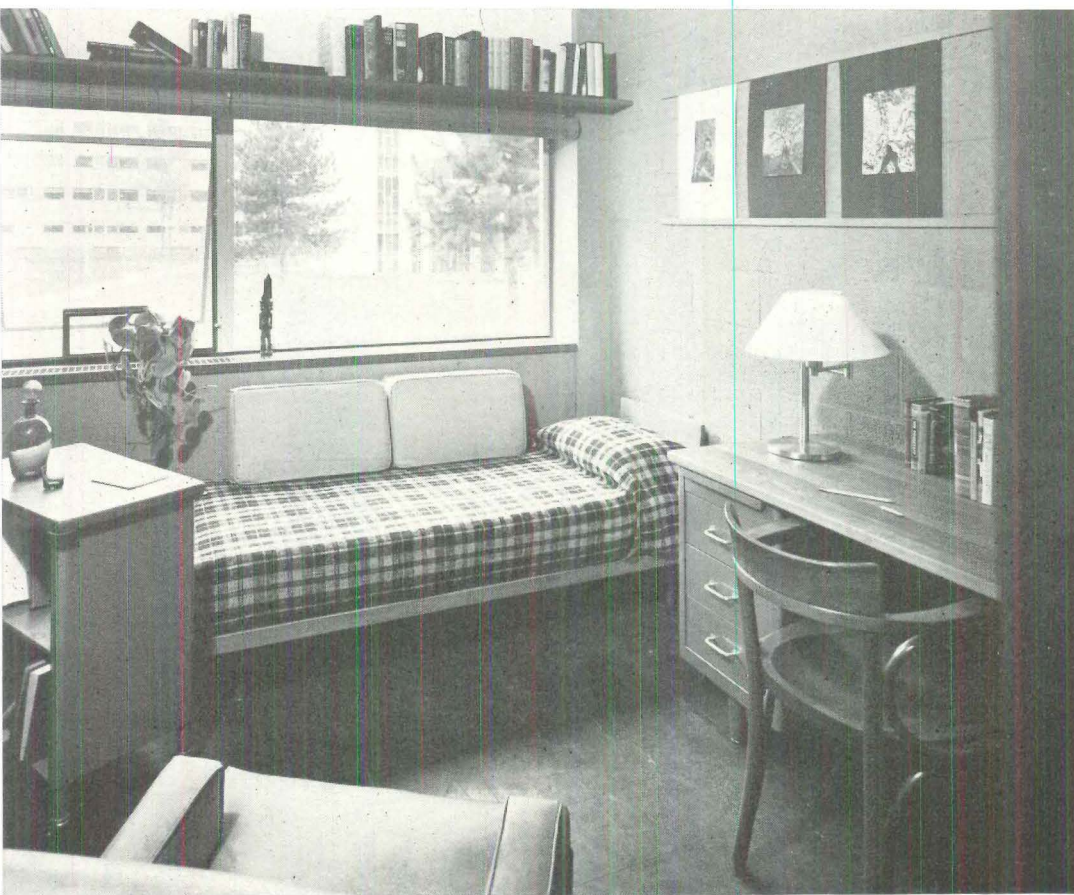
The new Center has its focal point in the Commons Building. Located to the west of the largest quadrangle—whose level is 4 ft. below that of the others—the Graduate Commons is curved in plan so as to link the new group more gracefully to the large area in front of the Law School to the south. It is the real community center of the group: Its lounges, dining halls, its facilities for large meetings and its wide concourse all encourage contacts between students specializing in different fields. Its informality gives it the atmosphere of a pleasant country club—an illusion that will be heightened in the winter when the large quadrangle just outside the sweeping glass walls will be flooded and turned into a skating rink, brilliantly floodlit at night from the roofs of surrounding dormitories.

And in front of the Graduate Commons, off toward one side of it, there will rise a stainless steel symbol—a pylon 27 ft. high, designed by young sculptor Richard Lippold. Its delicate frame will be a new kind of monument, a precise focal point for the whole Center.



Site plan shows series of interlocking quadrangles. Largest court is 4 ft. below level of others, has special 52,000 gal. retention basin to avoid flooding of sewers during storms. (Below:) Most Graduate Center buildings are joined with covered walks. Dormitories are faced with buff brick





Typical single room (left) shows simple, tough furniture designed for efficient space use and long wear. Double room is shown below. Curtain divides it for occasional privacy.

A new architecture

But while the philosophy behind the site plan and behind the focusing of the new Center is partly traditional, the architecture of the individual buildings is wholly modern. The framing of each dormitory is reinforced concrete (wherever the concrete was to be left exposed, a special mix was prepared of white sand and white cement to assure a clean finish); the framing of the Commons Building is steel; exterior walls are largely of buff brick (so as to heighten the contrast between dark, horizontal window strips and the exterior); some portions of the exterior—especially the angled stair and service shafts—are faced with limestone; and the smaller lounges to the north of the main quadrangle are faced with glass and with metal panels in bright colors.

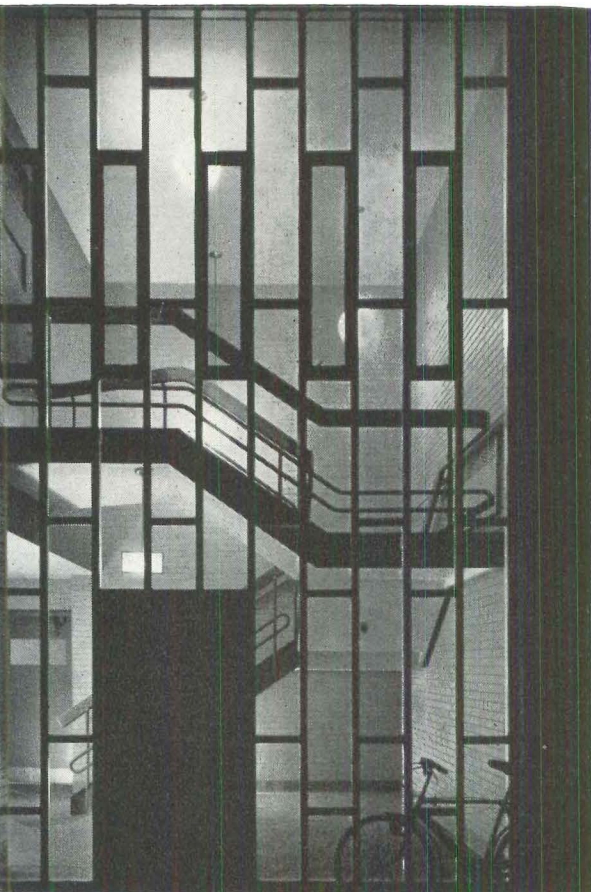
Certain unusual features in the dormitory buildings have provoked comment: The angled shafts containing stairs, toilets and shower rooms owe their slanted wall (a) to the need for more light for toilets at one end than for stairwells at the other, and (b) to TAC's desire to introduce some variety of line and plane into the overall composition. The grille work of mullions and muntins in glass-enclosed stairwells is an attempt to turn a code liability into an asset: To qualify for the required fire-rating, wire glass panes in firestairs must not exceed 5 sq. ft.

The links and bridges that connect some of the dormitory buildings not only help to tie them together architecturally; they also make a single stairwell serve two adjoining buildings. In the new Graduate Center, such considerations of economy were of the utmost importance. Within a budget of only \$2 million for the dormitories to house 575 students, Gropius and TAC produced units at *one quarter* the amount spent by Harvard on dormitories in earlier—and wealthier—years. The cost per student room (including site improvement, but excluding furniture and fees) was only \$3,662.

Such low unit cost cannot be achieved merely by substituting cheap finishes for costly ones. In the end it boils down to a problem of meticulously detailed planning of every single unit. The typical dormitory rooms are a clear reflection of such planning. Every detail in them, including the furniture designed by TAC, was arrived at



Reading rooms with balconies are provided on each dormitory floor



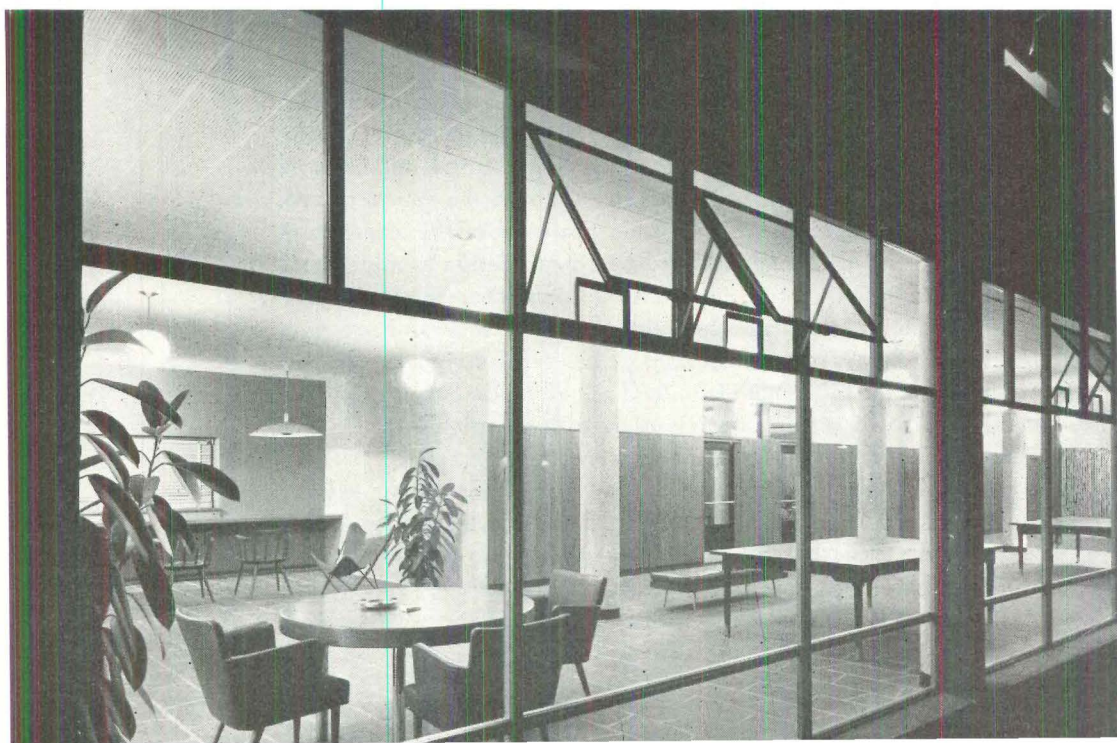
Grille work around frestairs keeps glass sizes down to code requirements. (Right:) Meeting rooms with flexible partitions. Stylized world maps by Gyorgy Kepes

after lengthy discussion with students, faculty and University maintenance departments. To avoid criticism of having used the Harvard Design School staff, the corporation called in Edward Forbes of Brown, Lawford & Forbes as technical associate.

There are two basic dormitory rooms: A single unit 8 ft. 9½ in. x 12 ft. 6½ in., and a double unit measuring 17 ft. 11 in. x 12 ft. 6½ in. (this includes a bank of built-in closets that insulates the rooms against traffic noises in the corridors). After close study, TAC decided to construct 223 single and 176 double rooms; it was further suggested that students should not be segregated according to their specialties, that it was an important part of the community philoso-

phy of the Center to counteract professional isolation.

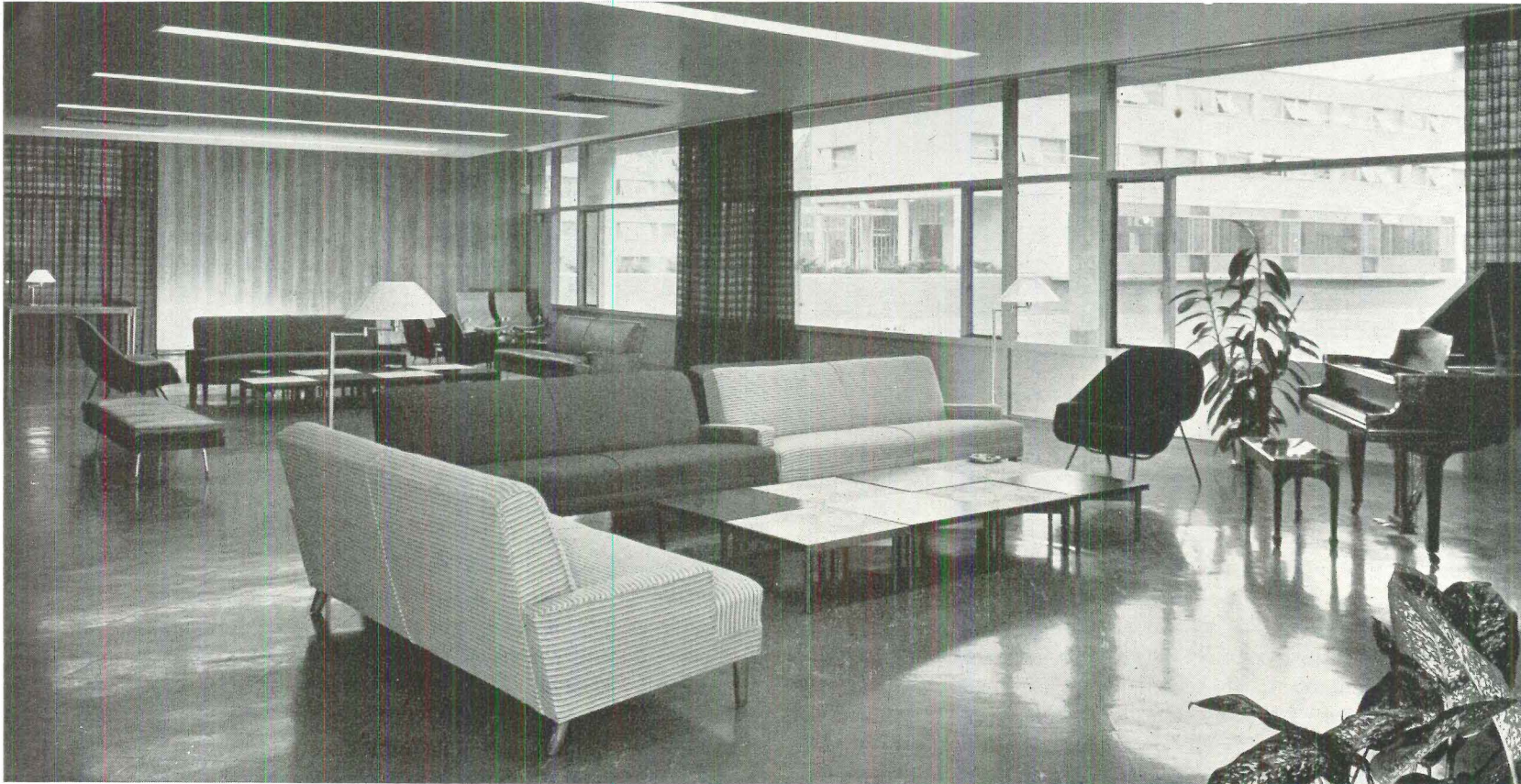
Party walls between rooms are of cinder block painted gray, with wooden strips applied to the block walls to hold paintings, maps, reproductions, etc. Each room has a continuous strip window, with a continuous bookshelf above it. The main items of furniture are a specially designed day bed, desk, easy chair, upright chair and a filing or shelf unit of desk height on wheels. All fabrics were designed by Bauhaus-alumna Anni Albers: These include window curtains, day bed covers, and curtains dividing double-rooms for occasional privacy. All the furniture was severely tested for its durability; a hefty member of the University's maintenance depart-



Recreation room is part of one dormitory unit

ment personally tested TAC-designed chairs and beds, finally certified them student-proof.

Graduate reaction has, on the whole, been enthusiastic. Long a neglected segment of the Harvard community, law students used to hole up in furnished rooms around Cambridge, sometimes isolated from their friends and distant from the campus. For them, the new Center is a real haven at last. While some originally grumbled about the small size of individual rooms (as compared with the luxurious, earlier Harvard dorms), one happy graduate announced that his double room was big enough to house 15 couples on a football weekend without discomfort (ceiling height is 8 ft. 3 in.). "All in all," reported the *Harvard Crimson*, "tenants seem to be adjusting well. . . ."



Large Commons lounge overlooks main quadrangle, can accommodate 250 students at meetings

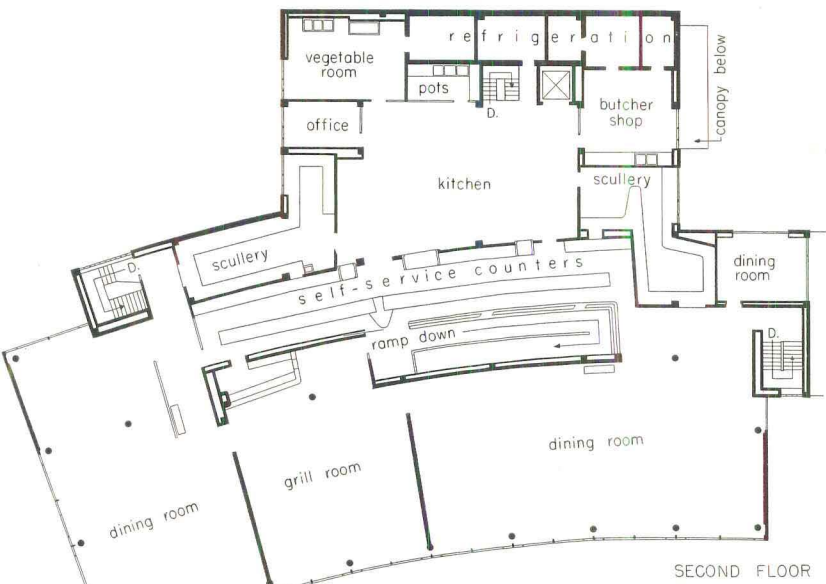
The integrated arts

Almost unprecedented in the development of a group of modern American buildings was the \$40,000 allocation for murals and sculpture in the new Graduate Center. After some initial difficulty, an anonymous donor presented the University with the sum required, gave job-captain Gropius a free hand. For some of the mural work he selected ex-Bauhaus men: Herbert Bayer to design a large mural pattern of square tiles (see cover), a transparent screen (at the head of the Commons ramp) and to paint a mural in shades of green on one of the dining room walls; Josef Albers to design an abstract pattern using the brick module in the back of the Commons fireplace; and Jean Arp to cut out a series of free shapes of plywood, place them on two opposite sides of another dining room.

In addition, the Spanish painter Joan Miro is preparing a large and gay mural for still another dining room, and the young American sculptor Richard Lippold is hard at work on a stainless steel pylon for the large quadrangle. Finally, Professor Gyorgy Kepes of M.I.T. has designed a series of world maps for the walls in some of the lounges. The first is already in place (see cut p. 67).

Surrounded by so much advanced art, inhabitants of the Graduate

CONSTRUCTION OUTLINE: Foundations—concrete. Damproofing—L. Sonneborn Sons, Inc. Exterior walls—reinforced concrete frame with 8 in. face brick, 4 in. cinder block furring curtain walls or steel frame with 8 in. face brick or 4 in. limestone curtain walls; interiors glazed tile, cinder blocks or metal lath and plaster. ROOFING—built-up, Koppers Co. INSULATION—Ultralite Co. WINDOWS: Sash—Hope's Windows, Inc. Glass—Pittsburgh Plate Glass Co., Libbey-Owens-Ford Glass Co. and Mississippi Glass Co. Venetian blinds—Aeroshade Blind Corp. ELEVATORS—Payne Elevator Co. FLOOR TILE—Hood Rubber Co. and Mosaic Tile Co. Wood block—E. L. Bruce Co. METAL WORK (hollow)—Aetna Steel Products Co. HARDWARE—Yale & Towne Mfg. Co. and P. & F. Corbin. ELECTRICAL FIXTURES—Edwin F. Guth, Henry R. Wolfers or specially designed by TAC. PLUMBING FIXTURES—American Radiator-Standard Sanitary Corp. and Crane Co. HEATING: Heat exchangers—Taco Heaters, Inc. Radiators—C. A. Dunham Co., Shaw Perkins Co.

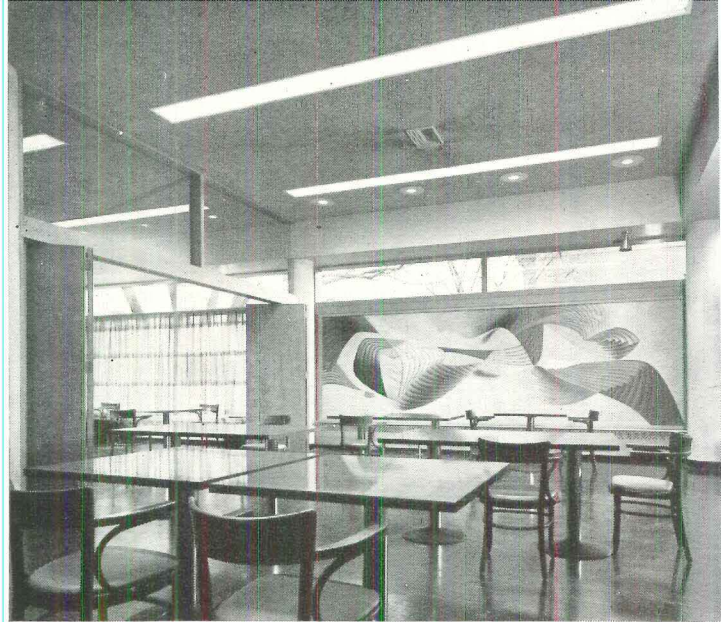


SECOND FLOOR



FIRST FLOOR

scale 0 25 50 feet



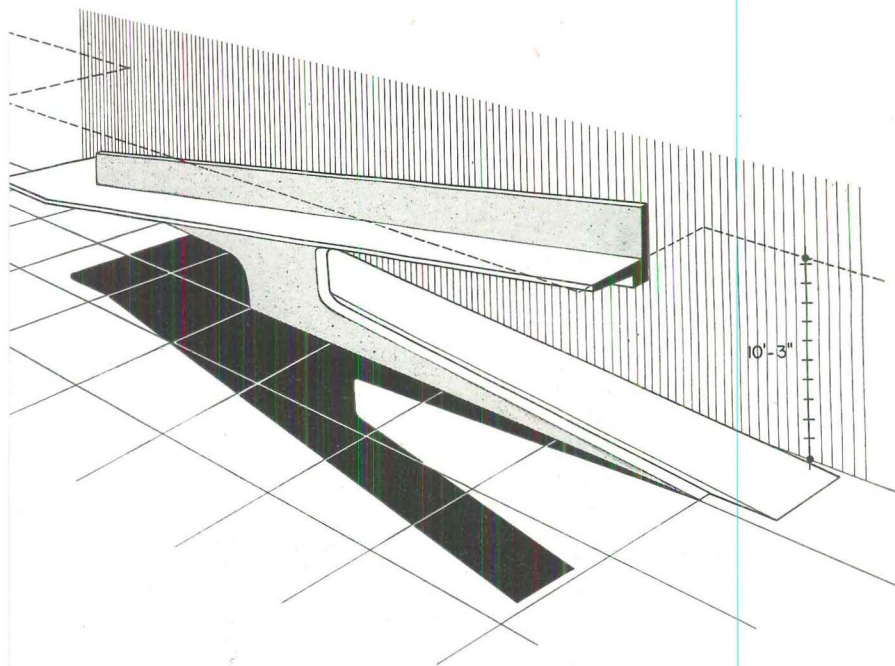
Herbert Bayer's "Verdure" decorates dining room



End of Commons Building shows painted brick panel at left. Bayer's mural is on its inside face

Cut-out plywood shapes by Jean Arp are applied to walls of grill room





Center have been busy trying to explain the meaning of some of the abstract work. Sensing a good news story, the *Harvard Crimson* decided to hold a competition for the best name for Herbert Bayer's green dining room mural, received some startling entries. Judged best was "Garden of Eden"; not so well received was "Nausea at Noon." Artist Bayer's name for it—"Verdure"—will continue to be the official designation.

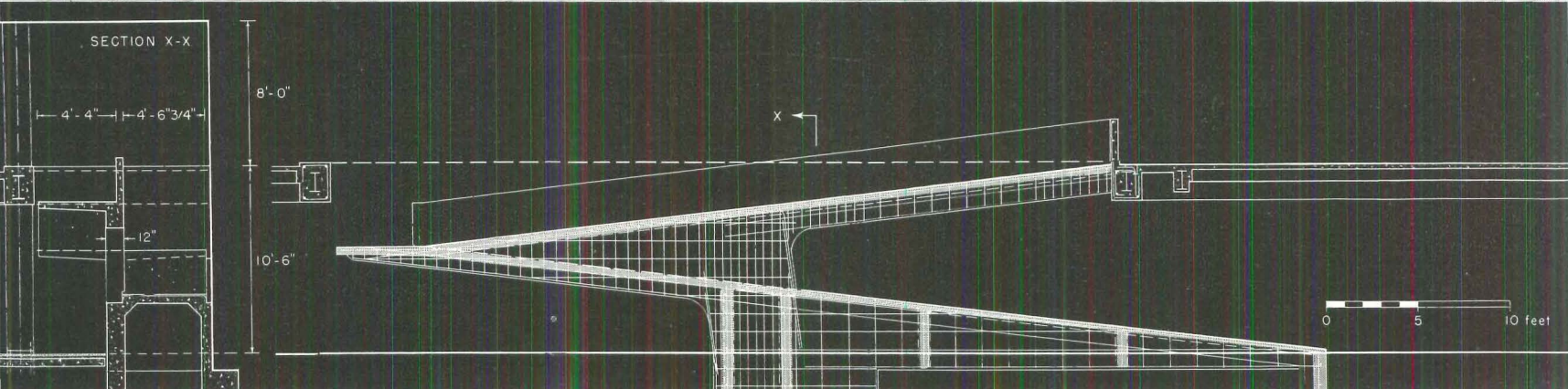
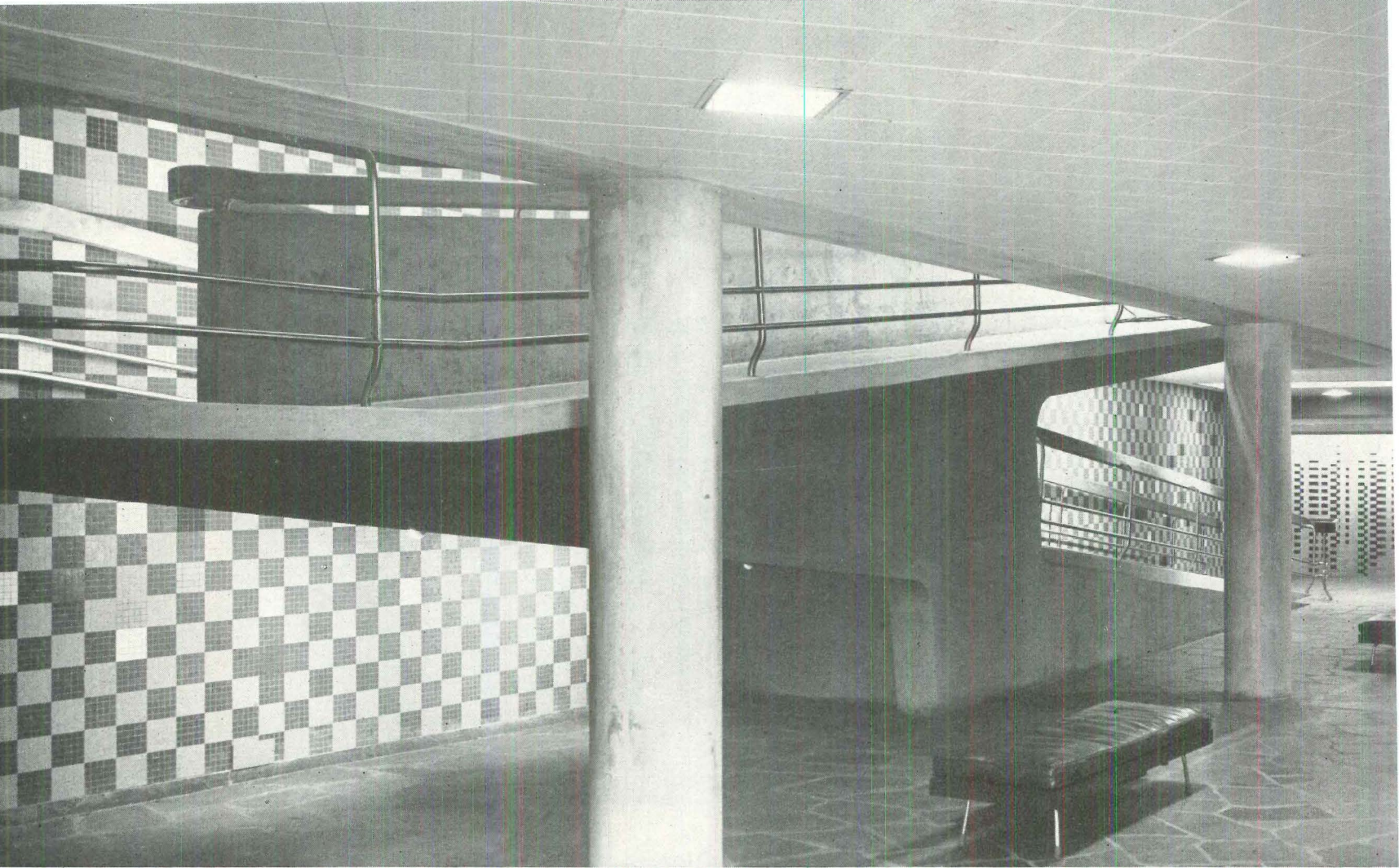
A new mold when the molding is good

When Walter Gropius shows his visitors around the new Graduate Center, he is likely to talk a good deal more about the kind of life for which his new buildings were built than about the buildings themselves. To him, their importance is perhaps twofold: First, he likes the idea that young men in many fields will grow up in a wholly new environment, in an architectural setting completely in tune with its time. But beyond that, he feels that the philosophical concept of communal living, of cooperative activity and of interchange of ideas can best be served by centers such as this one at Harvard. Living in this kind of a group of buildings, a young man may unconsciously absorb ideas and principles that would seem abstract and remote in the classroom, but which, translated into concrete, glass, light and air assume a convincing reality.

For these reasons, Gropius would wish the success of these eight buildings to be measured primarily by their impact upon the minds and the lives of those who will use them. Thus it may be too early to render a verdict. But Gropius and his TAC-partners will be watching the experiment with interest in the years to come from their offices near Harvard Square. "How can we expect our students to become bold and fearless in thought and action," Gropius asked recently, "if we encase them in sentimental shrines feigning a culture which has long since disappeared?" Having encased a new generation of students in a modern mold, architect-educator Walter Gropius was looking forward confidently to the first signs of bold and fearless thought and action.

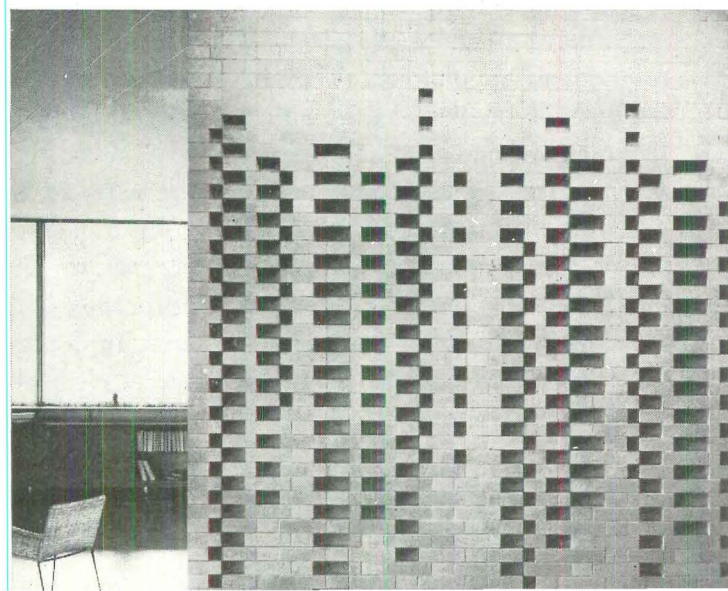
Intimate sitting area with fireplace is part of Commons lounge





Three-way cantilever ramp (shown above and opposite) leads from the Commons concourse to the self-service dining counters on the second floor. A central reinforced concrete "keel" forms the main support; from it are cantilevered the free-hanging end of the ramp, as well as the concrete passages themselves. The curved tile wall was designed by Herbert Bayer (see cover.) Josef Albers' patterned brick wall is visible near the foot of the ramp.

Abstract pattern of bricks was designed by Yale Professor Josef Albers. It forms back of lounge fireplace





CITY REDEVELOPMENT—experience shows that the average city can best achieve it in small pieces with the aid of local capital and local enterprise. A look at the cities where progress is greatest

By HENRY S. CHURCHILL

Churchill-Fulmer Associates, Architects and Planners

Up to now the magnificent resurgence of our cities that had been expected under the new “redevelopment” legislation (Title I of the National Housing Act) has been mostly a rainbow hope.

Among the hundreds of cities daydreaming about vast improvements to their run-down areas, only a corporal’s guard have a chance of success. Others are foredoomed to major disappointment. They have set their first goals too high. Hypnotized by the billions appropriated by the federal government to help localities write down the inflated values of slum land, and by the news of huge developments undertaken by the big insurance companies, these cities have expected to transform themselves in a few masterful strokes. Their proposals deal with vast tracts rarely less than 100 acres. In dreaming big dreams they have failed to ask the most elementary of realistic questions:

▶Where will the new occupancy for the vast projected rehabilitation areas come from?

▶What will be the vast new uses that can make the major investment profitable for the big national lending institutions?

▶Where will the great numbers of people go who are now occupying the large area to be redeveloped?

▶What will happen to the institutions that have an interest in these people where they are—the local business man, the local political leader, the local church?

▶And finally, will *total* municipal taxes be increased?

Once these questions have been squarely faced, many a city will approach the possibilities under the redevelopment title in a far more modest but far more realistic way.

A glance at projects now successfully going forward, or about to go forward, shows that they deviate from the popular pot-of-gold idea.

Nashville, Tenn.

An example is Nashville, Tenn. Among the 225 cities that have made reservations of federal redevelopment funds, Nashville is the only one that has yet received the federal nod, in the form of money to carry out the final planning stage—the detailed planning that results in blueprints. But in Nashville it is public enterprise, on the part of the city and the state, that is making this possible through its participation.

Nashville, like most southern cities, has bad Negro slums, and as in most capitol cities, these slums surround the capitol and infringe on the business section. Nashville is going to redevelop 62.5 acres of this slum with the assistance of the city and state and the hope of help from some private enterprise.

The state is enlarging the capitol grounds for new state office buildings, and will provide a suitable approach to the group. The city has approved a \$1 million bond issue to build a new bridge over the Cumberland and a by-pass thoroughfare back of the capitol. It will use additional land for a park. The rehousing of the displaced Negroes will be taken care of elsewhere in public housing. The remainder of the area, it is hoped, will be acquired in part for an extension of the business district and in part for warehousing. But there are, as

yet, no firm commitments. Public enterprise is making the job possible.

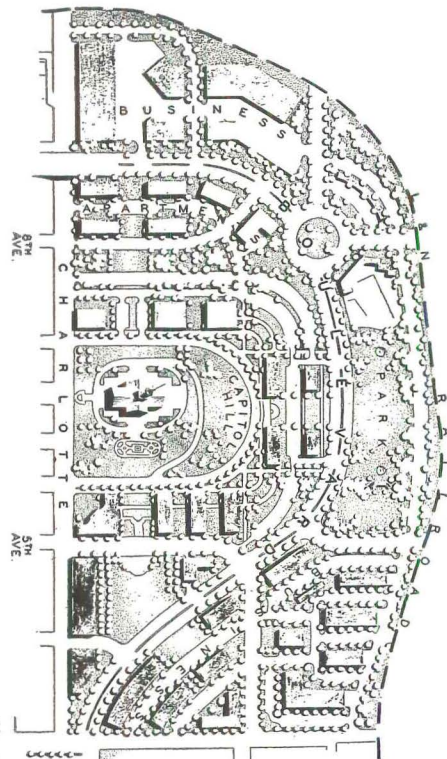
The story is the same for Indianapolis, Sacramento and Norfolk. In the latter city 90 per cent of the land for redevelopment is assigned for use by government or public agencies of various sorts.

Chicago is doing better but is still exceptional. As part of the vast redevelopment scheme initiated several years ago for the south side by the Michael Reese Hospital, the Illinois Institute of Technology and the New York Life Insurance Co. are helping out. Illinois Tech has enlarged its campus and is building dormitories. New York Life is planning a \$15 million housing project on a portion of the land (BUILDING, August, 1950). It will consist of two 23-story buildings, eleven 2-story buildings, and a major shopping center. It will accommodate 1,288 families of "lower middle income" and will be open to all races.

So far this is the only real big redevelopment bite private capital has taken—and it took the bite before there was a federal program—because it was a good investment anyway.

Moreover, it is doubtful if it had happened in a city much smaller than Chicago. Ferd Kramer of the Chicago Realtors Draper & Kramer and New York Life's Otto Nelson

Like many a state capitol, Nashville has slums at the foot of Capitol Hill (photo, opposite page). The participation of public bodies is what makes the clearance of a large 62-acre slum area possible. The city will build a new bridge and a by-pass boulevard; the state will put up office buildings in the area. The area will be made attractive for business expansion but private financing is not essential. The Capitol (center of plan below) shows toward the top and right of both photos—the upper showing the present condition, the lower an idea of how the area will look after redevelopment.



Community Planning & Development Branch

have both declared that tackling anything less than 100 acres does not make good sense for big insurance money. Supposedly this size would scale down a little for cities smaller than Chicago, but not much.

Redevelopment problems in the average city

Suppose, then, that we take a look at the average city—not the million-and-over metropolis but a typical town of 100,000 to 500,000, with the idea of doing *something big*.

The city has sizable slums. The old core of the city, around the business area, perhaps part of the business area itself, is in bad shape. There are obsolete industrial sections, badly planned, interspersed with old shacks and rookeries.

The city is not growing much, either in population or industry. It has reached a place where it is fulfilling its economic functions, and there is no particular reason why it should grow nor why it should contract—certainly its “metropolitan district” will not decrease, although the city itself may. But a static city has every hope that redevelopment will give it a new impetus to growth and, even more important, will retrieve its declining tax revenues.

So the city marks out a large area of unquestioned slum and blight and sits down with its Planning Commission to figure out the best way to use it. The first question asked, always, is what kind of redevelopment will pay the most taxes?

It is a good question, because most deteriorated areas though highly assessed for land are poor taxpayers. Because of the nature of the area the answer usually is “new business and middle income apartments.” Following the reasoning of sound investors of large capital, it becomes obvious that the whole area must be cleared and a self-contained “neighborhood” created at a high population density so that the “write-down” will be less. But the redevelopment law says conditions must be improved, so the device of low land coverage is brought in—skyscrapers in parks.

But how and by whom? The officials give a second look at their city and tote up the assets: the site is centrally located, near business which is petering out because there is no parking; near good old residential sections; it has a fine outlook, and the plan will include parks and recreation, of course. The city is a good town, it has good employment, it is as well run as the next place. The investment possibilities seem excellent.

However, the census figures show the city has not been growing much, if at all. The new growth has all been at the edge of the city, mostly just outside it. Private builders have been erecting hundreds of small homes in the adjacent county; the two to five new industrial plants that have been built are also on acreage outside the city. These new communities are communities of homeowners—if a 10 per cent equity is ownership. In any event they are not renters, they consider themselves and their children as permanent residents unless they lose their jobs or some other misfortune happens. So, the would-be investor inquires, where are my tenants coming from? Remember, this is not a metropolis with a large turnover of tenant families, it is a nice town that prides itself on its stability.

Now how about the business section? There is no doubt that a fine new shopping area, as advantageously located as this area is, and incorporating the 3-to-1 parking ratio that

such centers require, will be a success. Again a “but”—but at whose expense? Some new chain stores may move in, but for the most part the tenants will be drawn from the existing center, which will then further depreciate and fail to pay its taxes.

Still, so the argument runs, we will have rid the city of unsightly slums and blight; the new development will be so attractive that it will help counteract the move outward tendency, the balance will be restored. So the plan is developed into a set of drawings and a prospectus showing how the city will become bright and solvent if—and the *if* is not underlined—the proposed rebuilding takes place.

The plan is published for discussion purposes, and immediately certain business objections spring up. For private enterprise is free to accept, reject, or object, and the ultimate victory is dependent on a multitude of circumstances that vary with every city.

The plan may be effectively blocked for many years by owners of large blocks of slum property, since slum ownership is extremely profitable—especially Negro slums. This happened in Indianapolis where five years ago (before the redevelopment title) the embattled realtors turned down a federal slum clearance project to do it themselves. One area in Indianapolis has since been cleared, it is true. But again the greater part of the land was taken over by public bodies—the Flood Control Board, the Park Board, the Thorofare Commission, and the School Board. The second area, in the center of the city, is still in litigation. Five years of legal delay implies an expensive lawyer somewhere in the Negro woodpile.

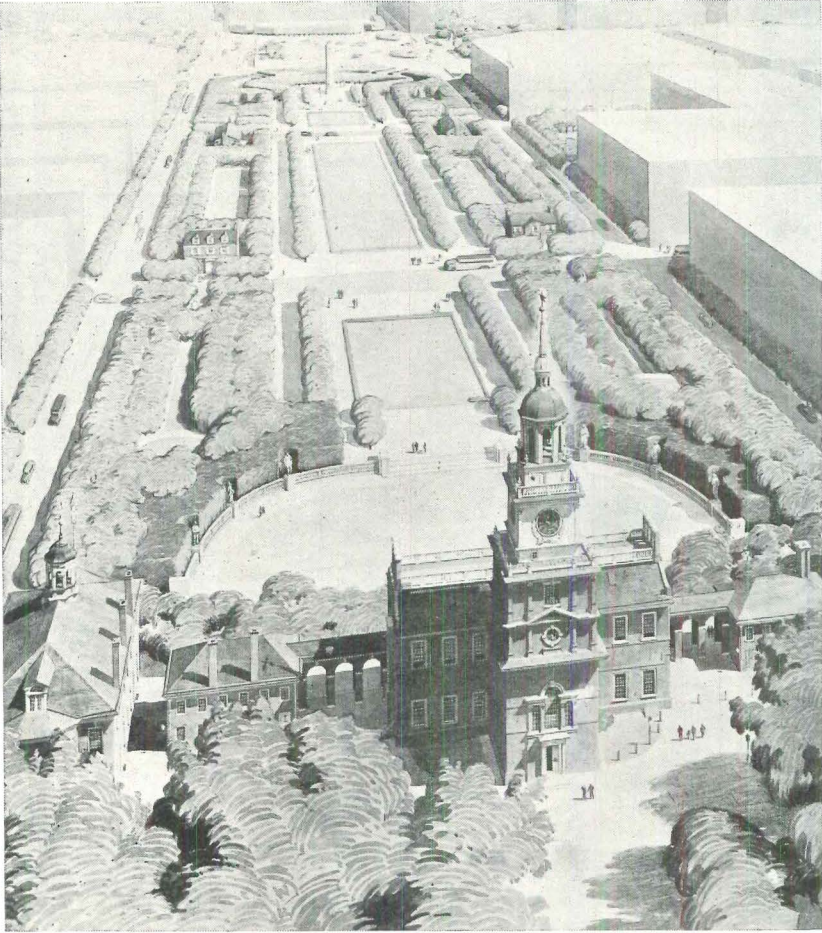
Or the occupants themselves may object. The Act provides for the relocation of all incumbent families in decent housing at rents they can afford. This is as it should be—but is not as easy as it sounds, since it affects so many more people than a single housing project or highway development does. In the case of the big redevelopment, opposition mounts. It is not just because other dwellings are hard to find but because old habits, associations, institutions, are broken up and probably lost forever. Political opposition can arise at the breakup of the “ward”; while political bosses elsewhere dislike disruption of their machine by newcomers. Or the local church fights the breakup of the parish.

Again, an adjacent area may fight redevelopment. In Chicago the fairly good Douglas Park section has been ruined by slum dwellers moved from the path of the Congress Street through-way. And what about relocating of the criminals and delinquents for which the slums are notorious?

Nor does the Act as now formulated provide, as planners might wish, for the relocation of business. People need not only homes but a livelihood; and redevelopment uproots all kinds of small business and scatters their customers. Few can qualify for the investor's demand for only A-1 ratings!

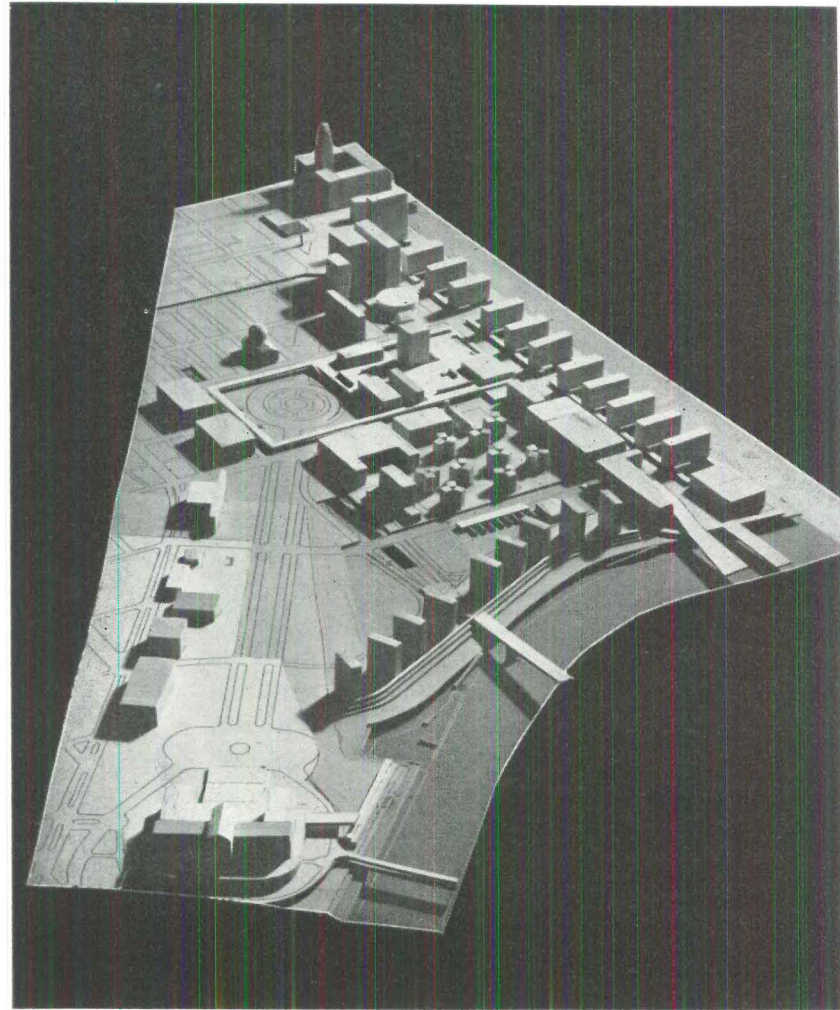
And, finally, opposition comes from the Piltdown Chapter of the realtors' and home-builders' organizations. They fail to note that redevelopment will open huge opportunities in brokerage, appraisals, construction, in both the clearing phase and the redevelopment phase.

They fail to see that the only way to save our cities is through federal assistance for write-down of land. Where else is the money to come from? They object to the “subsidiy” involved,



W. H. Hoedt Studios Inc.

Philadelphia's handling of redevelopment has been diverse and well rounded. In rehabilitating the area around the historical Independence Hall (above) the objective will be to preserve the character of the neighborhood by "judicious replacement of buildings and unscrambling of deleterious mixed uses." Model at right represents a study for the downtown "Triangle" made by the Philadelphia Chapter of the American Institute of Architects. Tall apartments are envisaged along the river along a new parkway; business buildings over a sunken mall now occupied by open rail-road tracks. The building seen at the bottom of the model is the Pennsylvania Museum, joined by Fairmount Parkway to the City Hall seen at the top.



Lawrence S. Williams

although actually, as Otto Nelson points out, the write-down is not subsidy, but the price of past folly. The write-down is—or should be—as he says, the amount society must pay to bring misused city land down to the same price the bona fide investor would have to pay for it elsewhere. The realtors' opposition also is because relocation usually calls for public housing which, in their opinion, is socialism. (Recently, in Italy, the only voters against a seven year housing program were the socialists and communists. But then, one important U. S. realtor has publicly stated that "democracy stinks" so perhaps clear thinking is not to be expected.)

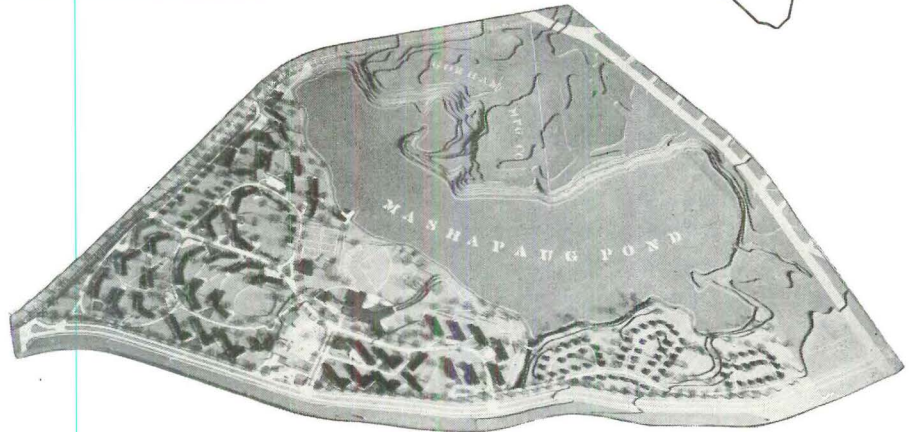
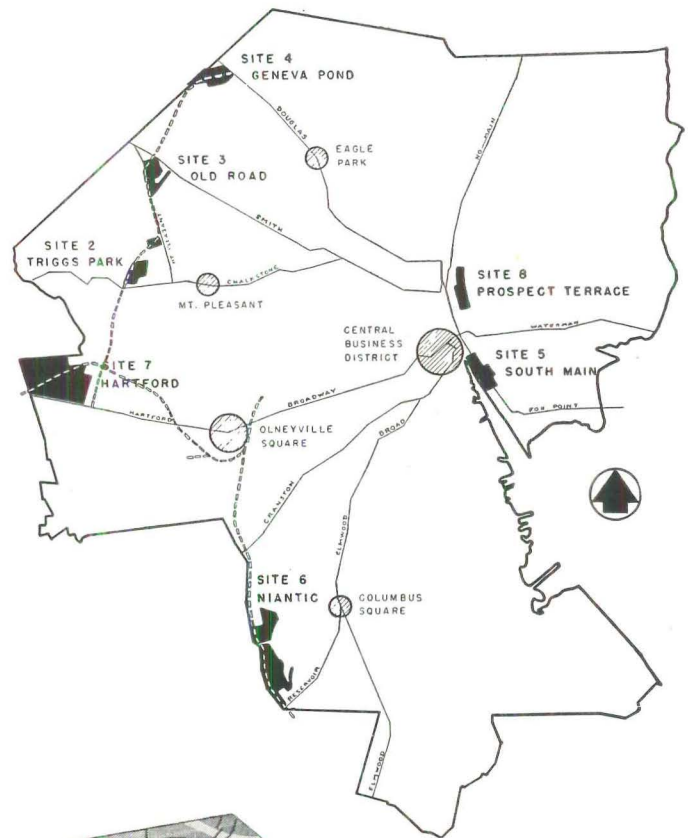
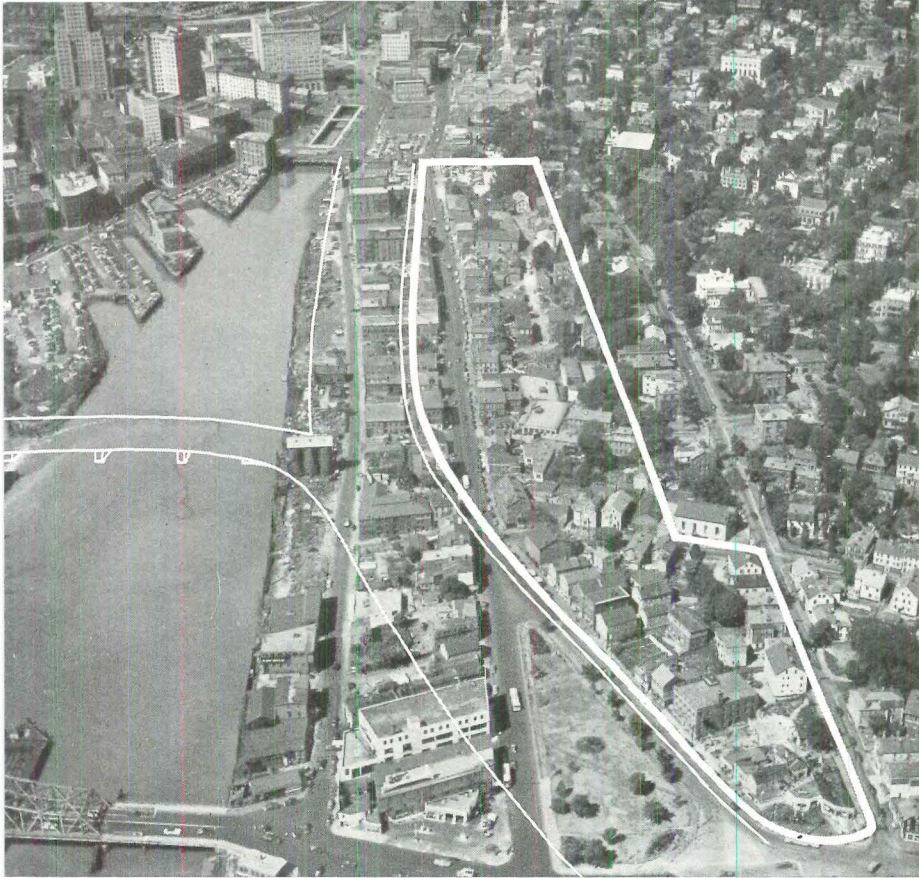
These difficulties are part and parcel of the "large scale" dream. Some really hardheaded thinking in the early stages of the program should convince most cities that they cannot get enough large capital interested in their proposals because the market potential simply isn't there. Or if it is there for one project, what about the next? Almost every city has more than one area that is a sore spot. The hoped-for over-building of the first one will certainly militate against the future.

Philadelphia makes a rounded approach

There is another way to approach redevelopment. It is slower, less spectacular, requires greater and more sustained effort. Philadelphia is trying it, so is Providence; perhaps a few other cities too.

The Philadelphia story also goes back through a long period of intensive work before the Pennsylvania law authorizing redevelopment was enacted. Under Edward Bacon's predecessor, Robert B. Mitchell, a complete master plan was worked out and presented to the citizens through one of the most remarkable exhibitions in the history of city planning (BUILDING, Dec. '47). It made Philadelphia acutely aware of itself, and the interest it aroused has been kept alive by the policy of the Commission of working with and through local area groups.

Bacon's approach is that every area has its elements that are worth preserving; physical things, social institutions, personal loyalties and values. Only by considering these elements and working with the people of the area can they be preserved: larger-scale spectacular clearing and rebuilding destroys more



Providence, R. I., has a whole series of piece-by-piece redevelopment projects in mind. Run-down area seen in the large photo is downtown, close to the central business district. (It is marked as "Site 5 South Main" on the map of Providence at the right.) Redevelopment would provide an essential parkway along the river, 400 new apartments, a \$50,000 increased tax return per year. It would require a \$400,000 public investment and a \$5 million private investment. The model for a smaller project (right) was made for study purposes by students at the Rhode Island Institute of Design.

values—even real estate values, in the long run—than it creates. In his view the rebuilding of morale in run-down areas is as important as the rebuilding of buildings. Bacon's philosophy can be—and has been—attacked as representing rehabilitation rather than redevelopment. Whether this is anything but a play of words will be put to the test by action.

Philadelphia has ten areas marked for redevelopment, two of which will shortly be undertaken under Title I. Others are well advanced in planning. They represent a wide diversity of purpose. One, East Poplar, is an old blighted area, which will be carefully rebuilt for residential use. The many excellent old buildings, some good streets, churches, memorable public or semi-public structures will be kept and woven into the new fabrics (BUILDING, Oct. '50).

A quite different approach is planned for Philadelphia's "Triangle" area. This includes as its principal feature the taking down of the old Broad Street station and the Chinese Wall of the railroad right-of-way, to be replaced by a fine group of modern business structures with several approach levels—the Rockefeller Plaza idea carried still further.

In Philadelphia's Old City area the plan contemplates improving the setting of Independence Hall and other historical buildings, revitalizing the old streets by judicious replacement

of buildings and unscrambling of deleterious mixed uses. Here again preservation of the neighborhood, strengthening local pride, and a minimum of disruption are the objectives.

Still a fourth type of action is planned for the city's swampy, open Eastwyck area. When the drainage problem is solved, it will be planned as a new and complete community for development by private enterprise.

Other areas will be industrial, residential or business in varying degrees of emphasis depending on careful study of what the area itself wants and needs.

In the process of working out these plans there has been continuous cooperation between the Planning Commission, which has the basic responsibility for planning, and the Redevelopment Agency, charged with execution. In Philadelphia, the planning Commission actually plans, and the Agency, under David Walker, actually develops. The Mayor, City Council and city departments have all worked closely with the Commission and the Agency, and political friction, where it has appeared has been, at least so far, adroitly and well handled.

Providence too goes step by step

Providence is proceeding along lines very similar to Philadelphia. The Planning Commission, under Frank Malley, has de-

veloped a series of "planning areas." Under the Rhode Island legislation—which is still awaiting a court test as to its constitutionality—a Redevelopment Agency has been set up under the Chairmanship of Chester R. Martin and the technical directorship of Louis B. Wetmore. Working in close cooperation with the Mayor and council, one definite proposal for redevelopment has been submitted to Washington. This will unscramble a mixed area along the river and provide middle-class apartments. A second project is to care for the needs of expanding industry. A genuine interest is being shown by many industrial concerns which had been toying with the idea of moving out of the city because there was no room for expansion.

Providence is a city of single family homes, and the Redevelopment Agency intends to keep it so. The method of relocation and redevelopment as outlined by Wetmore and confirmed as to soundness of procedure by Edward B. Murphy, the Agency's consultant on real estate matters, will be to attack blighted areas in the order of their marketability. Since the master plan sets the large all-over pattern, the precise order of redevelopment is important only from the point of view of expediency—that is to do now what can best be done now in terms of local interest, finance, and ability to relocate. Providence has enough public housing coming up to care for the lowest income groups; an exceedingly efficient Family Relocation Service helps all who need help, and the extension of the redevelopment program over a long term of years will probably allow private enterprise to keep pace with need.

This does not mean that complete plans for an area should not be made and adhered to, at least in broad outline. It does mean that the plan should be capable of realization step by step, so that local financial resources in their normal operation should be able to handle each successive step. The fact that there is a broad plan, backed by an administration with guts, will assure the local investor that he is not throwing his money away. And there will be less disruption, less anxiety. The city can, and should, make certain civic improvements first—create new parks, new plazas, the new library, community building, or school. (There is no magnet like a good school.)

Negotiations will be easier, because there will be fewer agencies and elements to line up. (Chicago's Lake Meadows project, as a 100-acre project, has been held up for months because of a street car named Cottage Grove Avenue.)

Someone will object, "In 50 years, by that small scale method, you get right back where you started from." Not necessarily. If the basic plan is sound it will still be valid; there is probably no plan that shouldn't be reconsidered after 50 years; and the real answer is that the city should not sell the land but lease it. "Net rents" are more profitable than taxes any day, and the prejudice against building on leased land is just that—a prejudice.

In Baltimore there are no such prejudices. Building on leasehold is an old and established procedure there. Richard Steiner, Director of the Baltimore Redevelopment Commission, has eight areas approved by the City Council under the state enabling act. Two of these have agreements concluded with private redevelopers on a basis of a 60-yr. lease, under which the redeveloper has an option to purchase at the end of 40 years. Use and density are rigidly prescribed, there are protective clauses covering maintenance, repairs and alterations. The redeveloper pays a ground rent calculated at 4 per cent of the use-value, plus full taxes on the improvements. If he fails to exercise his option, or defaults, the improvements go to the city. The 40-year period is the time it will take to amortize the city's costs.

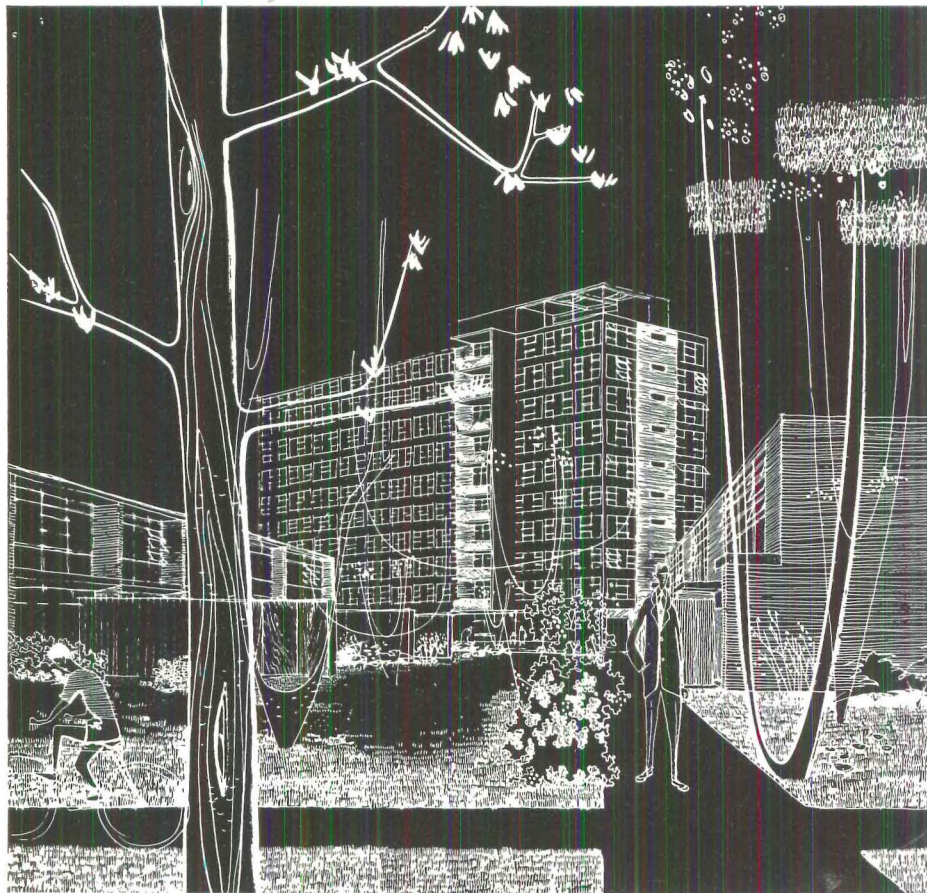
Baltimore is the only city that has concluded definite re-

development agreements with private enterprise. They include shopping centers as well as residential structures, with built-in parking and recreation. The planning and negotiations were carried out with the aid of a \$5 million bond issue, without benefit of Title I. The Commission now is intending to avail itself of the provisions of the federal act in order to increase the scope of its operations.

Whether the city eventually sells or leases, it will be in the real estate business for many years. There will have to be a Land Agency run by public-spirited citizens to do a good job. The present arrangement, which puts local housing authorities in charge of redevelopment, is not the best for the long run. Not because the housing authorities are not run by public spirited citizens—most of them are—but because redevelopment serves a great many more people, and a great many more interests, than housing; it must include downtown industry, wholesaling, the railroad and the waterfront in addition to residential interests. Moreover there are a great many people in favor of redevelopment who are against public housing—the emphasis should not be confused.

How public agencies may best be organized to deal with redevelopment is beyond the scope of this article. Suffice it that in Washington Director Keith and his aid Carl Feiss have been doing their best in Washington with a tough complex law. The standard they set up will determine the future of many a city. The ultimate success of the experiment, however, is up to small private enterprise and local lenders.

Only the larger city can hope for large scale financing of big projects by national lending institutions. The drawing below is part of a study made by a high-powered group of collaborating planners and architects for an area of one-fourth square mile directly northwest of New York Life's vast scheme shown in BUILDING in August.



BUILDER'S HOUSE OF THE YEAR: Architect-builder team's \$10,000

package of modern design amenities wins AIA award

LOCATION: San Diego, Calif.

A. QUINCY JONES, JR., Architect

H. C. HVISTENDAHL, Builder

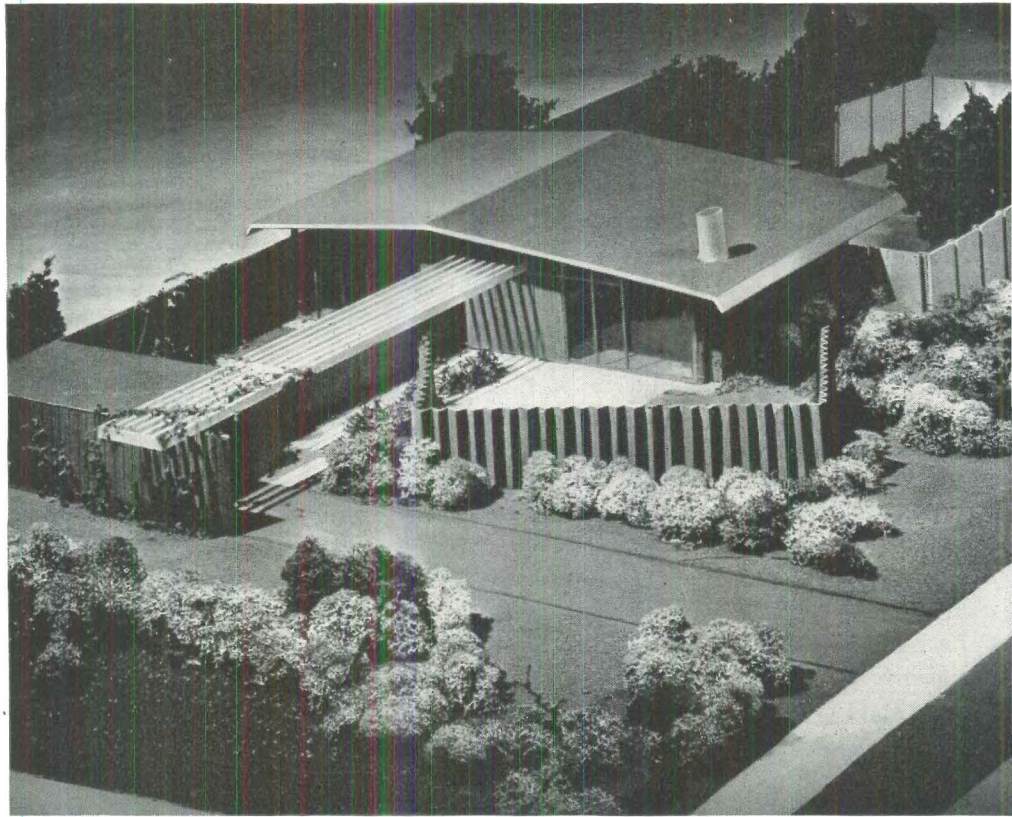
Here is an architect's solution to a builder's problem which proves that top-flight modern design can offer more for the money in the most competitive building field—the \$10,000 house market. Because he felt that no one in the San Diego area had cashed in on the appeal of "a good contemporary low cost house," Builder H. C. Hvistendahl asked Architect A. Quincy Jones to design a 2-bedroom, 1,000 sq. ft. model that would 1) sell to lot owners who had not built because of high contract costs; 2) serve as a pilot model for a future large scale subdivision. The architect's solution not only met these requirements; it won the AIA's 1950 Honor Award and *House Beautiful's* recognition as the "First House of the Year."

In a minimum 25 x 40 ft. rectangle, the illusion of a much larger house has been created by an open plan and walls which are 65 per cent glass. Foyer, kitchen, living and dining areas are clearly defined, yet merged in a single continuous space. Through floor-to-ceiling glass, each of the main rooms is extended into an outdoor garden room, enclosed by fences which assure complete privacy, even on a 50 x 125 ft. lot. The solid end walls of the house are topped by a 16 in. high band of glass with sliding panels which provide added ventilation. As a result the roof seems to float lightly over the house, minimizing the possibility of any boxed-in feeling.

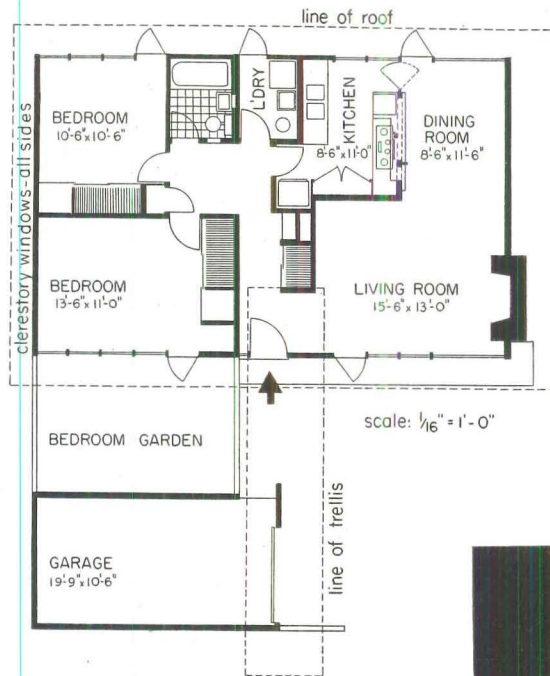
Usable space is gained not only by open planning, but by a maximum number of built-in features, including drawers and shoe-racks in closets, dressing table, phone table, desk and kitchen serving counter. The house has over twice the required FHA storage and wardrobe space, more than three times the minimum kitchen cabinet space. Other bonuses included in the purchase price: cork floor in kitchen and bath, a portion of the garden fences, garage, brick fireplace, garbage disposal unit, dish washer, and an optional glass kitchen closure.

These custom dividends were possible partly because of a highly economical structure. The roof (2 x 6 in. tongue and groove fir, stained and exposed on the interior) is carried on four rigid ribs of paired 2 x 12's, supported by built-up posts of 2 x 6's flanked by 2 x 4's. The exterior walls are merely a nonstructural skin of redwood siding, plywood and glass on a 7 ft. 6 in. module.

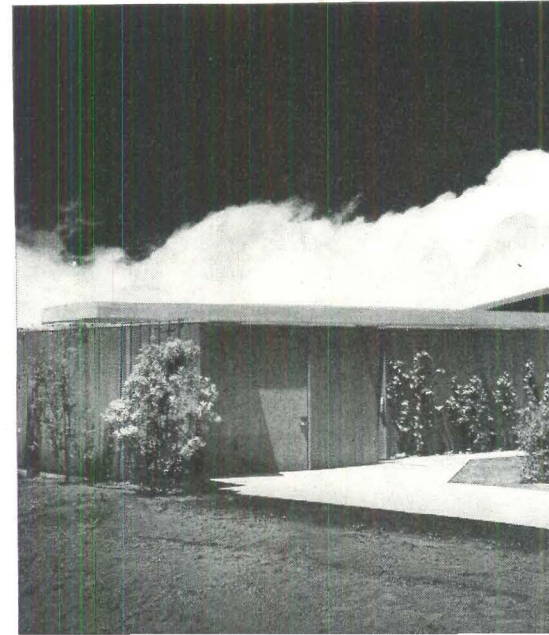
Though the house has yet to be mass-produced for subdivisions, 28 have been built for individuals, four with FHA mortgages. Even on this basis, it sells for only \$10,000 to \$10,500—about \$10 a sq. ft. at post-Korea prices.



Robert C. Cleveland



Model shows use of fences or vision screens which cost \$3.25—\$4 per lin. ft. Fencing for all main rooms would add about \$665 to purchase price.

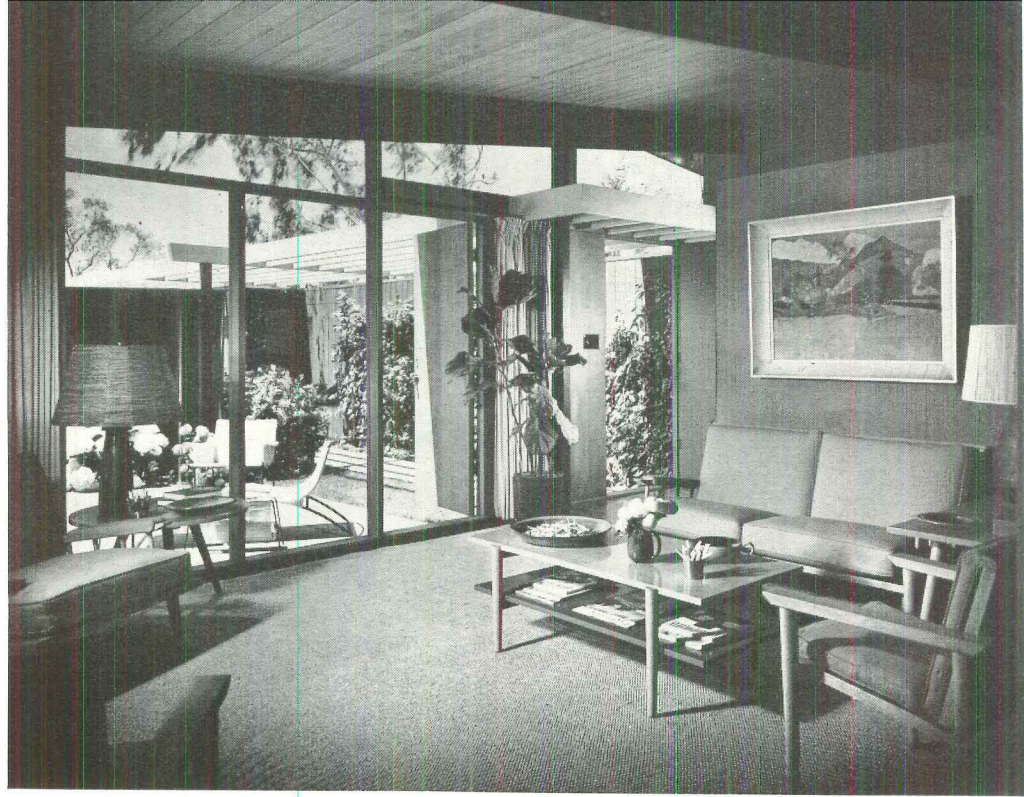
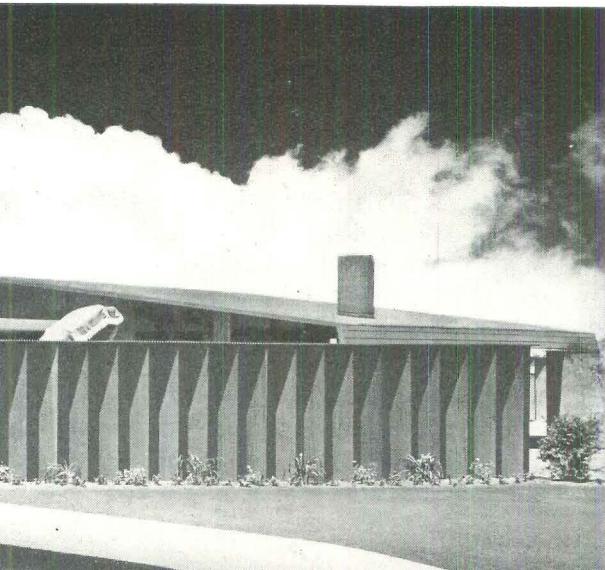


Photos: Maynard L. Parker

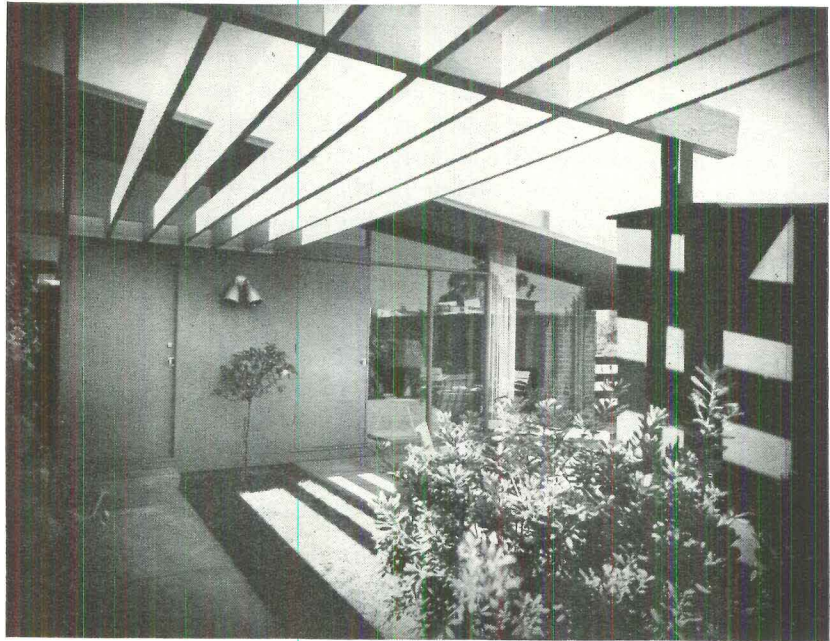


Handsome brick fireplace is capped by a painted concrete sewer pipe chimney let into the glass-topped exterior wall. Fireplace is optional, may be eliminated for \$200 saving. Cost of fences used to provide privacy from neighbors for glass-walled rooms may be partly offset by omitting drapes.

Main bedroom and living area of house pictured below face south on a 75 x 140 ft. corner plot—best orientation for this plan. Eight other plan variations make proper orientation possible on a number of different sites. Boldly sculptured fence is an extra; fences for bedroom garden are included in sales price.



Living area overlooks a fenced patio and the trellis-covered approach from garage to main entrance. Trellis carries into foyer, merging indoors and out.



Serving bar, storage cabinets, range and waist-high oven are combined in unit which separates kitchen from dining area.

CONSTRUCTION OUTLINE: Exterior walls—redwood, studs and plywood inside. **ROOFING**—Pabco built-up, Paraffine Co.'s. **FIREPLACE:** Damper—Superior Fireplace Corp. **WINDOWS:** Glass—Libbey-Owens-Ford Glass Co. **FLOOR COVERINGS:** Kitchen and bathrooms—Kencork, David E. Kennedy, Inc. **PAINTS**—Samuel Cabot, Inc. **HARDWARE**—Schlage Lock Co. **ELECTRICAL INSTALLATION:** Switches—Bryant Electric Co. Fixtures—Century Lighting Co. **KITCHEN EQUIPMENT:** Range—Thermador Electric Mfg. Co. Fan—Pryne & Co. **LAUNDRY EQUIPMENT:** Sink—American Radiator-Standard Sanitary Corp. **BATHROOM EQUIPMENT**—Briggs Mfg. Co.



SUBDIVISION OF THE YEAR

Progressive builder and top-flight architects team up to exploit the sales appeal of good contemporary design with 400 houses in the \$11,950-\$14,500 field

LOCATION: San Francisco Bay Area

S. ROBERT ANSHEN and WILLIAM S. ALLEN, Architects

HAHN, CAMPBELL ASSOCIATES, Land Use Consultants

GEORGE S. NOLTE, Site Engineer

JOSEPH L. EICHLER, Builder

"If I were in the dress business, I'd hire the best designers to create dresses for sale. I think the same reasoning applies to home building." In the past year, Builder Joseph L. Eichler has parlayed this simple idea into one of the most successful small house building operations on the West Coast. With Architects Anshen & Allen supplying top quality design and site planning, Eichler has netted about 10 per cent on \$3,750,000 sales of some 400 moderately priced houses since last spring. This achievement is another powerful demonstration of the selling power of good contemporary design, used skillfully and honestly by a capable architect-builder team.

Clear evidence of the premium which stocky, gravel-voiced builder Eichler places on fresh design appeal in the subdivision house is the variety of models produced since he hired Anshen & Allen a year ago. The architects came into the picture after their work on Eichler's own \$50,000 house opened his eyes to the possibilities of good design and firm architectural control for mass home building. A former "butter-and-egg" man who jumped into building only four years ago, Eichler had produced some 300 unprofessional modern houses with little variation in design. But when his first 51-house gamble with Anshen & Allen sold out in a fortnight (BUILDING, Apr. '50), Eichler commissioned the architects to plan three more tracts, each with improved new models closely tailored to fit the surroundings. (The fee: a retainer of \$5,000 a year with a bonus of \$100 a house up to 500 houses.) Each model, in turn, was to have a number of variations to give houses a custom-built look and permit proper orientation. As a result every Eichler development has hit the public like a new car model, with all the drawing power of new design and the latest engineering.

The basic package

Though Eichler offers a variety of plans and exterior treatments, basic features and prices of his houses are fairly uniform. All models have three bedrooms, a spacious open arrangement of living-dining-kitchen areas, handsome exposed redwood construction, two-car garage or carport with storage space, brick fireplace, radiant heating and a glass-walled living area oriented for maximum privacy and sunlight. Houses average 1,200 sq. ft., exclusive of garages; prices range from \$11,950 to \$13,900. Included are such bonuses as a large concrete patio, plastic kitchen counter tops, a fenced service yard, an electric range, refrigerator and washer. In the latest tracts the minimum lot size is 6,000 sq. ft.

Eichler got FHA approval on his first Anshen & Allen house—after some fuss over a free-standing breakfast bar which has since proved to be its most popular feature. But on subsequent tracts he has by-passed FHA to give the architects greater freedom and avoid time-consuming red tape.

Cost controls

Despite an estimated 8 per cent rise in Bay Area construction costs since the Korean war, Eichler has managed to keep his average cost

Well-shaded by roof projections, glass-walled living areas of Eichler's basic models in 226-house tract are oriented for maximum sunlight and privacy.



per house under \$9 a sq. ft. by using "nearly every cost-saving practice known to the industry." Among these are specialized teams for foundations, roofing, studding, walls; pre-cutting of framing members and a continuous operation that prevents him from losing key workmen between tracts. The architects' painstaking blueprints have eliminated the costly construction mishaps which ate into profits in the old days when Eichler's own draftsmen prepared plans. Their planning skill has also made it possible for Eichler to offer more variety than most builders, yet profit from standardization of structure, materials and detailing on each tract. In a current project, two basic plans are capable of some 18 variations.

Anshen & Allen work closely with the builder's staff to develop cost-cutting improvements of mill and construction details without compromising their greatest selling asset—custom quality design. Most eye-appeal features pay off in practical value as well. For example, redwood paneling costs Eichler 30 cents per sq. ft. to install as against 19½ cents for plasterboard, but requires neither paint nor maintenance and can be easily touched up with sandpaper if scraped during construction. "Besides," says Eichler, "we can stand the extra cost because if the house settles, there's no call to patch the cracks which would appear in plaster." Since the Bay Area climate doesn't demand double glazing, big glass areas often cost less than conventional walls. The best doors and hardware have proved to be cheaper than poor ones that have to be repaired by the builder.

Site planning

Eichler's remarkable sales record is due partly to the fact that Anshen & Allen have served as site planners as well as architects. Restricted to a conventional grid pattern in earlier tracts, they have since been given a free hand by Eichler to pioneer more versatile layouts with streets that form cul-de-sacs, loops and concentric circles. (Examples, opposite page.) Though not derived from contours (all tracts are on flat land to cut costs), these curvilinear street plans create a spacious, informal effect, slow traffic within the development, reduce dangerous crossings and improve house orientation.

Another distinctive feature of the site planning is the wide-spread



Rondal Partridge

use of head-high redwood fences to give service yards and glassed living areas privacy from street and neighbors. Unlike Long Island Builder Levitt, who forbids fencing on the grounds that it creates a cluttered look and deprives people of the benefit of his landscaping, Eichler holds that well-designed, uniform fences are an asset when big glass walls face each other across rear yards. His customers generally back him up: "The fence protects us. We don't feel like goldfish at all." Some of his tracts have included fences in the purchase price; in others it is sold at \$1.50 a running foot.

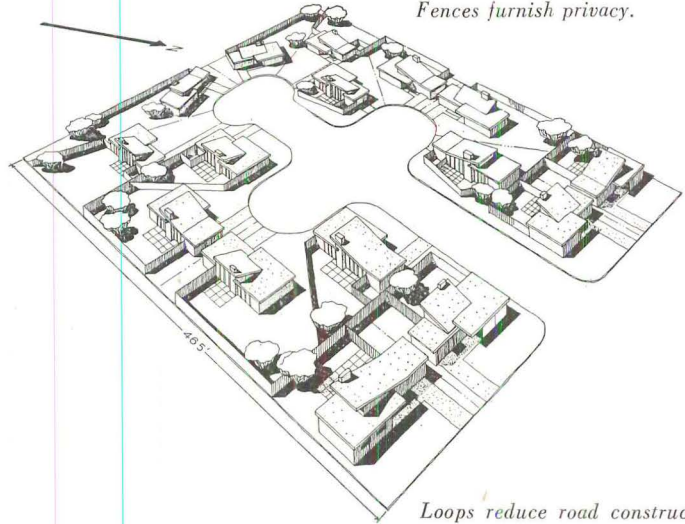
Besides giving sites diversity through curved street patterns and variations of setback and plan, the architects break up the sameness of the redwood exteriors of their houses with different stain finishes—natural, smoke gray, green and brown. Even the house tops are individualized by varying the color of sloping roofs with chips of crushed brick and white or gray stone.

Merchandising contemporary design

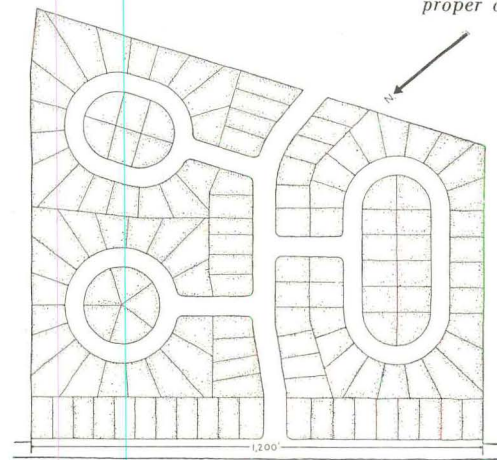
Eichler amplifies the spontaneous appeal of his thoroughly modern product with a bang-up selling job. To promote 226 houses now under construction near Palo Alto, he plans to spend between \$9,000 and \$10,000—a little under \$50 a house. Sixty per cent is earmarked for newspaper advertising and 30 per cent for direct mail. The balance is allocated to billboards, landscaping of model homes and a cocktail preview for press, radio and civic leaders. Advertising stressing better living through contemporary design pulls sensationallly—on a recent Sunday an ad and a story in a San Francisco newspaper drew 7,000 people to see Eichler's latest models. Thanks to the top design quality of his product, Eichler has recently benefited from a type of promotion rarely available to the merchant builder—a two month's exhibit of his homes at San Francisco's Museum of Art.

The real measure of the success of the architect-builder team's methods is the public's ready acceptance of its products. In four recent weeks 116 of Eichler's latest models were grabbed up, while on an adjoining tract of slightly more expensive but comparable conventional houses only 160 were sold in four months. Clinching proof of Eichler quality is the purchase of 14 houses by architects.

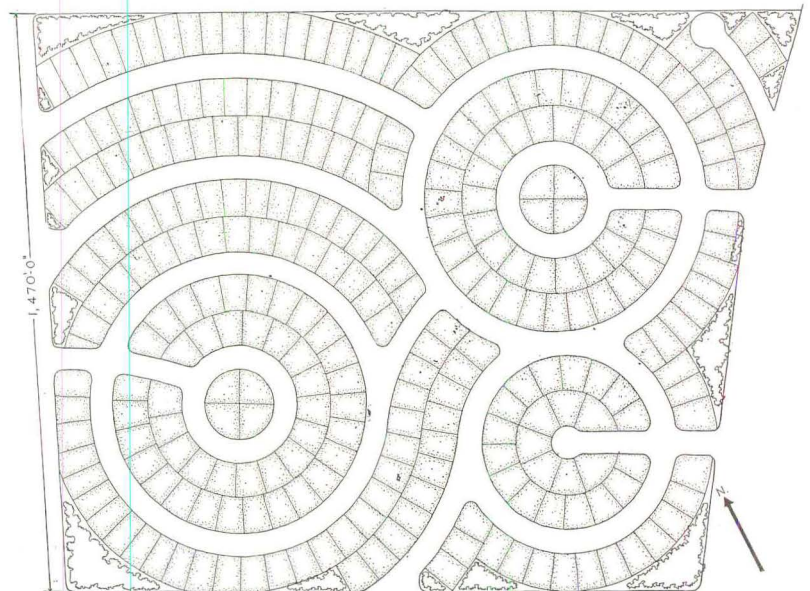
Plan variations and cul-de-sac access to tract provide good orientation for maximum number of these \$14,500 houses. Fences furnish privacy.

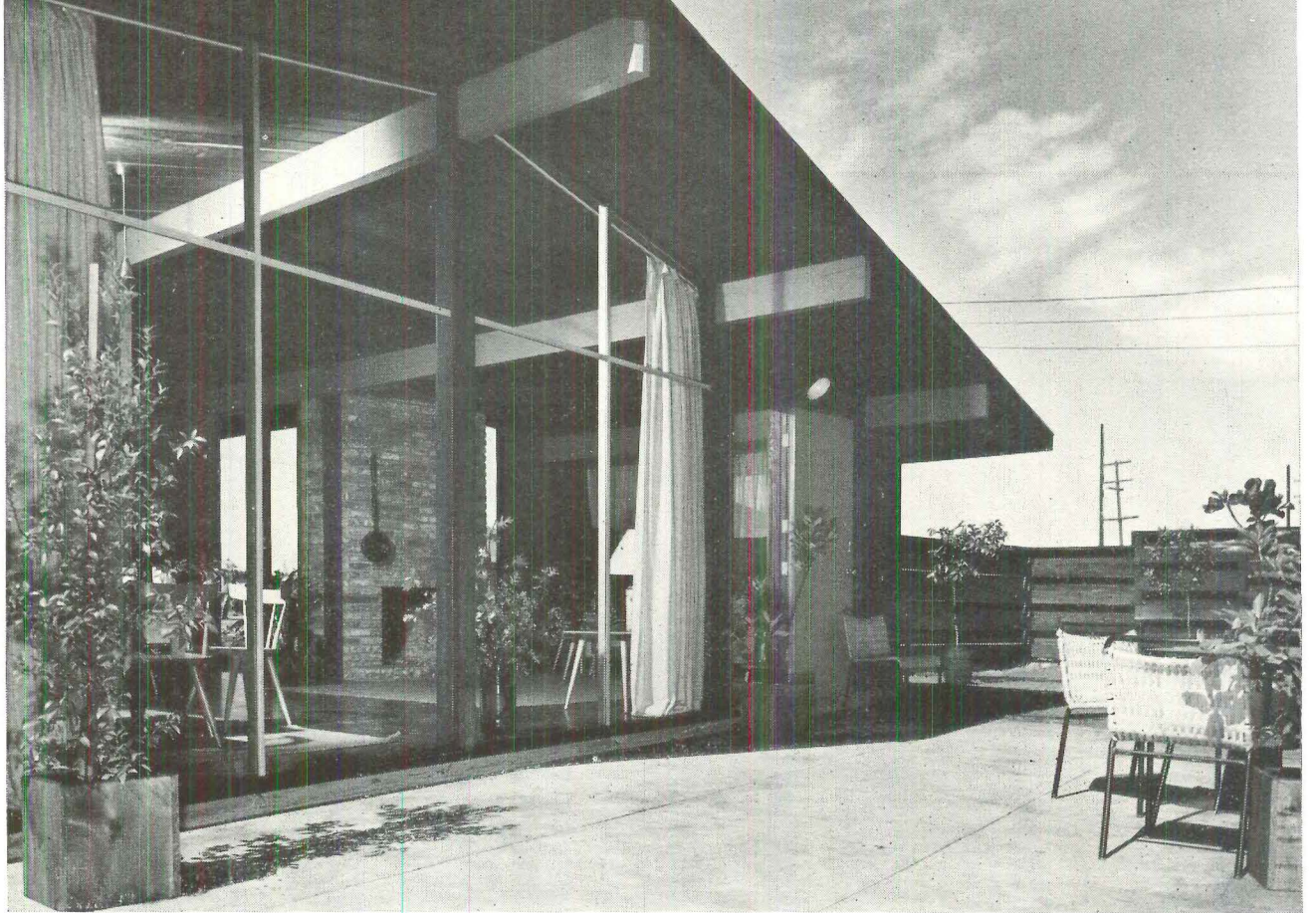


Loops reduce road construction in 130-house development, avoid monotony of straight streets, permit 85 per cent proper orientation.

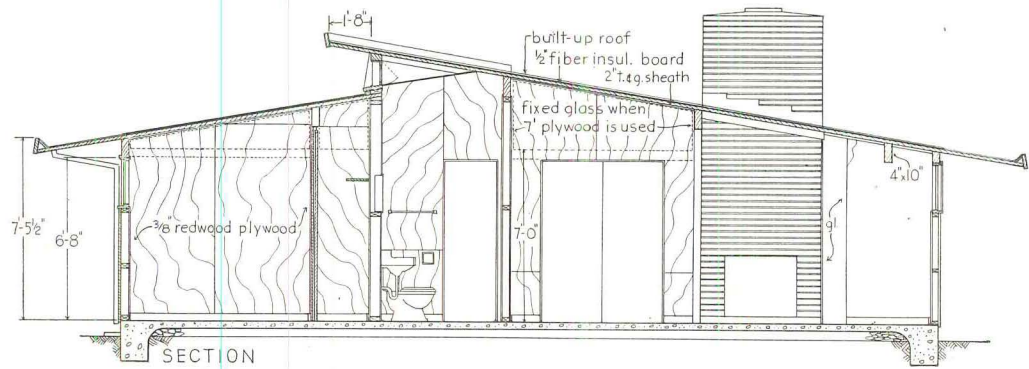


Eichler willingly sacrificed 57 lots which would have been saved by grid plan to gain sales value of this plan's parks, traffic control and eye-appeal.





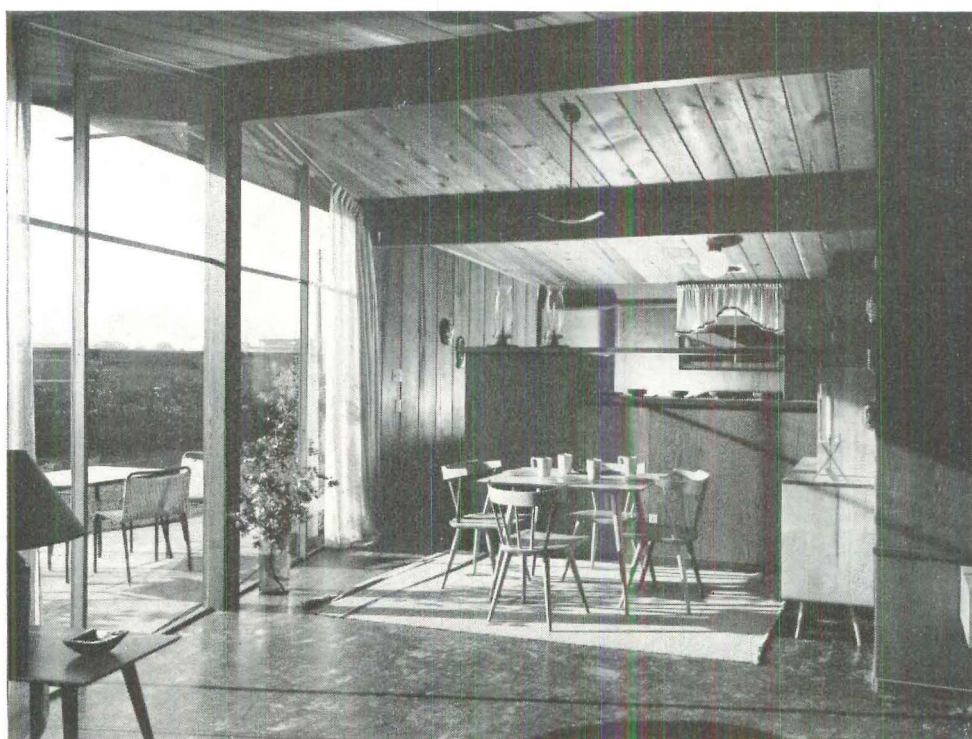
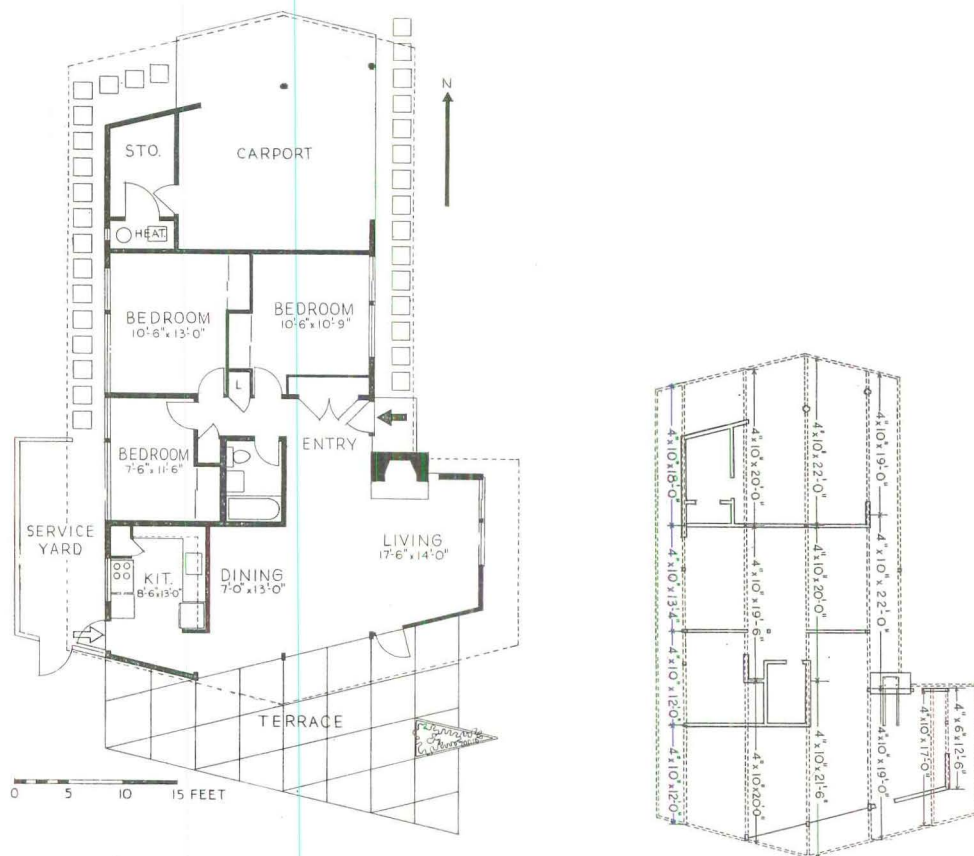
Photos: Rondal Partridge



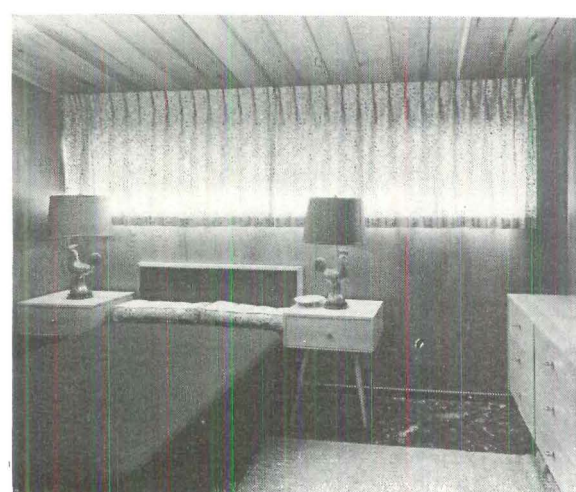
\$12,850 model has angled glass wall and glass-topped partitions to cut costs, give spaciousness to compact plan

In this tract-companion of the preceding model, Anshen & Allen use glass lavishly, both to cut costs and give a sense of lightness and space to a tight, 1,146 sq. ft. plan. By importing 7 ft. high redwood plywood panels from Japan and Mexico and topping them with fixed glass to form interior partitions, the architect-builder team found that they could cut costs and also avoid a boxed-in feeling in bedrooms (detail, left). The glass wall of the living area is angled both to save square footage and aid orientation and privacy. Houses are sited so that this wall picks up the best sun and faces away from the closest adjoining house and toward its more distant neighbor. To create maximum contact with the outdoors, the big glass panels between the exposed structural posts are framed in slim, stock aluminum store-front muntins.

A small glass clerestory extension of the roof plane lights an interior bathroom whose central location is not only convenient, but frees all the perimeter space for the main rooms of the house. Glass is also used unexpectedly, but pleasantly in narrow, floor-to-ceiling panels which flank the fireplace and look out on the main entrance.



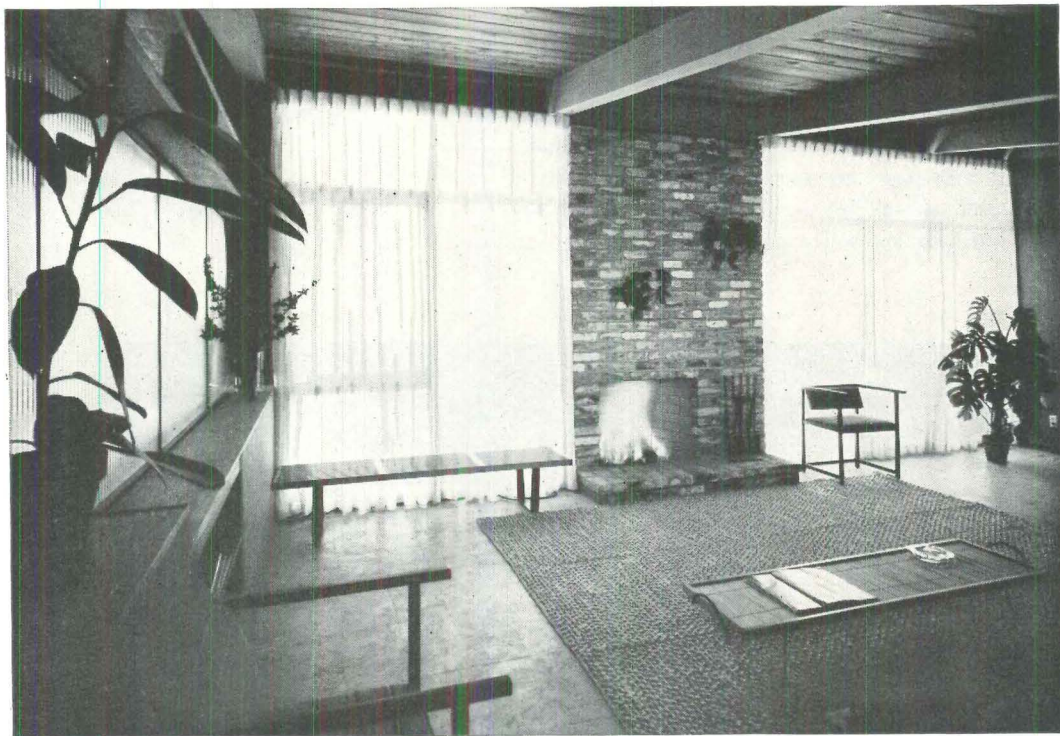
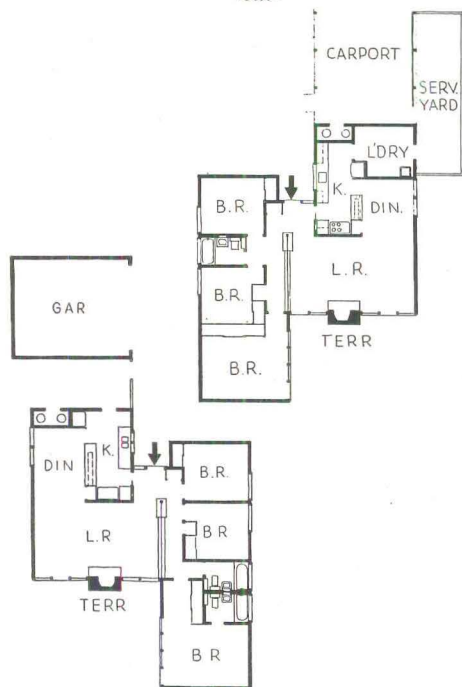
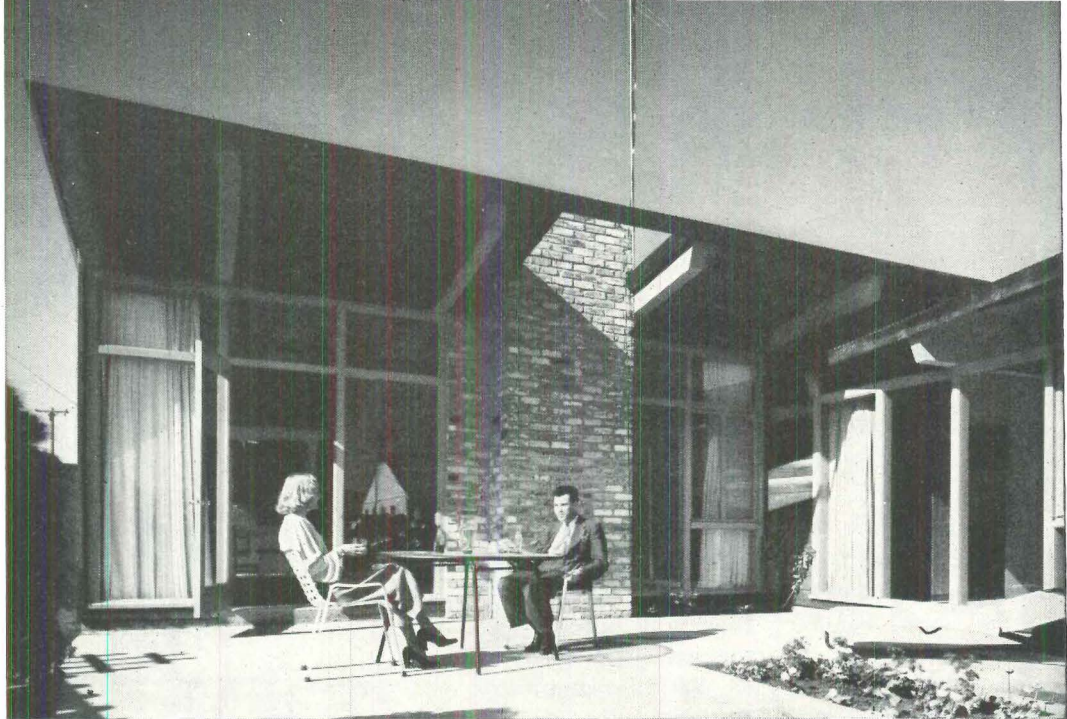
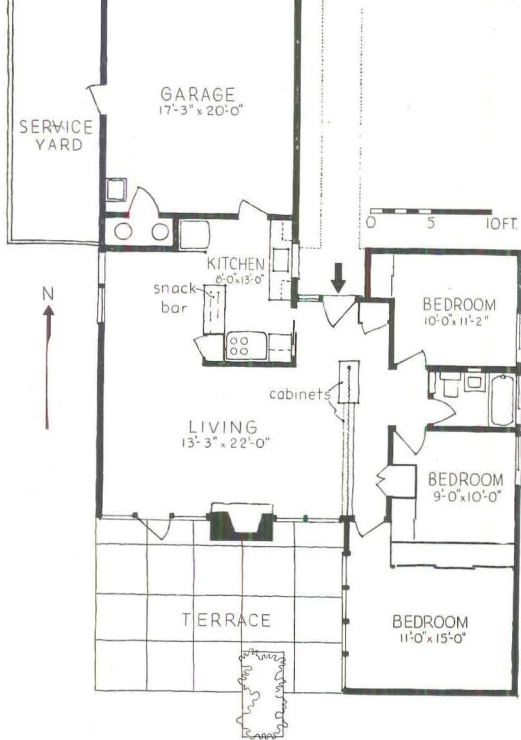
Angled glass wall makes the 33 ft. sweep from fireplace to open kitchen seem even more spacious. (Photo, above) Eichler claims the handsome exposed post and beam structure attracts customers, but doesn't save money, despite the clean simplicity of framing (detail, upper right). Flooring is asphalt tile on radiant heated concrete slab.



Bedroom



Kitchens separated from living areas only by serving counters are highly popular with owners. Cabinets and plastic counter tops are offered in several colors.



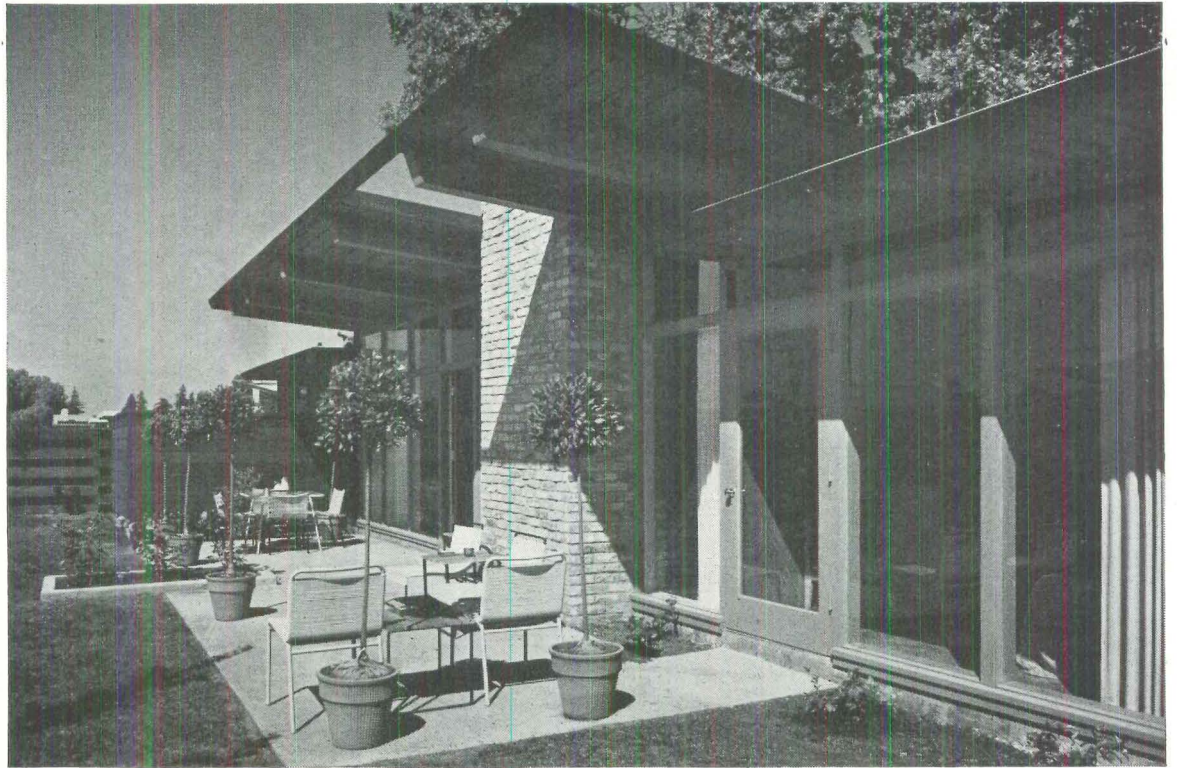
Photos: Rondal Partridge

In another Eichler subdivision houses have single-slope roofs, separate bedroom wings

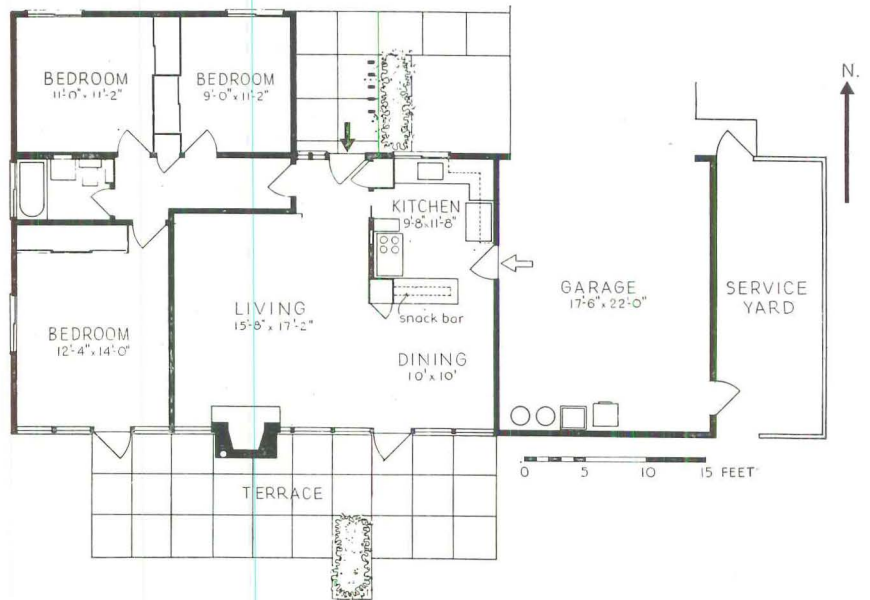


The \$12,750 house pictured here is the basic 1,233 sq. ft. model for a 58-house Eichler tract. Other variations (plans, above) ranged from \$11,950 for the smallest size to \$14,250 for a two-bath house. Included in the purchase price were redwood fences which provide privacy for a glass-walled living area and a master bedroom opening on a terrace at the rear.

The single open space of the living-kitchen area flows into the bedroom wing, making it possible to obtain maximum ventilation by leaving bedroom doors open on warm nights. The two areas are separated by a head-high partition made up of low storage cabinets topped with a sheet of corrugated translucent glass (photo above). To fit ceiling-high plywood partitions accurately to sloping or gabled roofs, the posts, roof beams and roof sheathing are erected first to form a template for partition tops.



Roger Sturtevant



\$12,950 variation for subdivision with wide lots has long, low lines

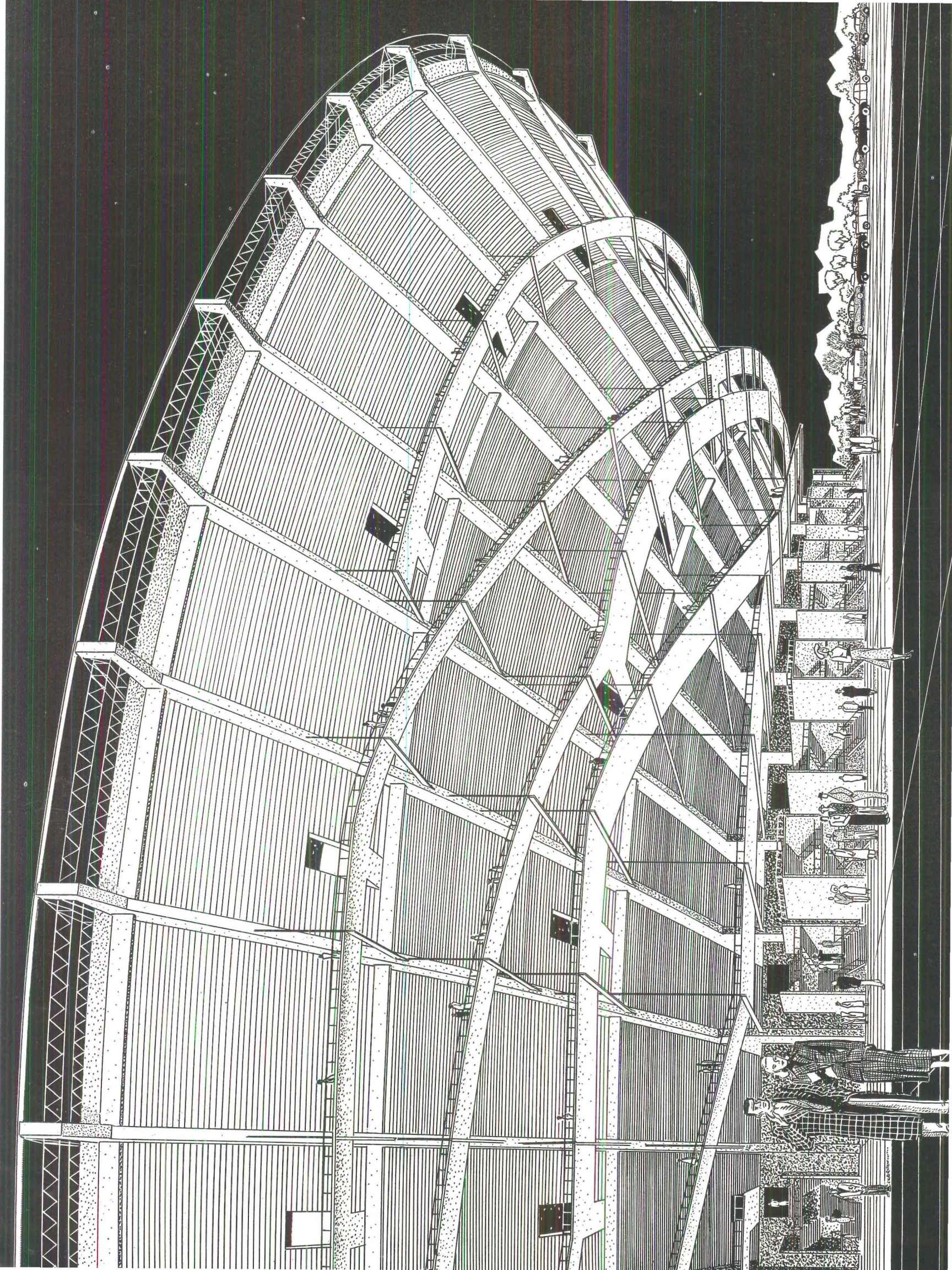
Ground hugging lines and a long axis parallel to the street give this model a big-house look. Unlike most more recent units, it has considerable entrance interest and two bedrooms on the street side. But as in all Eichler houses, the main focus is to the rear, where master bedroom and living areas are faced with a continuous glass wall, anchored by the central mass of the chimney and shaded by a boldly cantilevered roof projection.

Though each house in this medium-sized tract has the same setback from the street, variations of plan, exterior finish and placement of garages and carports creates a pleasing impression of irregularity.

A resident's reaction to her house sums up the feeling of most Eichler home owners: "It was the design more than anything else that led us to buy the house. The glass gives you a feeling of being outdoors—you don't feel jammed in."

Cost Breakdown (typical)	
Land & improvements	\$2,250
Foundation and concrete work	930
Brickwork	250
Carpenter labor	1,250
Lumber	1,025
Millwork & cabinets	850
Plywood	485
Siding and roofing	655
Sheet metal	120
Floor and wall tile	226
Plastic counter tops	95
Windows and glazing	359
Hardware	150
Wiring & fixtures	450
Heating	495
Plumbing	750
Painting	375
Appliances	530
Driveway, grading & clean up	165
Architect's fee, overhead, profits & misc.	1,440
TOTAL sales price	\$12,850

CONSTRUCTION OUTLINE (typical): Foundations—reinforced concrete. Exterior walls—redwood siding, building paper, studs and 3/8 in. redwood. Floors—reinforced concrete. **ROOFING**—built-up. **INSULATION:** Roof—1/2 in. Celotex, The Celotex Corp. **FIREPLACE:** Damper—Superior Fireplace Corp. **SHEET METAL WORK:** Flashing and leaders—galvanized iron. **WINDOWS:** Sash—sliding aluminum. Glass—double strength, crystal sheet, American Window Glass Co. **FLOOR COVERINGS**—asphalt tile, Armstrong Cork Co. **PAINTS**—Kelly-Moore and Samuel Cabot, Inc. **HARDWARE**—Kwikset Locks. **ELECTRICAL INSTALLATION**—Westinghouse Electric Corp. **KITCHEN EQUIPMENT:** Ranges and refrigerators—Hotpoint Inc. and Frigidaire Div., General Motors Corp. Fan—Pryne & Co. **BATHROOM EQUIPMENT**—American Radiator-Standard Sanitary Corp. **HEATING**—hot water radiant panel system in floor slab. Boiler and accessories for radiant panel system by Thermapanel Co., Inc.



STADIUM without substructure

PAUL WEIDLINGER, Engineer
RAYMOND & RADO, Architects

Engineering vision has replaced almost all the usual visible supporting members in this exciting version of that highly conventional structure, the sports bowl. This proposed stadium to seat 99,000 has none of the usual forest of supports built of heavy reinforced concrete to carry the great live load of a capacity crowd, plus the substantial dead load of a conventional stadium's own strength. Designed with the F. Ellwood Allen Organization, Recreation Planners for a southern university, but blocked now by the ban on recreational building, this bowl will look like a bowl from alongside as well as from above. Strength for support of the sides is built in; they do not need to be propped up from the ground. The lip of the bowl overhangs clearly without vertical support 150 ft. out from the inner perimeter—most of the crowd will be sitting on air.

The secret to the highly practical and economical structural solution is a series of tension rings which hold the radiating ribs of the stadium's frame in place. The idea is not new but the application is brilliant in its simplicity. In 1420 Brunelleschi designed the dome of St. Maria Del Fiore in Florence, and, because either he or his clients thought the dome was entirely too big to follow domelike principles and might collapse, he put an iron chain around the circumference of the base, corseting the stresses in place. It is still there.

Weidlinger has turned Brunelleschi's dome upside down and filled it with seats. Instead of the iron chain, he has specified steel rings encased in concrete, located at the foundations, the lower tier, middle tier, upper tier and roof level. These steel rings run all the way around the stadium; the highest up on the lip is 2,400 ft. long, and has 70 sq. in. of steel in section.

Not the least exciting aspect of the design are the ramps hung from the under side of the bowl's sides, up which the spectators walk to their seats. Entrances to the ramps are near the inner circle of the seating, and each two sections of seats

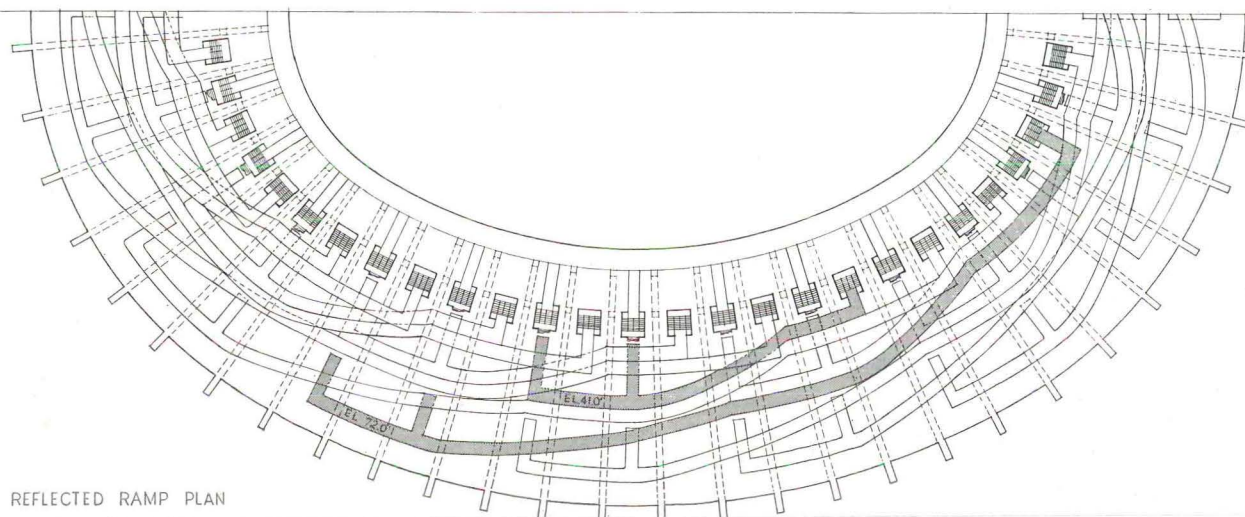
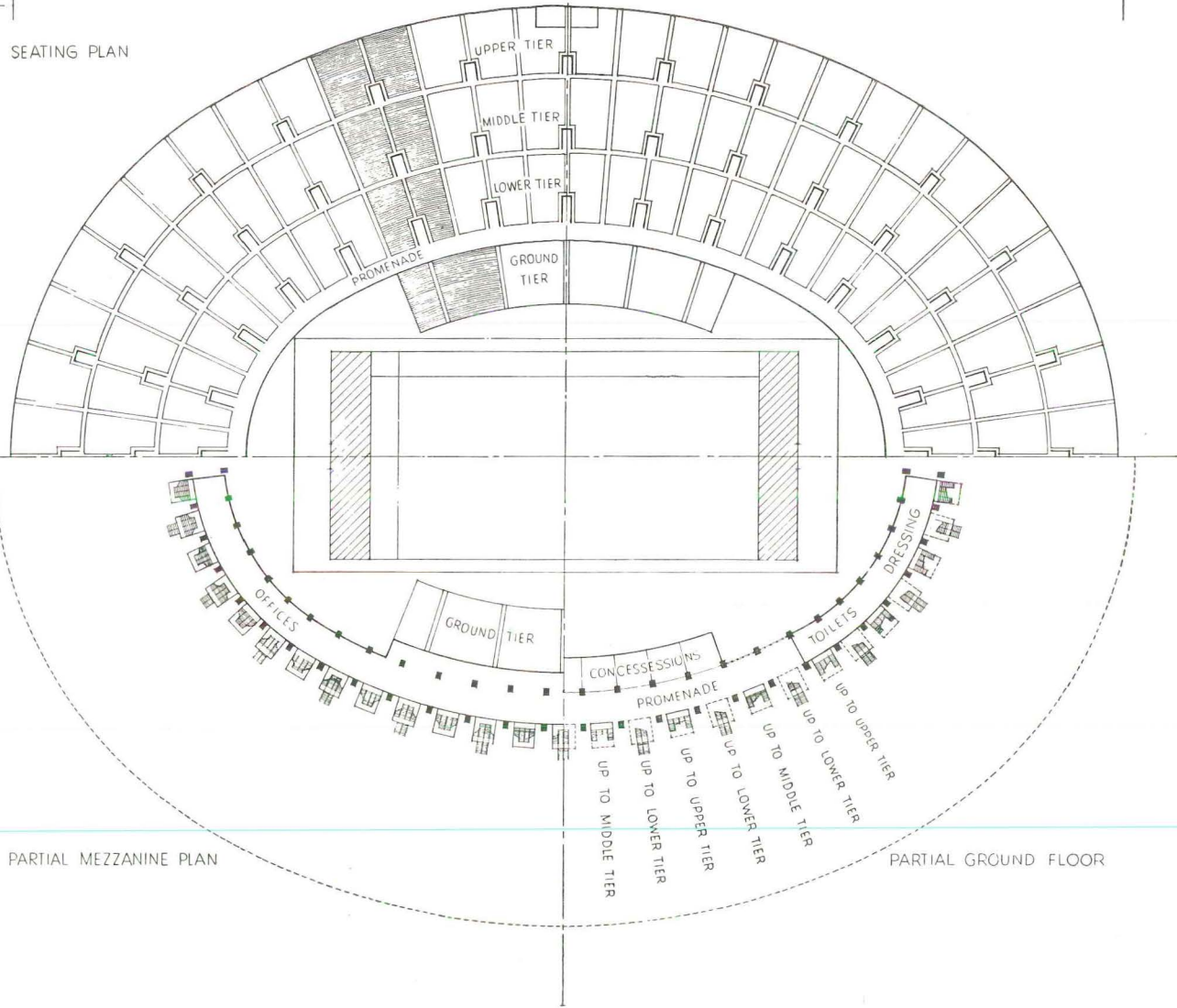
SEATING PLAN

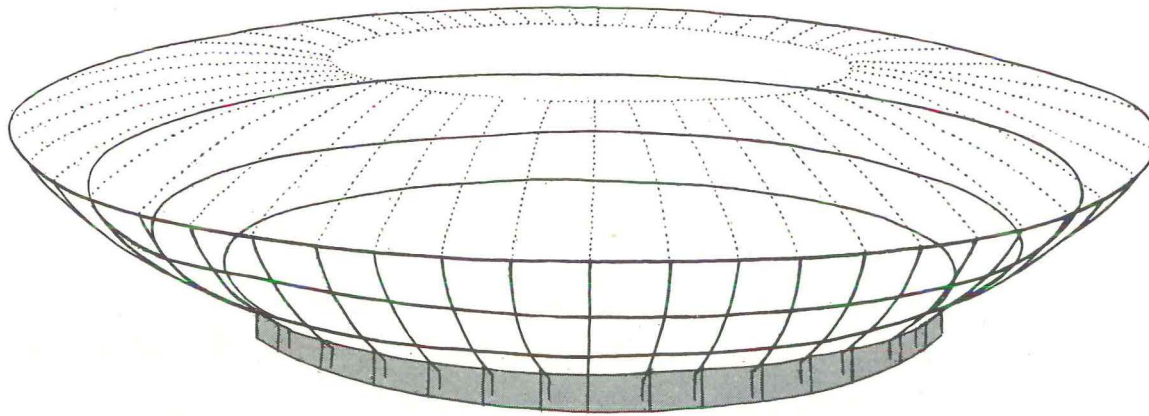
PARTIAL MEZZANINE PLAN

PARTIAL GROUND FLOOR

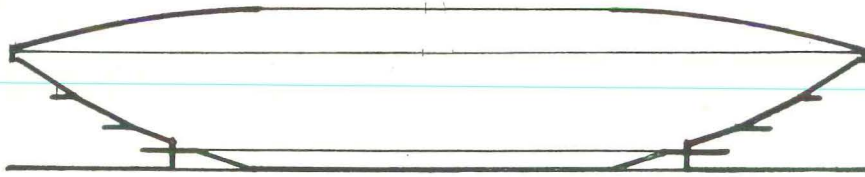
REFLECTED RAMP PLAN

852 FT





Tension rings circle stadium at intervals, as shown in schematic drawing above, holding ribs in place and replacing the conventional and costly substructure built under ordinary stadia. Stadium can be built in stages and put to use for growing seating capacities, as shown:



4. Total capacity 99,000 under roof



3. Total capacity 99,000



2. Total capacity 64,500



1. Total capacity 33,000

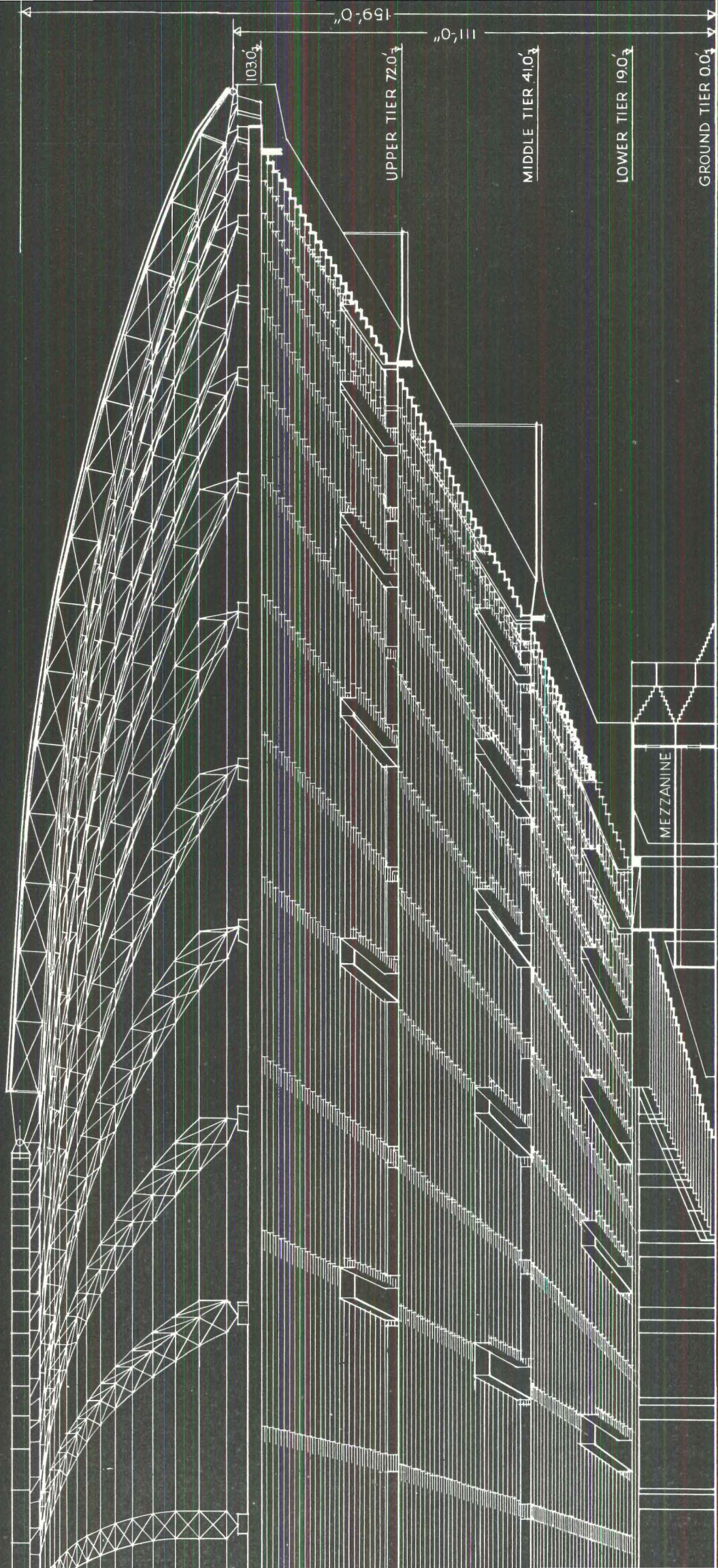
above has a ramp which curves up the incline like an orange peel following the curve of the orange. This leaves all the land under the sides of the bowl free for parking or other use, a notable economy. But the major cost saving of the design is elimination of the conventional substructure. The seats are to be precast (and prestressed) and put in place with a minimum of expensive scaffolding and no formwork. And, although the plan of the whole structure is oval, all the ribs in the grandstand have exactly the same dimensions and strength because they are spaced in such a manner that the loaded area supported by each is the same for all ribs. This simplifies fabrication and erection.

Because of the savings obtained through the elimination of the substructure, Weidlinger says it is possible to provide a roof over the entire seating area. Such roofs are usually costly because they are cantilevered so that no columns obstruct the view. This roof is a steel-framed dome resting on the top ring of the grandstand, complete with an open "lantern" over the playing field. Compression rings in this dome provide additional support to the central compression ring around the lantern and also permit erection of the roof in sections.

Construction of the stadium is planned in four main steps: first the lower tier will be built by conventional means, being essentially a large reinforced concrete structure of oval plan. Second, the reinforcing of the ribs will be completely shop fabricated and welded together, with the bent up bars and stirrups forming a rigid truss. This truss will be erected by means of cranes and, in itself, will be strong enough to support formwork and the weight of the concrete in the ribs, resting on the steel ring at the bottom of the lower tier.

Third, the next ring and the seats will be placed, and the whole structure will then be self-supporting—no props or centering are needed to support any of the structural members during erection. Fourth, the second and subsequent levels will be completed. (The reinforcing in the ribs to the first ring extends above the middle tier and permits the splicing by welds of the reinforcing of the second level of ribs.)

Completed, this stadium will have a mark of engineering genius: the original use of basic theory to produce economy and beauty.



F TRANSVERSE SECTION

150 FT. OVERHANG WITHOUT VERTICAL SUPPORT

MEZZANINE

UPPER TIER 720'

MIDDLE TIER 410'

LOWER TIER 190'

GROUND TIER 0.00'

103.0'

159'-0"

111'-0"

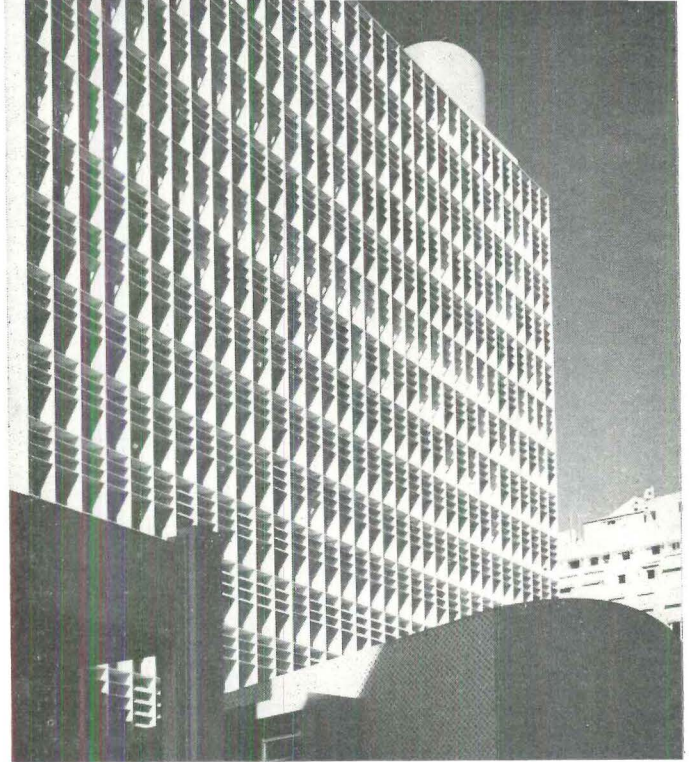
SUNSHADES FOR OFFICE BUILDINGS:

Do they pay their way by reducing cooling loads, or are they merely the newest architectural cliché?

A nimble-footed visitor to drafting rooms and construction sites these days might well conclude that the three characteristics of new office buildings are continuous strip windows, air conditioning and *brise soleil*. Like many generalizations, this would be only partly true—but it is accurate enough to indicate a growing trend.

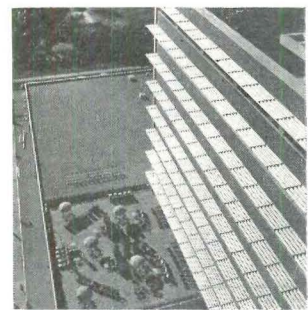
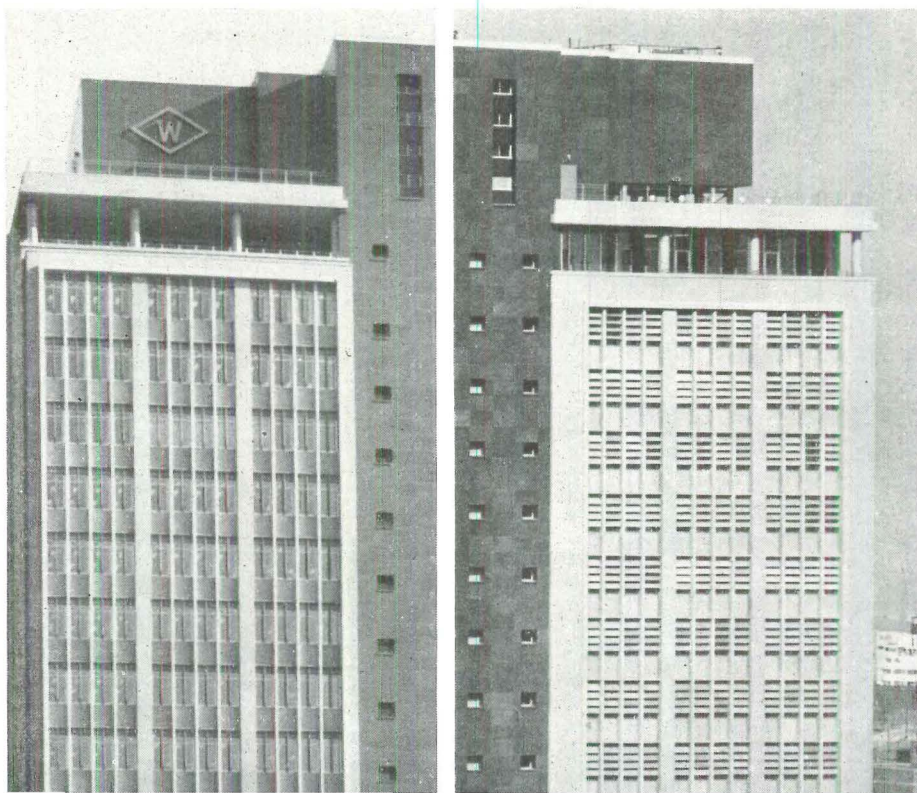
Few would deny that strip windows and air conditioning typify most new office buildings. These two features usually call for a third: some means of helping the air conditioning plant overcome sun heat that penetrates through long glass walls. One of the helping hands can be given by heat-absorbing glass, double glazing, or Venetian blinds, alone or in combination. A steadily growing number of architects, however, are choosing to use a shading device outside windows to eliminate sun heat before it gets through the glass.

While sun breaks are not yet sweeping the country, they can be found on a surprising number of new office buildings. The pace-setting Skidmore, Owings & Merrill have at least four designs using sunshades, and possibly more up their sleeves. Holabird & Root & Burgee have under construction



a large office building with as neat an installation of horizontal louvers as one is likely to see. Lathrop Douglass, with Carson & Lundin as associates, has completed a Baton Rouge office for Esso with long bands of window overhangs on each floor. By this time it is assumed that Polevitzky, Weed and others in Miami will invariably use *brise soleil*. Designers in Dallas, Houston and Los Angeles are known to be strongly sunshade conscious. But isn't it news when sunshades appear simultaneously in North Carolina, New York, Pennsylvania, Michigan, Minnesota and even in Colorado?

Shade making is as old as architecture. In this country, external shades or overhangs have long been used in homes, stores, apartments and small commercial buildings. Who started the current revival in shades for office buildings is highly controversial and there is not enough space to discuss it here. LeCorbusier and the Brazilians have had considerable influence. William Lescaze and William Wurster both designed office buildings with *brise soleil* before the war and other architects anticipated the current trend before the Brazilian buildings were much publicized.



Pace setters in use of sun shades. Top of page: Rio's Ministry of Education, often credited with being first large building with *brise soleil*. Next above: Prudential Insurance, Los Angeles, with overhangs above south windows. Below: General Petroleum building, with vertical fins, often criticized for ineffectiveness. Left: Mobile's Waterman Steamship office has fins on north; both fins and louvers on east and south.



While the idea of shades is old, what is new today is what the photographs and drawings on these pages show: a profusion of devices far more elaborate and on much larger buildings than ever used before. The Waterman, Flintridge and Pan American Insurance designs are definitely a new trend.

The use of shades is growing so fast that observers are finding it difficult to decide when shades are an engineering device to reduce sun heat and when they are merely the newest decorative fad. Some critics contend that *brise soleil* are the newest pawn in an architectural game that goes back 50 years: deciding which should be emphasized in multi-story buildings, the vertical or the horizontal. Louis Sullivan's buildings stressed neither, letting the structure tell its own story. But in the years that followed the trend went back and forth. It continued to shift during the 20's and 30's as one building and then another became the latest word in design. After 1945 the rage for continuous windows put the horizontal school way out ahead. And it is this vogue for windows and air conditioning that has brought sunshade devices to such rapid popularity.

Air conditioning, many building owners have discovered, is wonderful—but shockingly expensive. When an architect learns what air conditioning costs in all its ramifications he begins exploring ways to reduce the surprising amount. At this point he gets really interested in exterior sunshades. For shades, he reasons, can pay for themselves by reducing the size and operating expense of the air conditioning plant and incidentally, provide an attractive and textured facade to his building.

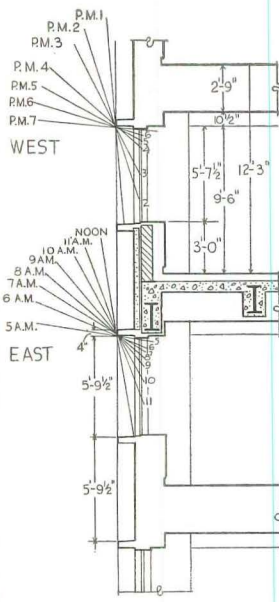
The traveler to the tropics, or to Florida or Arizona in summer, is seldom a skeptic about the value of shade devices. He knows they work. But because they perform well in hot climates, can they be justified for all parts of the U. S.? For air conditioned buildings? For all four sides of a building? Are vertical fins as efficient as horizontals? Are movable horizontals better than fixed? Could heat absorbing glass or double glazing accomplish more for the money? These and other questions are pertinent. How some architects have answered them can be found from a study of the buildings described below.

(It must be emphasized strongly that summer shade making for office buildings, especially if air conditioned, is quite different from shading houses. People leave their offices at four or five o'clock, standard time. Thus when shades on an office building are figuratively through their work for the day, shades on the west wall of a house still have their most important work to do.)

Among the first postwar designs to get wide attention for use of shades were Platt Roberts' Waterman Steamship building in Mobile and the two Wurdeman & Becket buildings in Los Angeles, all pictured here. While Wurdeman & Becket used fins on one building and horizontal "eyebrows" on another, Roberts really let himself go, combining fixed vertical fins with movable horizontal louvers.

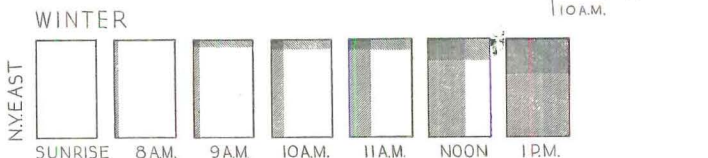
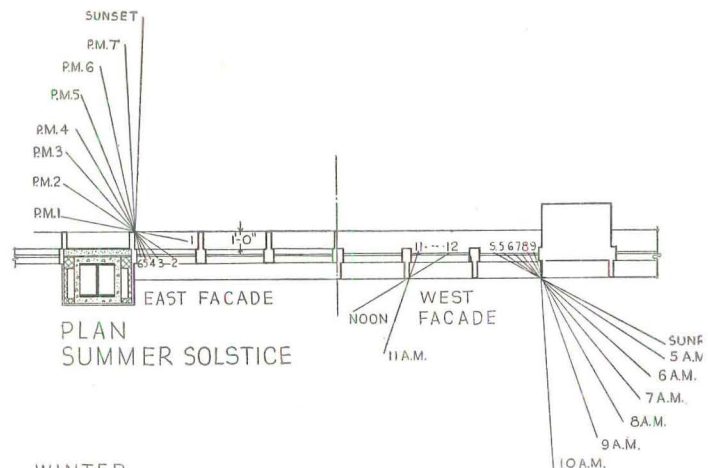
Roberts planned air conditioning for his building but wanted to cut the sun load as much as possible. The west wall was at the back of the building so he made it windowless. On his north wall he installed fixed vertical stone fins between windows and thin aluminum fins from sill to head in the center of each window. On the other two sides, south and east, he used stone fins in combination with movable horizontal louvers. He also used double glazing.

Cost of the shades was about \$36,000 plus installation. Roberts estimates they saved 30 tons in initial air condition-



WALL SECTION SUMMER

SUN STUDY FOR U.N. SECRETARIAT



Sunshades should not be specified until a sun orientation study is made. The above study was for UN to show effect of horizontal and vertical shades on Secretariat windows. Note that New York "east" is nearly southeast, and "west" is approximately northwest. In

summer fins would give little shading on east wall until noon and a decreasing amount on west wall after 2 p.m. Horizontal overhangs become progressively more effective during morning, less as afternoon goes on. In winter, west windows shaded from fins are a liability.

ing equipment, equal to \$21,000 plus about \$1,200 a year in operating expense.

That the shades give the building a smart, individual appearance is clear. How much they can be credited to design and how much to utility only the architect can say. As to utility, greatest doubt is over the north wall. Roberts justifies his use of fins there because direct sun strikes by 3 p.m. in June. On the east wall, he says, the morning sun is hot enough so that shades reduce heat and glare. He says his shades are most beneficial on the south.

The two Wurdeman & Becket buildings in Los Angeles were analyzed in the May 1949 issue of BUILDING. There has been little criticism of the horizontal shades on the south wall of the Prudential building. The architects report shades saved some 50 tons in the refrigeration plant plus additional operating expense and the space savings the larger size plant would require. Cost of the shades was approximately \$125,000. There is little doubt that they reduce glare and make the offices more comfortable.

Critics have not been so kind to the use of fins on the General Petroleum building. On three sides of the building (NE, SW, NW) aluminum fins project out 3½ ft. and are 129 ft. in height. On the rear side (facing southeast) are short stub fins of concrete. Critics point out that if the architects had been more concerned with sun and less with appearance they would have put full-size fins on the south-

east instead of stubs and put stubs on the northeast which gets little heat-bearing sun. One observer familiar with devices for shading out the California sun has remarked: "Those vertical fins are simply an architectural gimmick as far as sun or sky-brightness controls are concerned." Fins for this building cost some \$178,000 but reduced the cost of air conditioning plant by one-half that amount, according to the architects, plus other savings in construction.

The merits of fins versus horizontal shades is a factor many architects consider. Fins are more daring and striking, but how do they work? The answer depends on how the building is oriented, and on which sides of the building they are used. It happens that the General Petroleum building is oriented in the same way the UN Secretariat is: with the long walls facing southeast and northwest. The UN Planning Board studies showed that fins would be of little value in summer because the hottest part of the day is afternoon and the sun would not begin to be a heat problem to a northwest wall until 4 p.m. (which is 5 p.m. daylight time). In winter fins would be a liability because they block sun. Square foot for square foot in New York, the UN study showed, horizontal shades are about 20 per cent more effective than fins. The UN rejected all exterior shades, used heat absorbing glass. A pictorial study of how fins and overhangs make shade on windows is seen in the accompanying UN sketch.

Flintridge Office Building, Fairfield, Ala.

Putting more than \$100,000 worth of movable, horizontal sunshades on a large office building in Alabama is a good investment under certain conditions because the shades will more than pay for themselves the first year, according to architects Holabird & Root & Burgee.

To house the central office staff of the Tennessee Coal, Iron & Railroad Co. about 315,000 sq. ft. of space was needed. The client wanted a large window area and air conditioning. The cheapest way to provide air conditioning was to use a steady supply of available water of 52° to 60° that could be piped directly to fan chambers to cool the circulated air. (Water was not wasted as it was later used in the adjoining steel plant). But water alone was not enough for the large building unless refrigeration compressors were also used. However, sun studies showed that pairs of movable louvers would cut down sun heat enough so that compressors would not be needed except on the hottest days.

Cost of the shades is approximately \$107,000. Holabird & Root & Burgee estimate that the shades will reduce initial air conditioning equipment by about \$98,000; save another \$16,000 because the building is smaller; and some \$1,000 a year in operation costs. The accompanying illustrations show how the stainless steel louvers are designed.

Horizontal overhang of aluminum tubing

A row of seven 4½ in. diameter aluminum tubes that project 3 ft. out over the windows are used by the architectural firm of Frederick G. Frost on the south side of the 143 x 40 ft. Sun Oil laboratory at Newtown Square, Pa. Aluminum tubes were specified because they were cheap, durable and could be installed after the structure was finished.

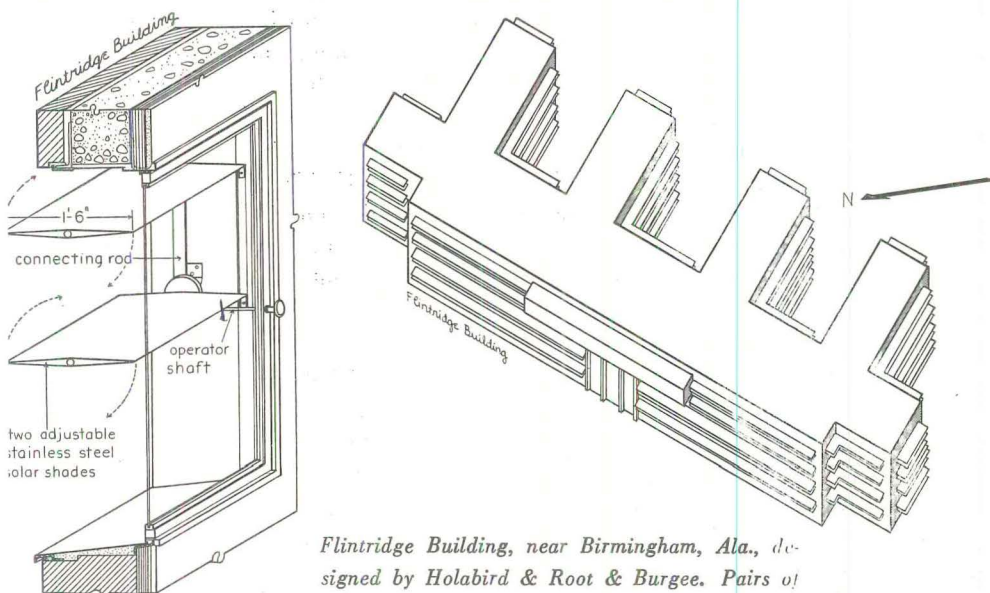
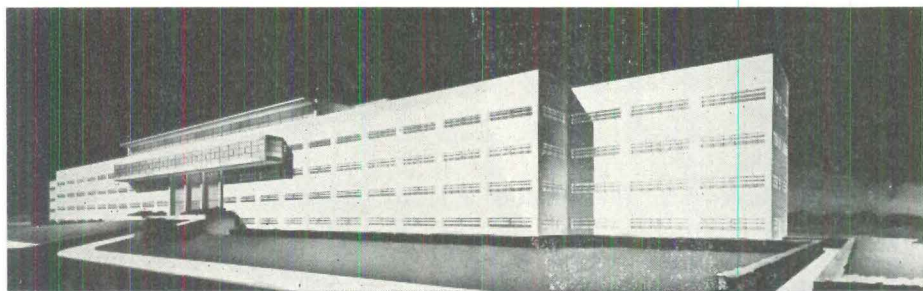
A sun-load study made for Frost by engineer Edward E. Ashley showed that the overhang would greatly reduce the solar load on a cooling system, if ever installed and would improve comfort conditions without cooling. Shades keep most of the summer sun off the windows but let in winter sun. The accompanying sketch shows the amount of shade at different times of year. Cost of 192 ft. of shading installed was approximately \$3,000. The same firm has also designed a much larger building (616 ft. long) for Sun Oil on the same site and plans to use concrete overhangs about 3 ft. deep. For the larger building, poured concrete is cheaper than aluminum.

Skidmore's Pan American Insurance Building

External sunshades are used in a number of new buildings designed by Skidmore, Owings & Merrill. Concrete, horizontal overhangs above each window of the 17-story Brooklyn Veterans Hospital run the entire length of the 506 ft. side facing the ocean (south-southwest). The shades project 3 ft. 9 in. over the windows. Patients' rooms are on that side and are not air conditioned.

Other Skidmore buildings for which horizontal shades have been planned are the N. Y. University-Bellevue Medical Center and the new offices for the Ford Motor Co. (see page 102).

Undoubtedly their most completely shaded building is the Pan American Insurance office now under construction in New Orleans. The air-conditioned office building is five stories, 222 x 62 ft., with the long side facing a street running NW-SE. A combination of fixed vertical and horizontal shades is on all four sides of this "all glass" building. In each 20 ft. bay are four windows and at the edge of each window is a 3-in.-thick fin, 30 in. deep, that is set out from the window so that the outside edge is flush with the horizontal overhang. Drawing shows detail of one bay. Cost figures are not available but the architects are convinced the shades are a good investment.



Flintridge Building, near Birmingham, Ala., designed by Holabird & Root & Burgee. Pairs of movable stainless steel horizontal louvers are on all except north-east side. Louvers cost \$107,000.

Architects Ellerbe & Co. of St. Paul now have under construction a five-story office building, 312 x 110 ft., for Minnesota Mining & Manufacturing Co. in St. Paul which uses rows of aluminum horizontal shades the entire length of the south, front side. Shades cost \$10,000 and are made from five slats of aluminum, $\frac{1}{8}$ in. thick, set at a 40° angle and project 2 ft. 5 in. from the glass.

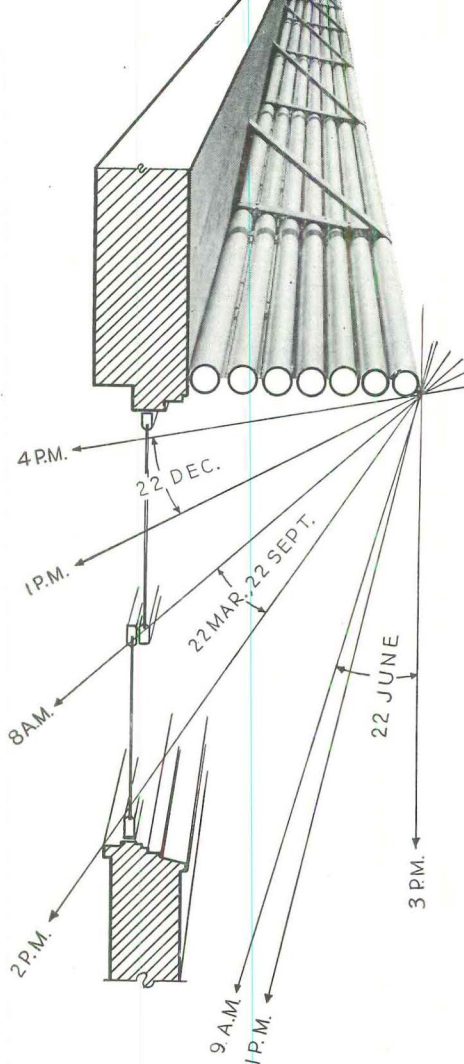
The fact that two ends of the long building are solid brick has more effect on the 700 ton air conditioning plant than do the sunshades. The windowless walls save 60 tons of initial air conditioning capacity, the architects report, while the shades save 40. The two factors together save an approximate \$2,000 in air conditioning operating costs per year, but of this sum only \$500 is credited to the shades.

In Wilmington, N. C., Architect Charles Hartmann has designed a five-story office building, 133 x 76 ft. for the Seacoast Realty & Development Co. Slotted aluminum overhangs project 4 ft. on all four walls. Two thousand feet of shades cost \$15,000 installed. Air conditioning Engineer E. R. Ambrose of New York estimates the shades saved \$6,000 in refrigeration and \$300 per year in operation.

The 21-story Melrose building, soon to be started in Houston, has been designed by Hermon Lloyd and W. B. Morgan to have 4 ft. concrete horizontal sunshades above the continuous rows of windows. These attractive *brise soleil* will shade windows from 10 to 3 in mid-summer.

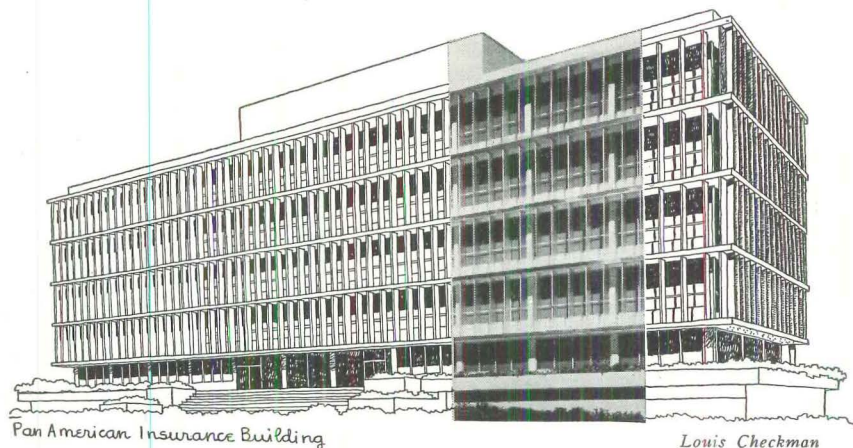
Movable vertical fins have been designed by Raymond Harry Ervin for his United American Life building in Denver. They are on the front side of the top three floors of the four-story building, facing southeast. There are 22 fins for each floor, 8 ft. high and 2 ft. deep, operated in three banks. The 66 fins installed cost \$9,750. The building is not air conditioned but is ventilated mechanically.

(Continued on page 154)



Inexpensive overhangs of aluminum tubes are installed on south side of Sun Oil Physical Lab., Newtown Square, Pa. Sun studies made for Frederick Frost Associates show tubing provides shade in summer, yet lets in sun in winter. Only individual studies for each area and each building orientation can reveal how window height, width of overhang and latitude effect value and type of shading. With fixed window overhangs, architect must consider how much light he blocks out on cloudy days.

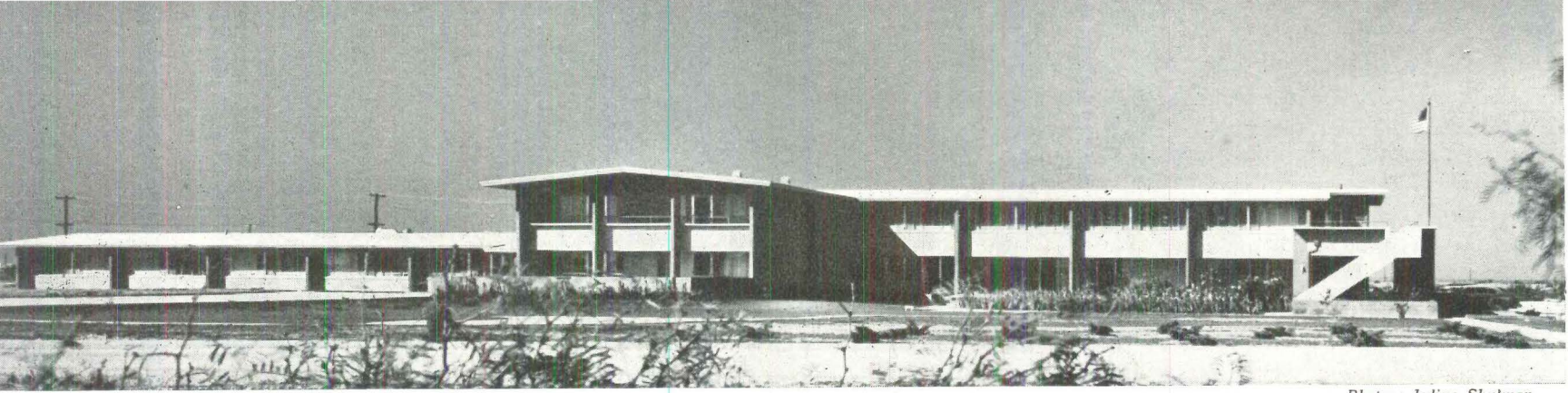
F. S. Lincoln



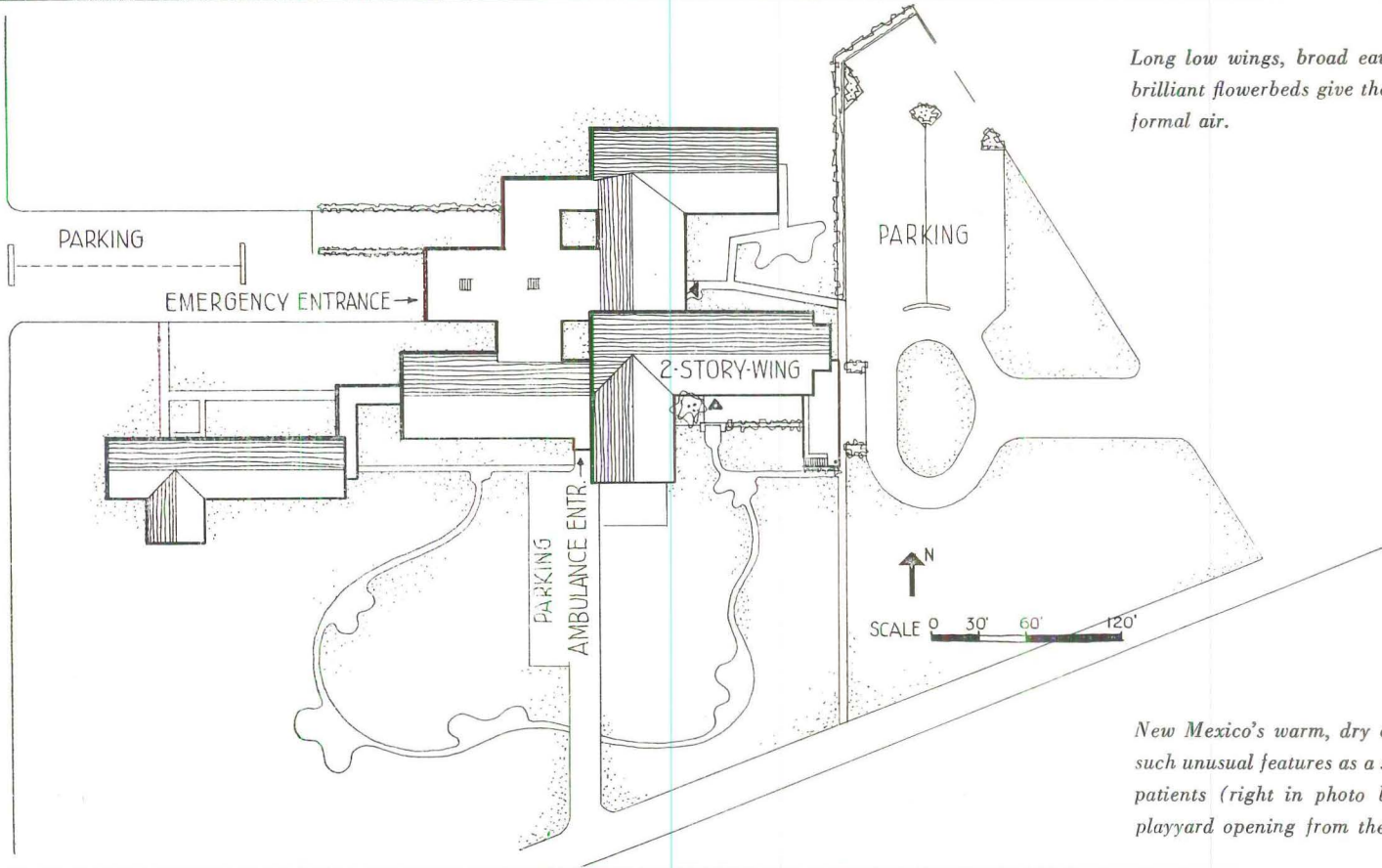
Above: Skidmore, Owings & Merrill's design for the Pan American Insurance building, New Orleans. It is one of the most completely shaded offices in the U. S. as all four sides have both vertical fins and horizontal overhangs. Fins are set out from window, with a 30 in. walkway that permits window washing. Building is now under construction.

Left: Architects Stevens & Wilkinson's shade for the Georgia Baptist Hospital. Schools and hospitals have a variety of shading devices adaptable to office building use. An architect often chooses between fixed shades and movable louvers as on the Flintridge Building.

Latitude has considerable effect on width of south overhangs. In mid summer a south facing window at 30° latitude transmits less than half the solar energy of the same size window at 40° latitude. Overhang width also depends on the height of windows.



Photos: Julius Shulman



Long low wings, broad eaves, large windows and brilliant flowerbeds give the hospital a friendly, informal air.

New Mexico's warm, dry climate makes practical such unusual features as a sun deck for ambulatory patients (right in photo below) and a sheltered playyard opening from the children's wing (left).



COMMUNITY HOSPITAL

combines gardens, inexpensive materials, and lots of space to produce a country-club atmosphere

LOCATION: Hobbs, New Mexico

WILLIAM L. PEREIRA, Architect; TRUMAN MATHEWS, Associate

DAVIS & FOSTER, Engineers

BMFP CONSTRUCTION CO., Builders

Most hospital men say you can't build a real community hospital on the average hospital budget. At Hobbs, New Mexico, Architects Pereira & Matthews not only did it—but made the building as hospitable to the whole community as a full-fledged country club. Important in helping it fulfill the role are such club-like features as:

- ▶ Full air-conditioning for this dry climate whose temperatures vary from below zero to 110°;
- ▶ Elegant and inviting public areas—lobby, lounge, exhibit gallery and library-meeting room;
- ▶ A completely-equipped public health unit with its own entrance and close access to the diagnostic core of the hospital;
- ▶ A broad sun-deck that allows early ambulation—outdoors;
- ▶ Home-like nursing rooms, all with a view of garden courts;
- ▶ A separate children's ward opening on a protected play yard;
- ▶ Service and work areas opening on bright central courts—the hospital staff is part of the community, too!

Marshall Shaffer, architectural head of the U. S. Public Health Service paid tribute to its attractions—"Here's a place that *you'd* really *like* to go."



The large entrance lobby stretches through from north to south of the administration wing with full-length glass doors and windows at both ends. Ceilings of sprayed asbestos control sound in these public areas.



A long information desk and central column divide the space informally, allowing privacy for the patients' waiting room.

Saving for spending

Architects Pereira & Matthews have worked these wonders by adopting Frank Lloyd Wright's apparent paradox: Save on the low levels and spend on the high. The newly-grown communities of Lea County (a total population of 42,000 persons, due mainly to expanding oil and cattle industries) fully backed the designers in choosing unpretentious elegance rather than the usual institutional formality.

The building shell is of the cheapest industrial materials—uncovered concrete block, reinforced by steel beams and bar joists. The exterior coat of cement paint needed for waterproofing lends a rich amber-colored background to the brilliant flowers which surround the building almost all year round. Most floor areas are of acid-treated concrete polished to an easily-maintained smoothness. Plastic wall-paper is used throughout—even in the operating rooms.

The savings on these items, together with those realized through the integration of diagnostic and supply cores, allowed this 80-bed hospital to be built, completely equipped and landscaped for \$1,021,564 (\$12,768 per bed). This total, which is well within the usual U.S.P.H. average, provides 700 sq. ft. of total floor space per bed—a good 50 sq. ft. per bed above average.

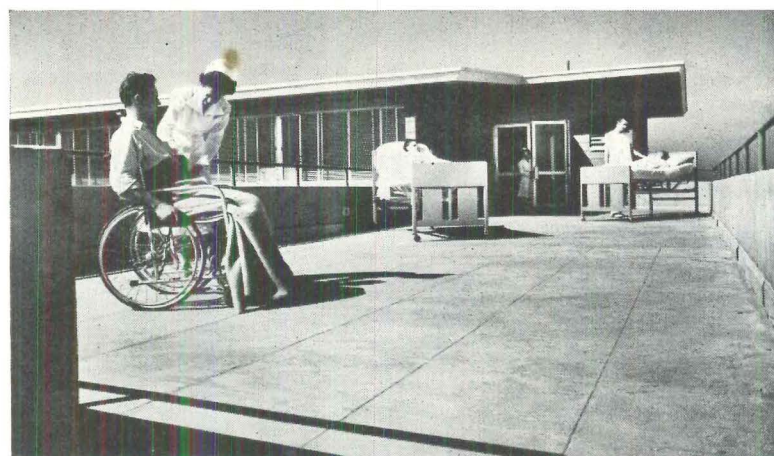
Public areas

The public areas of Hobbs Hospital are worth noting not only for spaciousness but for their careful planning. The main entrance opens from a large parking space set behind the administration wing. The lobby stretches from south to north with full-length glass doors and windows at both ends. The curving information desk and a central column informally divide this space into a wide public lounge and a smaller, protected sitting room for patients awaiting admission to the hospital proper. Wood paneling and a profusion of plants indoors as well as out give this central area a lavish yet friendly atmosphere.

Business offices are set in the east wing next to the entrance. Across from them are located the long exhibit gallery and a large lounge-library for the staff—the generous dimensions are justified by a second use for committee meetings.

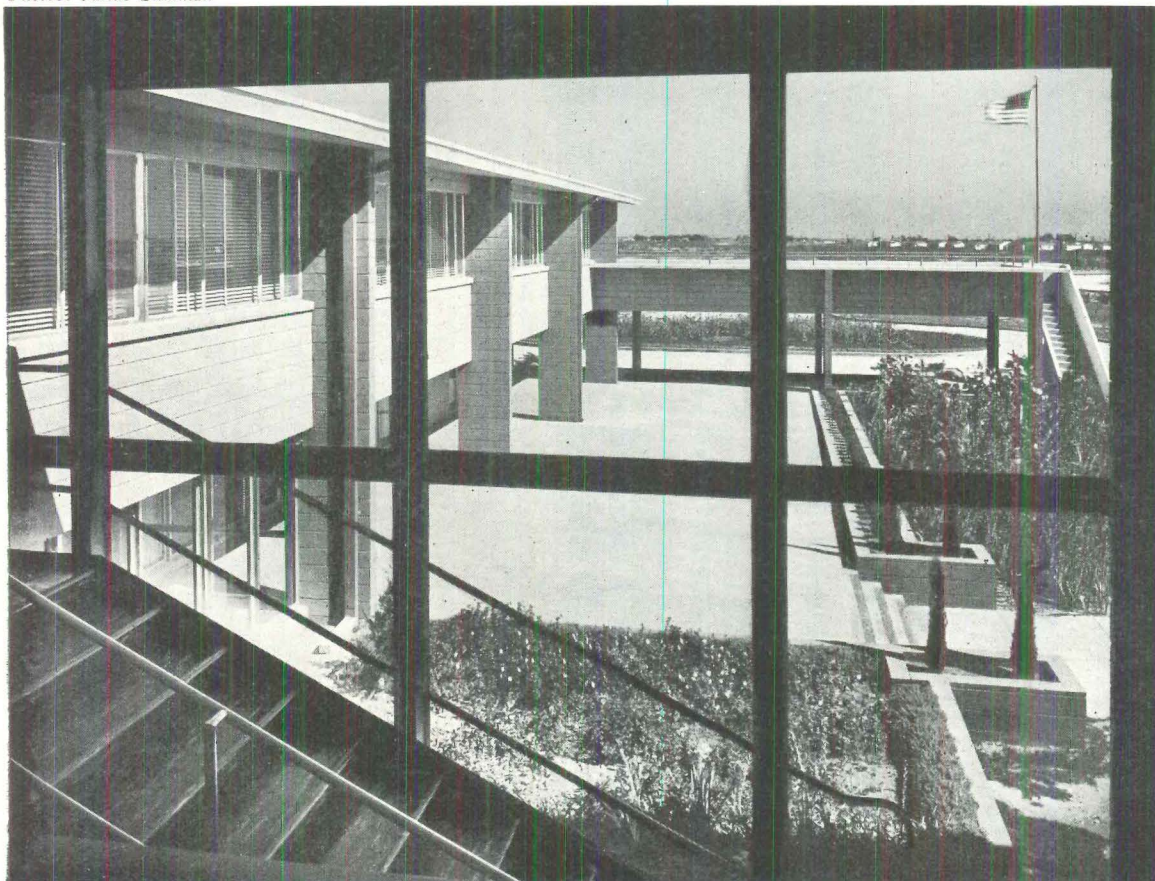


Staff lounge (above) is large enough to take care of committee meetings and conferences.



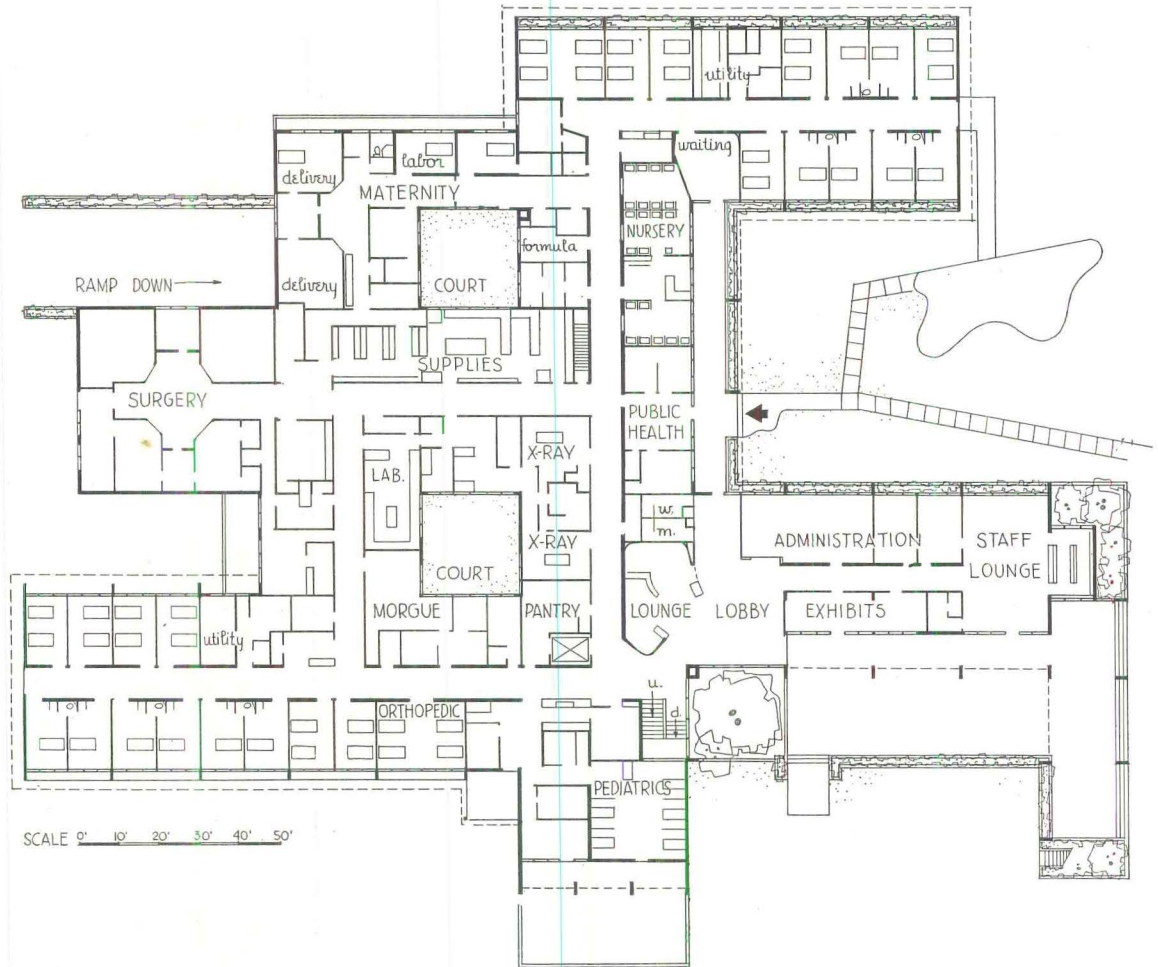
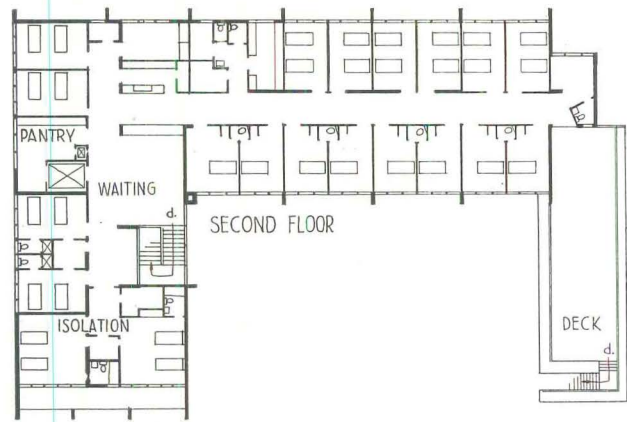
↑ *Sun deck for convalescents (above) opens off the second floor nursing corridor. Visitors may reach it via the outside staircase.*

Photos: Julius Shulman

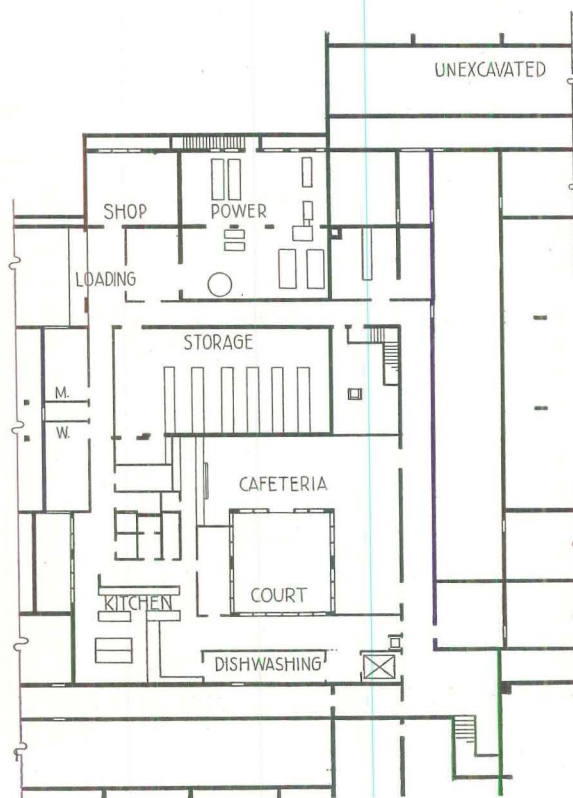
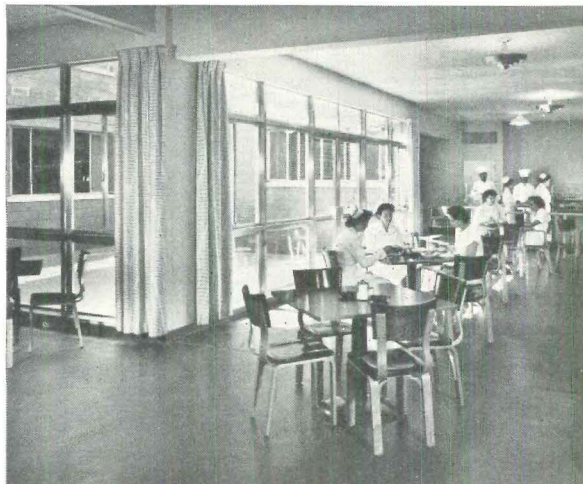


← *A two-story glass wall (left) lights the central staircase and emphasizes the dramatic indoor-outdoor correlation of the plan.*

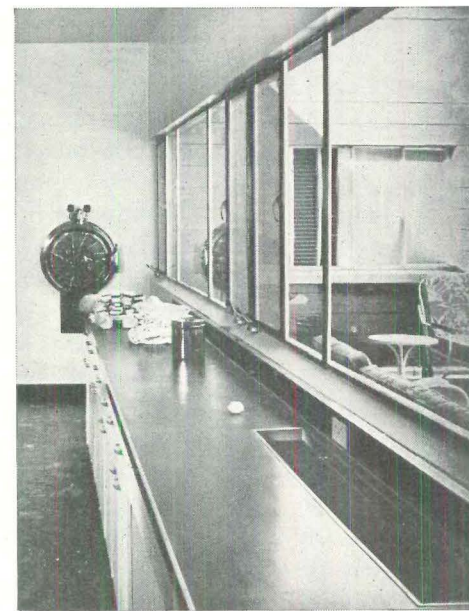
Floorplans for the three level of Hobbs Hospital (shown at right) reveal the large proportion of storage and public areas included in its 55,000 sq. ft. of floor-space. Study of the spread-out main level shows, however, the liabilities inherent in its use of interior courts. Note the distance between surgery and the wing of surgical beds, for example—a route that includes two corners and a long hall.

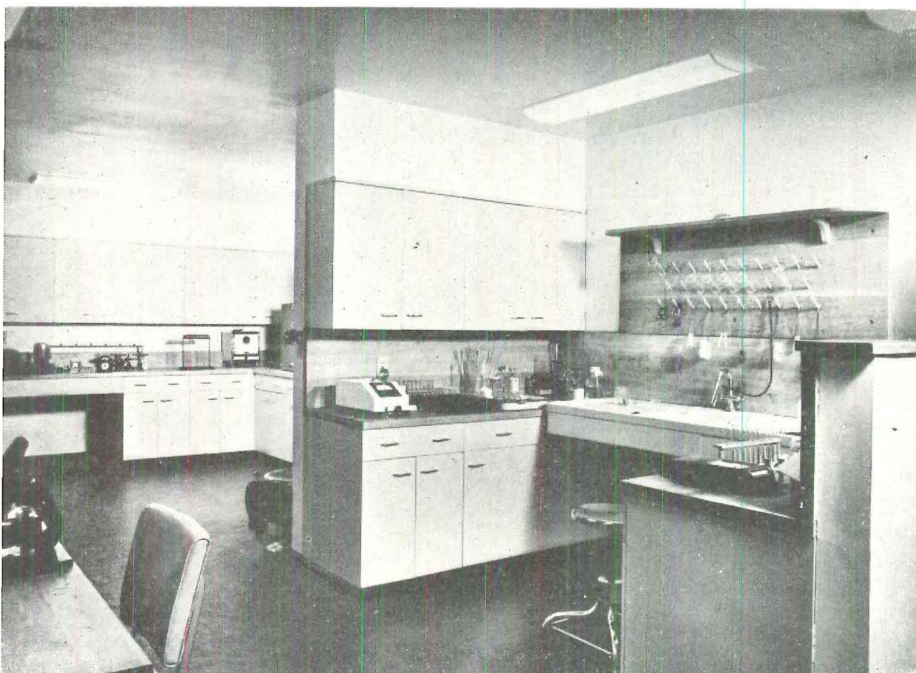


Staff cafeteria (below) is located in the basement (plan right) but brightened by an inner court.



Work space in the central supply unit (below) is lit by a second court, which also serves as an outdoor lounge.





Generously-equipped laboratory (above) underscores Architect Mathews claim to have provided "the best-equipped hospital in the area."

The public health office faces east overlooking the general parking area. Its compact rooms include separate waiting and examination space as well as the director's office. The diagnostic and therapy core is just across the hall in case more specialized examination or treatment is found necessary.

Service areas

The service and supply units of Hobbs Hospital have been corralled into two central rectangles, each of which is brightened by windows opening on an interior court. The supply section is especially successful in its design—providing a direct and careful flow-line through 'soil' room, sterilization, packing and storage space to dispensing counters adjacent to both maternity and surgery wings.

The basement level houses a staff cafeteria, general and diet kitchens, and unusually large and convenient storage areas. Here again the inner court allows light into the pleasant L-shaped cafeteria.

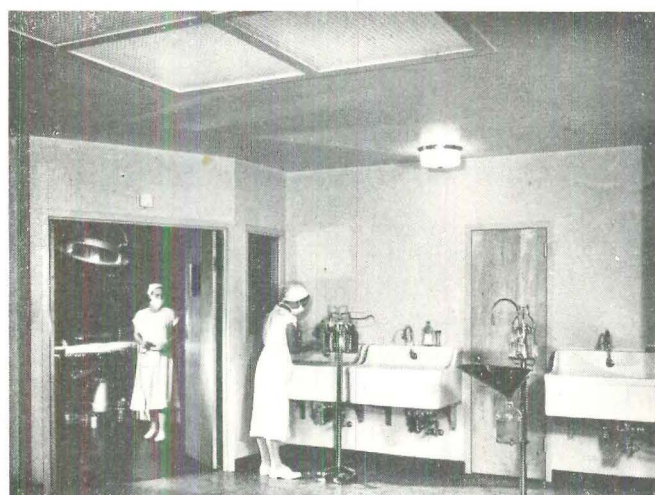
Nursing areas

The large percentage of single and double nursing rooms (22 single rooms; 23 double rooms; only two 4-bed wards) is a practical as well as pleasant arrangement. (Small hospitals, with their wide range of patient ages and illnesses rarely have enough similar cases to fill larger wards.) Surgical and maternity wings are located on the main floor. Medical cases are housed on the second floor, a wing whose thoughtful layout permits an isolation section of two, four or six beds. This group is adaptable for psychiatric or contagious cases.

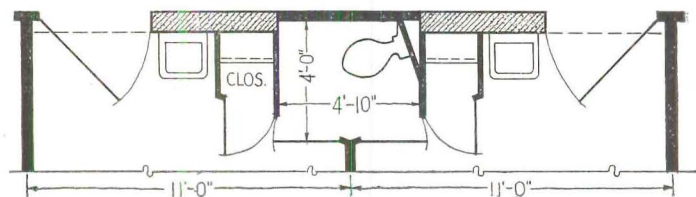
An unusual and successful feature of the medical nursing wing is a broad, long sun deck (16 x 58 ft.) where convalescent patients can be wheeled or can practice their early ambulation out-of-doors. This is one of the few balcony types which U.S.P.H. judges to be really practical, partly because of this warm dry climate. The exterior stairway which leads up to the terrace forms a dramatic part of the design.

An especially lavish provision of the hospital is the separate 6-bed pediatrics ward located just off the main lobby near the central staircase. A nurses' lounge and utility room completely isolate it from the surgical corridor just down the way. Its wide windows and an outer door open on a sheltered children's playyard. Such a provision within the hospital's modest budget is certainly an achievement—but its need for a separate nurse in attendance would prevent its use in less wealthy communities.

CONSTRUCTION OUTLINE: Exterior walls—concrete blocks, Atlas Lime Co. Structural steel—Ramsey Steel Co. and Steel-Tex for floors, Pittsburgh Steel Products Co. **ROOFING**—built-up, Johns-Manville. Steel deck, Detroit Steel Products Co., covered with Rocksnow, The Rocks Co. **SOUND INSULATION**—Acousti-Celotex, The Celotex Corp. or Spraykote, Sprayed Insulation Co. **WINDOWS:** Sash and screens—aluminum, Timms Co. Glass—Libbey-Owens-Ford Glass Co. **STAIRS**—steel, Mosher Steel Co. **ELEVATORS**—Rotary Lift Co. **CABS**—W. S. Tyler Co. **FINNISH FLOORING:** Linoleum—Armstrong Cork Co. Asphalt Tile—Uvalde Rock Asphalt Co. **WALL COVERING:** Fabron—Frederic. Blank Co. **HARDWARE**—P. & F. Corbin **PAINTS**—Elliott Paint & Varnish Co. **ELECTRICAL FIXTURES**—General Lighting Co. X-ray equipment—General Electric Co. **PLUMBING FIXTURES**—Crane Co. **KITCHEN EQUIPMENT**—Dohrman Hotel Supply Co. **HEATING AND AIR CONDITIONING**—Carrier Corp. Boiler—American Radiator-Standard Sanitary Corp. Regulators—Minneapolis-Honeywell Regulator Co.

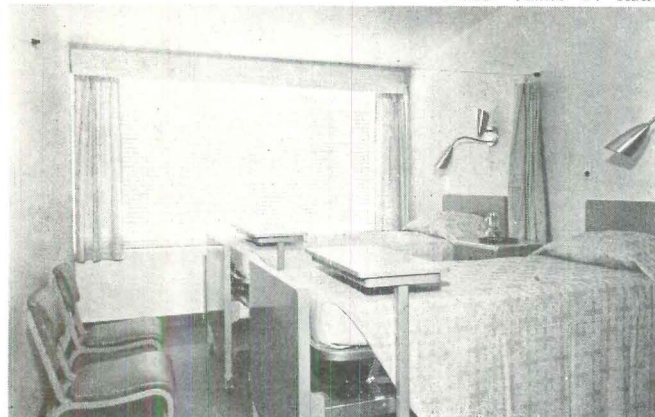


Large scrub-up room is set between pair of operating rooms. The use of a glass ceiling panel to introduce natural light is a Hobbs innovation.



Single rooms are set in pairs (see detail above) with toilet rooms between. Typical double room (below) shows the full-width windows used throughout the nursing wings.

Photo: James T. Rawls



WALKUPS vs. ELEVATOR APARTMENTS

A heated design debate in New Orleans points up the logic of tall buildings for dense residential areas

For several months the architects of sunny New Orleans have been in a dither over a question of housing which really affects the country as a whole. With the emotion boiled out, it is this: as population densities increase, at what point should housing jump from garden-apartment walkups to tall elevator apartments?

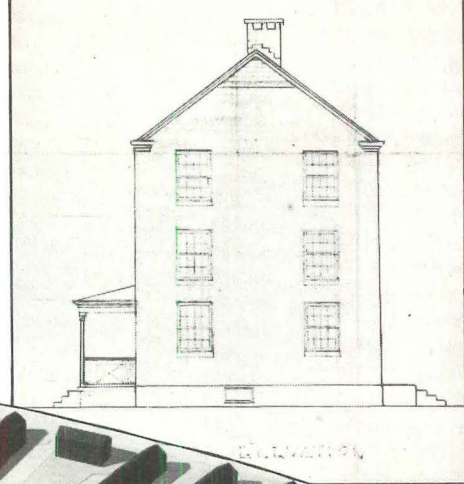
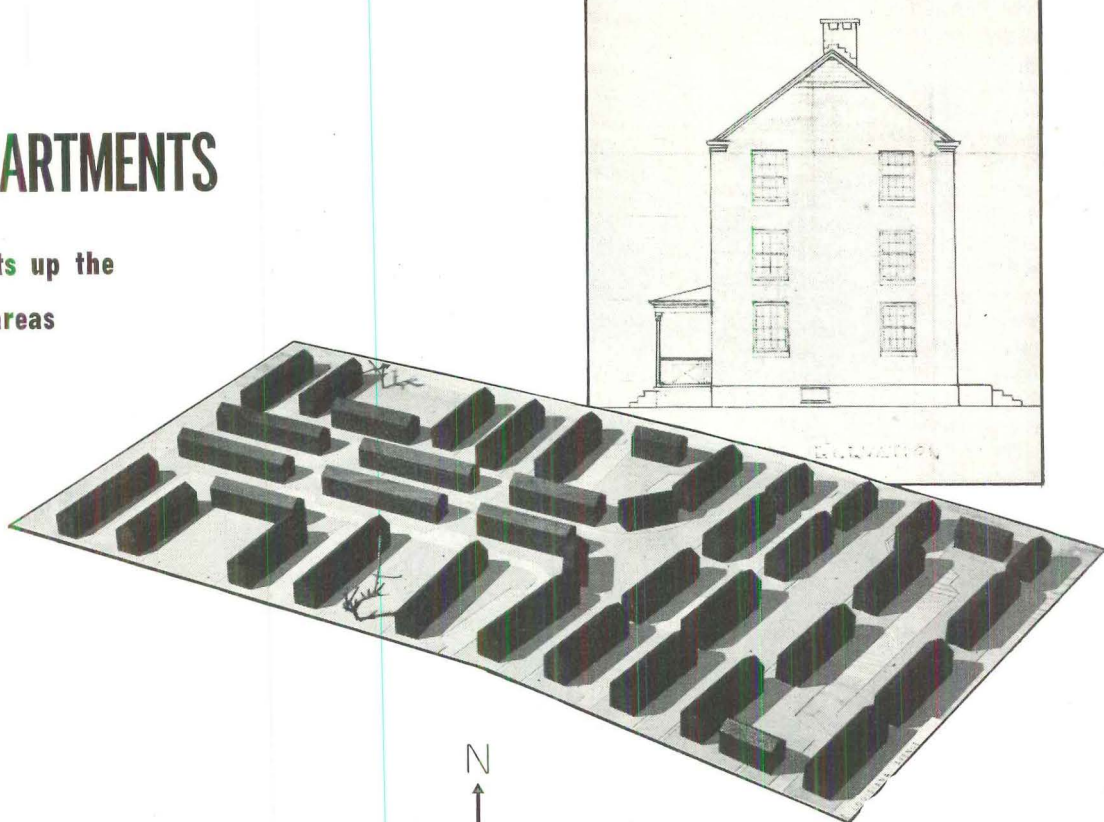
The question arose when two smart ambitious young architects, Curtis & Davis, threw over the prefabricated "suggestions" of the housing authority (which was suggesting 1937 walkups for 1950 densities) and came up with a fresh answer for a 16-acre tract where housing was demanded for 140 people per net acre.

Their answer: four sets of 10-story apartments, each consisting of three towers joined by open-air bridges (see photo of model), with elevators in pairs placed at midpoint of the bridges. Advantages claimed: 1) water, sewer and electric services concentrated at four entry points close to surrounding streets instead of scattered all over the lot; 2) paving areas vastly reduced; 3) great areas of usable ground regained for recreation; 4) an important shortening of foundations—in New Orleans even a 3-story building calls for pile foundations; 5) controlled small-child space close to mothers on the open-air, netted-in bridges; 6) economical skip-floor use of elevators; 7) far superior hot-country ventilation; 8) costs, as of June, estimated at \$800,000 below the budget which the garden-type schemes met only with difficulty.

Calm debate was impossible in the ensuing furor. Two facts stood firm: 1) the young men were serious; 2) only a scheme with force in its ideas could have been so upsetting to so many people.

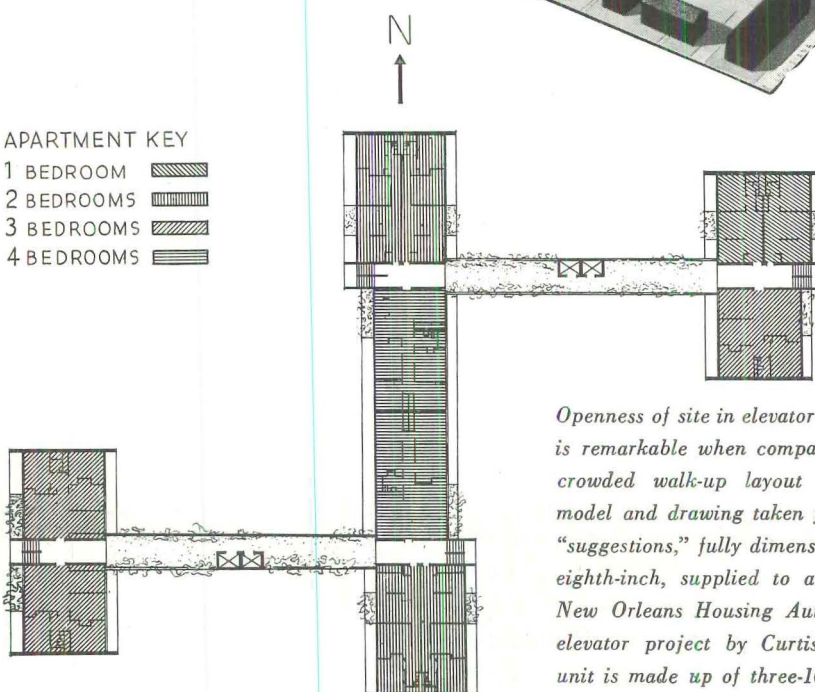
Eventually the housing authority sought a way out by asking the local AIA chapter to make a study and recommendations early in December. This report will have difficulty disengaging itself from many local ego involvements (some 20 eminent architects of the area had participated in conventional solutions).

Two useful suggestions were made: that of calm veteran architect Richard Koch that the community could afford one such experiment as a field test; the other that the subject be studied by research agencies far from the battle, where the real objections sure to exist could be carefully evaluated against the advantages cited. Meanwhile local private builders might do well to study the incontestable superiority of the Curtis & Davis scheme over many private elevator schemes now a-building, in a market which is tightening.

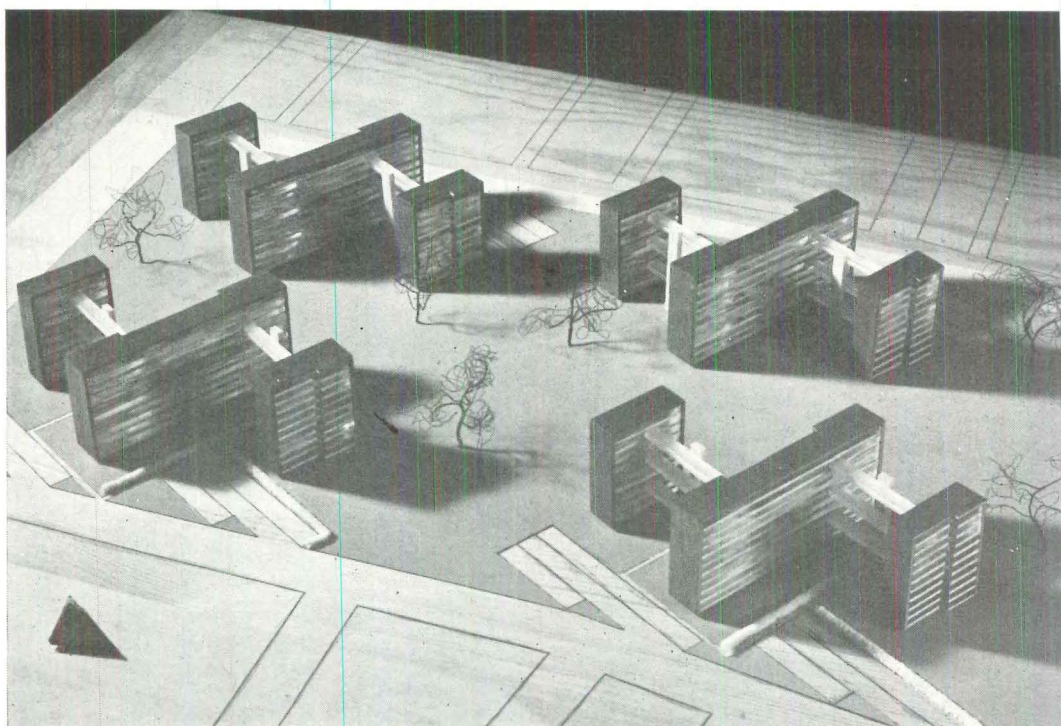


APARTMENT KEY

- 1 BEDROOM
- 2 BEDROOMS
- 3 BEDROOMS
- 4 BEDROOMS



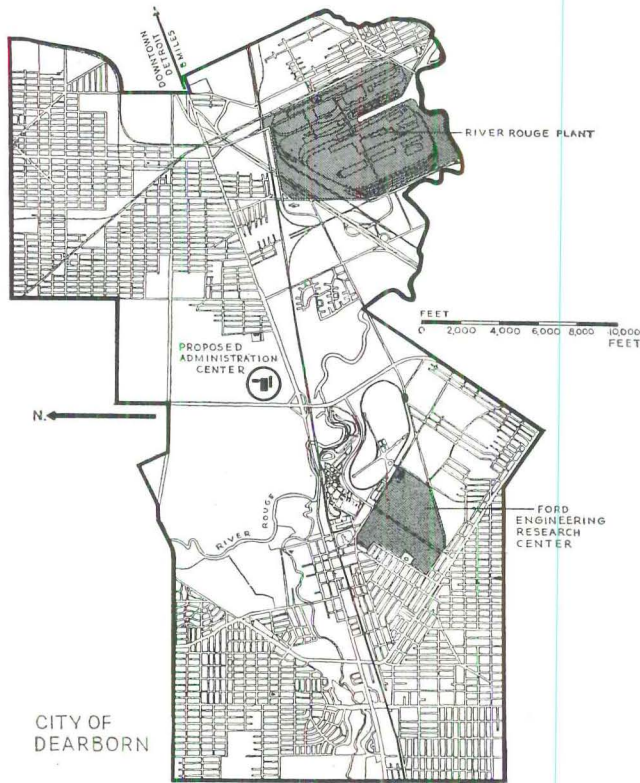
Openness of site in elevator project (below) is remarkable when compared to cramped, crowded walk-up layout above. (Upper model and drawing taken from the canned "suggestions," fully dimensioned to the last eighth-inch, supplied to architects by the New Orleans Housing Authority.) In the elevator project by Curtis & Davis each unit is made up of three-10-story buildings connected by circulation bridges with a pair of elevators at the center.



FORD BUILDS A

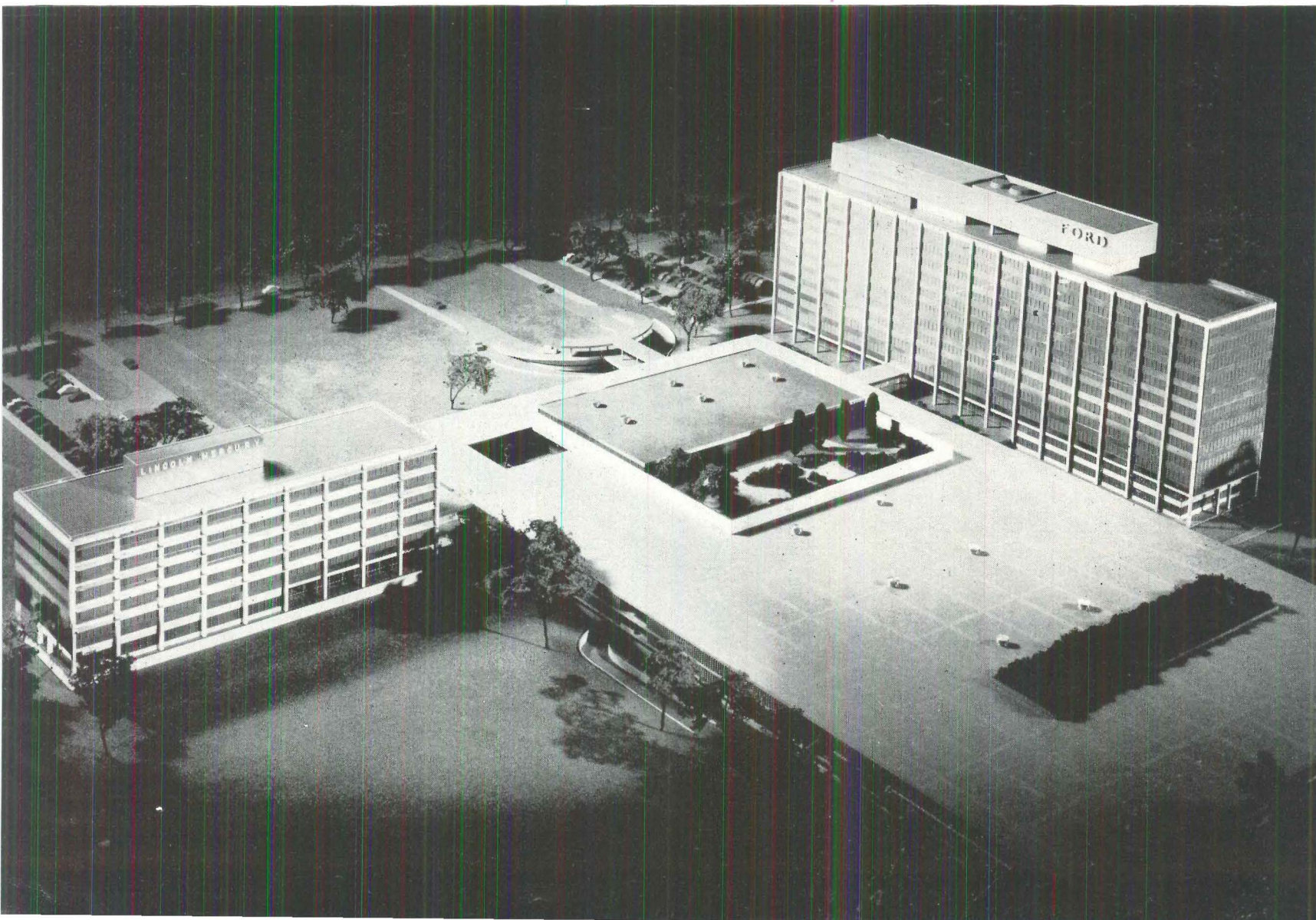
Proposed Administrative Center poses four important questions, gives four considered answers in beautifully composed architectural forms

1. Do tall office buildings make sense in the country? *Answer:* Yes, provided they have ample transportation and parking facilities. Such office centers will do plenty to change the surrounding countryside.
2. How can completely flexible office space be obtained? *Answer:* By keeping the columns out of the building, planning the floor area on a consistent module.
3. How efficient are moving stairs in single-occupancy office towers? *Answer:* Very—when carefully balanced with a few elevators.
4. How fast can 3,000 people be moved in and out of a concentrated building complex? *Answer:* In less than 30 minutes.



Map of Dearborn shows location of proposed Administrative Center in the middle of 4,000 acres of open land, half way between Ford's River Rouge Plant and Engineering Research Center

Ben Schnall



NEW AUTOMOBILE CITY

SKIDMORE, OWINGS & MERRILL, Architects

LOCATION: Dearborn, Mich.

As an example of smooth teamwork coordinated to produce first-rate architecture, the new Ford Administrative Center by Skidmore, Owings & Merrill is just about tops. Into its design went such broad considerations as regional planning, expressway traffic patterns, and the movement of something like a regiment of people into a small, concentrated area in half an hour. Into it, too, went such detailed analyses as the development of a flexible office module, of a combination of elevators and moving stairs, and of packaged lighting and air conditioning in a modern office space.

The result will be not merely an efficient piece of clerical machinery. It will also be an excellent ad for Ford, a beautiful complex of buildings, a distinguished piece of modern architecture. Moreover, it will realize many a planner's dream: the dream of a decentralized work center among lawns and trees, remote from the grimy and congested city, and close to the places where people like to live.

Planning: How to pinpoint a site

Detroit is a centrifugal town. Its big industry—automobiles—has begun to move away to the north and west. Its population growth is confined largely to the suburban areas. To every

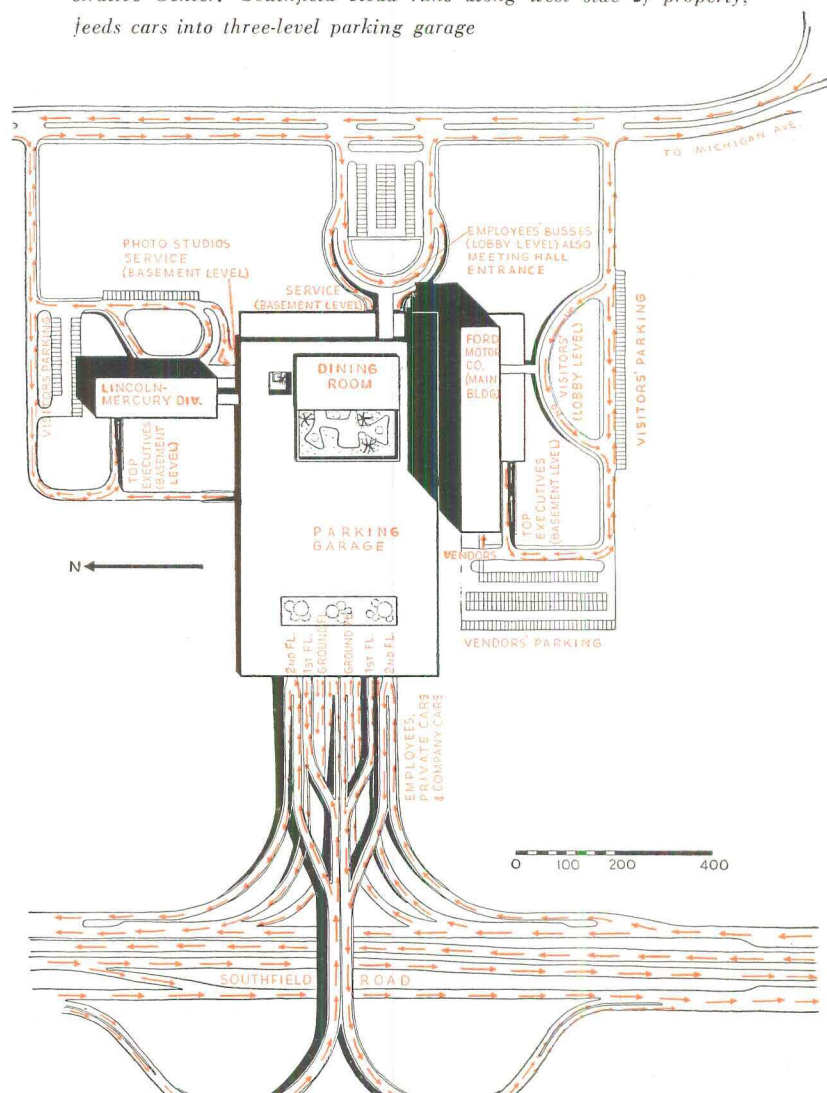
3.8 Detroiters there is one automobile that can take them wherever they may want to work (national average: 4.6 to 1).

The problem of site selection for the Ford Center was therefore not one of staying close to a big labor market or close to an efficient metropolitan nerve center. The search quickly narrowed down to a suburban area—and, specifically, to the City of Dearborn, where Ford's Engineering Research Center is under construction and Ford's River Rouge Plant is in full operation.

Bisecting some 4,000 acres of open land right in the center of Dearborn are two major highways: Michigan Avenue which, together with the Detroit Industrial Expressway, is the principal link with the big city to the east; and Southfield Road, running north-south, which extends right into Detroit's north-west suburbs. These two highways cross in the very heart of Dearborn, about half way between the new Engineering Research Center and the River Rouge Plant. In this strategic location, the architects proposed to build the new Administrative Center.

Apart from the convenience of the site in relation to other Ford developments, there was another advantage: located on a highway intersection, the building would be seen by a lot of passing motorists. To help them see it, Ford asked to have one of the office blocks (the 11-story Main building) face Michigan Avenue, the other (6-story Lincoln-Mercury) face Southfield.

Site plan shows intricate traffic pattern in approaches to the Administrative Center. Southfield Road runs along west side of property, feeds cars into three-level parking garage



At the crossroads, 3,000 people

When 3,000 people in 1,500 cars and dozens of buses converge simultaneously upon an area about 20 acres in size, all hell may break loose unless someone has given the matter some serious thought. Ford had found that staggered hours made for highly inefficient operation. The architects were therefore faced with the problem of getting practically all of 3,000 persons to their desks at about the same time—and with the least amount of trouble.

First consideration was one of splitting up the approaching torrent into small streams, letting them enter the building complex at different points. An elaborate, spaghetti-like system of ramps, over- and underpasses (see site plan) will channel the bulk of 1,500 cars approaching from Southfield expressway into three separate parking levels, each 400 x 570 ft. in size. This will take care of some 2,000 employees (and provide covered parking for their cars at no cost to themselves). The company's top executives have an entrance from Michigan Avenue that leads into a separate, small garage under the main building; Lincoln-Mercury executives have a similar approach to their building. Finally, most of the remaining employees will arrive in buses which, in turn, will approach the building complex from the east.

With cars safely out of everybody's way in the huge three-story garage, and with buses well out of the way at the other end of the building, the 3,000 employees of the Administrative Center again converge in a single concourse, 400 ft. long, 30 ft. wide, linking the two office towers that adjoin the flat slab of the parking garage. In the concourse, they will separate once more: About one-quarter will head north toward the Lincoln-Mercury building; while the remaining three-quarters head south toward the main block.

Up to this point the timing of the flow toward and into the Center was relatively simple. Anticipating that the Southfield



Louis Checkman

highway will be considerably widened over some distance under present Wayne County plans, and granting that the ramps to the three garage levels will take the rush-hour load, there was no reason to believe that serious bottlenecks could develop. However, while traffic so far had been mainly horizontal, the problem now was to get the Center's employees up-stairs into their office towers. After much study, the architects decided upon a combination of moving stairs and elevators.

Moving stairs versus elevators: One, the other, or both?

Together with consulting engineers Jaros, Baum & Bolles, the architects prepared a detailed analysis of the pros and cons of elevators and moving stairs, and then proposed a combination of both to solve the Ford problem. Here is how their analysis went for the main building (Lincoln-Mercury, which has six floors, differs only in that moving stairs will go all the way up):

Elevators only

Supposing the whole main building were to be serviced by elevators only, then a bank of nine elevators operating at 500 ft. per min. with 3,500 or 4,000 lb. capacity would be required. They would:

- Cost \$642,000 initially;
- Absorb \$2,250,000 in total operating costs (at present rates) in 20 years (including amortization, operating crew, maintenance, power, interest);
- Empty the building in 24 minutes.

Elevators and moving stairs combined

The following alternative was suggested: a bank of four elevators operating at 700 ft. per min. serving as expresses from the lobby level to the 8th to 11th floors during rush hours, but as locals for inter-floor traffic at other times; in addition, the architects proposed installation of 32 in. moving stairs in a scissors pattern (to avoid long walks on each floor), running from the lobby level up to the 7th floor at 125 ft. per min. Such an installation would:

- Cost \$700,000 initially;
- Absorb \$1,800,000 in total operating costs in 20 years;
- Empty the building in 22 minutes.

In both proposals a service elevator and an executive car would be added as separate items.

In discussing the various considerations that lead them to their proposal, the architects pointed out that—apart from much lower maintenance cost over a 20 year period—moving stairs had certain distinct advantages in single-occupancy office buildings. For example, the floor area required at each level in an all-elevator installation for the main building would be about 1,500 sq. ft.; such an installation would further require elaborate penthouses. The proposed elevator-moving stair installation requires only 1,100 sq. ft. at each floor, drastically reduces needed penthouse space. Speed of

View of Center from Michigan Ave. to the south. (Opposite:) Typical floor plans of Ford towers show modular grid throughout office spaces. Picture at bottom of page shows early scheme for entering parking garage; site plan on previous page shows more complicated later version

traffic is similarly impressive: At a 125 ft. per min., travel time from the 7th floor down would be a little more than 2 minutes, which might easily beat the elevator system during rush hours; and if the stairs were speeded up to 160 ft. per min. (the perfectly safe rate of moving stairs in London subway stations), this could be further reduced.

In addition, there are some general advantages: While elevators must be designed for peak loads (and tend to operate at an uneconomical rate in between), moving stairs continue at a steady speed throughout the day; moreover, during morning or evening rush hours, the three or four bottom runs of the moving stairs may all go up or all go down, to prevent congestion on lower floors.

Recent surveys have shown that initial prejudices against moving stairs disappear almost at once when people have got used to them. In about a dozen single-occupancy office buildings throughout the country, moving stairs are either in use or scheduled for installation. In this respect also, the Ford job is therefore an expression of the most advanced thinking on tall office buildings.

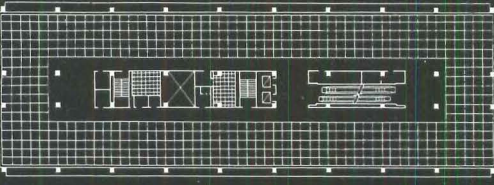
Whether or not a moving stair installation would make sense in a multi-occupancy office tower remains to be seen—at least so long as some building codes restrict speeds to a ridiculously slow 90 ft. per min.

The modular office: Floor space without columns

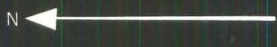
With the solution of traffic flow from the broad regional highway network down to the actual office desk, the job of the architects' planning team was, in a sense, completed. Meanwhile, starting from the opposite end, another group of designers had solved the smallest unit in the whole Center: The floor plan module that would make flexible office space possible.

Convinced that nobody had so far succeeded in building a really open, fireproofed office floor, they asked themselves just exactly what it was that made for thoroughly flexible planning. The answer: Total absence of all obstructions, completely smooth ceilings, walls and floors, no interior columns. These simple rules they decided to follow.

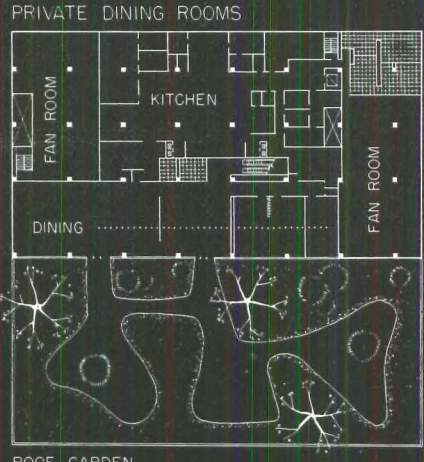
To keep the columns out of everybody's way, they let them project beyond the line of their curtain wall on the outside, kept them inside the service core at the center of each floor (see plans). As a result, all interior walls are smooth, ready to receive modular office partitions wherever necessary. To keep ceiling conditions similarly clean, the architects decided upon a simple ceiling section: Above the main corridor surrounding the service core, the ceiling will be dropped to take air conditioning ducts. Above the actual office space, the ceiling may be luminous, a pattern of suspended, translucent plastic sheets held in metal strips and illuminated from above. The ceiling height there will be greater than that of the corridor, so that air conditioning grilles on the sides of the corridor ceiling will feed directly into the office space.



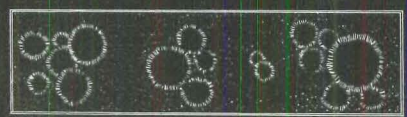
LINCOLN - MERCURY DIVISION
TYPICAL FLOOR



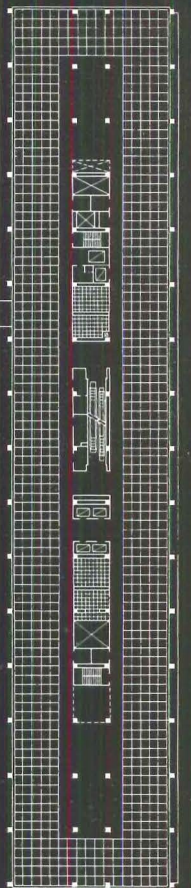
COURT



ROOF GARDEN

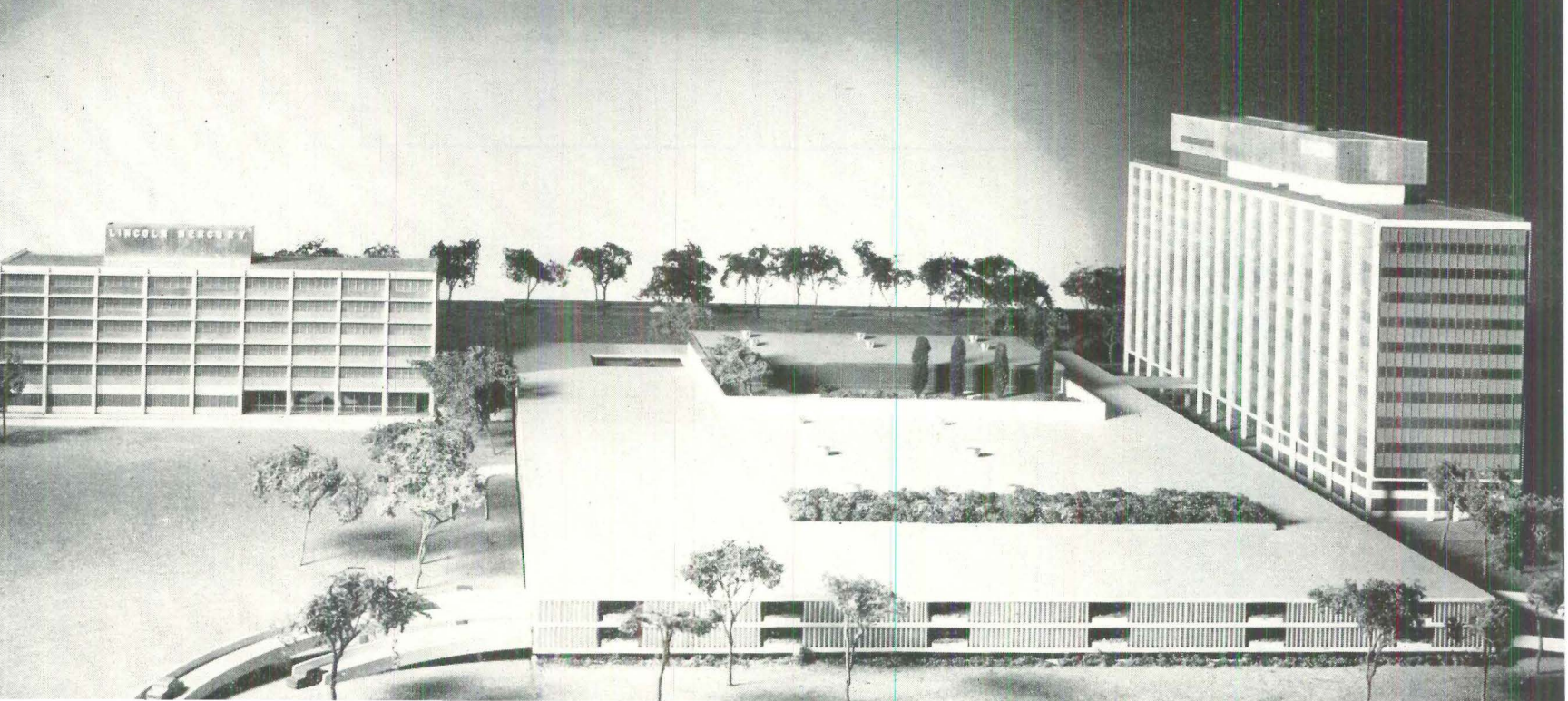


PLANTING AREA

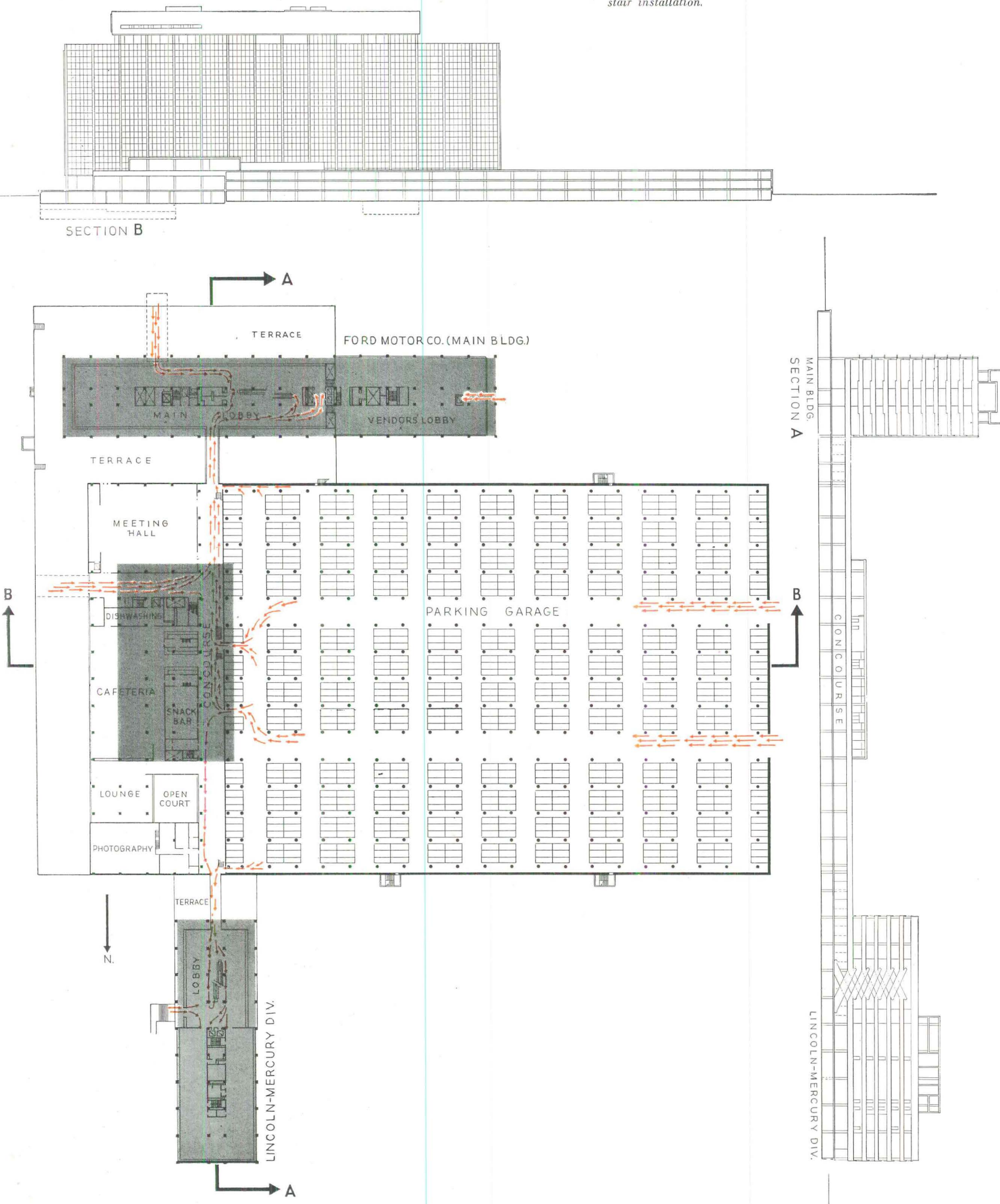


FORD MOTOR CO.
(MAIN BLDG.)
TYPICAL FLOOR

GARAGE ROOF



Plans at lobby level show traffic flow inside the building complex. Sections show three-level parking garage, scissors pattern of moving stair installation.



Meanwhile each structural bay was divided into six windows (one module wide each), and each equipped with a high-velocity air conditioning unit that will shoot air into the office space from the window direction. All exhaust grilles will be located at the sides of the corridor ceiling.

The entire office space had now been cleared of obstructions. There only remained the problem of devising a suitable module. The best dimension the designers could find was 4 ft. 8 in. square. This gave them a 9 ft. 4 in. minimum office (less partition thickness), a 14 ft. manager's office, an 18 ft. 8 in. director's office, and an even 28 ft. structural bay. In depth, the office floors were designed, generally speaking, to take an outside tract of offices three modules deep, with a secretarial buffer-strip (two modules deep) between offices and corridor. Since the movable office partitions end at the corridor line (where the ceiling drop occurs) the width of the corridor itself—7 ft.—did not have to conform to the modular pattern.

Although the proposed office floor is about as flexible and well-integrated as any designed in the U. S. to date, it is not entirely without flaws. Some of these will become apparent (and will be eliminated) in the mock-up of typical office space which is now being constructed. Air conditioning, packaged ceiling lighting and flexible partitioning would seem beautifully solved; but the problem of acoustics might yet have to be studied further. Movable office partitions don't do much to absorb sound (unless specially designed for that purpose); air conditioning flow that takes in the entire office floor will also transport noises; and a luminous suspended ceiling (with movable partitions underneath) will permit conversations in adjoining offices to jump over any sound barrier the partition may set up. Unless the constant, overall level of sound in the offices is fairly high or a more efficient sound barrier is created, some minor executives could have little sound privacy. For this reason, the architects will probably recommend plastered block partitions (from structural floor to structural ceiling) around conference rooms and in all the top executives' suites.

Architecture for the automobile age

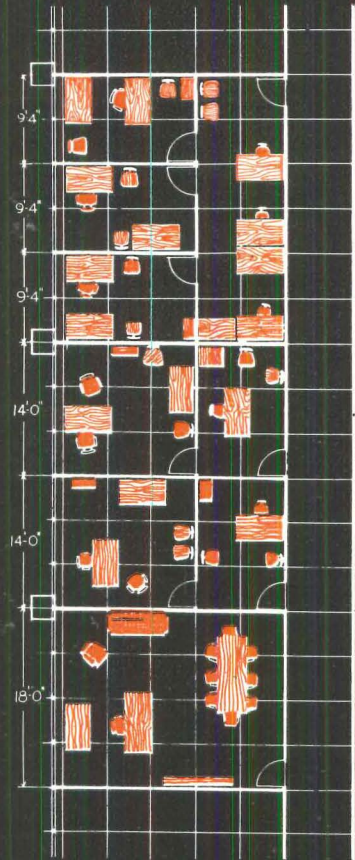
When the new Ford Administrative Center is completed in the center of Dearborn's farmlands, architects and planners will have a perfect demonstration of one of their pet ideas: The tall city in a park. Two well-proportioned rectangular towers—one 175 ft., the other 100 ft. tall—will rise in the Michigan countryside, separated by a vast, flat slab (the garage), a kind of piazza between skyscrapers. The towers will probably be faced with marble, stainless steel and glass (see curtain wall details). They will be seen by thousands of motorists from miles around. They will be the workshop for thousands living in the pleasant countryside nearby.

What will these towers do to the area in which they stand? It is reasonable to suppose that they will soon attract more developments, commercial and community buildings, and rural housing. If so, there will be a real chance for open, generous planning, uninhibited by inflated real estate values, unrestricted by transportation difficulties. For the company that was building this decentralized garden city had done much to make such decentralization possible; and Henry Ford's dream was now being translated into its obvious city-planning consequences: The automobile which he had made available to millions of Americans was being used to free some of these Americans from the rigid confines of our congested cities.



SECTION

Diagrammatic section through typical office floor (above) shows low ceiling over service core and corridors, higher ceiling over office area



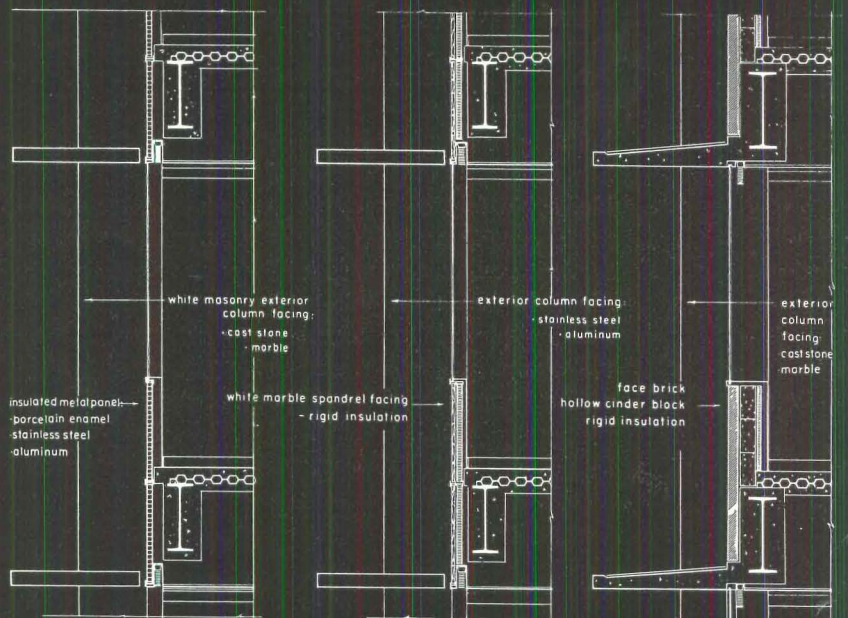
PARTIAL PLAN

Professional offices are three modules deep, two wide, 131 sq. ft. in area. They are separated from the main corridor by secretarial offices two modules deep

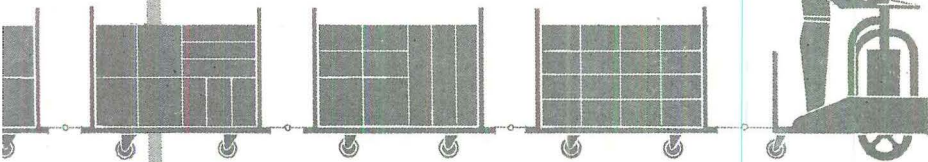
Manager's office is three modules square, has an area of 196 sq. ft. and a secretarial anteroom 131 sq. ft. in area

Director's office is four modules wide, takes up entire five module depth. Secretarial anteroom would adjoin director's office, have its own outside windows

Three different wall section proposals submitted to Ford show (from left to right) an insulated porcelain enamel wall panel (recommended by the architects but rejected by Ford because they thought the enamel might chip); a marble facing with stainless steel finish for columns (accepted); and a more traditional brick facing with block backing. Horizontal sun shades on all south, east and west facades are discussed on pp. 92-94



REVOLUTION IN THE WAREHOUSE:



How can a big department store substantially reduce its cost of doing business? The answer, according to the smart merchants who run the dominant Lazarus department store in Columbus, Ohio, lies in the use of modern methods of materials handling.

Fred and Robert Lazarus now have the figures to show just how much the fork lift truck and the four-wheeled float have cut the cost of expensive storage and delivery of the major appliances and other bulky items which now amount to so large a part of the department store's total sales.

These devices for mechanical lifting, moving and tiering of heavy merchandise shaped the plan of the bulk service building which The Austin Co. built for the Lazarus store just 8/10 of a mile from its downtown property. The figures on operating experience in this new building are impressive enough to suggest that the new science of materials handling may re-shape retail distribution methods just as it has since World War II re-shaped the American factory.

Goods move through this one-story and mezzanine steel and concrete building in a straight path: from 13 railroad and truck receiving doors on one side to the delivery truck loading area on the other. From the point of unloading to the point of re-loading for customer delivery, the merchandise moves on the float, a 3 x 6 ft. four-wheeled truck with ladder-like ends permitting addition of two shelves. Unloaded directly to this simple rolling pallet, the goods "float" through uncrating, inspection, processing, and into storage. Fork lift trucks lift the floats to the mezzanine deck of the warehouse and lift them down again for movement to the delivery area. Load dispatchers pull trains of floats to the storage area.

This building and how it came about is a stunning example of the way modern planning skills can actually put space to work for the building owner. In the warehouse field, it is a splendid demonstration of that axiom dear to modern architects—form follows function. Warehouse building has usually been shaped by the various and usually conflicting exigencies of the building lot, funds available, cubic foot of merchandise to be stored. In this case, these considerations were quite secondary to the vital motion and cost studies which determined the building plan. In fact, the whole project was approached, not as a building plan, but as an operations analysis. Just what was the customer's problem and how could he solve it?

The Lazarus brothers called in The Austin Co. and gave them roughly this assignment: "What can you do to help us lick our bulk delivery problems? Refrigerators, for instance, used to be a small part of our total business. Now we sell so many that the cost of handling and delivering them, and other bulky items like them, is threatening to eat away our profits."

Thus Austin planners started with a study of the types of bulk merchandise Lazarus needs to store and to deliver. Exhaustive time, motion and cost studies were made to compare various methods of mechanical moving of each type of merchandise. The methods which these studies proved most economic were adopted, and it was the *motion patterns of these mechanical methods which determined the space allocation of the warehouse plan.*

Frequently the cost of operation in this and many other types of buildings is determined only after the building is built—and it is too late to do anything about it. Here the cost of handling various merchandise items was predetermined (for the first time, so far as known, in the retail field) and this cost factor set the building plan. It also inspired a fluid approach to the use of mechanical handling devices. For example, The Austin Co. doubts if the fork lift truck has ever before been used simply to lift merchandise to a shelf as it is used here to lift to the mezzanine.

Merchandise damage cut 63 per cent

Before The Austin Co. designed this new bulk service building around the path of merchandise handling, Lazarus was conducting its warehousing operations in four different buildings scattered at different locations in the city. President Robert Lazarus reports these figures on how the new building has cut storage and delivery costs:

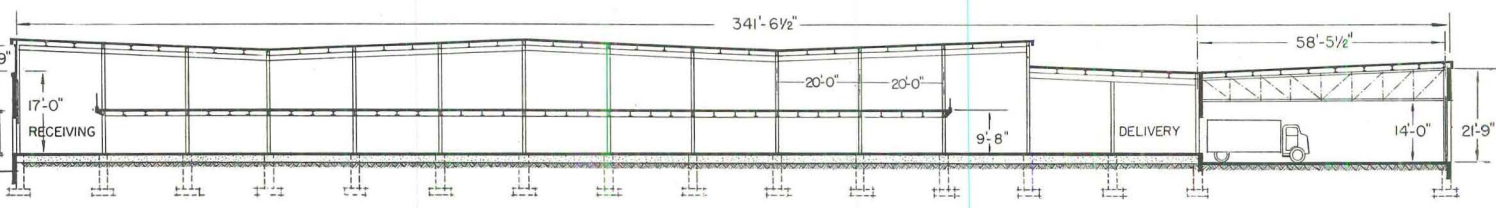
- ▶ Payroll, for receiving, checking and reserve stock handling has been cut 11 per cent.
- ▶ Loss and damage to in-storage and out-going merchandise have been cut 63 per cent.
- ▶ Payroll for delivery men is down 7 per cent.
- ▶ Special delivery costs (delivery by special trucks, not Lazarus owned, caused by some failure in regular apparatus) have been slashed by 73 per cent.

The new building, with its own railroad siding, also meant substantial saving in freight costs. Changes in freight rates make it impossible to figure exact overall saving, but here are savings on some items: On mattresses, inbound transportation charges have dropped 64 per cent. On stoves, inbound transportation charges have dropped 17 per cent.

One big change Lazarus made in its warehousing methods was the "pre-processing" operation. This means unpacking, inspecting and readying merchandise for delivery to the customer at the point of receipt. Usual warehouse practice is to put the factory-wrapped merchandise into storage; not until it is hauled out on a specific order, is it "processed" for customer delivery. Where the merchandise is found to be damaged, this means delay, in some cases return to the

LOCATION: Columbus, Ohio
 F. & R. LAZARUS & CO., Unit of Federated Department Stores, Inc., Owners
 THE AUSTIN COMPANY, Engineers and Builders

new approach to handling methods re-shapes the storage building to cut the cost of retail distribution



factory. By stripping and inspecting all merchandise at point of receipt, Lazarus brings to light any carrier damages as well as any manufacturer's flaws. "Pre-processing" increased Lazarus' claims against carriers by 78 per cent in the first six months of 1950 compared to the same period in '48.

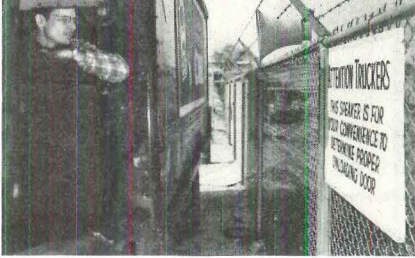
Savings in operating costs like these are becoming increasingly important to big downtown department stores for these reasons: 1) Urban traffic congestion is rapidly increasing the cost of merchandise handling and delivery to the customer. 2) Profit margins—difference between total costs and total sales—are steadily shrinking. 3) Volume mer-

chants are facing diminished opportunities for price competition: an increasing number of items must be sold at nationally advertised prices.

Faced with these cost and profit realities, progressive merchants like the Lazarus brothers see their best chance to bolster their competitive position in reducing the cost of distribution (according to Federal Trade Commission studies, cost of distribution takes close to 50 cents out of every retail dollar, as compared to 43 cents for manufacturing cost and 7 cents for profit). They are looking to proper space planning in both their store and service buildings as the chief way to cut this cost.



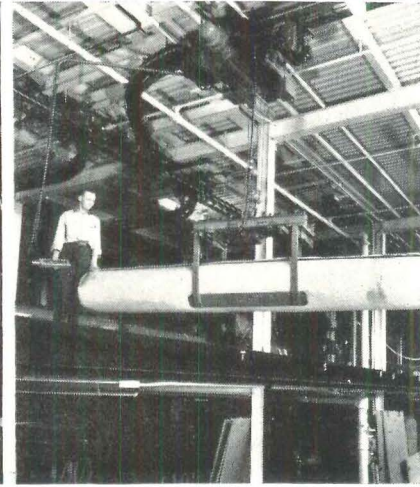
Straight-line system receives materials at one side of the warehouse, stores them in a double-decked area, delivers them at the opposite side



Arriving truck drivers phone at gate for routing to one of 13 entry docks



Merchandise is unloaded on wheeled "float" which rolls it through building



Electric hoist lifts carpet to mezzanine storage and workroom area

Long the dominant store in Columbus, Lazarus puts great importance on another competitive advantage of its bulk service building. In 1948 Lazarus gave four- to five-day service on bulk merchandise. Now two-day service is routine, and 24-hour delivery service is given if the customer asks for it. The new building, with ample workroom space, also makes it possible to offer customers repair service on the same speedy basis.

Another big advantage of the bulk service building is the fact that it freed about 30,000 sq. ft. of floor space in the main store—space hitherto used for stockrooms and workrooms. Since a sq. ft. of space is worth an average of about \$100 a year in sales in a successful department store, this was no small consideration.

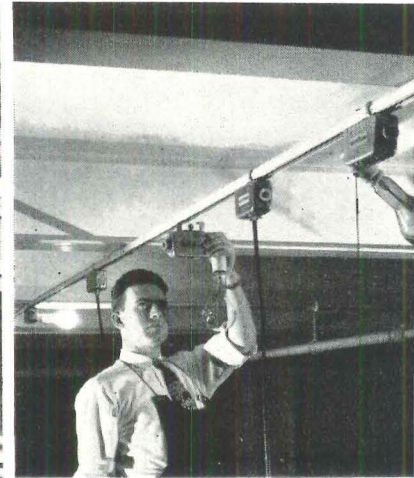
This statistical record of what the bulk service building has meant to Lazarus operations comes to life in accounts of what happened in the case of specific items. Broadloom carpet, for example, delivered in 12, 15 or 18 ft. rolls, is one of the most awkward items to handle. Before the new building, carpet reserve stock was stored in a warehouse, but carpet workrooms were in the main store building. These were the steps involved in getting carpet from freight car to customer:

- 1) unload the broadloom from a freight car to a Lazarus truck in the freight yards,
- 2) truck the carpet to receiving dock of warehouse building,
- 3) when customer order was received, remove carpet from storage spot, load on truck, and take to receiving dock of main store,
- 4) move to elevator,
- 5) drop elevator below floor level, remove top of elevator, and maneuver carpet roll onto it, on end,
- 6) lift carpet to proper floor and remove from elevator,
- 7) move to stock area on truck,
- 8) move to workroom when ready.

Three man-hours per roll were required to get each roll of broadloom from the freight car to the carpet workroom.



Electrical appliances are uncrated and checked immediately upon delivery



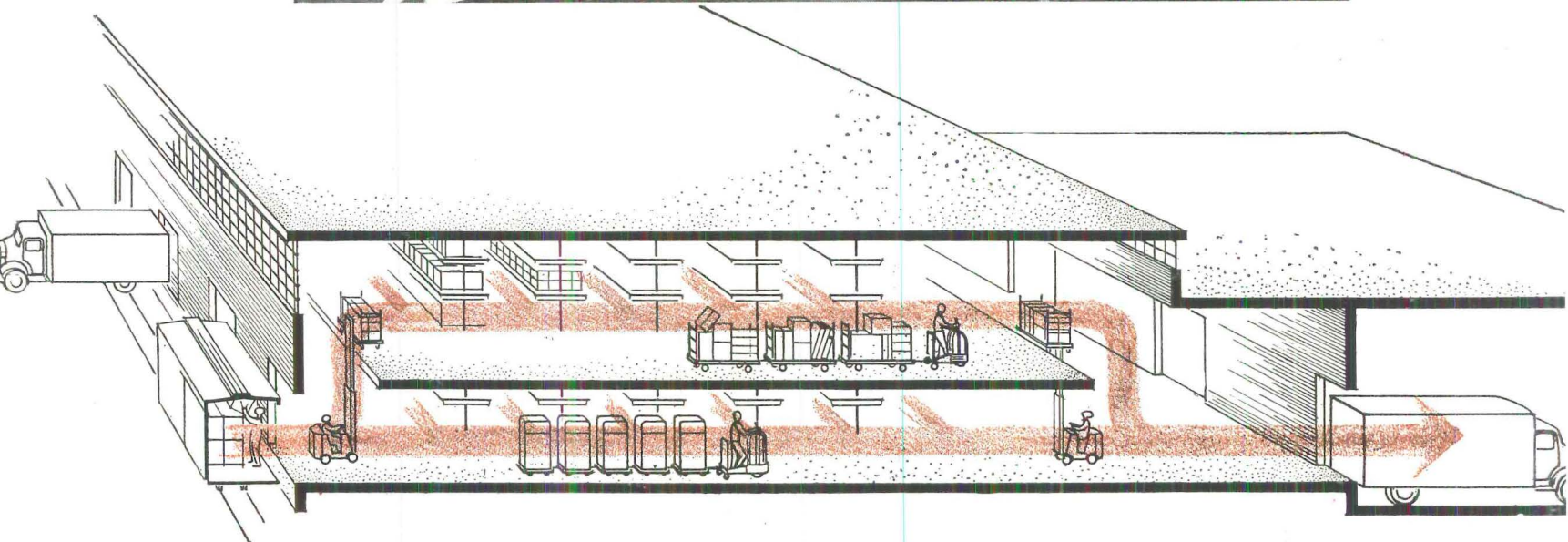
Flexible electric installation makes it possible to check appliances at any point



Immediate inspection of all items makes it possible to detect defects or damage



Small tractor pulls train of floats to storage. Shelving can be adjusted.



Single story building has mezzanine extending its entire length. High receiving aisle on left, delivery area at right



Fork lift truck lifts float of outgoing merchandise from mezzanine deck



All merchandise moves in direct path across short width of building to delivery



Merchandise is sorted for proper routing before loading trucks for delivery

In the new bulk service building, carpets are removed from boxcar by the fork lift truck, lifted to mezzanine storage by monorail grab and hoist, stored on specially designed wood pallets and eventually rolled to sewing machines in the workroom on a roller conveyor (see photos, right). This completely mechanized handling means that a roll of carpet can be moved from boxcar to storage in 20 minutes, and moved from storage to the cutting floor of the workroom in 6 additional minutes.

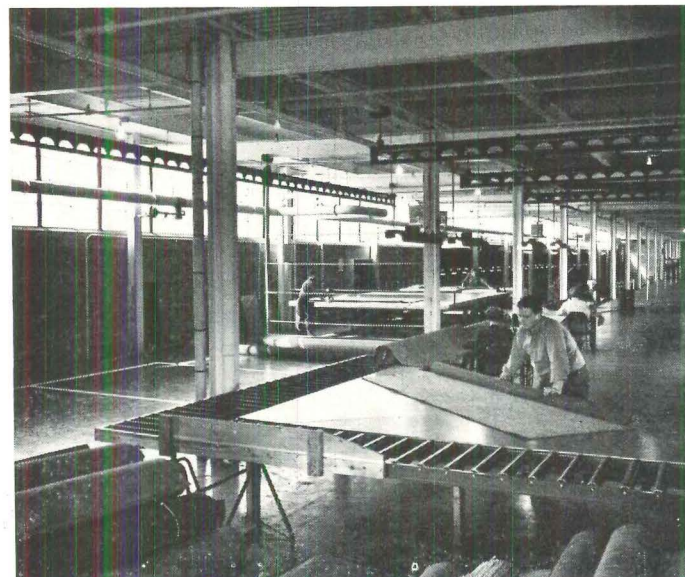
As designed and built by the Austin Co., the bulk service building itself has the kind of simplicity which comes only from the most exacting and minute analysis of each of the processes it is intended to house. Two main concepts, of course, set the basic shape of the building, both carried over from the Austin Co.'s long experience in industrial building. The first of these was the horizontal structure, in which the fork lift truck and the float replace that bottleneck of vertical warehousing—the elevator. The second was modification of this complete horizontality by the addition of a mezzanine deck stretching the entire length of the building.

Austin Co. studies of the mechanics of material handling convinced them that storage all on one floor would mean uneconomic distances of merchandise hauling. Accordingly, merchandise was classified according to lighter types (chairs, toys, cartoned items, etc.) and heavier types. Mezzanine deck storage space was planned for the lighter types of stock, all of which is hoisted, still riding on a four-wheeled float, by the fork lift truck to its place in the mezzanine. Thus the mezzanine made it possible to provide a maximum of space within a distance of 240 ft. between receiving aisle and delivery dock. It also meant complete use of the building cube for storage (the mezzanine dividing the building vertically into two 10 ft. sections) without lifting merchandise to unwieldy heights.

The building plan itself grew from planning studies probably unparalleled in the retail field. It is the result of hundreds of conferences between Lazarus executives and Austin engineers in which merchandising and engineering know-how of the two firms were pooled, and of thousands of individual suggestions by Lazarus employees now working in the new building. A good example of the kind of suggestion that came from Lazarus personnel is the "floating" pre-processing crew. The furniture "workrooms," for instance, are specially designed benches and trucks on wheels which can be moved to the point where furniture is unloaded and inspected. When the pre-processing inspector locates a defect that can be easily corrected, he turns it over to them. This crew undertakes minor touch-ups, minor repairs. More extensive work on furniture is done in a furniture workshop, immediately adjacent to the receiving area and in a three-booth paint room equipped with hydraulic lifts and spraying equipment.

Says Fred Lazarus: "It's extremely expensive to handle bulk merchandise in buildings not specifically designed for it. In the past, we've had to move one lot of merchandise to get at another lot. We've hauled goods for miles to get it out of the boxcar and into storage, and out of storage and onto customer delivery. Besides the time-consuming inconvenience of this moving around, we've damaged merchandise, lots of it, because most of it just isn't designed for a life of travel.

"Obviously, the less we handle the merchandise, the less it is going to cost us to handle it, and the less danger there is of delay and damage.



HOW CARPET HANDLING COST WAS CUT

Completely mechanized handling cut the cost of moving a 300 ft. roll of broadloom carpeting from point of receipt to storage from \$8.12 to 96 cents. An even greater saving was made in the cost of removing carpet from storage, cutting it to length ordered and binding it. New system works like this:

- 1) *Carpet is unloaded directly from trucks or boxcars into receiving aisle.*
- 2) *Electrically operated hoist lifts carpet to the mezzanine and carries it to any desired point.*
- 3) *Carpet is stored on self-stacking pallets.*
- 4) *On order, hoist removes roll of carpet to cutting floor.*
- 5) *Carpet is sized and cut, then re-rolled and placed on roller conveyors.*
- 6) *Roller conveyors ease carpet to first machine for sewing on binding then to second machine that blind-stitches the binding.*
- 7) *Completed carpet is rolled to pad cutting area, where pad is cut to fit the carpet.*
- 8) *Carpet and pad are rolled together, then rolled to wrapping table where they are machine-wrapped.*
- 9) *Ready-to-delivery carpet goes through gravity chute which leads to delivery department section directly below carpet workroom.*

"We worked out the simplest, easiest methods of doing each job, and then constructed a building to house the methods."

The Austin Co.'s first planning step in undertaking this unprecedented job was to analyze alternative methods of mechanical handling of merchandise and to figure comparative costs, including the cost of the man hours required under each system. Stanley H. Cowell, manager of Austin's merchandising facilities division, reports that the amount of floor space required for storage varies considerably according to the mechanical method used and that the cost differential between systems may be as high as 25 per cent in the cost of floor space alone. Analysis of the four possible methods showed a spread of 19 cents per unit in the cost of handling refrigerators, for instance. Considering the difference in floor space required and handling cost differential, Austin found a net difference of 18 cents per unit between the two most economical methods of storing and handling. The method finally adopted on the strength of this cost survey has proved just as economic as the study promised.

With the basic handling methods established for each class of merchandise, these three considerations emerged as fundamental in the development of the floor plan:

1) *Flow of merchandise, from receiving platform to customer, must always be forward.* This means that specific items must be located at logical points for best functioning of the overall plan. To set these locations, planners had to consider frequency of turnover, physical characteristics of items, cubage required in various states of processing. Uninterrupted flow also means that workrooms for all items must be in direct line of travel.

2) *The customer must get maximum service at minimum cost.* One interesting by-product of the completely engineered storage and delivery service provided by the new building is that Lazarus can tell a customer exactly when she will get delivery on any item. When the sale is made, the warehouse number of the item is written on the sales check. Warehouse handling is now so exact that this number, assigned to the item upon receipt in the warehouse and corresponding to a specific storage compartment, can be used to tell the customer exactly what hour the delivery truck carrying her order will arrive. In the case of such bulky items as refrigerators, etc., the handling cost saved by this precise timing is enormous.

3) *The building must be adaptable to changes in merchandise in quantity and in character from season to season and from year to year.* Since there are no partitions in the storage areas, space allocated to specific items can be expanded or contracted at will. Moreover, shelving fitting into steel frames is flexible and can be removed, raised or lowered according to the bulk of the merchandise stored.

Planning for flexibility, that keystone of department store building, has already more than proved its worth in the case of television sets. Original plan for the building called for 2,080 sq. ft. for radio and television stock storage and 800 sq. ft. for a radio and television service area. The warehouse was planned and built long before the television cable came to Columbus. Since then, three network television stations have opened and Columbus has become the "hottest television town in the U. S."

Says Robert Lazarus: "Because the building was so flexible, we could quickly set up an adequate television stock and service area. Because of our pre-processing operation—which means that we inspect all sets on receipt from the

manufacturer and make sure that they are in condition for delivery—and because we could expand the service shop area, we were in a position to do a maximum business on television sets as soon as the boom hit.

"We are now using 7,145 sq. ft. for television and radio stock storage and 1,920 sq. ft. for service. The base stock is around 1,000 television sets, all set up, inspected, ready to go. At Lazarus, today, a customer can buy a set and pick it up in the will-call department of the bulk service building on her way home, or we can give her next-day delivery service on our delivery trucks."

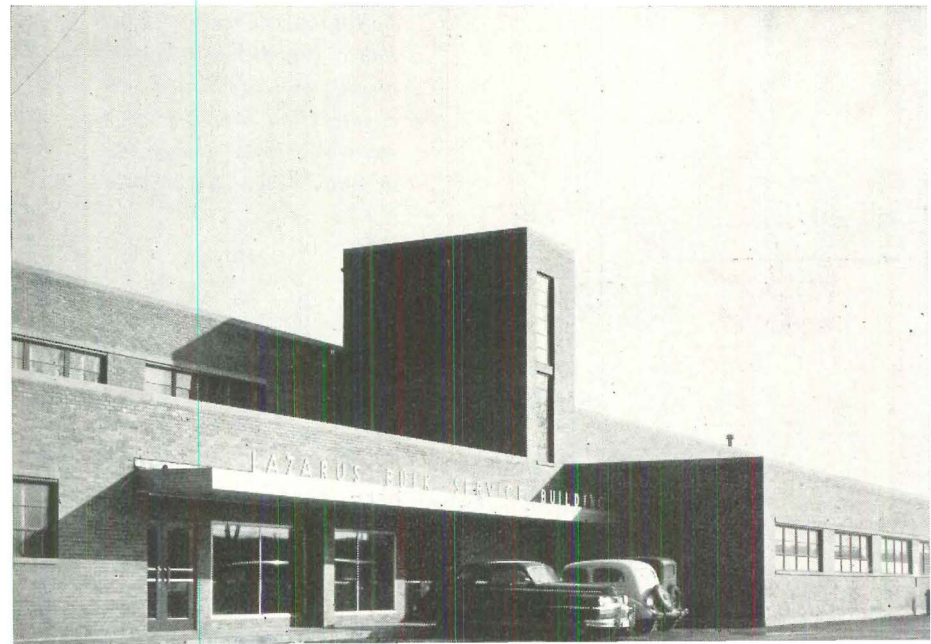
On the basis of operating experience in the new building for almost two years, Lazarus reports complete satisfaction with the one-story and mezzanine plan and with the system of using fork lift trucks to move merchandise to the second floor level. Here are some minor changes which Lazarus has made in use of the building as a result of actual operating experience:

Originally all trash was intended to be disposed of by means of an incinerator, installed near the point of unpacking. The incinerator turned out to be incapable of keeping up with the quantity of waste to be burned. Moreover, the price of paper waste has skyrocketed to the point where Lazarus has found it advantageous to install a baler.

Pre-processing operations have been changed slightly. Originally all merchandise was completely processed immediately upon receipt, not only repair of minor damage, putting on hardware, etc., but also given a complete polishing before re-wrapping for storage. It turned out that the item had to be re-polished when removed from storage wraps for delivery to customers, so this last step of pre-processing is now omitted.

Only bug in the building, Lazarus executives say, is the difficulty of maintaining proper temperature control in the winter months. "The building with its 13 entry docks is difficult to heat in an area of perhaps 100 ft. radius from each door. We have canvas dock covers which, however, have not proved practical and would not be recommended if we were re-building the building. Austin planners recall that the obvious solution of enclosing the railroad and truck dock area was abandoned on the grounds of cost and of limited lot area.

ENTRY TO CUSTOMERS' PICK-UP, adjoining parking lot at rear of bulk service building. This is special provision for customers who want to pick up merchandise on day of purchase in their own cars.



THE CODES vs. PROGRESS

Building codes apply an unreal double standard to residential building and industrial building



Robert Billsbrough Price, Architect. Prefabricated walls by H. H. Robertson Co.

By Robert L. Davison*

The walls of the McKinley Manor Apartments shown in the sketch above were designed in Tacoma, fabricated in Pittsburgh, financed in New York City, and will be erected in Fairbanks, Alaska. In structural design this building is more advanced than any apartment being put up in any city in the U. S. proper today, although the design concept—the sandwich panel wall—is widely used industrially throughout the country. Why has this product of U. S. ingenuity, the sandwich panel wall, been banished to Alaska in residential use?

The reason is simple: there are no obsolete building codes in Fairbanks. There the same construction methods can legally be applied in apartment building as in factories. The building profession knows well that this is not true in U. S. city code areas.

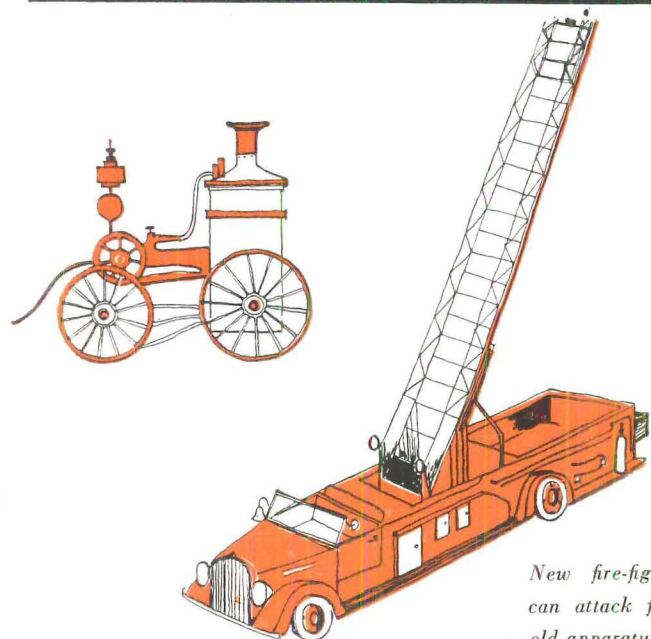
On these pages are shown some of the inconsistencies of traditional codes, with some examples of improved building methods which might be used if codes were modernized. First we will look at floors, then exterior walls, and plumbing, and heating systems. Following these examples is a hypothetical apartment building which could be built today if uninhibited by codes. And finally, a codeless look at tomorrow—a preview of what is potentially the most exciting building story of the generation: designs for thin gauge, stainless steel structural skin members which are fire-resistant.

Our antique codes err in at least three basic ways in their fire requirements: they do not recognize that fire-fighting methods have improved in recent years; they do not recognize that fire hazard has been greatly reduced with the elimination of wood-joisted interior framing and wood trim, replaced by modern noncombustible materials; their fire tests are unrealistic when compared with temperatures which actually occur in fires.

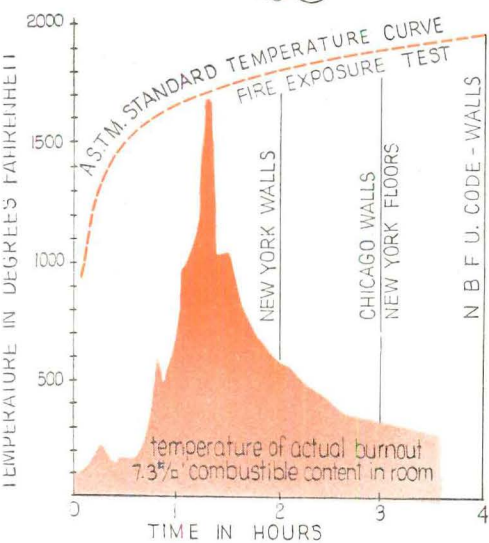
Many provisions in building codes are hangovers from the days of wood and stone construction, when exterior walls of masonry afforded the only fire protection to wood-joisted interior framing which with wood trim furnished a high fuel content and resulted in a high fire hazard. And when firemen had to fight those fires, they did not have today's equipment, with which they can strike at the heart of a fire without having to drag hoses and ladders by hand through hallways. Time is everything in a fire, and firemen today have fast equipment.

When building codes call for one, two, or three-hour "fire resistance" for walls this means, according to the American Society of Testing Materials' standard fire test, that the side of the wall away from the fire must not rise more than 250° in temperature during the time specified. This usually is needless protection which is never brought into play, even in serious fires. For example, the terrible Winecoff Hotel fire lasted nearly three hours, during which the combustible contents of the rooms burned out, yet the fire's temperature made it actually less than one hour in severity in its attack on the body of the building as measured by the ASTM test procedure. Yet codes continue to call for two, three, or four-hour walls, even when there will not be nearly enough combustible content or surroundings to apply this test.

* Research Director Howard T. Fisher & Associates

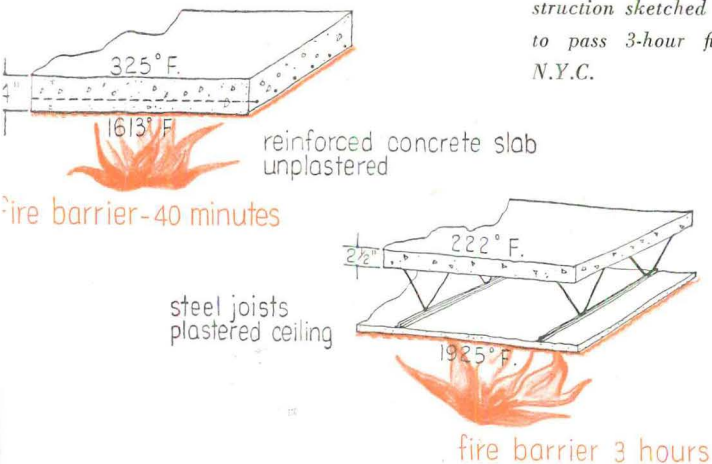


New fire-fighting equipment can attack fire quicker than old apparatus, can hit at heart of blaze using high extension ladders.



Few buildings contain enough combustible material to generate fires which will equal the fire tests which codes set up. Note wide discrepancy in chart, left, between temperatures generated in room with high combustible content, and code requirements.

Codes often discriminate against new methods. New York City code-accepted 4 in. slab construction has Bureau of Standards rating for 40 minutes. But new floor construction sketched is required to pass 3-hour fire test in N.Y.C.

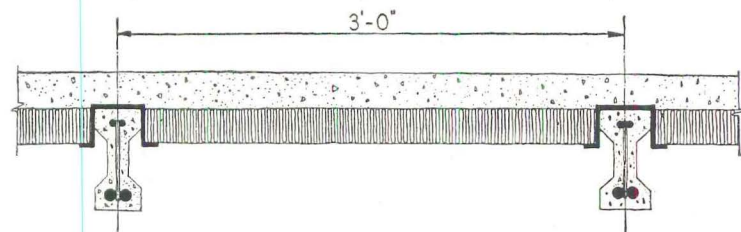


Floors: various non-code floors could improve acoustics, erection time and, sometimes, cost

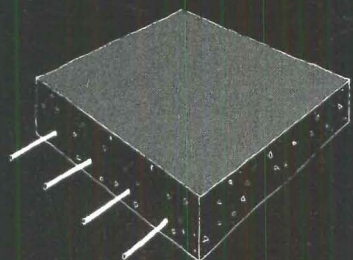
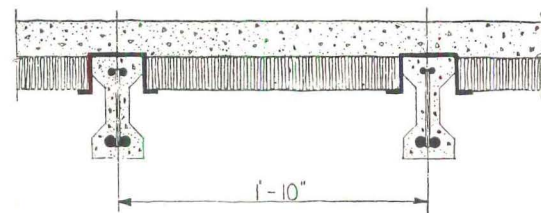
The two floor designs on the right illustrate the difficulties that a producer of a new material or construction method is up against. The prefabricated concrete joists with 3 ft. spacing as shown in the upper design comply with code provisions in many cities and can effect a saving in construction costs. But where building codes like that for Worcester, Mass., require 1 ft.-10 in. spacing the economy may be destroyed. The difference in code requirements may be due to one code's limiting the design of reinforcing to 16,000 lbs. per sq. in., although the American Concrete Institute for many years permitted design of certain grades of reinforcing to 20,000 p.s.i. There are instances of code limitation of concrete compressive strength to an allowable maximum design stress of 2,500 p.s.i., although the lightweight concrete mix used in these joists consistently tests better.

Of the floors sketched below, the first is acceptable to most big city codes for tall apartment buildings. Yet the others might have advantages in cost, could perform well in fires, and also have the less obvious advantages of being much superior in the matter of noise transmission. Few floors are worse than typical concrete slabs for transmitting impact noises, but the use of "asphaltic ingredient concrete" over a steel floor may help deaden impact sounds.

Although the exposed steel panel sections shown in some of the designs below do not meet code requirements for the fireproofing of steel, they would not cause a serious failure in case of fire. The panels which are secondary members might sag in a catenary if exposed to severe fire conditions, but they would not fall away from the beams to which they were welded. Excluding two upper left diagrams, floors are by Detroit Steel Products Co. and Stran-Steel Division, Great Lakes Steel Corp.

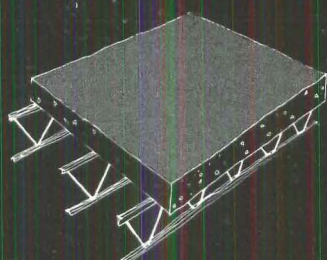


Example of how codes can make economical new methods uneconomical is this floor, supported by pre-cast concrete joists. An antique code restricted the spacing of these joists to 1 ft. 10 in. by limiting their capacity to 190 lb. per longitudinal foot (below). Actually they are safe with an allowance per longitudinal foot of 302 lb. (above). Cost of completed floor is 93 cents per sq. ft. as designed above, but \$1.24 per sq. ft. below.



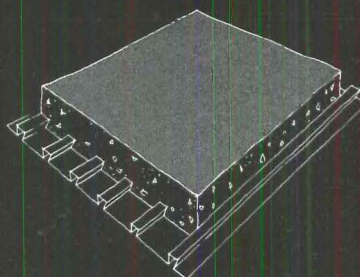
REINFORCED CONCRETE SLAB

Poured reinforced concrete slab. No floor finish, unplastered ceiling.
Cost \$1.70 per sq. ft. unplastered.



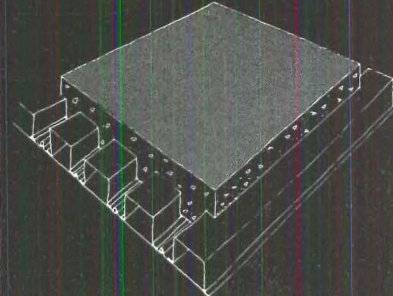
STEEL JOIST CONSTRUCTION

Reinforced concrete slab supported on open or solid web steel joists.
Cost \$1.25 per sq. ft. unplastered.



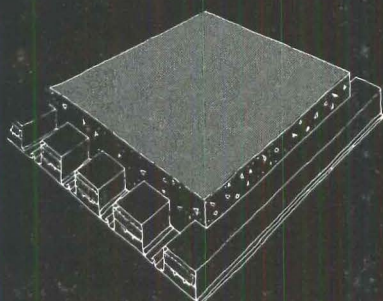
RIBBED STEEL FLOOR UNITS

Composed of steel formed into inverted ribs used as forms for 3 in. asphaltic concrete slab.
Cost \$1.35 sq. ft. unplastered.



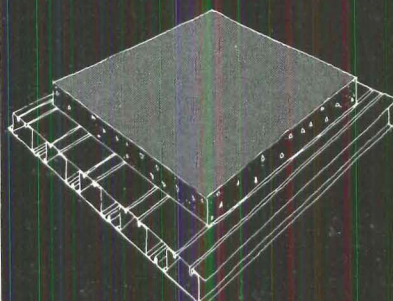
CELLULAR STEEL FLOOR UNITS

Composed of steel formed into multicellular panels supporting a 2 1/2 in. asphaltic concrete slab.
Cost \$1.84 per sq. ft. unplastered.



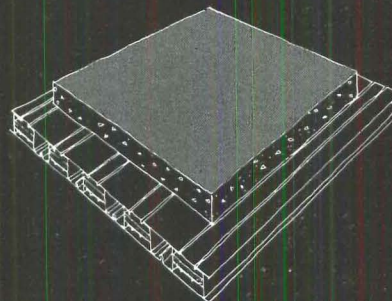
CELLULAR STEEL FLOOR UNITS

Composed of steel formed into multicellular panels supporting a 2 1/2 in. asphaltic concrete slab.
Cost \$2.13 per sq. ft. Acoustic ceiling included.



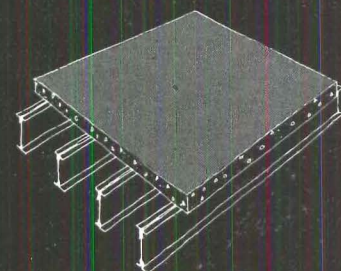
CELLULAR STEEL FLOOR UNITS

Composed of steel formed into multicellular panels supporting a 2 1/2 in. asphaltic concrete slab.
Cost \$1.94 per sq. ft. unplastered.



CELLULAR STEEL FLOOR UNITS

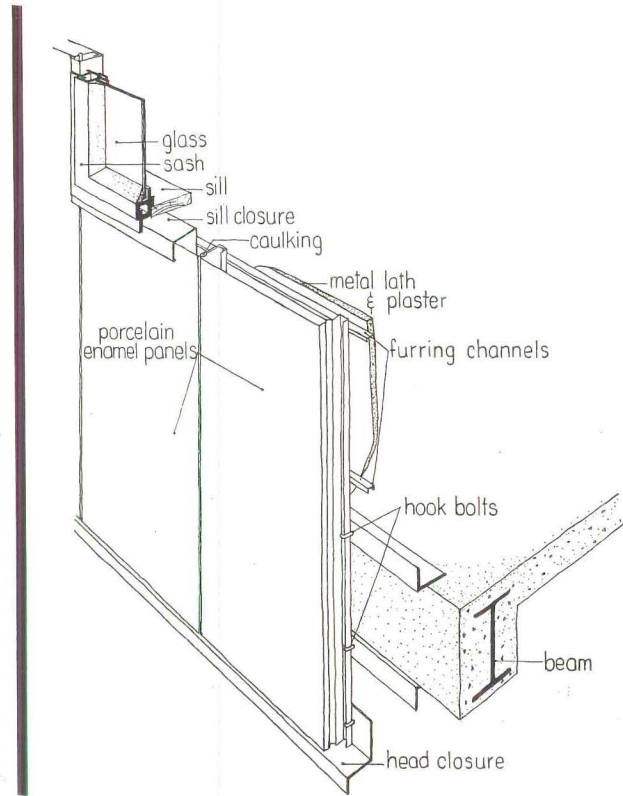
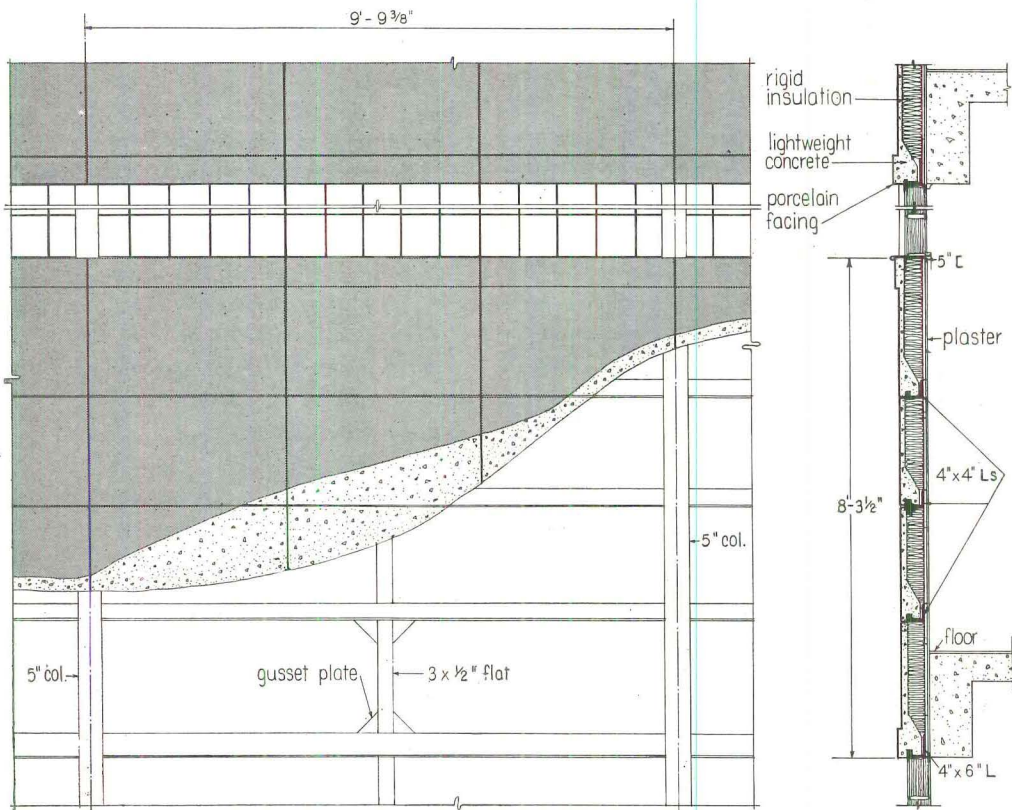
Same as preceding case except with an acoustic ceiling added.
Cost \$2.22 per sq. ft. unplastered.



FORMED STEEL MEMBERS

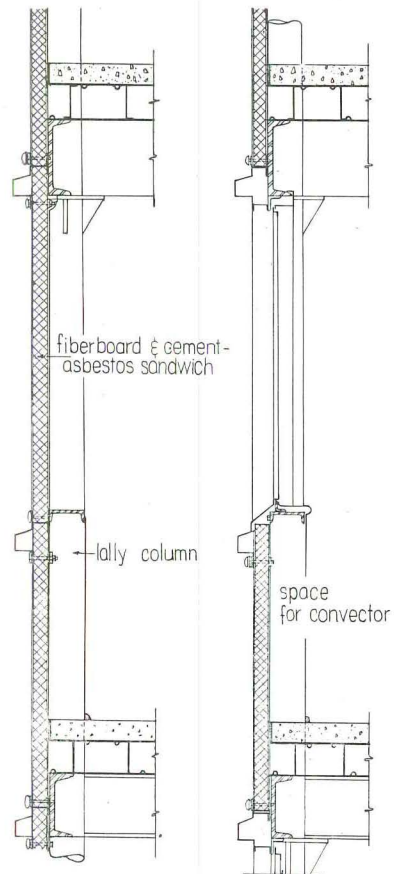
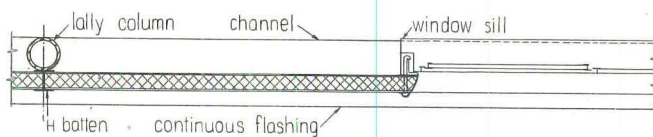
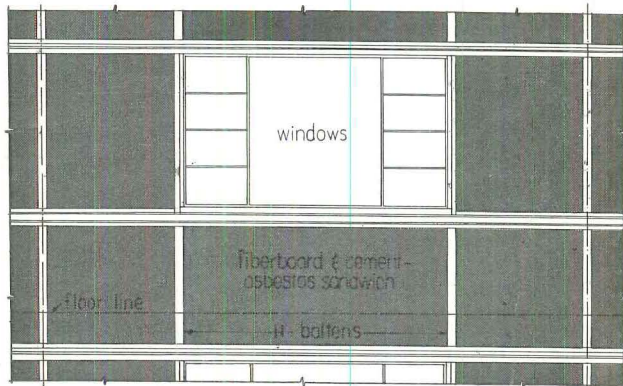
Reinforced concrete slab or pre-cast floor supported on formed light gauge steel joists.
Cost \$1.12 per sq. ft. unplastered.

Note: Flush steel ceilings require no plaster and, as shown in two of the examples in the lower row, are fabricated of perforated steel panels backed with acoustical material.



MAUL MACOTTA Corp.'s, porcelain enamel panel wall was erected in the Knapp department store, O. J. Munson, Architect, Lansing, Mich., in 1937, by virtue of an unusual ruling under a code which calls for "8 in. masonry." But the panel system has performed well although few other city building departments would allow this to be built.

ERIE ENAMEL CO. suggests this design for apartment building walls in areas where codes have been or could be modernized—or where the building commission will interpret the code in spirit rather than in letter. Porcelain enamel, widely used on store fronts, gives the architect a wide choice of color at a reasonable cost.



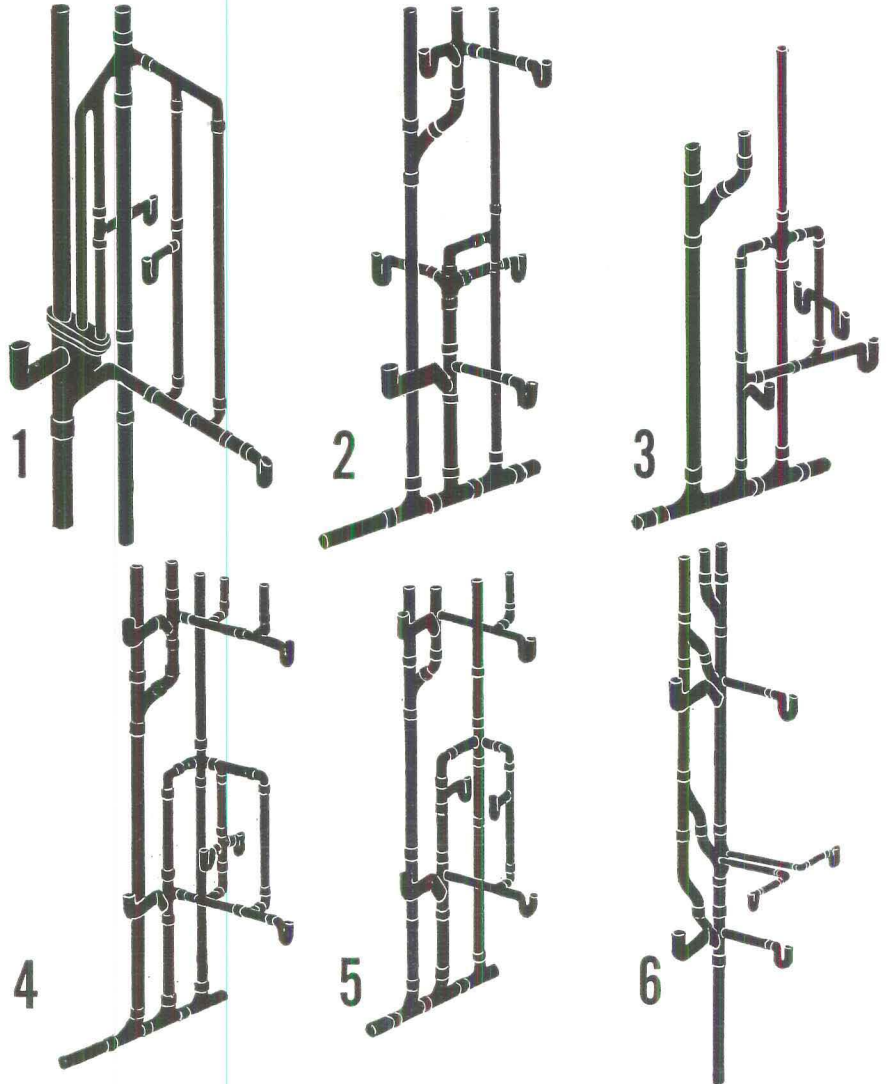
CELOTEX CORP. design indicates the possibility of adapting a sandwich of asbestos cement and fiber board, widely used during the last war for one and two story housing, to a four story apartment building. This construction would have merit where it is important to keep first cost at a minimum and where fire hazard is low.

Plumbing: conflicting codes have prevented the design of a simple universal unit

Many plumbing codes were drawn in the 1870's when it was believed that disease was spread by "gaseous miasmas." There have been improvements and simplifications since that excessively careful time, but never enough to enable the design of a simple, plumbing assembly which will satisfy all codes and thus be practical for the immense economy of mass production.

There are too many special plumbing conditions in too many different codes. The diagrams, right, prepared by Vincent Manas, illustrate a number of "minimal" solutions designed to get by some codes as simply as possible. But to produce and market a soil assembly such as used in the Ingersoll-Utility Unit, which was designed to meet *all* the various code requirements as to sizes and back venting, increases the cost to a point where it is difficult to compete with a job assembly system which has only to meet the local vagaries. This condition prevents big economies in plumbing.

There was some relaxation of restrictions during World War II, when prefabricated plumbing assemblies were used extensively. In some cases these were composed of commercially available cast fittings jig-assembled in a small shop on the job. In other cases special castings were made which replaced a number of traditional fittings, with field-calked joints. Although perfectly safe from a health standpoint, most of these systems fail to meet today's traditional building codes. Since the war, mail-order houses have marketed somewhat similar prefab systems which can be used only in unincorporated rural areas where antiquated codes do not interfere. To the right is sketched (6) a simplified soil assembly, the kind of prefabricated unit for apartment houses which could save a great deal of material and money if accepted by codes.



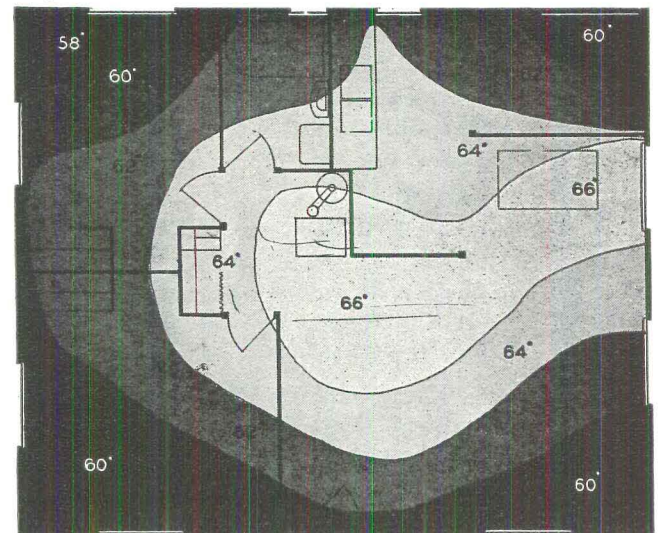
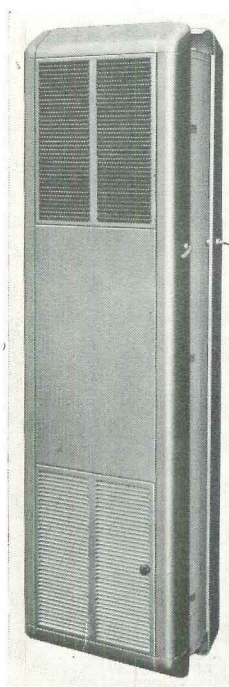
1) Assembly required by New York City code. 2) Uniform Plumbing Code Committee. 3) Building Officials Conference of America. 4) Western Plumbing Officials Association. 5) American Standards Association. 6) Simplified assembly for efficiency, not codes.

Heating: low first cost and unit control

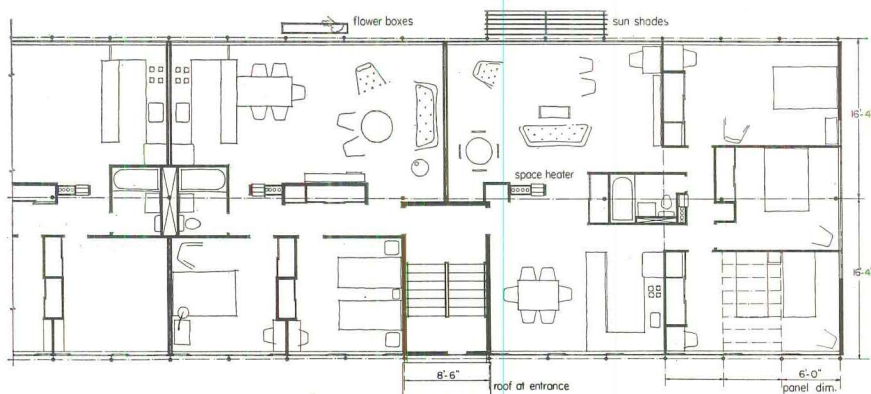
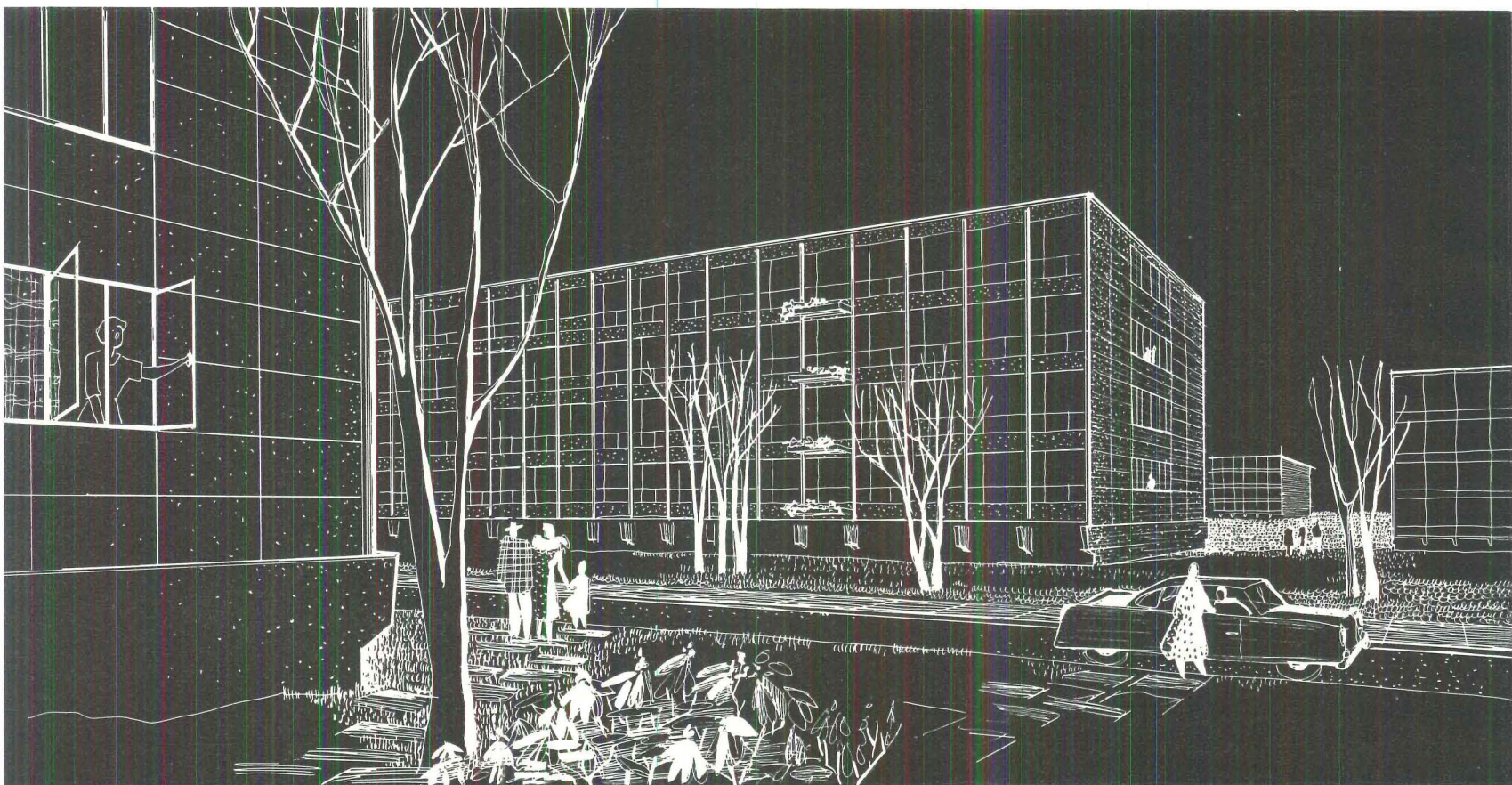
In theory, central heating is a symbol of comfort which no American family should lack. Although 50 per cent of our families do not have central heating (and may be better off without it), nearly all city codes make a substitute in new construction difficult.

But central heating is often wasteful in terms of its production of comfort. Because the janitor in an apartment building turns the heat on and off in the heater room, the typical tenant controls overheating by opening windows rather than turning the radiator down. If the codes allowed the tenant his own heating system in apartment housing, fuel economy might follow the outdoor temperature curve more closely. The tenant also could time the heat in his own apartment better, not depending upon the standard hours when landlords provide heat.

Individually fired gas or oil heaters in apartments would permit each family to have heat only when wanted, and thus to reduce their shelter costs if necessary. Heating performance could be satisfactory; tests have indicated that a gravity system will give satisfactory heat distribution in a 24 x 28 ft. single family dwelling, so it is obvious that equal or better results could be obtained in a four room apartment of comparable design (see diagrams, right). The apartment shown on the next page indicates how such a unit might be used if city codes permitted.



Gas fired wall heater (left) fits between two studs, might be used to heat apartments in multistory buildings with considerable economy. Heat distribution from unit of this sort is indicated with temperature readings at the 1 in. level.



CHARLES H. WARNER JR., Architect (Warner-Leeds)
RALPH G. GULLEY, Consulting Architect

This walk-up apartment building is designed as it might be if codes were modernized. If it could be built in New York City, it would cost \$8.54 per sq. ft. of rentable floor area or 78 cents per cu. ft.—a good 15 per cent under present code-accepted apartment construction. It would not meet present code requirements for fireproof construction, but it is incombustible construction throughout, employing panels of mineralized wood shavings and Portland cement molded under pressure for roof deck, floor slabs, and exterior curtain wall panels. The structural skeleton is of pipe columns *outside* the curtain walls, which permits continuous unbroken interior wall surfaces, and also minimizes the necessity for scaffolding during construction. (Panels for the curtain wall would be applied to the frame from inside; so workmen would stand on the completed floor slab.)

The completed structure to foundation walls would weigh less than half what an equivalent code-approved apartment would weigh. The average weight per sq. ft. of floor area to the foundation walls would be 63½ lbs. against an average of 132 lb. per sq. ft. for conventional concrete-clad construction.

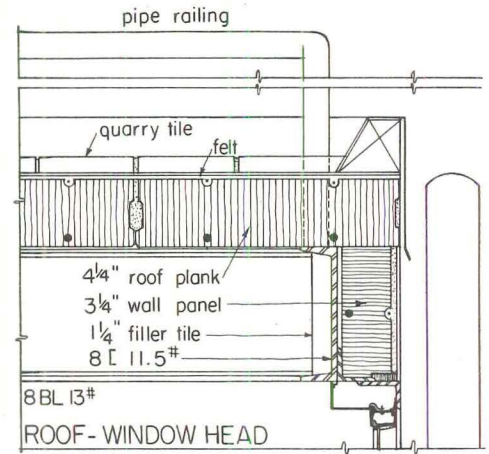
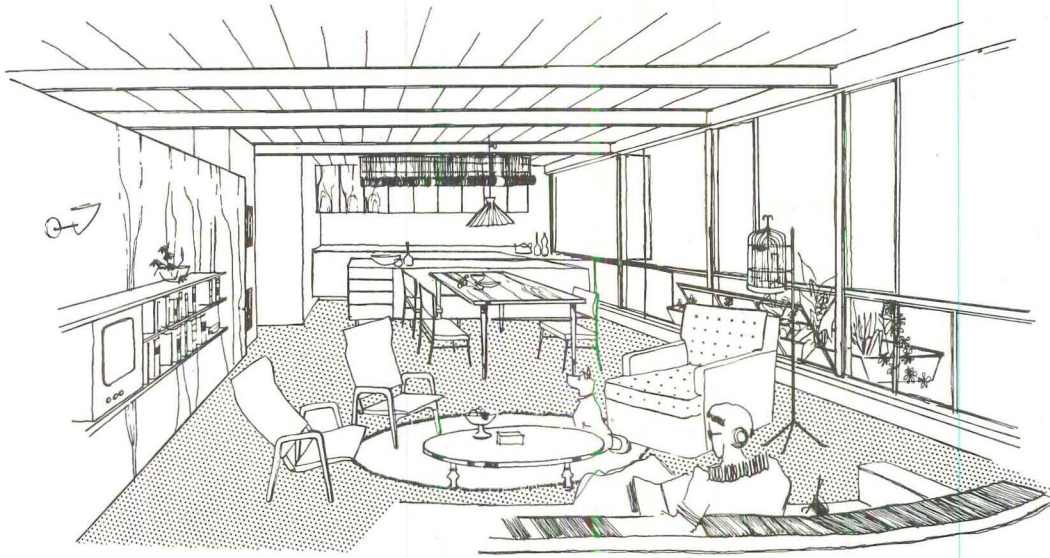
Heating would be by individual gas-fed unit heaters in each apartment, with one heater to each two-bedroom unit,

and two heaters to each three-bedroom unit. All utilities—heat, light, and gas—would be metered to each apartment. Thus heating would be regulated by each tenant to suit himself and his budget. Thermal insulation of this composition panel is good; the roof deck U is .15 and the wall panel U is .20.

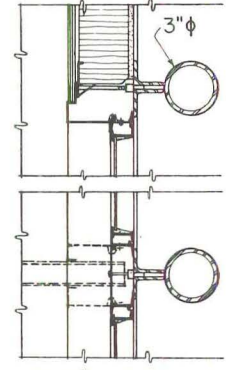
One of the big money savings would be the speed with which this building could be put up. No forms or shoring would be required above the foundation work, and there would be no curing period. The superstructure could also be put up in severe weather if necessary.

The apartments in this building are not minimal, although their cost is comparatively low. The two-bedroom apartment has 4½ rooms covering 850 sq. ft., and its estimated cost today is \$7,259, excluding land. The FHA allows \$2,000 to \$2,500 per room, or as much as \$11,250 total. The three-bedroom unit has 5½ rooms and its estimated total cost is \$10,538, excluding land. The FHA total for this sometimes runs as high as \$13,750.

The Durisol Co., which manufactures the roof, floor and wall panels is producing in quantity (this year's total: over two million sq. ft.) so the structure is theoretical only so far as most codes are concerned. It could be built in Alaska.

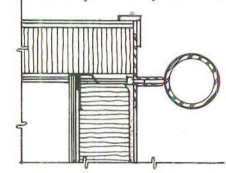


WINDOW JAMB

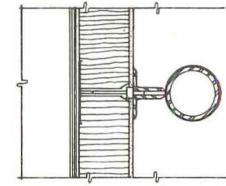


WINDOW MULLION
(broken lines show case at partition)

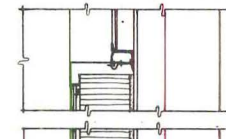
PANEL FASTENING AT CORNERS



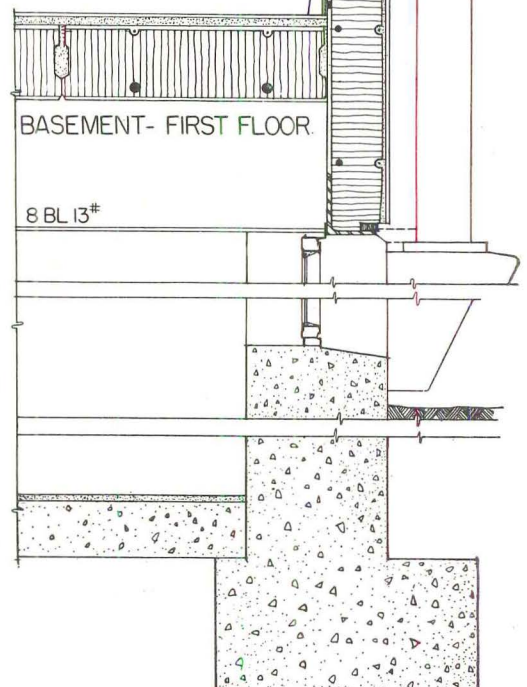
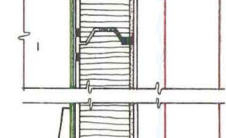
TYPICAL PANEL FASTENING



WINDOW SILL



HORIZONTAL PANEL JOINT



DEAD WEIGHT AND CONSTRUCTION COST COMPARISON (Metropolitan N. Y. area)

Non-code incombustible system			vs.	conventional fireproof system		
Elements	Weight per sq. ft. of gross floor area per floor	Total estimated cost per sq. ft. of rentable floor area	Elements	Weight per sq. ft. of gross floor area per floor	Total estimated cost per sq. ft. of rentable floor area	
Structural steel frame (roof framing pro-rated over 4 floors)	6.33 lbs.	\$1.02½		9.50 lbs.	\$1.55	
Floor assembly Durisol 4¼ in. Floor slab, asphalt tile on 1 in. cement topping	30.12 lbs.	1.16	4 in. poured concrete slab, fireproofed beams, ½ in. cement topping, asphalt tile, ½ in. plaster ceiling	67.42	1.42	
Roof assembly Durisol 4¼ in. roof plank, built-up roofing (½ roof) quarry tile (½ roof) (pro-rated over 4 floors)	6.88	.45½	4 in. poured concrete slab, fireproofed beams, 1½ in. rigid insulation, built-up roofing (½ roof) quarry tile (½ roof), ½ in. plaster ceiling	16.48	.63½	
Exterior walls Durisol 3¼ in. wall panels	3.56	.31	4 in. face brick, 4 in. cinder concrete block, ½ in. gypsum plaster, intermediate weight windows.	14.00	.62½	
Intermediate weight windows	1.30	.54½	Intermediate weight windows	1.30	.54½	
Partitions, doors, hardware, Durisol block, plastered, Cemesto	7.91	.93	2 in. metal lath and plaster, cinder concrete block plastered	16.01	1.07½	
Painting and decorating	—	.40		—	.40	
Utilities, kitchen, bath, laundry, lighting fixtures, space heater, wiring & plumbing	2.19	2.54		2.19	2.54	
Fireproof stairway	5.16	.49		5.16	.49	
Excavation, foundation, footings, basement floor (pro-rated over 4 floors)	—	.68½		—	.87½	
TOTALS	63.45 lbs.	\$8.54		132.06	\$10.15½	

Note: Exposed beams in non-code system can be fire protected with wire lath and plaster at an estimated additional cost of 14 cents per sq. ft. of rentable floor area.

If building codes permitted the adaptation to static structures of the load-bearing "girder wall" which is used in railroad passenger cars, builders could put a stronger, lighter, less expensive, and better performing cover than presently legal on the skeleton frame of any type of building. This advanced conclusion is indicated by a report on these two pages, written by Dr. Michael Watter, Director of Research for the Budd Co., world's largest fabricators of railroad passenger cars. He suggests a light gauge spandrel of stainless steel for buildings which would consolidate the functions of structure and skin into a startlingly light panel, typically 4 ft. high x 22 ft. long for office buildings (shorter for apartments) and weighing only 310 lbs. It would require thermal insulation, but no fireproofing!

This is a look far beyond the limitations of today's codes, but is not fantasy. This wall would be stronger than today's spandrels because it would use alloy steel of high strength—as thin as .025 in. but shaped to take high stresses, and to retain a factor of safety of 2, unprotected under temperatures as high as 1,800° F. Its strength-to-weight ratio would be 38 because there would be no heavy masonry fireproofing around this steel, and no weight allowance made for corrosion. It would be less expensive because of these facts and also because it could be factory assembled, shipped economically, and put up fast. The steel is expensive but this design uses relatively little of it. (Use of stainless steel at 50 cents a pound before fabrication indicates a price of \$7 per lin. ft. for girder, exterior face, window sill, radiator cover and window head. This is less than the cost per lineal foot of an ordinary spandrel beam.) Reducing the weight of the building, it would cut column sizes greatly. A permanent weather barrier, it could be insulated efficiently with lightweight material and, since it would have less mass than any other wall, the buildings it clad would be easier to heat fast in winter and to cool fast in summer.

A building technology which would utilize products of other technologies such as this railroad research, would overnight work vast improvements in our structural theory and design.

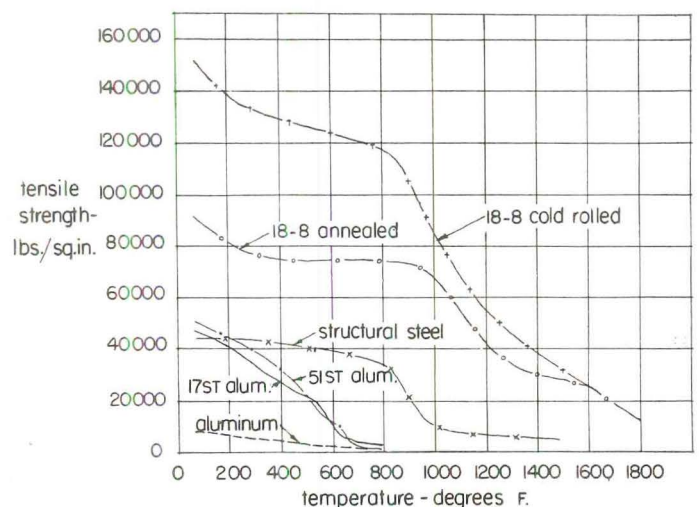
The need for lightweight aircraft, trains and trucks has led to new trends in their structural design. New structures like these are characterized by a strength fulfilling but not exceeding functional requirements and by a strength-to-weight ratio which would have been deemed impossible some 30 years ago.

Although the fundamental theory of the behavior of the materials in these structures—particularly stainless steel—is not new, its application has required extensive interpretation and testing. But today, problems of elastic stability and stressed-skin structures can be dealt with by stress an-

alysts just as easily as the previous generation used the more elementary theories of strength of materials to solve trusses.

It is logical to assert that lightweight designs should be used in buildings as well as in vehicles. Since light gauge stainless steel wall sections have been found safe, adequate and economical for moving structures subject to vibrations, appreciable dynamic overloading, great and rapid variations of climatic conditions and other exacting influences, they should surely satisfy the relatively static conditions encountered in buildings and the much smaller range of better defined applied loads. The requirements of long life, pleasing appearance, ease of maintenance, ease of fabrication and high strength at high temperatures recommend specifically the use of stainless steel over any other metal as a building material.

The fundamental safety and economic requirements of a building material are its ability to insure the structural integrity of the building during and after a fire, and stainless steel can do this. The chart (below), giving the ultimate tensile strength of several metals versus temperature, indicates that stainless steel retains sufficient strength in fires to fulfill practical test specifications, and makes practical its use as a primary structural building material not requiring any protection.

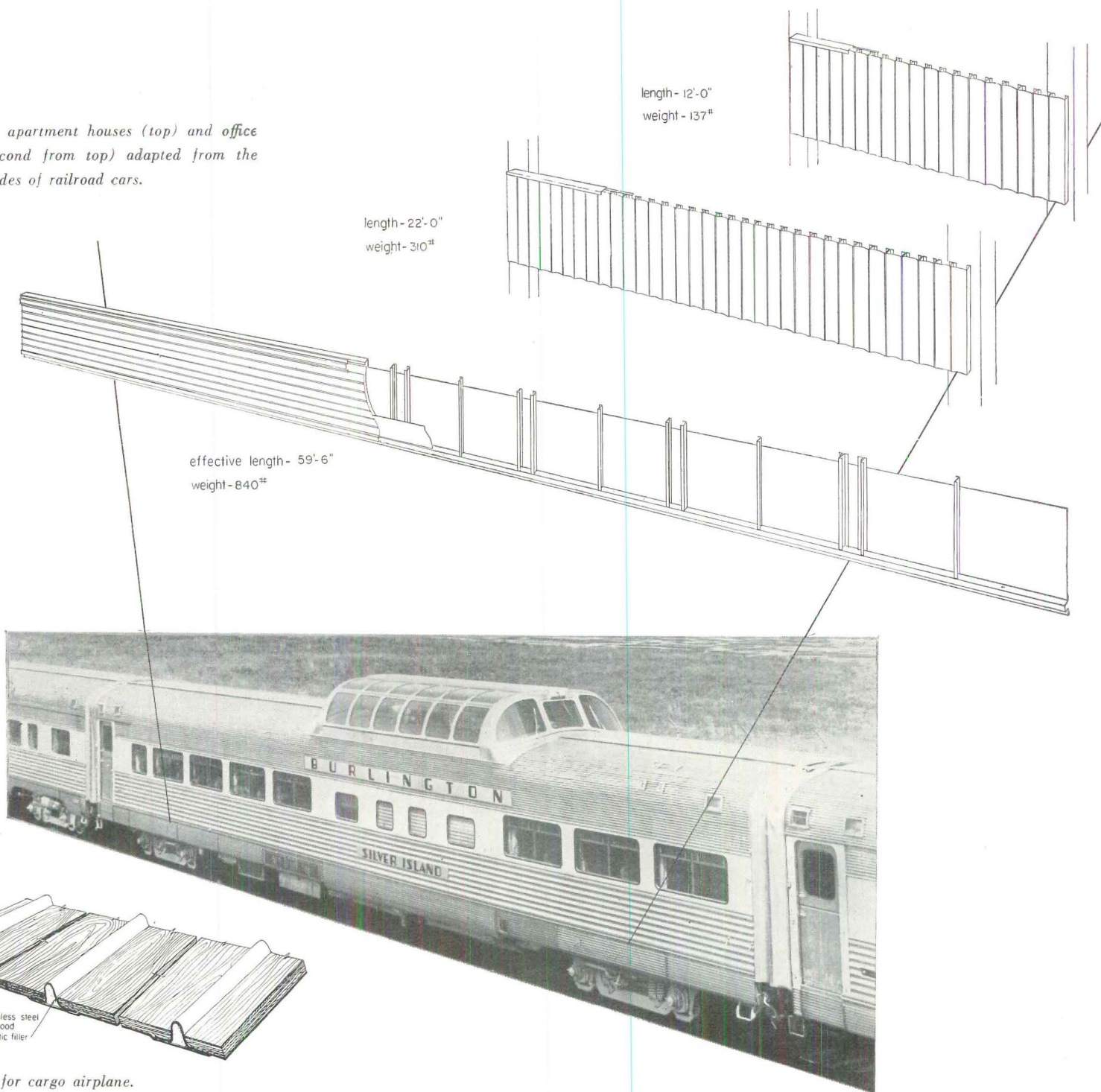


The examples at the right were selected to illustrate the potentialities of an integral stainless steel building construction. These examples do not pretend to offer a final design but are presented only to show the relative sizes and weights of a few stainless steel structural assemblies which could be readily modified to serve as building elements. The first shows a typical side (below window sill level) of a Budd stainless steel railway car used in exacting mainline service. This girder is quite similar to a spandrel-beam assembly which could be utilized to carry all the necessary dead and live floor loads and other loads imposed on the structure. It will be noted that the weight of this unit is 840 lbs. and it sustains a normal load of 32,130 lbs. giving a strength-to-weight ratio of 38.

The second section, based on the geometry common to office buildings, shows a possible spandrel-girder design 22 ft. long weighing only 310 lbs. and carrying a total floor load of 700 lbs. per ft. The gauges were selected to give a maximum tensile stress of about 10,000 lbs. per sq. in. thus affording a factor of safety of almost 2 at the highest temperatures which may be expected to occur locally on stainless steel structure during a fire.

The smallest section is a similar spandrel-girder design

Spandrels for apartment houses (top) and office buildings (second from top) adapted from the light tough sides of railroad cars.



Floor design for cargo airplane.

for an apartment building. The maximum stresses in this case are about 2,500 lbs. per sq. in. but the gauges selected were considered the minimum practical for the specific application.

Spandrel Statistics	Spandrel-girder office buildings	Spandrel-girder apartments
Span	22 ft.	12 ft.
Depth	4 ft.	4 ft.
Wt./foot	14.1 lbs./ft.	11.4 lbs./ft.
TOTAL WEIGHT	310 lbs.	137 lbs.
Uniform load	700/ft.	350/ft.

The sketch of a Budd cargo airplane flooring design shows how light a corrosion resistant material like stainless steel can be used. This floor, resting on supports spaced 18 in. apart and composed of 0.006 thick stainless steel sheathing with 0.020 thick occasional stringers and 1/4 in. plywood, demonstrated in tests an ultimate strength of 4,000 lbs. per sq. ft. Its own weight is 1.22 lbs. per sq. ft. thus it has a strength-to-weight ratio of 3,280.

It is interesting to observe that under normal conditions of loading the structure resists as a plate, while at the high

loads and loads approaching failure the strength is derived from a diaphragm tension behavior.

These few structures will suggest the very high weight economies and cost savings possible by the use of stainless steel stressed skin design. This approach makes no sacrifices of safety—in fact it enhances safety—and offers an opportunity of achieving beauty through function. Let the architect create the space and manipulate the masses—let the structural designer weave his stainless steel webs to provide safety and economy. Even the assembly procedure may well be changed because large size factory-made subassemblies could be brought to the site and electrically welded.

Buildings of this type cannot be constructed within codes—at least not at the present time. They require original engineering design, analysis and verifying tests. They will be more expensive to design but cheaper to build and maintain. They will also help preserve other materials in present use whose supply might eventually be exhausted.

W. W. Seary, R. W. Richards and F. J. Kandra, of Research and Development Division of The Budd Co., also helped to prepare the examples given in this text.

REVIEWS

CONTEMPORARY STRUCTURE IN ARCHITECTURE. By Leonard Michaels, M.A., A.R.I.B.A. Reinhold Publishing Corp., New York, N. Y. 229 pp. 8½ x 11¾. \$10.

The best thing about this book is the refreshing level upon which it approaches technology in everyday architecture. It comes without complicated formulas or heavy philosophy, but with a mass of concisely told and graphically documented information.

The author wrote it because he, like most other good architects, worries about the delicate relationship between structural engineers and architects in buildings of size. The architect, he repeats, has become essentially a coordinator of specialists. The specialist he must rely upon most heavily when he is designing a big building is the structural engineer, but it is essential that the architect know the choices open to him in structural methods. Some architects today are in the embarrassing position of kibitzing on a game of engineers—a game in which the rules have changed without their knowledge. They can't coordinate specialists in that situation.

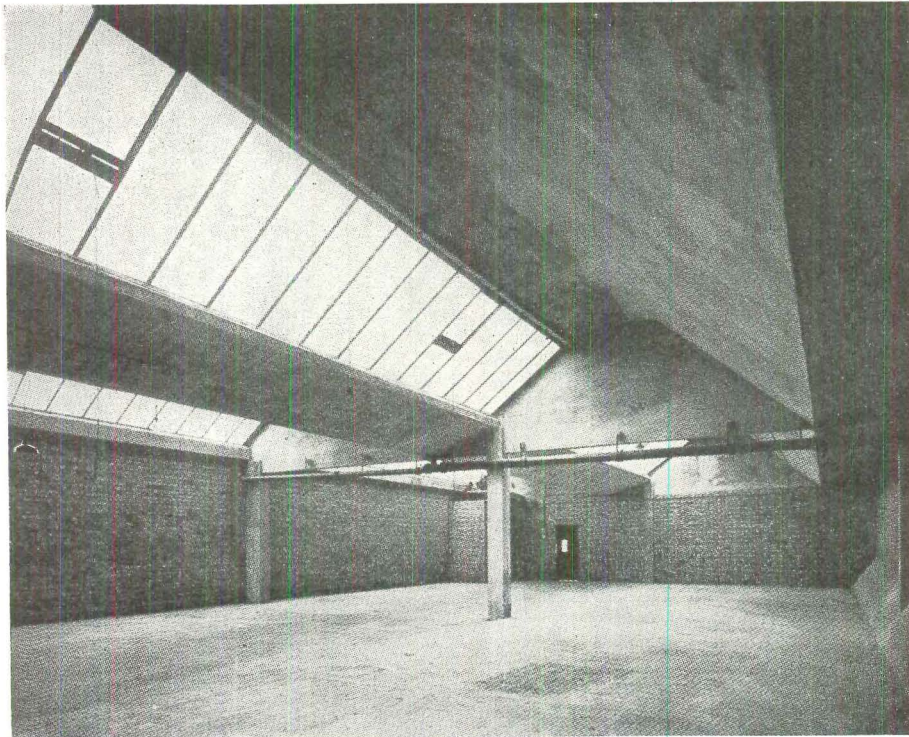
A lot of things have happened in use of steel, concrete, the alloys, and timber during the preceding several decades. Here, in the first section of this book, is a great deal of what has happened in rigid frames, precast concrete framing, prestressing, hinged arches, lamellas, thin shell concrete vaulting, etc. The pictures are good, and uncrowded. A lot of architects will nod their way through this part of the book in affirmation. They will have seen this before in periodicals, but they will appreciate the compendium.

The second half of the book is called *Structure in Architectural Design*, and treats the effect of the designer's choice of loadbearing methods on the plan, section, massing, and the esthetic impact of the completed building. But author Michaels does not allow himself enough text here to make his main points among the many interesting examples and illustrations. The annoying thing about this book is the way the information is organized. For instance, the author seems in terror of being mistaken for a textbook writer, and puts basic analysis of materials which is the essential of every point he makes into an appendix.

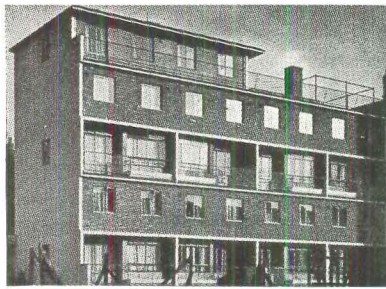
In a foreword, Architect Eric Mendelsohn says the study of this book is imperative to university departments and students, among others. This is true; even a quick thumbing through the illustrated pages will impress anyone with the fine results of a close, knowing relationship between engineers and architects.—W. McQ.

(Continued on page 132)

Careful calculation of shear and compression produces dramatically varied rod forms in the steel lattice girders below.



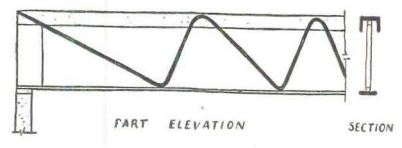
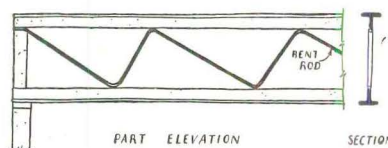
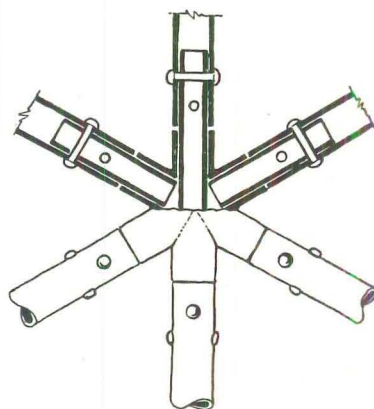
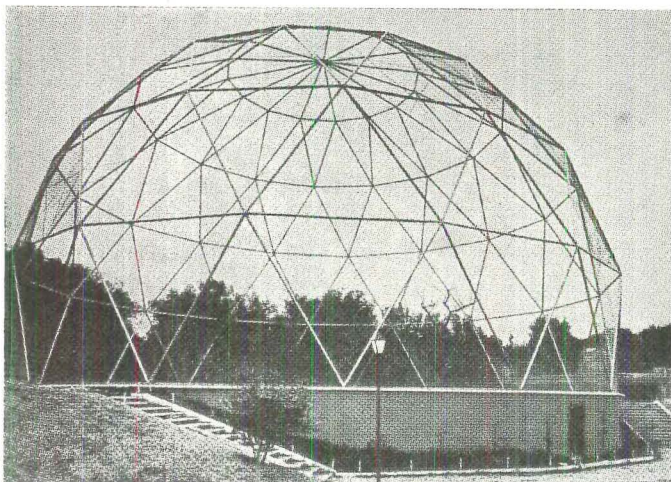
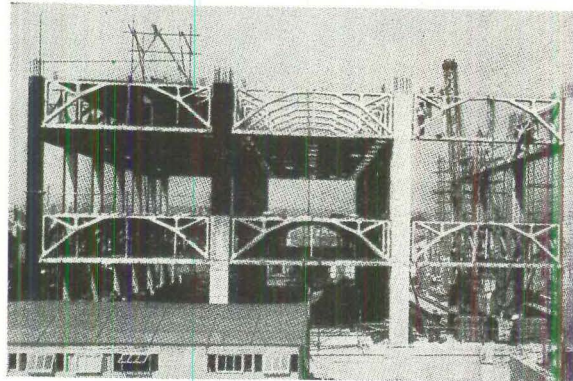
Folding a 4 in. concrete roof slab (left) enabled Tecton Architects (with H. L. Kier, Engineer) to span 40 ft. between supporting columns.



↑ Passivity of a brick curtain wall in a reinforced concrete frame is shown in the British apartment house (above).

→ Prestressed bottom chords brace story-high trusses of reinforced concrete (right).

↓ Chrome-nickel tubular steel creates a lattice dome, 100 ft. in diameter, for high-flying birds. A joint detail is shown at right.





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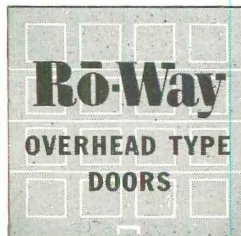
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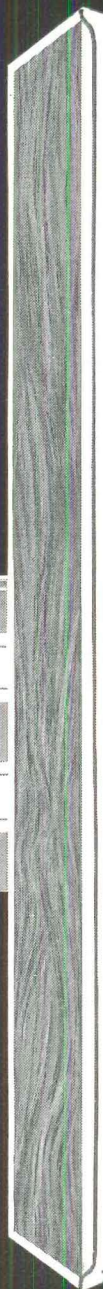


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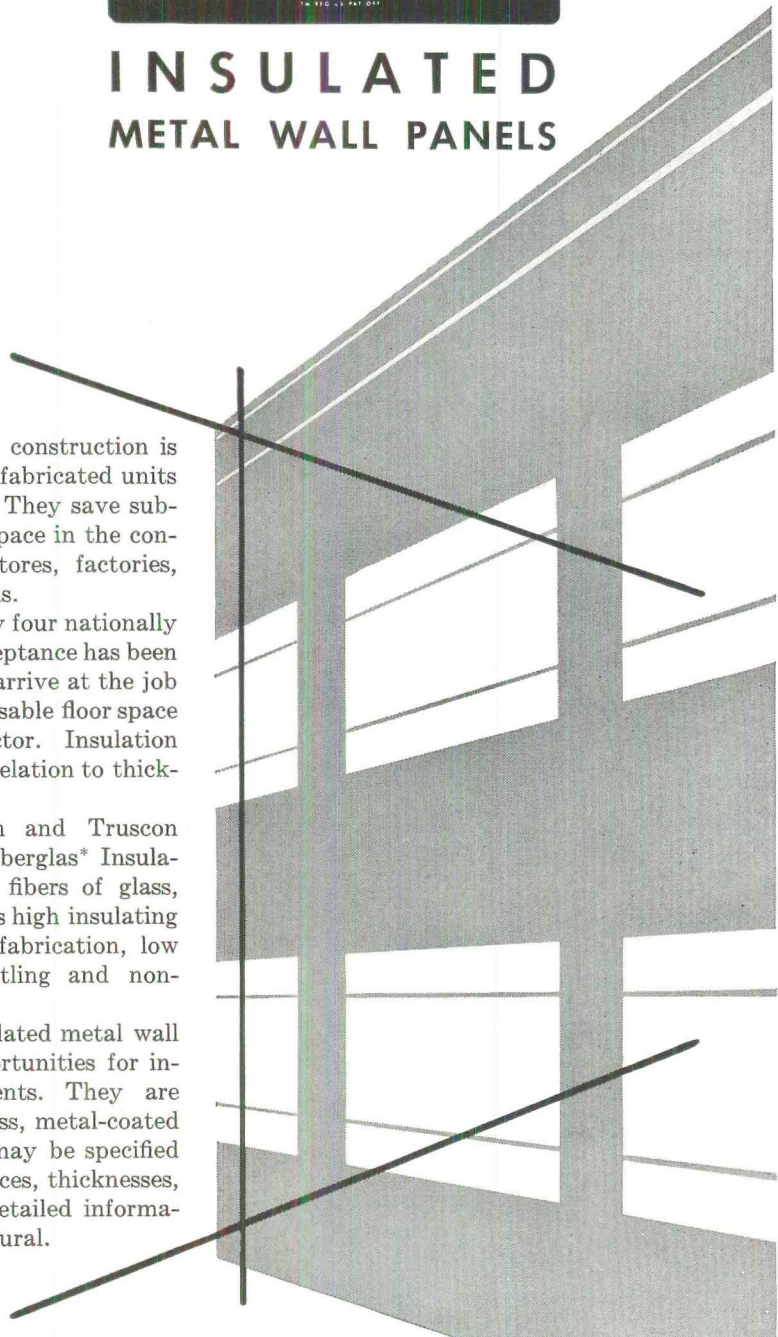
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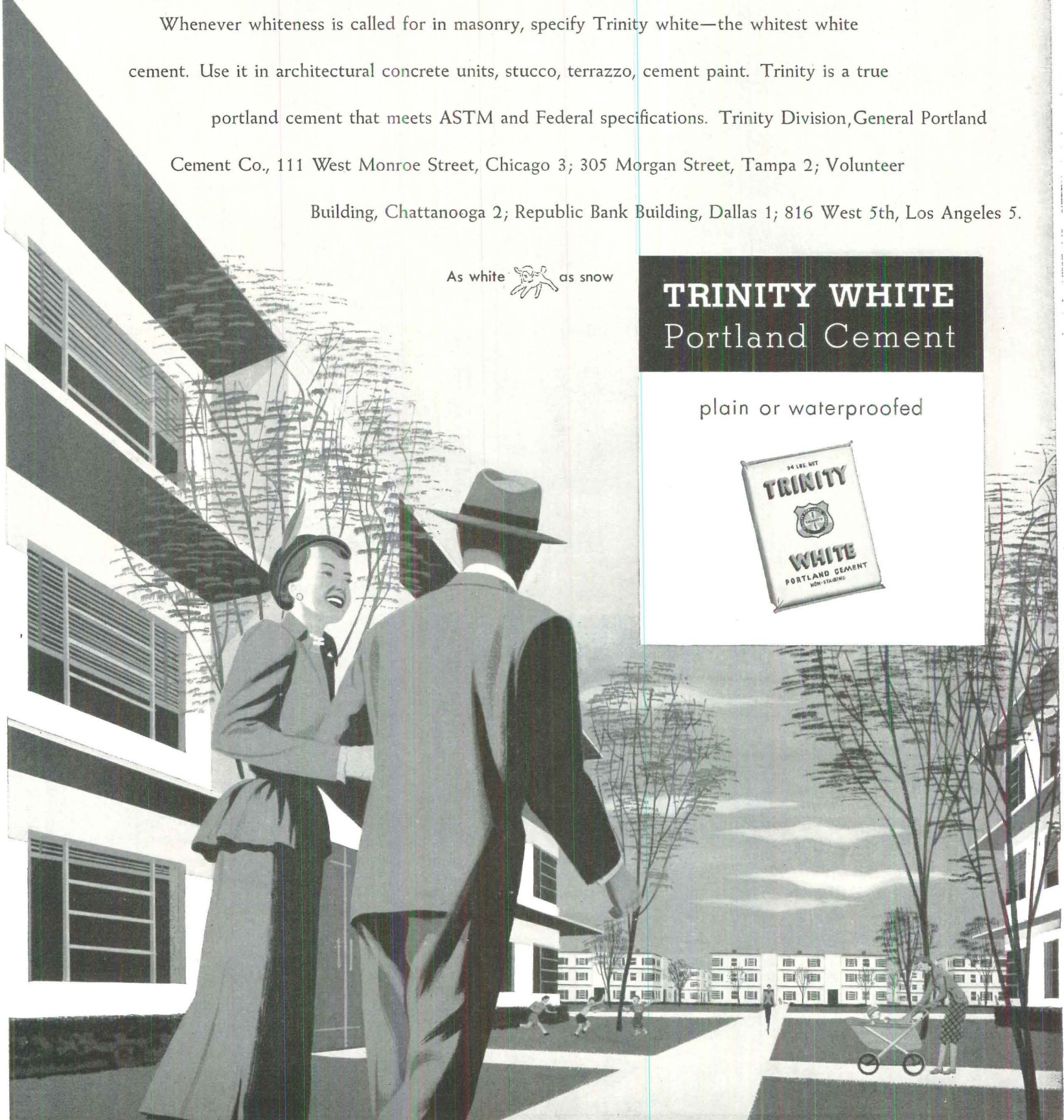
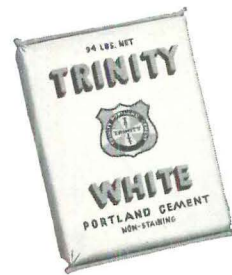
use Trinity White Cement

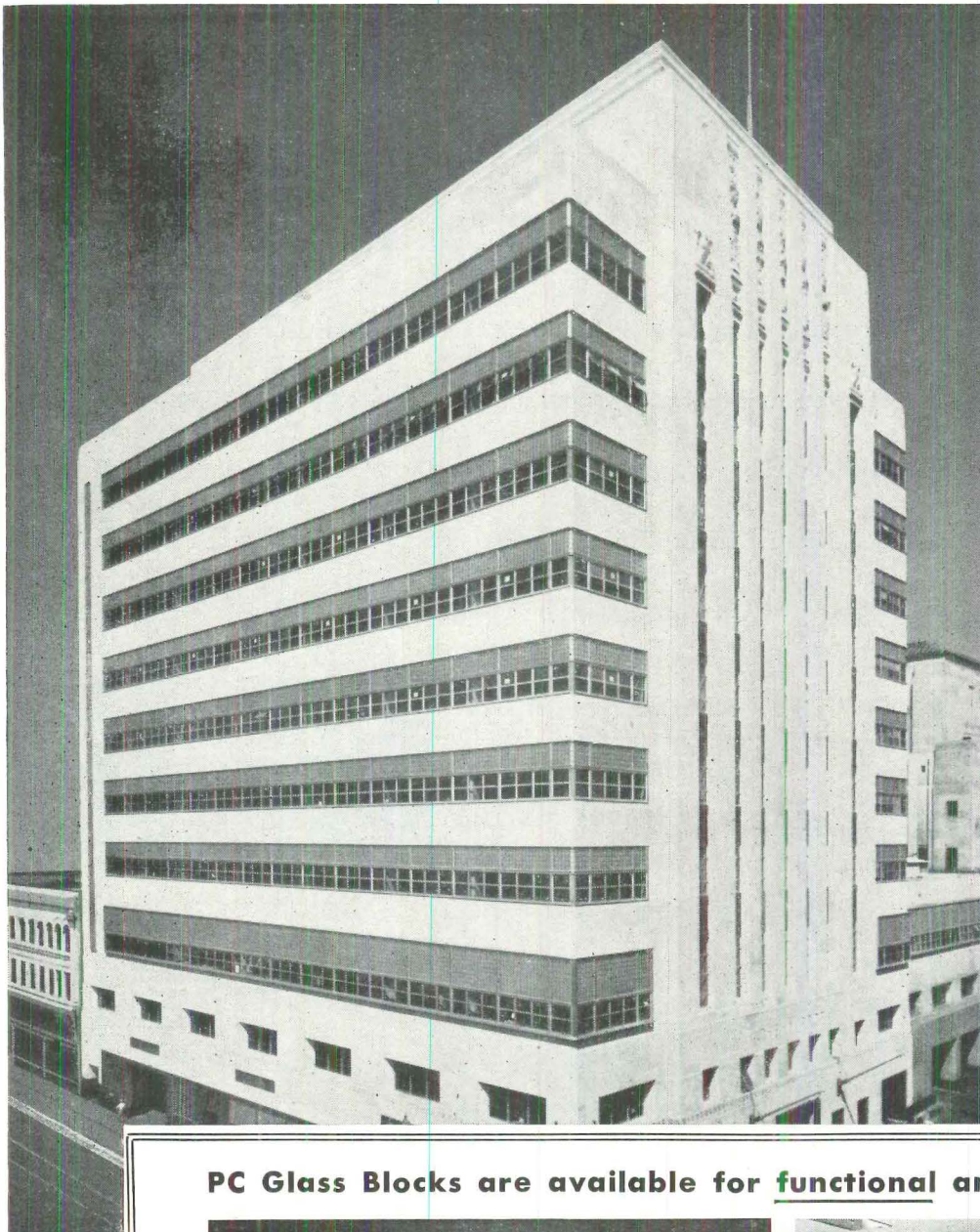
Whenever whiteness is called for in masonry, specify Trinity white—the whitest white cement. Use it in architectural concrete units, stucco, terrazzo, cement paint. Trinity is a true portland cement that meets ASTM and Federal specifications. Trinity Division, General Portland Cement Co., 111 West Monroe Street, Chicago 3; 305 Morgan Street, Tampa 2; Volunteer Building, Chattanooga 2; Republic Bank Building, Dallas 1; 816 West 5th, Los Angeles 5.

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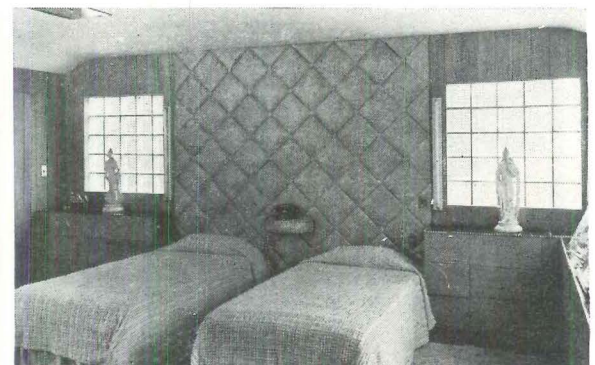


IN THE NEW Mirror Building, Los Angeles, California, the PC Vision-Lighting Plan — consisting of PC Functional Glass Blocks to direct daylighting, and panels of clear glass to permit ventilation and outside vision — was utilized as a basic feature of this ten-story structure. Standard sash for such combinations with glass blocks is readily available from many sash manufacturers. Architect: Roland H. Crawford, Beverly Hills, California.

PC Glass Blocks are available for functional and decorative purposes



DRIVE-IN BANK of the Fidelity Trust Company, Indianapolis, Ind., used PC Functional Glass Blocks for the triple advantages of protection, properly directed and diffused daylighting, and distinctive design. Architect: Edward D. Pierre, Indianapolis, Ind.



ARCHITECTS ARE fully cognizant of the decorative, as well as the utilitarian, value of glass blocks. In this bedroom, PC Decorative Glass Blocks admit ample daylight, assure complete privacy, reduce chilly downdrafts, add a pleasing touch to the room.



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high illumination levels, top quality daylighting, ventilation and freedom from that "shut in" feeling.

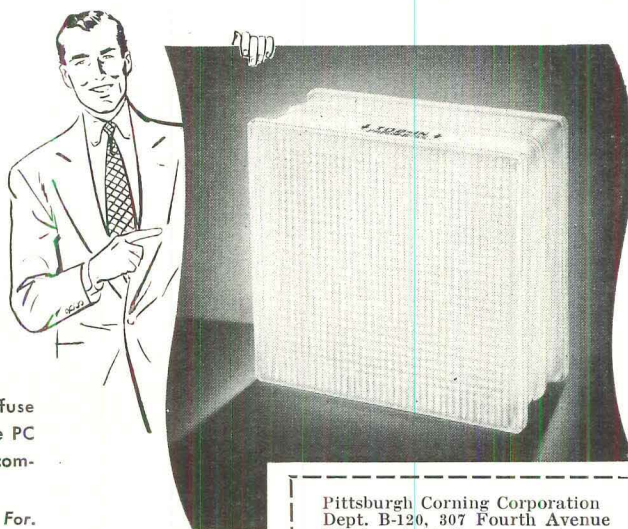
All PC Glass Blocks—*functional* and *decorative*—offer the ideal fenestration medium. For they have excellent insulating properties; require no repairs or replacements; no periodic painting or puttying. They reduce heating and air-conditioning costs; admit ample quantities of natural daylight; are easily cleaned.

Why not fill in and return the coupon below for our free booklets on the use of PC Glass Blocks in industrial, commercial and public structures and in homes?

Be sure that you specify the functional glass block especially designed for precision work . . .

New, exclusive features in PC *Functional* Glass Blocks make the PC *Vision-Lighting* Plan even more effective for daylighting areas where critical seeing tasks are performed. These include light-directing prisms on the interior faces of certain patterns, light-spreading corrugations on outside faces, a fibrous glass insert to diffuse still further the light transmitted by the block itself, and the PC *Soft-Lite** Edge Treatment, which creates a better, more comfortable "eye-ease" panel appearance.

*T. M. Reg. Applied For.



The mark of a modern building

Pittsburgh Corning Corporation
Dept. B-120, 307 Fourth Avenue
Pittsburgh 22, Pa.

Without obligation on my part, please send me your FREE booklets on the use of PC Glass Blocks in industrial, commercial and public structures, as well as in homes.

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Address.....
City..... State.....

BY W. P. FULLER & CO. ON THE PACIFIC COAST, AND BY HOBBS GLASS LTD. IN CANADA



Entry and Marquee; Satin finish stainless panels
Main Wall; Wider panels of crepe finish stainless

Stainless Steel isn't new in Buildings but this year it's NEWS

ARCHITECTURE has just taken a long, long step forward, with the advent of stainless steel "curtain wall" construction. Instead of the conventional masonry, this method employs insulated panels faced with stainless steel. Advantages? *Dozens of them!*

Here are a few. Stainless steel curtain walls 3" thick have insulating qualities superior to 12" of masonry. They give you more floor space, and they're much lighter . . . you can put four stories on foundations designed for three floors in masonry. Construction is much easier and faster, materials handling and storage are vastly simplified, and you completely avoid cold-weather difficulties with mortar and cement. What's more, the stainless exterior requires little maintenance, no painting, won't wear off and can't wear out.

That's the kind of eye-opening job Allegheny Metal does everywhere it's used—in buildings, industrial equipment or armament. It's a highly essential material. We're continuing to spend millions to increase our production, and we offer every aid to users to make the supply go as far as possible.



Complete technical and fabricating data—engineering help, too—are yours for the asking from Allegheny Ludlum Steel Corporation, Pittsburgh, Pa. . . . the nation's leading producer of stainless steel in all forms. Branch Offices are located in principal cities, coast to coast, and Warehouse Stocks of Allegheny Stainless Steel are carried by all Joseph T. Ryerson & Son, Inc. plants.

W & D 3246

Interested in Building?

Write for this Booklet:

STAINLESS STEEL CURTAIN WALLS
... Progress Report on Methods

24 pages of valuable data for architects, builders, real estate, bank and industrial executives on a revolutionary building method. Your copy is free on request.

ADDRESS DEPT. AF-12

You can make it BETTER with
Allegheny Metal

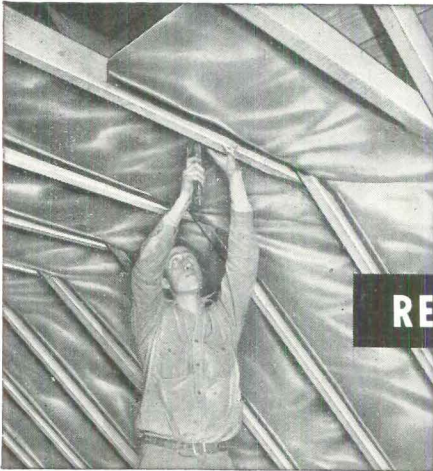


How to make Insulation a Dramatic Feature in your plans . . .

The story of Aluminum's radiant heat reflectivity is challenging, exciting...and convincing. Clients like the idea of this modern "miracle" inside their walls and attics, under the floor joists of unheated crawl spaces. They talk about BTU's bouncing off the aluminum... up to 95% of all radiant heat.

Technically, it's a sound specification...providing the perfect vapor barrier together with high insulating efficiency. Under floor joists, one layer of Type B (foil two sides) has a conductance coefficient of approximately 0.10—meets FHA requirements in most areas. Over ceilings or under rafters, one layer of Type B is excellent to take off summer sun load; two reflective-faced air spaces give you a conductance of approximately 0.14; or the single foil face (Type C) may be used with blanket insulation. In side walls, Type B bowed between studs provides extremely high efficiency at low cost... see diagrams below.

Turn the prosaic subject of insulation into a *Sales Feature*... with Reynolds Aluminum Reflective Insulation. Write for folder in A.I.A. file form. **Reynolds Metals Company**, Building Products Section, Louisville 1, Ky. Offices in 32 principal cities.



REYNOLDS ALUMINUM REFLECTIVE INSULATION

Aluminum foil bonded to one side (Type C) or both sides (Type B) of tough kraft paper. Special pressure-embossing strengthens the bond and produces a handsome pattern effect. Clean, odorless, pliable, fire-retardant. Easy to cut, bend, tack or staple. In boxed rolls of 250 square

feet, 25", 33" and 36" wide. Rolls weigh 15 lbs.

Also board types, for use as exposed wall and ceiling material. This is aluminum foil bonded to one or both sides of 15-pt. cardboard. Supplied in 25" and 17" widths, in rolls of 2,000 square feet.

IF YOU SEE RUST
YOU KNOW IT'S NOT
ALUMINUM



GUTTERS and DOWNSPOUTS

RESIDENTIAL CASEMENT
WINDOWS
(also Fixed and Picture)

ARCHITECTURAL SHAPES

5-V CRIMP and CORRUGATED
ROOFING AND SIDING

WEATHERBOARD SIDING

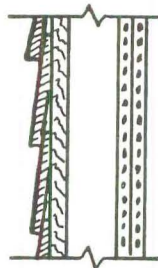
INDUSTRIAL CORRUGATED
BUILT-UP ROOFING

NAILS

FLASHING

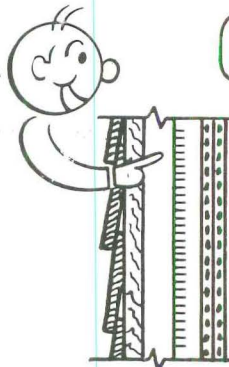
ROOFING ACCESSORIES

THIS REDUCES
HEAT LOSS 28%

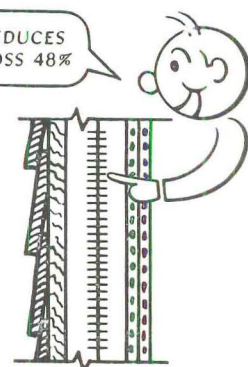


Wood siding and
frame, uninsulated
—overall heat loss
0.25 BTU/hr/°F.

THIS REDUCES
HEAT LOSS 48%

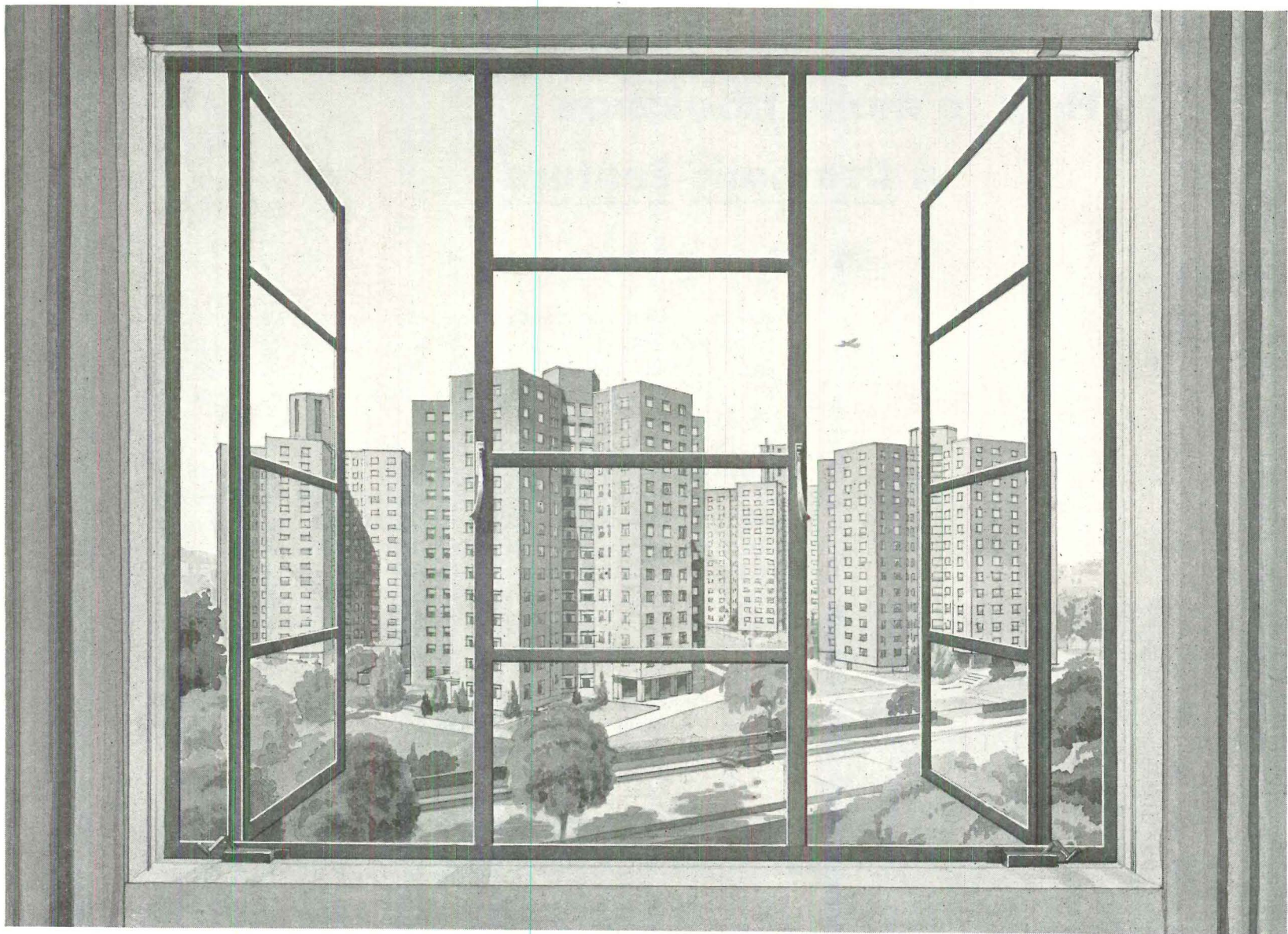


One layer of
single-faced foil
—overall heat loss
0.18 BTU/hr/°F.



One layer double-
faced foil insulation
—overall heat loss
0.13 BTU/hr/°F.

REYNOLDS ALUMINUM



Lupton Residence Casements in Albany Houses, New York City. Owned and Operated by New York Housing Authority. Architects and Engineers: Fellheimer, Wagner & Vollmer. Contractors: Cauldwell-Wingate, New York City.

New Yorkers are proud of their multi-story low rent housing projects! . . . Proud of the design that lets the light flood in on all sides! . . . In Albany Houses, illustrated here, Lupton Metal Windows play an important role in this plan of getting the maximum of sun and light into every corner of every room. Lupton Metal Windows meet low rent housing specifications for low first cost and long service life. Easy-to-install complete units save installation time, speed up building operations. Sturdy metal frames are precision built at every point. Cannot warp, swell or shrink—always easy to operate. Lupton Metal Windows are equipped with beautifully designed locking hardware. Metal frame screens and glass insulating panels available for installation on inside of windows. There is a Lupton Window in steel or aluminum for every type of building. Write for our General Catalog or see it in Sweet's.

MICHAEL FLYNN MANUFACTURING CO.
700 East Godfrey Avenue, Philadelphia 24, Penna.

*Member of the Metal Window Institute and
Aluminum Window Manufacturers Association*

LUPTON METAL WINDOWS

26 YEARS OF *Specialization* ARE BEHIND

DWYER KITCHENS

(Formerly called Murphy-Cabranette Kitchens)

Same product. Same manufacturer. Same distribution. Merely a name change for simplicity.

Dwyer Products Corporation devotes its entire facilities to the engineering and development of these now famous kitchens . . . *compact* kitchens which provide convenient housekeeping facilities in minimum space.

1951 models (4 sizes) are distinguished by clean, sweeping lines and by such features as refrigerators with push-button doors and stainless steel frozen food compartments . . . gas

or electric ranges of advanced design . . . one-piece sink and range tops.

Best of all is the appealing, permanent beauty of genuine vitreous porcelain on exposed surfaces.

If you seek tenant appeal, tenant permanence and minimum maintenance costs, write for illustrated bulletins.

CHECK THESE FEATURES

- Genuine vitreous porcelain on entire front . . . on sink-and-range top. Never needs painting; dirt and grease wash off with soap and water.
- One-piece sink-and-range top. Not a crack or crevice to harbor dirt and grease.
- Maximum refrigerator capacities:
Series 48 (48-in.) . . . 4.0 cu. ft.
Series 60 (60-in.) . . . 4.4 cu. ft.
Series 69 (69-in.) . . . 6.0 cu. ft.
- Push-button operated refrigerator door.
- Designed for recess or against-the wall installation.
- Easy to service. Every vital part of a Dwyer Kitchen can be removed and replaced from the front . . . without moving any section of the kitchen proper.
- Designed, developed and manufactured by an organization which has specialized in compact kitchens for over a quarter-century.

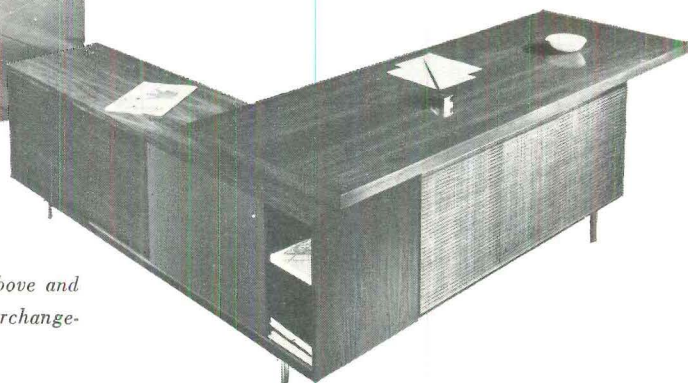
★

Minimum maintenance. Repairs rarely needed . . . proven by checks with owners.

Durability proven by thousands of installations in rental properties where hard use (sometimes abuse) is the rule.

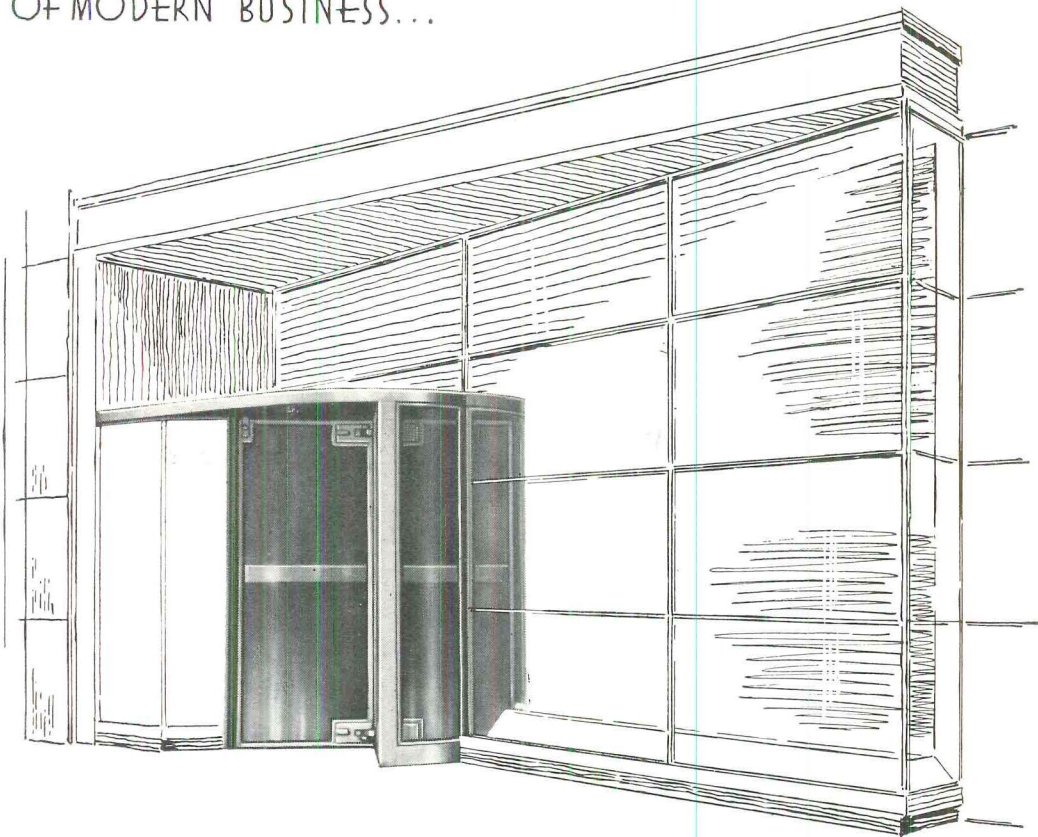


Write for Illustrated Literature



L-shaped desks by George Nelson (above and left) combine large work-slab with interchangeable storage and service units.

IN NEW ENTRANCES...
 REVOLVING DOORS INTERPRET THE TEMPO
 OF MODERN BUSINESS...



The architect who includes a revolving door in his recommended plans is doing more than suggesting a beautiful entrance. He is giving his client a practical door that efficiently controls traffic, reduces heating and cooling costs, and gives years of trouble-free service.

For the "right" door — where traffic control and savings in heat and cooling costs are important — specify International-Van Kannel Revolving Doors.



FOR INFORMATION —
 Consult your classified directory under Doors, Revolving, or see our catalog in Sweet's.

REVOLVING
 INTERNATIONAL-VAN KANNEL
 DOORS
 1812 EDGAR STREET EVANSVILLE 7, IND.

IN CANADA — International-Van Kannel revolving doors are available through Eastern Steel Products, Ltd., in Toronto and Montreal.

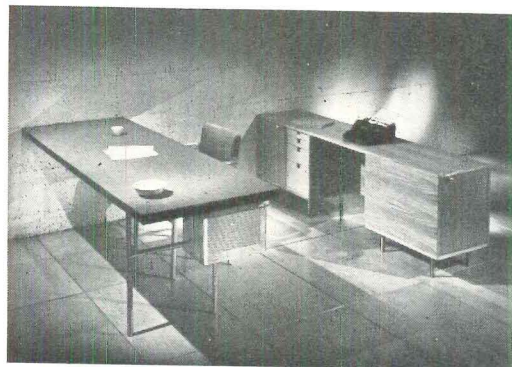
REVIEWS

(Continued from page 122)

NEW DESK PARTS ADD UP TO HANDY, HANDSOME OFFICES

With an eye to making office furniture at once better looking and more flexible, George Nelson has researched and designed three basic office groups with interchangeable parts. His aim has been to concentrate all necessary components within view and reach of the person sitting at the desk. Result: the number of furniture pieces in the room can be reduced. The rest of the office is left for informal meeting and conference use. Desk parts will be sold individually or as complete units. They can be used (according to manufacturer Herman Miller's estimates) to form 150 to 175 various combinations. Variations are based on three main themes: an executive desk, an executive-secretary desk and a work desk for use in large office spaces.

The large secretarial desk differs essentially from the executive only in its provision of a knee hole among the side cabinets for comfort while typing. If office space should be limited (or the type of work makes it desirable to separate storage and work space) the two parts can be set in parallel rows (as shown below).

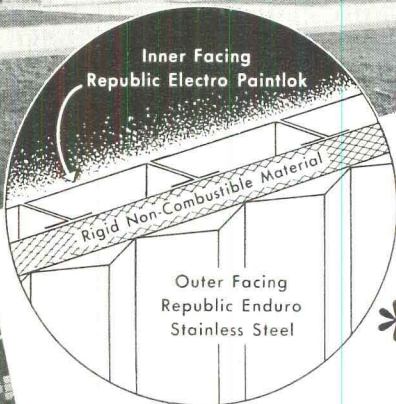
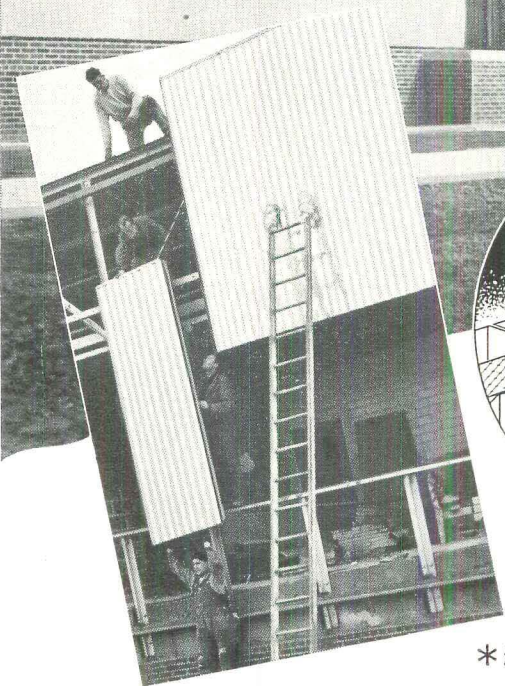
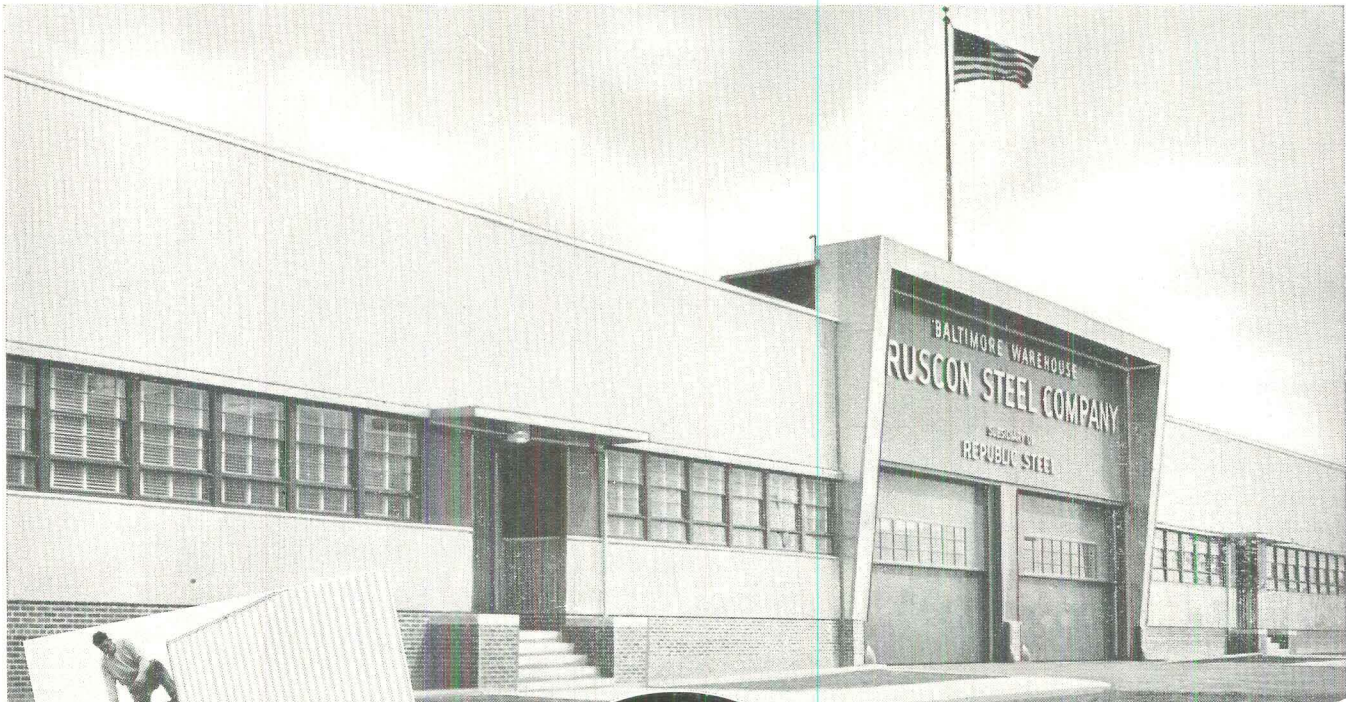


The smaller work table, (30 x 60 in.), designed for group offices, may be fitted with any of the auxiliary parts. It has also a triple tray mounted on top for keeping current papers and correspondence. As may be seen from the photo below, its trim informal cut fits it for home as well as office use.



The main components of the large "L" shaped desks are (1) a slab-top which rests on a metal H-leg and (2) a strip of storage units set at a right angle to the slab. Tops vary in size from 30 x 72 in. to 36 x 84 in. Auxiliary parts, which

(Continued on page 136)



Now *HANG! YOUR WALLS!

*the Lightweight, Insulated Enduro Curtain Wall Way!

IN MODERN RECKONING there's no room for excess or unproductive weight. Witness the advent of the stainless steel curtain-wall—designed to replace massive, multi-story masonry walls.

The ENDURO Stainless Steel curtain-wall is a sectional metal sandwich that you HANG in a fraction of the time normally taken to erect a masonry wall. It weighs but 8 to 15 pounds per square foot—a small fraction of the weight of a masonry wall. It is fire-resistant, with a "U" factor of .08 to .16. Fire rating, weight and "U" value depend upon the type and thickness of the insulation

used. Fire rating up to 3 hours is readily obtained.

With a thickness of 5 inches, as against 14 inches for a masonry wall, a good $\frac{3}{4}$ square foot of rentable floor space per lineal wall foot per floor is gained. And—ENDURO is decorative.

The installed cost of this new construction compares with conventional curtain walls. Plus values include increased useable floor space, low or negligible maintenance cost, and facility of erection under all kinds of weather conditions. Our experience in curtain-wall design and construction is at your service. Write us!

Enduro **STAINLESS STEEL**



RUST-RESISTANT • CORROSION-RESISTANT • HEAT-RESISTANT • ATTRACTIVE • SANITARY • EASY TO CLEAN
EASY TO FABRICATE • STRONG • LONG-LASTING • LOW IN END COST • What more can be desired in a material?

REPUBLIC STEEL CORPORATION • Alloy Steel Division, Massillon, Ohio • GENERAL OFFICES, CLEVELAND 1, OHIO

Export Department: Chrysler Building, New York 17, N. Y.

31-YEAR-OLD 6-STORY WAREHOUSE BECOMES MODERN OFFICE BUILDING

Frigidaire air conditioning plays vital role in the transformation

FRIEDMAN, ALSCHULER & SINCERE, Architects
HARPER RICHARDS, Designer
ROBERT E. HATTIS, Consulting Engineer
OWNER: Foote, Cone & Belding

Toward the close of World War I, the Army Quartermaster Corps built a warehouse at 155 E. Superior Street, Chicago. It was simply a rectangular brick shell enclosing six concrete floors with a full basement. And it remained little more than that for over 31 years.

Then, last year, it was completely remodeled—to become the new home of the Chicago office of a large advertising agency.

Fitting the building for its new role involved at least one very serious problem, that of providing proper temperature and humidity conditions the year around. Because not only outside space, but even central floor area, had to be partitioned into a series of private offices for agency personnel. And without courtyard or air shafts, the problem was even more difficult.

The best solution to the problem was found in the advantages of Frigidaire central system air conditioning equipment. Without air conditioning, the interior offices could have been little more than hot, humid cells.

But, of course, the air conditioning installation does far more than simply meet the original architectural problem. The draft-free supply of cool, dry air which it provides for the building, including most of the basement, enables the whole agency to function at top efficiency in even the hottest, muggiest weather.

Then, too, this Frigidaire-powered system is not an ordinary one, and it offers certain advantages that many systems cannot give.

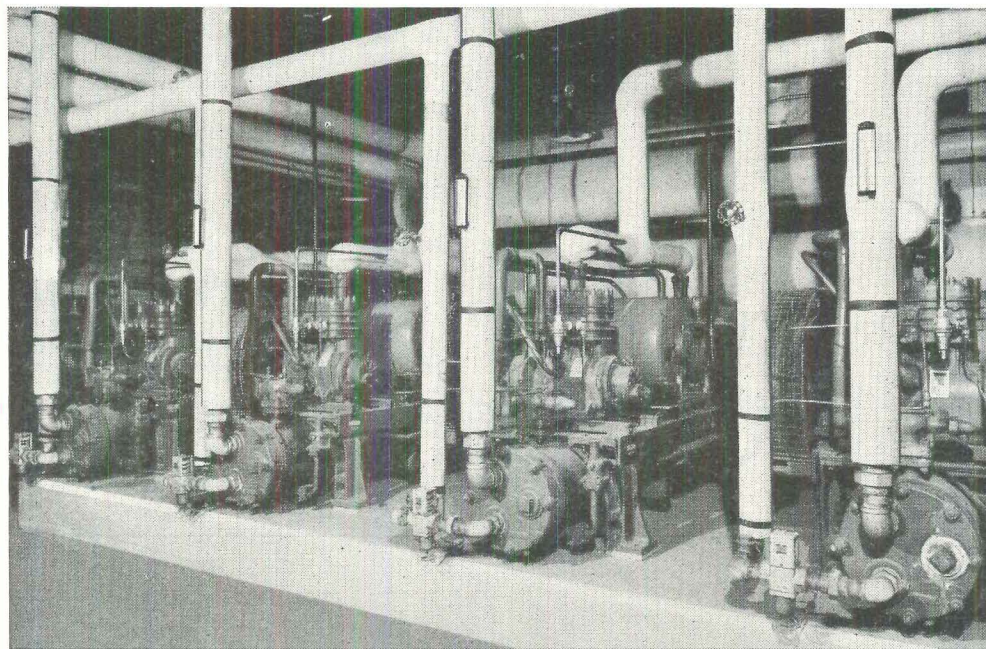
The 200 tons of refrigeration needed are supplied by a battery of eight 25 h.p. Frigidaire compressors—each compressor coming into play as needed. Say, for example, that the need for air conditioning at a certain hour can be met by 25 tons of refrigeration. With one 25 h.p. compressor in operation, the capacity of the Frigidaire equipment in use is equal to the amount of conditioning required. This is in striking contrast to a system using two 100 h.p. compressors. For, with such a system, at least one 100 h.p. compressor must be in operation when any amount of cooling is required. This fact alone results in greater economy of operation with the Frigidaire-powered system.

The economy is further heightened by the fact that all air conditioning is zoned—by floors and within each floor. If part of the agency personnel work overtime, the zones not in use can be shut off at a central control panel so that only a few of the compressors operate.

Yet another advantage is the extra margin of security which results from the use of eight Frigidaire compressors. Servicing—if necessary—would remove only a small part of the total capacity instead of taking out one-half capacity as in the case of many systems.



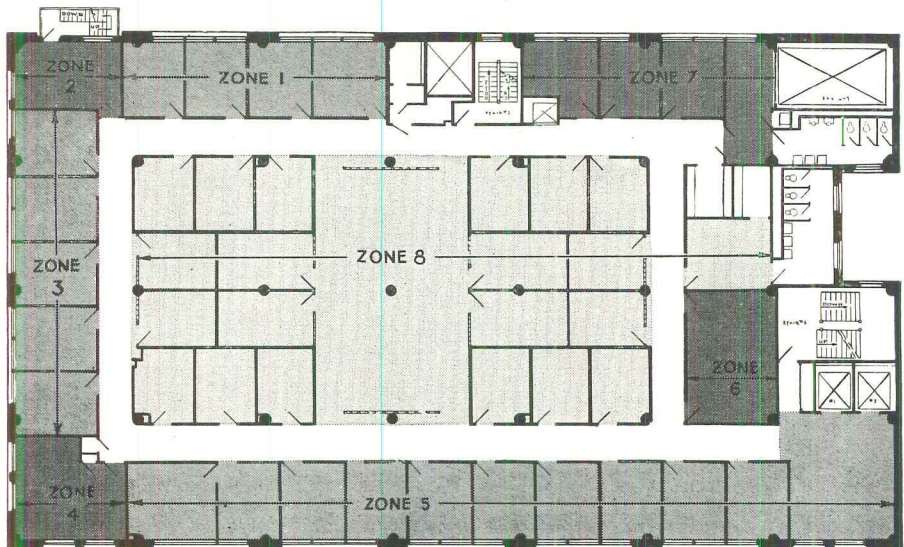
Shown here is half of the refrigeration battery of eight 25 h.p. Frigidaire compressors. Located in the basement, their job is to chill a moving column of water to constant temperature. Pumped up to the building penthouse, the water is there circulated through coils which cool electronically filtered air.



There's absolutely no heating or cooling equipment to clutter the interior of any of the 147 private offices. Conditioned air enters through a small grill high on the wall, leaves through door louvers. For maximum insulation, all windows are double panes of fixed glass with a half inch of air space between them.



Floor plan indicates how air conditioning has been zoned. Each zone has been further divided by locating within it two control points. These permit temperature variation to suit individuals within the zone. Notice that virtually no floor space has been wasted. Thanks to air conditioning, every square foot of floor area has been put to valuable use.



Air conditioning made possible the use of basement space for this attractive lunchroom which serves agency personnel. Air conditioning also permits the basement to be safely used for central storage of office supplies and for the agency's photostat room.



A phone call will bring you detailed information on all Frigidaire Air Conditioning—on all Frigidaire Appliances for kitchen and laundry. Call your Frigidaire Dealer—or the Frigidaire Distributor or Factory Branch that serves your area. Look for the name in the Yellow Pages of your phone book. Or write Frigidaire Division of General Motors, Dayton 1, Ohio. In Canada, Leaside 12, Ontario.

FRIGIDAIRE

Air Conditioning

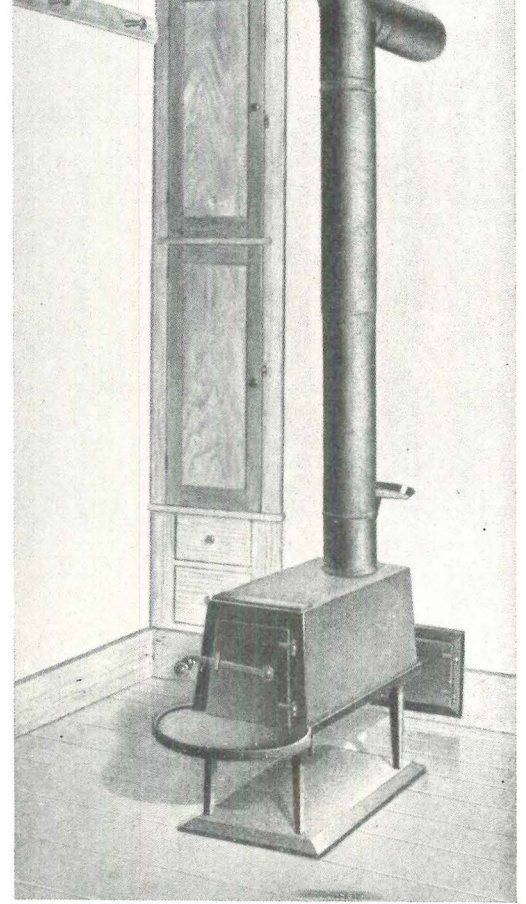
Refrigerators • Food Freezers • Water Coolers
 Electric Ranges • Home Laundry Equipment • Electric Water Heaters
 Electric Dehumidifier • Kitchen Cabinets and Sinks

may be attached beneath the work-slab or set in the storage group, are: a metal file case; a two or three-drawer block; an invisible inter-communication system; several types of open and closed shelf space.

Storage space provided under the slab area is easily reached by a door on the outside of the "L". Stainproof finishes eliminate the need for glass tops. Exact prices are not yet available, but some indication is given by the fact that a fully-equipped executive desk will be listed at the rather executive price of \$500.

THE INDEX OF AMERICAN DESIGN by Erwin O. Christensen. Macmillan Co., 60 Fifth Ave., New York 11, N. Y. 9 1/4 x 12. 229 pp. Illus. \$15.

Times have surely changed since 1891 when a Denver librarian arranged the first exhibit to provide an affirmative answer to the question—"Is there any American design, aside from the Indians?" The number of books on the subject has now grown beyond number—but there is always room for a book so visually excellent as this latest addition. The plates, many of them



in color, seem at first glance magnificent specimens of color photography. As a matter of fact they are fine reproductions of meticulous water-color renderings. The work is the result of a WPA project on which an average of 300 artists were occupied from 1935 to 1941; specimens of folk art in 35 states are included. One can well believe the editor's claim that it forms "the largest and most comprehensive collection of its kind in the world."

In looking through the lively "articles of daily use and adornment" one notices the prevalence of the same ingenuity which characterizes 19th century American tools and machinery. Closest to modern taste are undoubtedly the Shaker products, whose elegant proportions and restraint of ornament are visible in iron as well as wood. For ease of stoking, the stove (above) is set close to the ground, with a bib in front for resting logs.

The variety and richness of our early folk sculpture—which adorned shops and ships and churches in all parts of the country—reminds us again of the loss a nation incurs by learning to read. The lettered signs of today have deprived us of the handsome spontaneous sculptures that once indicated the presence of village bars, butchers and cigar stores.

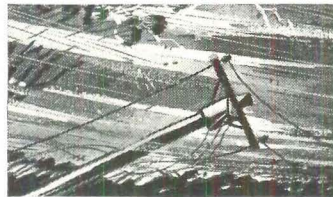
Explaining the use of water-color rather than camera for these illustrations (aside from furnishing work to artists during the depression) Christensen presents a thesis that is borne out by these illustrations: "The camera except in the hands of its greatest masters cannot reveal the essential character and quality of objects as the artist can . . . cannot search out the forms of objects deeply undercut or modeled in high relief . . . or render the subtle interplay of form, color and texture which creates the characteristic beauty of so many projects of early American craftsmen."—S.K.

(Continued on page 140)

KOHLER ELECTRIC PLANTS

*Independent Source
of Electricity*

**Stand-by protection against
central station power failures**

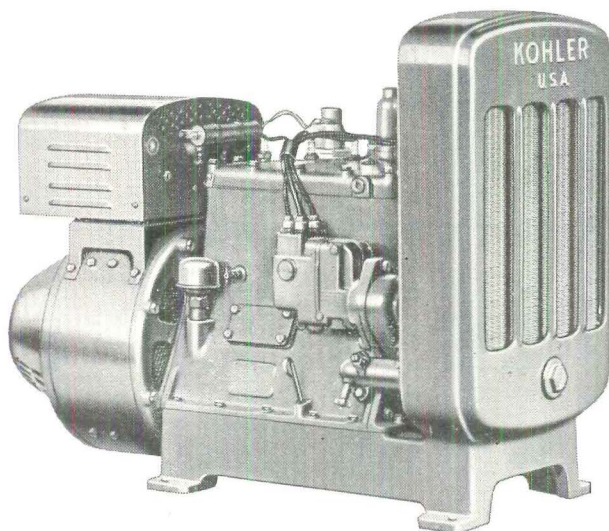


Hospitals need reliable stand-by electricity for operating room lights, X-rays, sterilizers, iron lungs. Schools, stores, theatres need it to prevent sudden darkness and panic—homes for automatic heat and refrigeration. Stand-by power prevents interruptions for processing plants, com-

munication systems, hatcheries, greenhouses, hotels, airports, refineries, sewage treatment plants, bakeries, filling stations.

Kohler stand-by electric plants, 1 KW to 15 KW, take over critical loads automatically — stopping automatically when power is restored. Write for folder.

Kohler Co., Kohler, Wisconsin. Established 1873.



Model 3.5A51, 3.5 KW, 115 volt AC. Automatic start and stop. Length 41", width 16", height 28".

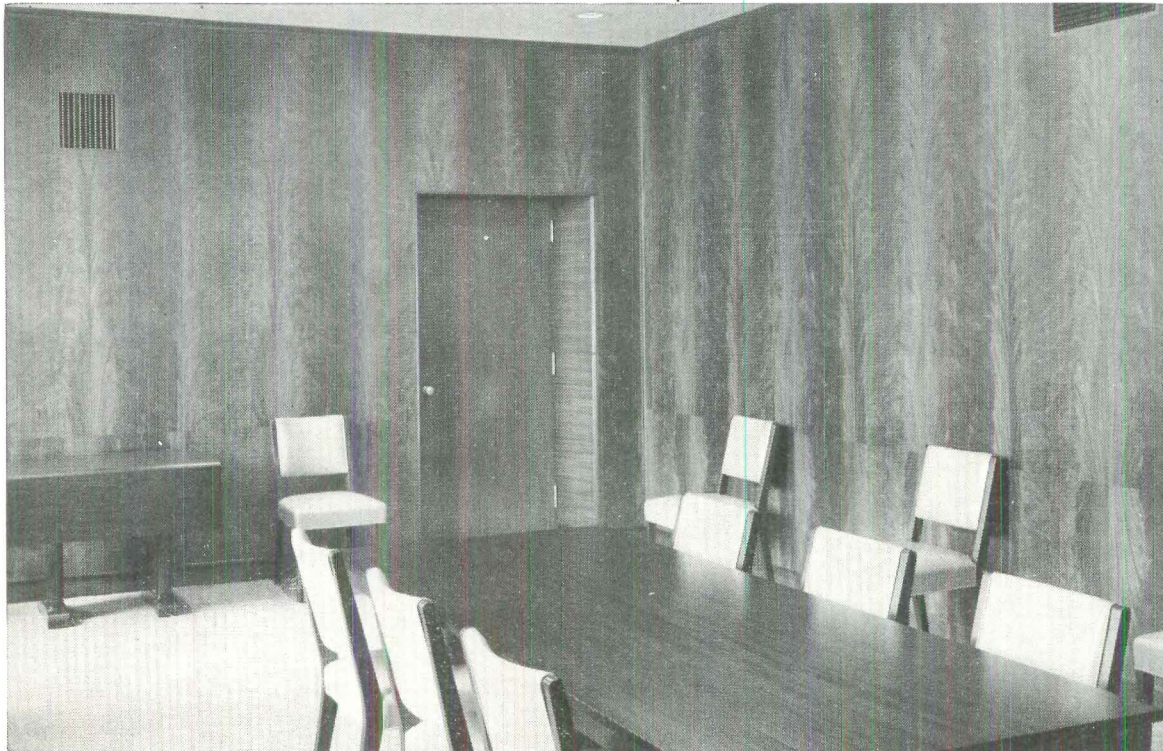
KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS • AIR-COOLED ENGINES

YOU CAN'T AFFORD TO MISS A STEP



IN PLYWOOD MANUFACTURE



Ten Steps to Roddiscraft Quality

There's no shortcut to quality. Roddiscraft quality plywood is manufactured step by step—no shortcuts, no skip steps. You can depend on Roddiscraft quality.

The first step — quality veneers — followed by careful matching, seasoning, moisture control—then the best adhesives, applied in modern hot plate presses — exact machine sanding, final inspection and proper storage.

Quality manufactured Roddiscraft Plywood is available in Birch, Maple, Walnut, Oak, Mahogany, Blonde Limba, Prima Vera, Avodire, Chen Chen, Gum and

Douglas Fir from warehouse stocks. Other woods are available on special order. No matter what your paneling plans, you can safely specify Roddiscraft plywood.

First Cost Is Practically Last Cost with Roddiscraft Hardwood Plywood

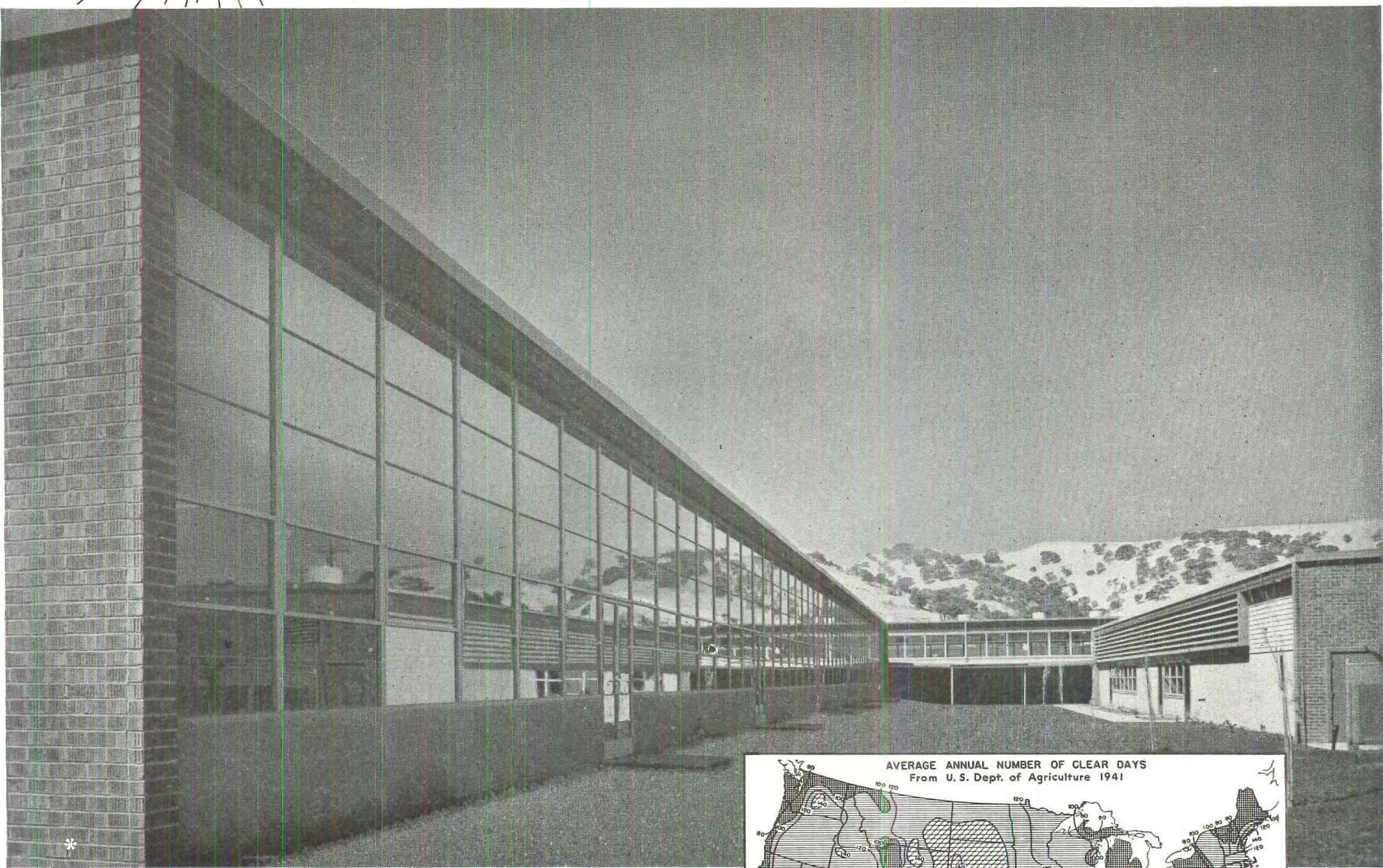
Figures obtained from well known building authorities indicate that over a period of ten years or less, based on using 1/4" plywood, the average cost of a paneling job will be no more than that of an ordinary plaster job using paper or paint finishes requiring constant maintenance. Beyond that period, the negligible amount of maintenance needed to preserve a Roddiscraft paneled wall results in real savings to the building owner.

Roddiscraft
RODDIS PLYWOOD CORPORATION
MARSHFIELD, WISCONSIN

NATIONWIDE Roddiscraft WAREHOUSE SERVICE
Cambridge, Mass. • Charlotte, N. C. • Chicago, Ill. • Cincinnati, Ohio • Dallas, Texas • Detroit, Michigan • Houston, Texas • Kansas City, Kan. • New Hyde Park, L. I., N. Y. • Los Angeles, Calif. • Louisville, Ky. • Marshfield, Wis. • Milwaukee, Wis. • New York, N. Y. • Port Newark, N. J. • Philadelphia, Pa. • St. Louis, Mo. • San Antonio, Texas • San Francisco, Calif.

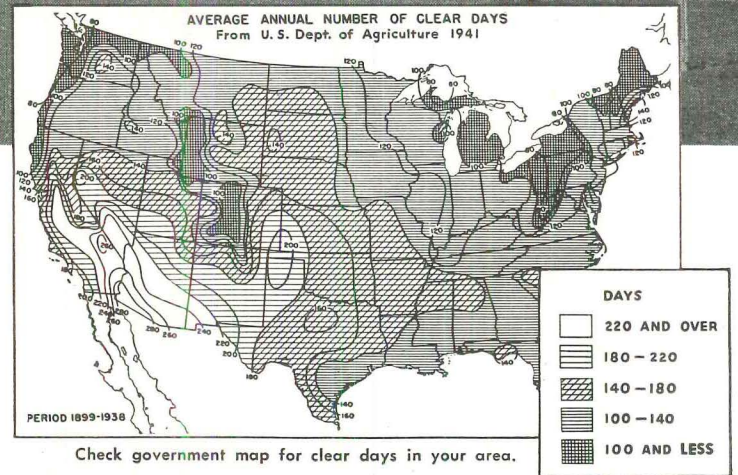
The Sun Hides on Most School Days...but...

Montecito School, Martinez, Calif.



Ceco Steel Windows
 provide *plenty* of daylight
 for **Good Vision**

Maybe you don't know how elusive old Sol can be during the school term. Actually, he hides most of the time. So say government figures. In 90% of the country, there are less than 130 clear days in a whole year when you deduct weekends. Then subtract 90 summer days and it's easy to see most school days are overcast. Therefore, it's most important in providing light for schools to use a window that admits the most daylight. Here, Ceco Steel Windows



truly meet the test because only steel windows admit enough daylight on overcast days to provide good vision. Then, too, steel windows offer controlled ventilation up to 100%...assure distant vision. The cost? Lowest of all installed. Maintenance? Cost is lower here too. Any way you figure it—cost, maintenance or functional superiority, Ceco Steel Windows are the best buy.

*Bamberger & Reid, architects. Roger Sturtevant Photo.

CECO STEEL PRODUCTS CORPORATION

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

Offices, warehouses and fabricating plants in principal cities



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

Another modern building saves with Reinforced Concrete!



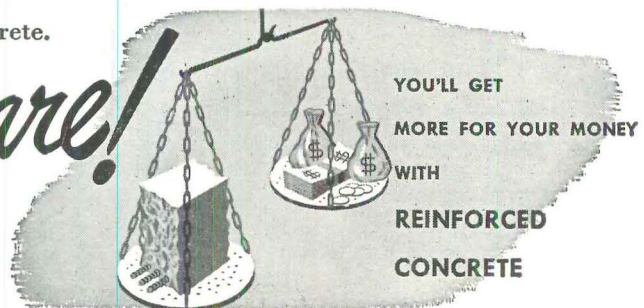
Manhattan House, New York City, owned and managed by New York Life Insurance Co. Associated Architects: Mayer & Whittlesey; and Skidmore, Owings, & Merrill. Structural Engineer: Charles Mayer. General Contractor: Cauldwell Wingate Co.

For this modern apartment building—New York Life Insurance Co.'s Manhattan House—reinforced concrete was chosen for frames and floors, which resulted in appreciably lower framing costs. Note the upper floors. This type of construction permits an important saving in vertical space.

Reinforced concrete construction offers many other advantages. Its monolithic structure is inherently firesafe, as well as highly resistant to wind, shock, and quakes. For your next building, consider reinforced concrete.

**CONCRETE REINFORCING
STEEL INSTITUTE**
38 S. Dearborn Street
Chicago 3, Illinois

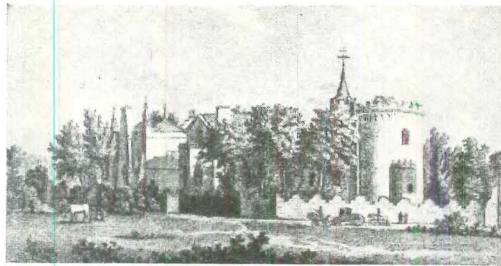
Compare!





Hedrich-Blessing Studio

The best known 20th Century house (above) and Horace Walpole's 18th Century manor (at right) contrast the picturesque with the "organic" ideal.



REVIEWS

EVOLUTIONARY THOUGHT IN AMERICA

ed. by Stow Persons. Yale University Press, N. Haven, Conn., 462 pp. Illus. 6 1/4 x 9 1/2. \$5.

HUMAN ECOLOGY—A Theory of Community Structure by Amos Hawley. Ronald Press Co., E. 26 St., New York, N. Y., 456 pp. 6 x 9 1/4. \$5.

"Architecture is not merely art," said Louis Sullivan, "it is a social manifestation . . . study of architecture becomes naturally a logically a branch of social science." Both the books (let's admit right away their appeal mostly academic) explore the relation between architecture and social theories. The first looks back to point out how deeply modern art a building has been influenced by the concept of evolution; the second sketches out a future reaching alliance where architecture, regional planning and sociology will be integrated parts of the one science—ecology ("the relation of organisms . . . to their environment").

Donald Drew Egbert contends in *Evolutionary Thought in America* that "Of all the arts, architecture is the one which has most clearly reflected the general philosophical point of view of evolution . . . simply because it is the art most directly affected by changes in the physical and social temperature." Far removed from debate as to what philosophical premises evolution does or does not involve, its cogency as a system of development gave modern architecture its integrating concept—"organic structure." The observation that organisms react definitely and variously to their surroundings gave Sullivan the basis for a new science of building. "He continually insisted that the natural environment of a given edifice—the site, climate, etc., must also be functionally expressed in the very form of the architecture itself."

A striking contrast between the houses designed by two architectural theoreticians is offered by *Strawberry Hill* of Horace Walpole and *Falling Water House* of F. L. Wright. Walpole, epitome of a romantic era, used individual taste or whim to produce the 'picturesque'. Wright's approach to the same problem (a house for pleasure in a country setting) is not merely visually different. It represents a consistent, integrated exploitation of sun, stream and landscape. It is 'organic'.

Human Ecology, a Theory of Community Structure looks at architecture and planning through the long end of a telescope. Sometimes its scientific caution rivals British understatement: "Many years were required for western peoples to learn to live in great cities and this is reason to believe the adaptation is still not complete." On the other hand, faced as the world is with unprecedented problems, it is compelling to realize that "the quadrupling of the world population in the last 280 years is an extraordinary event." These charts of racial, national and climatic progressions look into the world when regional planning will be taken for granted and the planner's outlook will be as global as if he were—figuratively or literally—regarding the world from the moon. —S

(Continued on page 144)

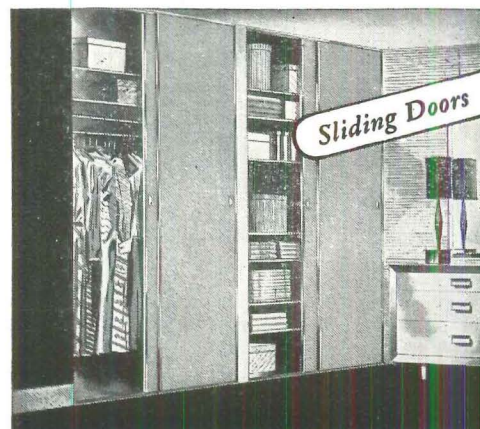
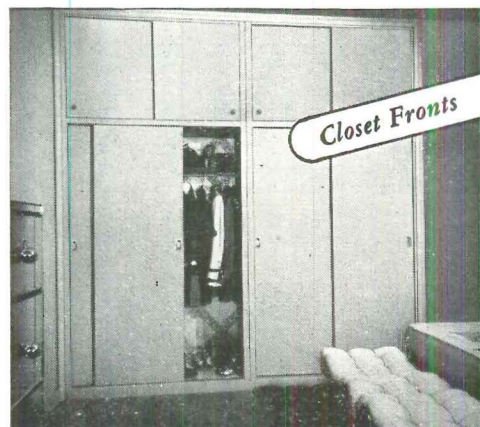
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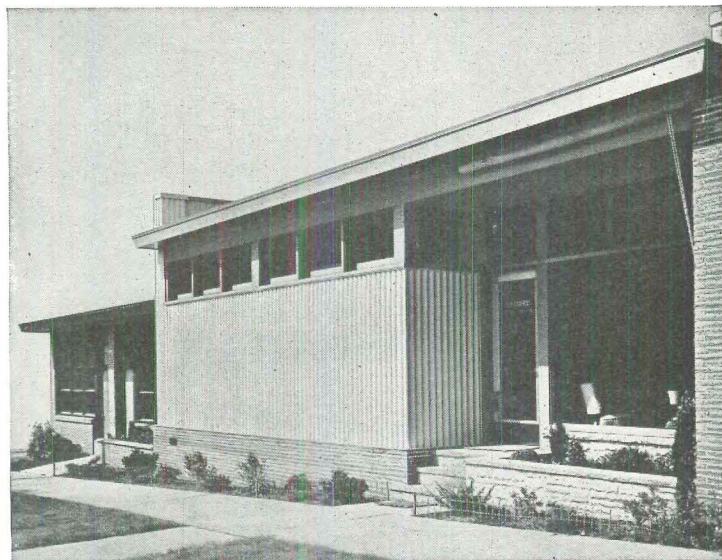
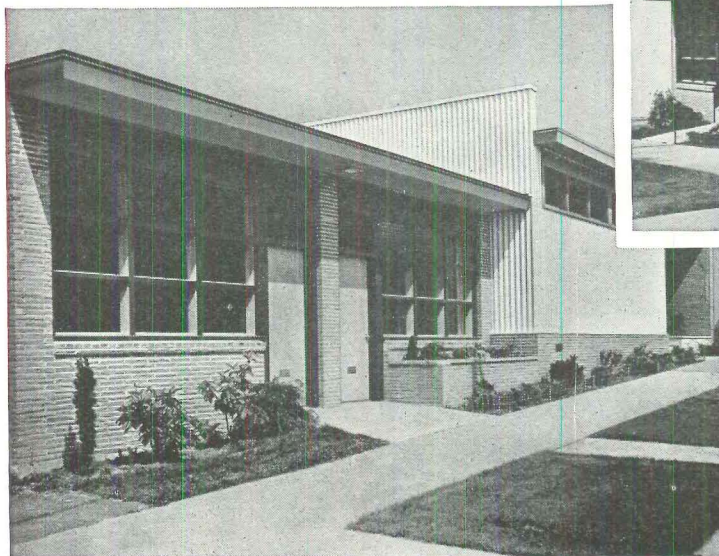
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Two views of attractive office building designed by Bliss Moore, Jr. and Associates for Navarre Plumbing & Heating Company, Seattle, Washington. Exterior siding and interior paneling are "Century" Asbestos-Cement Corrugated. Contractor, H. E. Forsman; photos by Roger Dudley.

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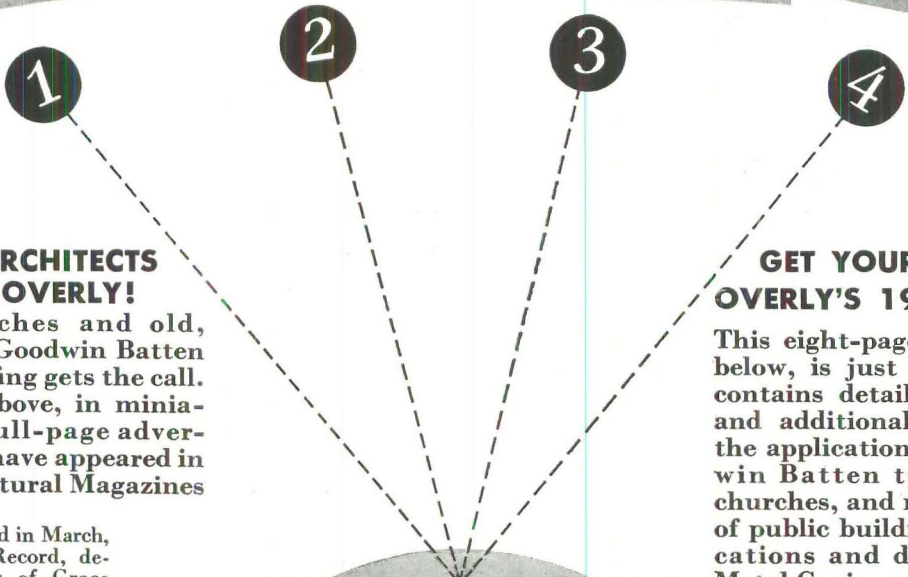
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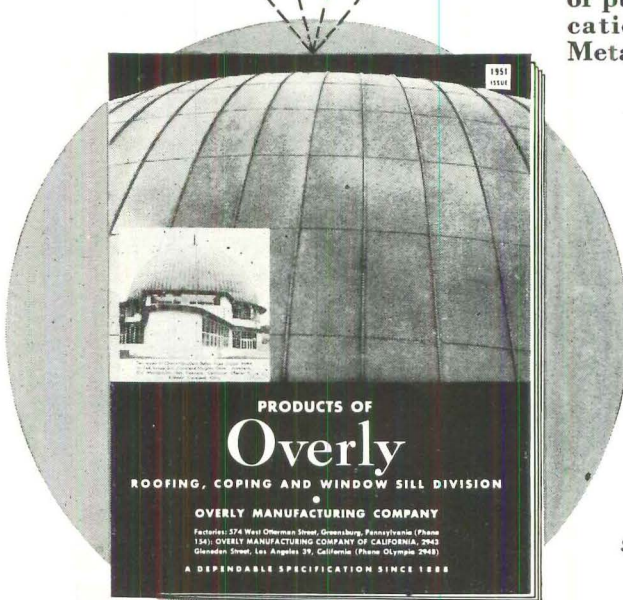
Reproduced above, in miniature, are four full-page advertisements that have appeared in leading Architectural Magazines during 1950.

Ad #1—which appeared in March, 1950 Architectural Record, describes the reroofing of Grace Methodist Church, Wilmington, Delaware, with Overly-Goodwin Roofing in Alrok-finish Aluminum.

Ad #2—which appeared in May, 1950 Architectural Record, illustrates the application of Overly-Goodwin Roofing in copper on the Park Synagogue, Cleveland Heights, Ohio.

Ad #3—June, 1950 appeared in Architectural Forum, and tells the before-and-after story of St. Mary's Greek Catholic Church in Scranton, Pennsylvania.

Ad #4—July, 1950 appeared in Architectural Record, and describes how the First United Brethren Church in Greensburg, Pennsylvania, was given a new lease on life. 105 tons of tile roofing, which had broken down the roof trusses, were removed and replaced by Overly-Goodwin Roofing in Aluminum.



GET YOUR COPY OF OVERLY'S 1951 CATALOG

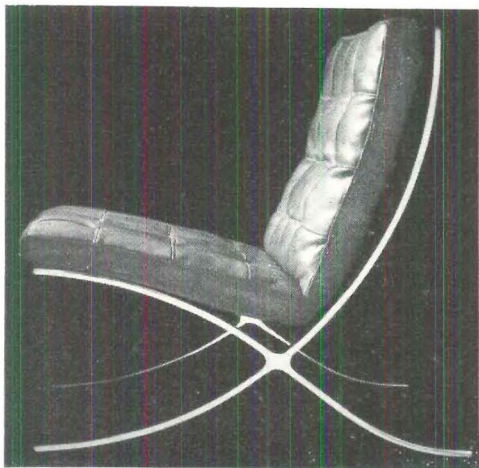
This eight-page catalog, shown below, is just off the press. It contains details, specifications, and additional illustrations of the application of Overly-Goodwin Batten type Roofing to churches, and many other types of public buildings. The specifications and details of Overly Metal Coping and Overly Alro-sills are also fully described.

Send Today for this catalog preprint, which is now available. It will also appear in 1951 Sweet's File.

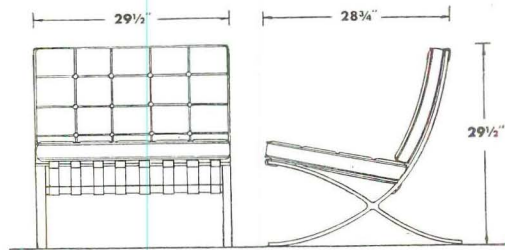
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Kertesz



The Mies van der Rohe chairs for the Barcelona Exhibit helped create a new concept of architecture; are now part of the Hans Knoll classic, vendible collection.

REVIEWS

KNOLL INDEX OF DESIGNS. Knoll Associates, Inc. 575 Madison Ave., New York 22, N. Y. 80 pp. Illus. 8 1/2 x 12. \$3.50.

The Mies van der Rohe chairs which shine elegantly through the glass walls of Phillip Johnson's houses present a classic example of the influence of modern furniture on architecture. One cannot help wondering—would Johnson have loved glass so much, loved he not Mies the more?

These influential steel chairs, together with many others that have helped create pleasant and congenial modern interiors, are shown—for both admiration and consideration—in the new Knoll Index. It can be enjoyed disinterestedly as a pictorial essay, brilliantly designed and organized by Herbert Matter. Its focus is kept surely on the visual and structural appeal of its subject. (All mundane references to cost, shipping, packing, etc., have been relegated to a supplementary handbook.)

Knoll's success in presenting chairs, tables, beds, chests et al that supplement the requirements of modern building is undoubtedly due to the fact that most of their designers are architects as well. This around-the-world roster includes the names of: Albin, Bellman, Bonet, Hardoy, Jeanneret, Knoll, Knorr, Mies van der Rohe, Nakashima, Noguchi, Saarinen, Sorenson, Stein, Svedberg and Tapiovaara. —S.K.

COMPANY HOUSING-1940-50. Introduction in English, Swedish text. A. B. Seelig & Co., Stockholm, Sweden. 85 pp. 8 1/4 x 11 3/4. Illus.

With many U. S. industries feeling their way towards decentralization, the wide and comparatively long experience of Swedish companies in the problem of housing their employees takes on more and more pertinence.

Company housing in small Swedish industrial towns has almost fifty years of evolution behind it—enough to have passed through three distinct phases. Up to 1920 dwellings were built and financed almost entirely by the companies themselves. The reason was obvious—nearly two-thirds of the manufacturing towns had under 5,000 workers, all dependent for livelihood on a single industry. To induce workers to settle in these out-of-the-way sections companies had to eliminate their risk of losing a major investment if the job fell through. Between 1920 and 1940, however, the idea of decentralized factories had become so much a working pattern, that employees felt secure enough to do some of their own building. Companies helped with financing, and the worker-owner could feel almost sure of selling his house should he decide to leave. Since 1940 still another trend has set in—cooperative housing. The success of cooperatives in merchandising, and the increasing stability of work in small industrial towns encouraged workers to take an even greater share in financing as well as construction of houses. In most cases the companies have been glad to step out of the picture.

(Continued on page 148)



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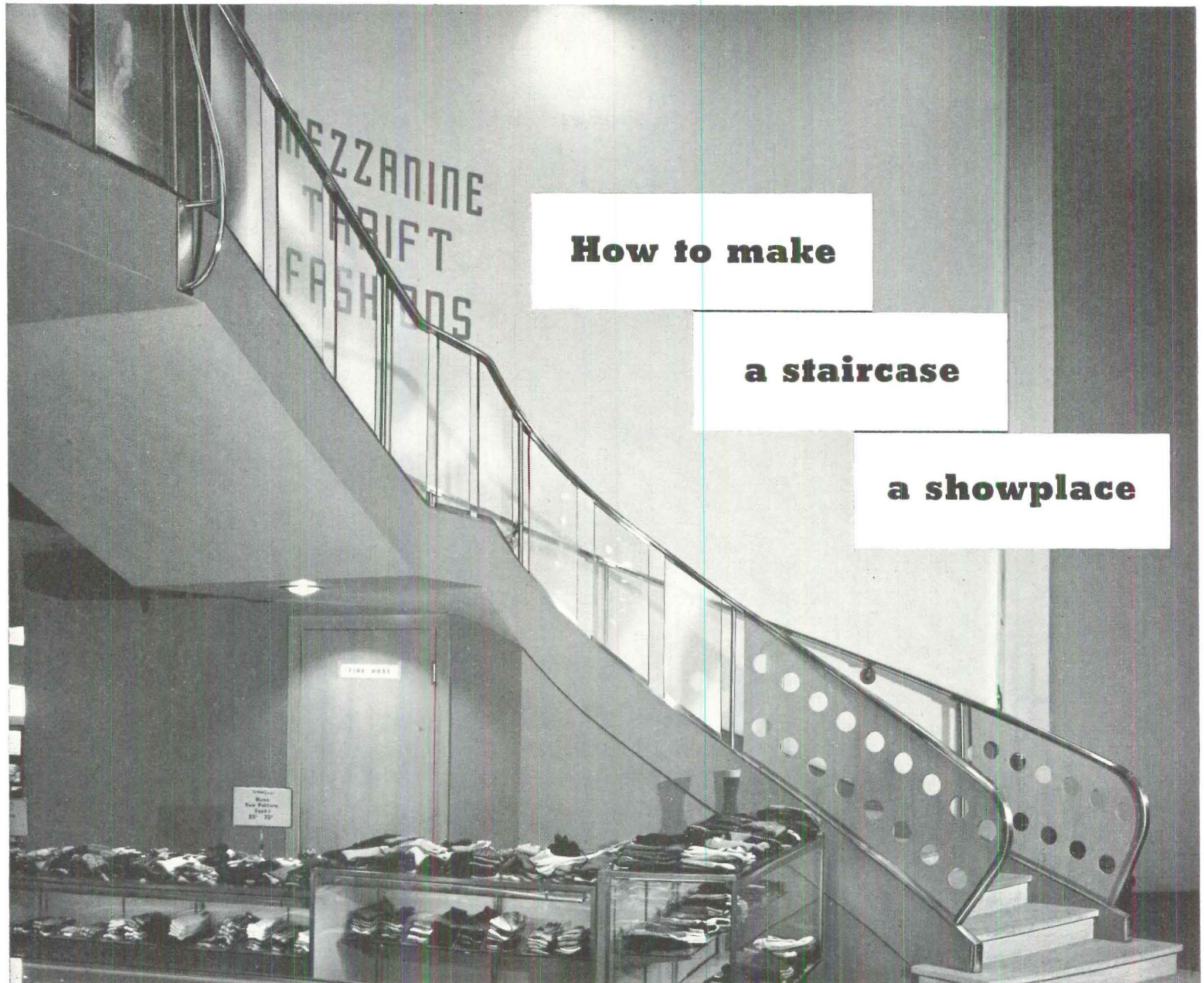
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a showplace

*Architect: Francis J. Thuman, Baltimore
Fabricator: George R. Habgood Co., Philadelphia*

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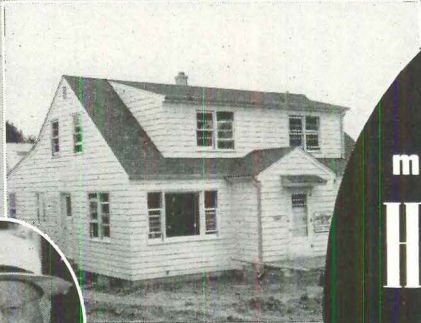




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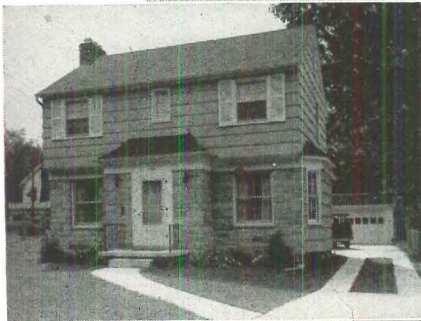


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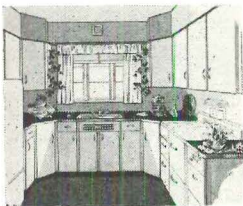
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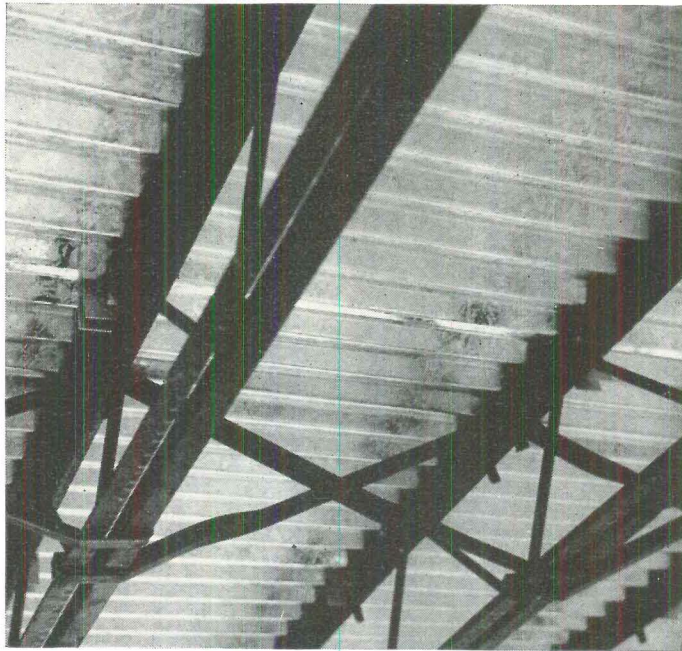
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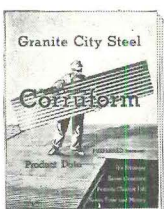
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REVIEWS

With the aging of the earlier houses, disagreements arose about rent rates and repairs. Cooperatives reduce the entire dependence caused by employer housing. Both government and employer subsidies are encouraging the practice. (This increase of cooperative housing is also recorded in a recent volume on Swedish Cooperatives in general—see Reviews, FORUM, December, 1949).

Company Housing gives insight not only into historical development but into the various refinements of plan worked out for housing needs. Thus, apartments for night-shift workers have one bedroom placed near a door—yet away from the kitchen and other family centers. This allows the night-worker to return home without disturbing the family, and to sleep during the day with a minimum of interruption—S.K.

REPRINTS WORTH READING

UNDERPINNING, ITS PRACTICE AND APPLICATION. 2nd Edition, Revised and Enlarged. By Edmund Astley Prestis and Lazarus Write. Columbia University Press, Morningside Heights, New York, N. Y. 374 pp. Illus. 6 1/4 x 9 1/2. \$10.

The difference between the leaning tower of Pisa and the straight resilient towers of Manhattan lies in scientific underpinning. Two pioneers in the field of structural foundations here provide a first-hand account of experience in shoring, bracing and moving buildings—modern structure from the ground down.

ENGLISH PANORAMA. By Thomas Sharp. 2nd Edition. Architectural Press, London, England. Illus. 152 pp. 5 1/4 x 8 1/2. 12 s. 6 d.

"The town being inevitably for us, we shall have once for all to be done with escapism and with the romanticism that breeds it." This concise, well-written, carefully-illustrated book sets forth what two centuries of shilly-shallying has done to the once-proud English countryside. Its frank facing of problems keeps it up-to-date in spite of the ten harrassing years of its existence.

A HISTORY OF ARCHITECTURE. By H. Heathcote Statham. 3rd Edition. Revised by Hugh Braun. B. T. Batsford, 122 E. 55th St., New York 22, N. Y. 296 pp. 6 x 9. Illus. \$4.25.

This handbook succeeds better than most of its peers in presenting a coherent and readable account of its immense subject—building from the cave to Karnak and then on to the Nineteenth Century. It provides informed chapters on Arabian and Indian building in addition to those of western traditions. Weakest link is its final, breathless addition on modern building.

MEDIEVAL ART—312 TO 1350. By W. R. Lethaby. Revised by D. Talbot Rice. Philosophical Library, 15 E. 40th St., New York, N. Y. 223 pp. Illus. 6 1/4 x 9 3/4. \$7.50.

Art from the end of the Roman empire to the Renaissance is shown within a solid framework of architectural understanding.



This is Armstrong's Asphalt Tile

It's hard to believe that the floor that contributes so much to the rich decoration of this restaurant is low in cost—but it is. Armstrong's Asphalt Tile was developed particularly to meet the need for an attractive floor at minimum cost. In addition, it has a special advantage for basements or for any concrete floor slab in direct contact with the ground. It is not affected by the alkaline moisture always found in floors of that type.

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Where unusual beauty in floor color and design is desired, Armstrong's Linoleum offers almost unlimited opportunity. Custom designs are easy to create because of its wide range of colors and style effects. The moderate cost of Armstrong's Linoleum also makes it practical to have an individually styled floor. It is made in six different types and three service thicknesses. Through the years, Armstrong's Linoleum has gained a reputation for long, satisfactory service in busy stores, shops, and offices.

*They're both
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For additional information on these floors as well as for data on resilient floors of Armstrong's Linotile®, Arlon* Tile, Rubber Tile, or Cork Tile for commercial, industrial, or residential use, see the latest edition of Sweet's Architectural Files, section 13, catalog B or the latest edition of Armstrong's Pattern Book. For samples, literature, or unbiased help on any flooring problem, contact your nearest Armstrong District Office or write directly to the Armstrong Cork Company, Floor Division, 2612 State Street, Lancaster, Pa.

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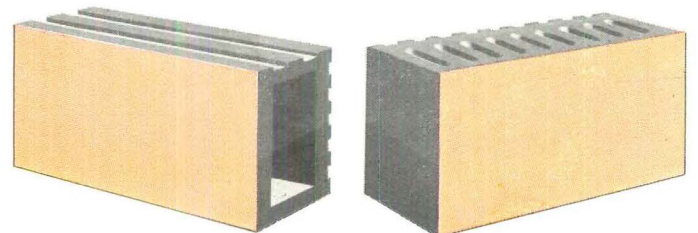
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Put it in a bustling business place, factory, food plant, school, hospital... Facing Tile will give you a wall *and* finish, inside or out, that will come sparkling through years of the toughest treatment with results which will make both you and your clients proud. Results that please the eye and pamper the pocketbook year after year.

There's a good reason behind this wonderful versatility. And we like to think that an important part of this reason stems from the efforts of the leading manufacturers of Facing Tile, the "10 Good Names to Know."

These efforts include standardization of shapes and sizes, development of a full range of colors and finishes, support of modular dimensions, insistence upon high minimum quality standards, provision of technical assistance—both printed and personal—in meeting your design and construction problems.

It is, in short, a program planned to give you Facing Tile at its very best.



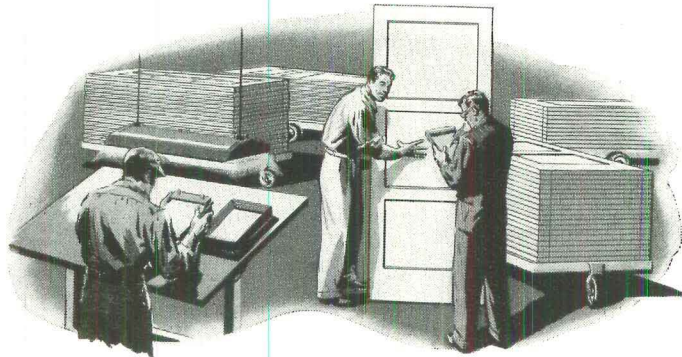
These Grade Marks

Mean Uniform Quality

To Buyers, Sellers and Users of

Douglas Fir doors

REGULAR inspection by the Fir Door Institute of its member mills assures the buyer and user that the doors they manufacture meet the rigid standards of the United States Department of Commerce as promulgated in Commercial Standards CS73-48 and CS91-49. Manufactured in a wide choice of styles of durable Douglas fir, these doors offer buyer, seller and user the utmost in door satisfaction.



FDI-A

FDI-A GRADE—These are the finest fir doors made. They are recommended for use in the very best installations where a majority of the doors are to be a natural finish . . . for better residences, hotels, hospitals, and all high-class commercial buildings.

FDI-B

FDI-B GRADE—This widely used grade contains a percentage of doors for natural finish, but is intended largely for paint finishes. For residences, schools, apartments, motels, etc.

FDI-BP

FDI-BP GRADE—This increasingly popular grade provides a well-built, laboratory tested, sturdy door for use with paint finishes only. Desirable in lower-priced homes and multiple building projects, cantonments, etc.

FDI-C

FDI-C GRADE—This grade provides doors strictly for paint finishes. Recommended for service porch entrances, basement doors, and medium and low cost installations everywhere.

FDI-MR

FDI-MR GRADE—The low-cost doors in this grade are made only in 1 1/8" thick stiles and rails. Recommended for farm out-buildings, low-cost dwellings, or temporary uses where finishes and appearance are not important.



Fir Door Institute

Tacoma 2, Washington

Manufacturers whose doors are independently inspected by Fir Door Institute and carry FDI grade marks:

Acme Door Co.,
Hoquiam, Wash.

Buffelen Manufacturing Co.,
Tacoma, Wash.

Cruver, Langhardt Door Co.,
Anacortes, Wash.

Klamath Door Company
Klamath Falls, Ore.

M & M Wood Working Co.,
Portland, Ore.

E. A. Nord Co.,
Everett, Wash.

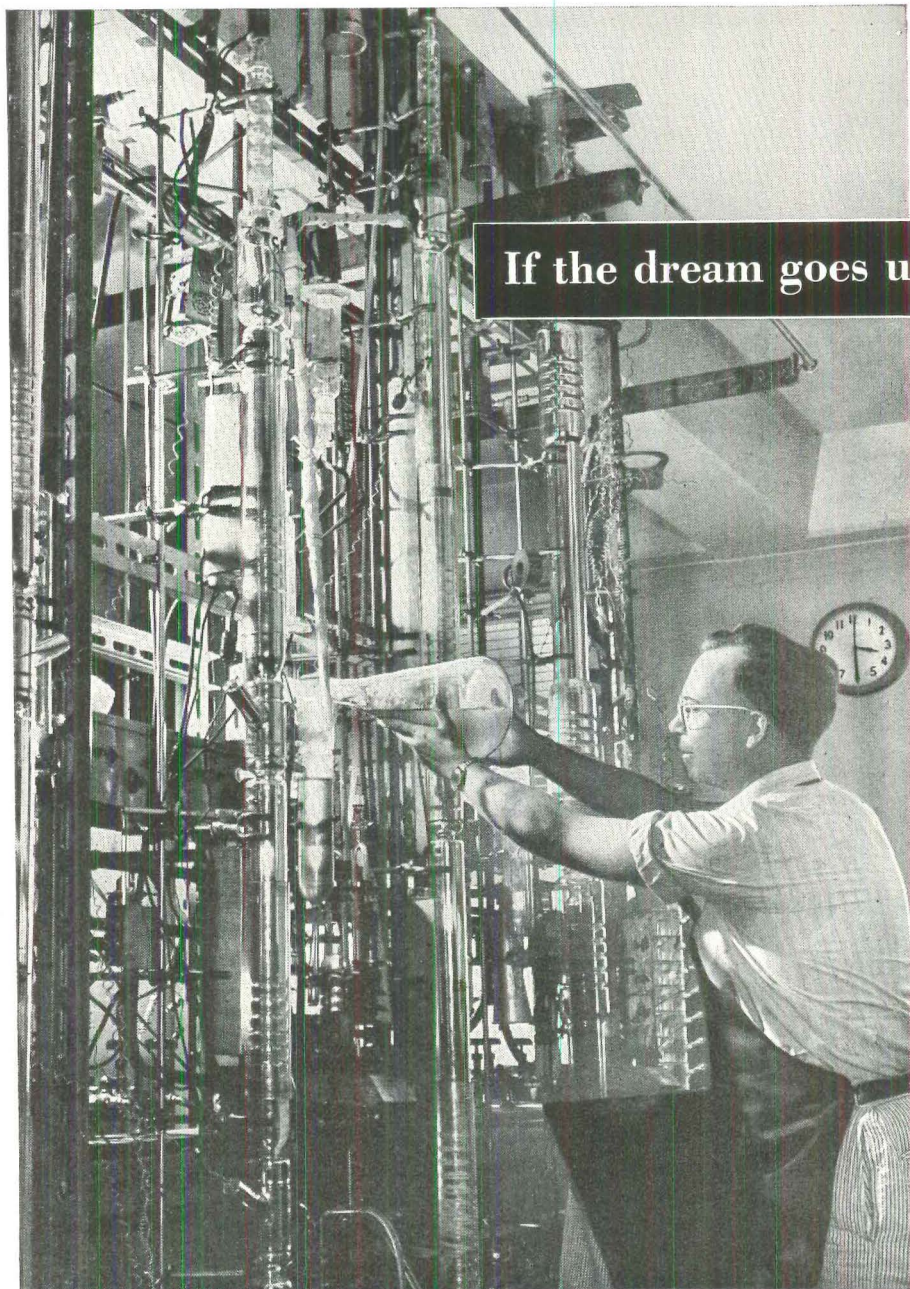
Puget Sound Manufacturing Co.,
Tacoma, Wash.

Robinson Plywood & Timber Co.,
Everett, Wash.

Simpson Logging Co.,
Seattle, Wash.

Vancouver Door Co.,
Montesano, Wash.

The Wheeler Osgood Co.,
Tacoma, Wash.



If the dream goes up in smoke . . .

. . . so may the building.

That's the calculated fire risk in petroleum research.

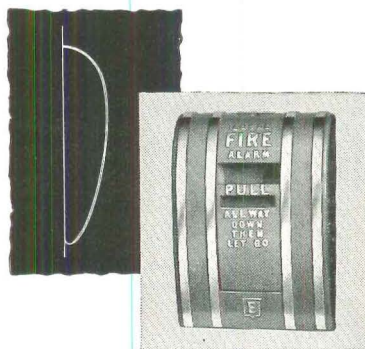
At the huge Esso Research Center in Linden, New Jersey, alarm stations . . . bells . . . door releases . . . a central recording station . . . all are constantly alerted to signal the enemy's presence . . . register his position . . . contain his advance.

Only *one* consideration can influence the selection of such critical equipment—absolute, all-condition, all-weather dependability. Only *one* name appears on the equipment—EDWARDS.

This same Edwards dependability is available in the simplest residential doorbell . . . the most accurate clock systems for schools and hospitals . . . in all signal, communication and protection equipment for guarding lives and property in your community.

Photograph courtesy Standard Oil Development Co.

TELL IT TO EDWARDS. Be it the over-worked doorbell in your home . . . a complex paging system in your community's hospital . . . or an accurate school clock system . . . trust Edwards' engineering skill and experience to answer your requirements. For full information, write:



PROBLEM: to design a modern, fool-proof fire-alarm station in architectural conformity with today's functional stress.

ANSWER: A new sleek, wall-hugging station that will long be an engineering model of fool-proof simplicity. One single action . . . pull lever—let go . . . and alarm is in. No door to open. No chance of non-alarm due to haste or panic.

Edwards Company, Inc., Norwalk, Conn. *In Canada: Edwards of Canada, Ltd.*

EDWARDS

World's most reliable time, communication and protection products

SERVING SCHOOL, HOSPITAL, INDUSTRIAL AND RESIDENTIAL BUILDINGS

SPENCER

The quality line of
HEATING BOILERS

There is a **SPENCER**
for every building . . .
for every fuel, with ca-
pacities from 290 to 45,000
square feet, steam. Preci-
sion engineered and man-
ufactured to give superior,
guaranteed service.



VERSATILE • DEPENDABLE
BACKED BY MORE THAN
60 YEARS' LEADERSHIP



SUNSHADES

(Continued from page 95)

There are half a dozen other new buildings using shades. George Dahl's Employers Insurance Building in Dallas has vertical aluminum pilasters housing mechanical equipment. Robert Law Weed's Five-Fifty building in Miami has overhangs that reduce air conditioning equipment by 10 per cent. A most interesting shade device is Welton Becket's design for a 17 story bank in Phoenix that has glass walls resembling the UN Secretariat. Three feet out from the south wall will hang an aluminum louvered screen covering the entire wall.

A few words of caution should be added. If exterior shades are made of dull-finished materials that will not reflect sun heat, they may conduct heat into a structure on a hot, windless day if they are not insulated from the building. On a very cold, windy day, shades may carry heat away from the walls, as finned surfaces make an excellent cooling radiator.

Another practical objection to overhangs for office buildings is that they are a costly way of shading the top half of windows that are almost always covered by Venetian blinds. In well-lighted offices, the value of tall windows is more psychological than real. Four foot windows would let in light, keep out much sun heat, reduce air conditioning loads, and lessen the need for exterior shades.

It is obvious that every office building should have a careful orientation and sun study before shades are specified. Regional climate variations are so great that, in shade design, one man's feat is another man's folly. And shades that are practical for homes or schools are often worthless for office buildings. Each orientation, each building type, each wall, must be considered separately.

There is a low and very practical limit to the amount of help sunshades can give an air conditioning plant. Even if the average office building were entirely without windows, it would still require a plant from 70 to 85 per cent as large as it would if it had windows which were completely shaded. This is because most of the air conditioning load must counteract heat from lights, people, machinery, etc. Only 15 to 30 per cent of the load comes from sun heat penetrating windows. As in the Flintridge Building, however, there are instances when sunshades make enough difference to be of real importance.

But in the last analysis, office building designers are supposed to consider the comfort of the individual—as comfort is the very *raison d'être* for efficient lighting and air conditioning. If exterior sunshades help to provide comfort, they can often be justified, whether or not they show a dollar return on their cost.

Compact Design for Today's Space-saving Installation
Mueller Climatrol Type 110 Gas-Fired Winter Air Conditioner. Available in 60,000, 80,000, and 100,000 Btu sizes. In crinkle green, or gleaming appliance white. Ideal for dual installation with zone control in larger homes.

Quality Construction for Economical Operation, Owner Satisfaction
Mueller Climatrol Type 111 Gas-Fired Gravity Furnace. 90,000 Btu steel furnace; shipped pre-assembled for quick installation. Solid base with leveling screws. Only 25½" wide — goes through any door, saves space.

**First Choice with
Leading Architects and Builders**

fuel-thrifty
Mueller Climatrol

The complete Mueller Climatrol line is the first choice among leading builders and architects for many reasons. First, they know this complete line gives them the heating unit that is right for any job—with any type of heat, any type of fuel. Secondly, they know that they deliver years of Mueller Climatrol's fuel-thrifty comfort—a guarantee of customer satisfaction. Finally, they deliver a heating system whose name has universal acceptance—thanks to Mueller's 93 years of leadership in the home heating industry. Write for full details. L. J. Mueller Furnace Co., 2241 W. Oklahoma Ave., Milwaukee 15, Wis.



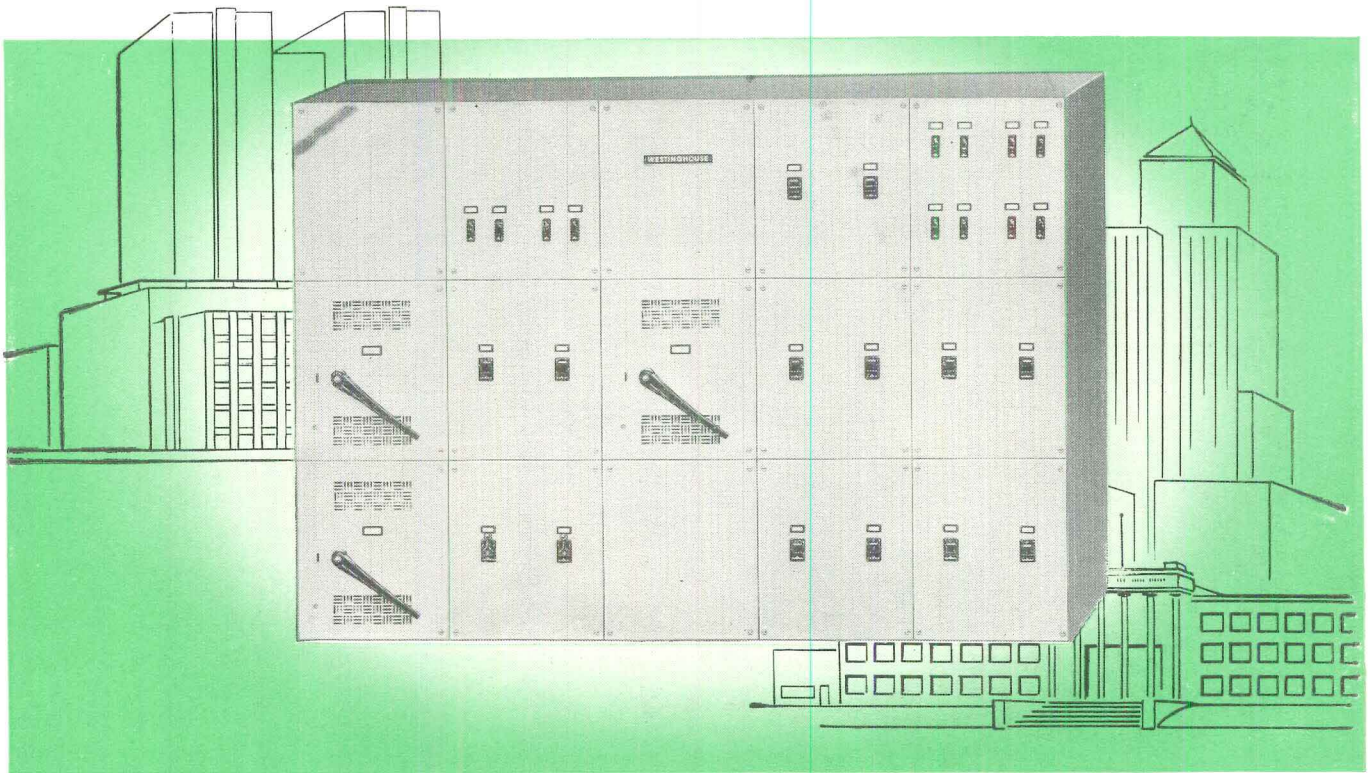
MUELLER

Climatrol

REG. U. S. PAT. OFF.



YOU CAN BE **SURE**.. IF IT'S
Westinghouse



New **STANDARDIZED** Building-type Switchboards *Cut Planning Time*

Switchboard planning for offices and other commercial-type buildings is greatly simplified with the NEW Westinghouse *Standardized Building-type* Switchboard.

Unitized construction eliminates special design problems . . . yet their complete flexibility gives you all the advantages of "custom built" units.

Factory-assembled, wired and tested, they may be shipped as a single unit and quickly placed in service. However, if desired, they can be shipped as individual units and quickly reassembled on the job.

They are specifically designed to feature low-cost circuit breaker protection by means of Westinghouse nofuzer "De-ion" type AB circuit

breakers for ratings through 600 amperes. For ratings above 600 amps, Westinghouse type DA breakers are used. Get the complete story. Call your nearest Westinghouse office or write for D. B. 30-990, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-40380

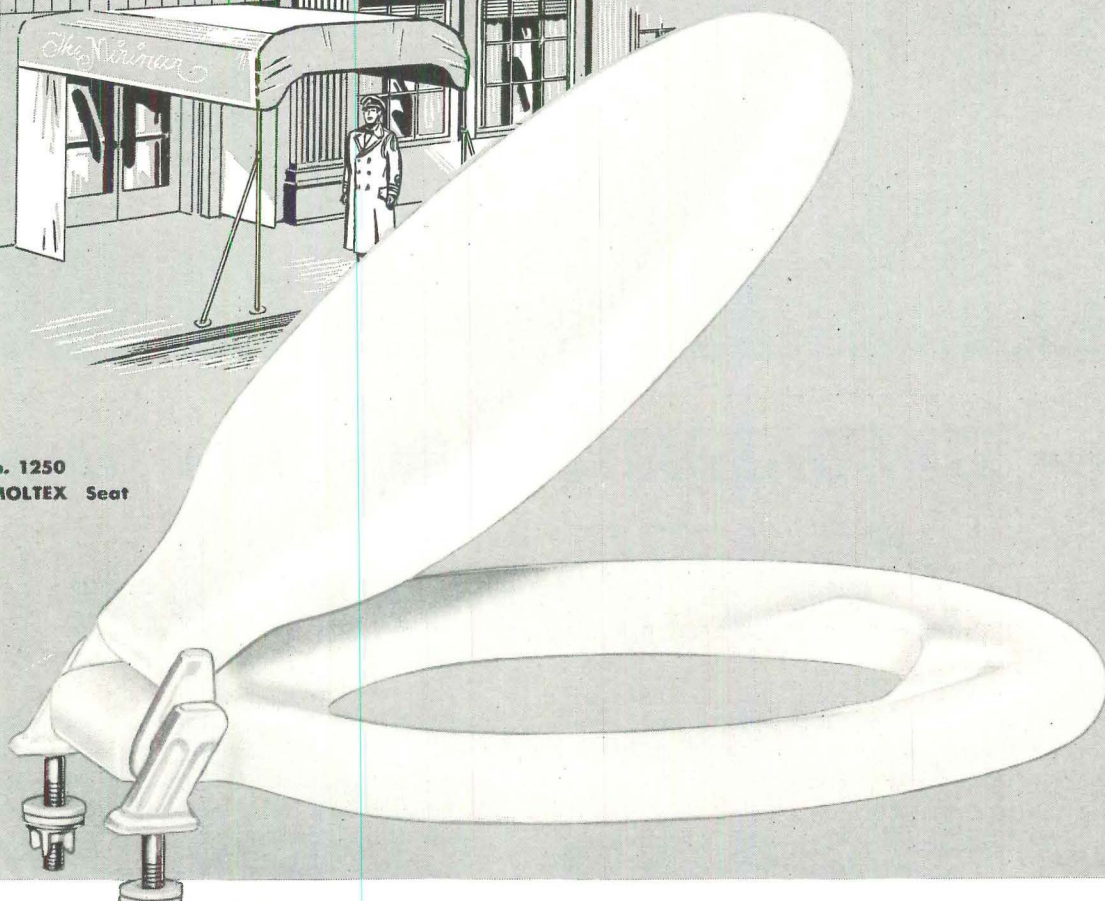


Westinghouse
SWITCHBOARDS



WHEREVER
THE BEST
IS DEMANDED

No. 1250
Church MOLTEX Seat



Church Seats
"THE BEST SEAT IN THE HOUSE"

C. F. CHURCH MFG. CO., HOLYOKE, MASS.
Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

Architects know that when "nothing but the best will do" they can with confidence specify Church MOLTEX® Seats.

Molded under tons of pressure, their thick ever-lasting surface is practically indestructible; their gleaming beauty is at home in the finest surroundings.

For client satisfaction, perfect sanitation, lasting quality and cost-per-year-of-service economy, they are unequalled.

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



Architectural Concrete

chosen for huge Metropolitan Life housing project

Parklabrea, near Los Angeles' famous "Miracle Mile" Wilshire Boulevard district, is probably the biggest architectural concrete job ever built in the United States. Owned by the Metropolitan Life Insurance Company, it will provide 2,754 dwelling units of architectural concrete. Part of this 176-acre housing development was begun before the war. Present construction includes eighteen 13-story buildings and seven 2-story garages.

Architectural concrete was chosen for this project because it combines economy, beauty, durability and firesafety. Moreover, both structural and ornamental parts could be cast in one operation.

Architects for the Parklabrea housing development are Leonard Schultze & Associates, New York, represented in Los Angeles by Gordon B.

Kaufmann and J. E. Stanton. General contractor is Starrett Bros. and Eken, Inc., New York. Structural engineers are Bowen, Rule and Bowen.

Whether you are designing a huge rental development like the Parklabrea project or a small commercial structure, architectural concrete is an ideal construction material. Versatile and adaptable, it can be used to create imposing and functional schools, hospitals, churches, theaters, office buildings, apartments and other structures. Concrete's long life and low maintenance cost result in **low annual cost**. That's important to owners, investors and taxpayers alike.

For additional information about architectural concrete write for free, illustrated literature. It is distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION

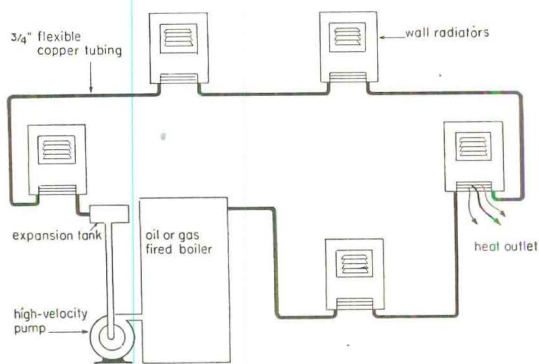
DEPT. 12, 7, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

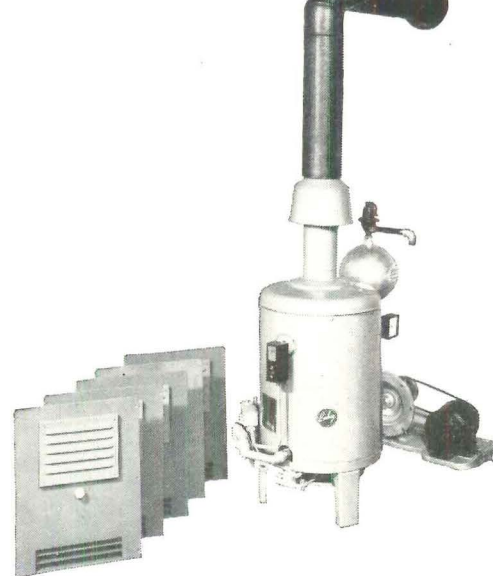
PRODUCT NEWS

HOT WATER HEATING SYSTEM fits into low-cost home-building budgets.

Costing little more than warm air central heating systems, Copperheat utilizes a high velocity circulating pump to deliver hot water rapidly through copper tubing to small flush-to-wall radiators. When the thermostat calls for heat, hot water is forced through the circuit of $\frac{3}{4}$ in. tubing at the rate of 7 to 10 ft. per second—fast enough to reach most rooms in a small house in less than a minute. Each wall radiator



An easy to install circuit of copper tubing, wall radiators, and boiler make up this heating system.



is equipped with its own blower and manually controlled rheostat which allows for variable speeds of delivery including a complete shutoff. The fans direct heated air down through louvers and across the floor. Not only does this create natural circulation and eliminate the possibility of streaks on the wall around the outlet, it also warms the floors. The *Wall Rad* radiators stand 21 in. high and 14 in. wide and thus fit into standard stud construction. Prime coated at the factory, they may be painted on the job to match walls or interior trim. Roughing in and piping can be done in about 4 hrs. by two men. Later additions to the system are relatively simple: copper mains are connected to the nearest wall radiator instead of being returned to the boiler. The boiler itself may be located anywhere in the house—attic, basement or ground floor closet. The gas fired unit takes a floor space 20 in. square; the oil fired unit 18 x 30 in. Price to the builder for a complete package for a five-room house—gas fired boiler, copper tubing and radiators—is about \$610. Installation costs in the Midwest are currently running about \$120.

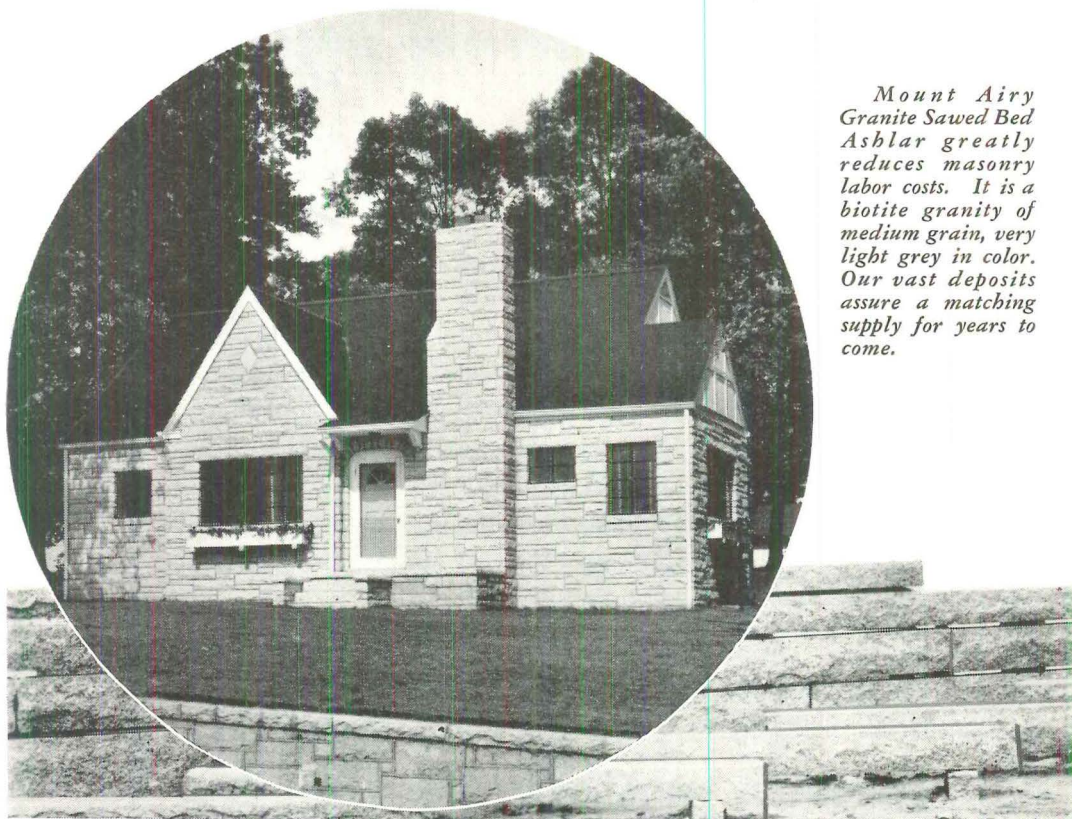
Manufacturer: Copperheat Industries, 20212 Livernois Ave., Detroit 21, Mich.

For Permanent Beauty and Value MOUNT AIRY GRANITE Sawed Bed Ashlar

Mount Airy Granite Sawed Bed Ashlar is a veneer which can be set in a broken range pattern with 4-inch and 8-inch rises for homes, and with rises up to 12 inches for larger structures. It also can easily be set in courses. It is available in multiples of brick sizes, readily traced and knapped into required lengths.

Use Mount Airy Granite Sawed Bed Ashlar for facing the entire building — or use it for sills, lintels, steps and copings. Either way, you will increase the beauty and value of the project permanently.

THE COST IS SURPRISINGLY LOW. CHECK WITH US BEFORE YOU BUILD — LET US GIVE YOU SPECIFIC INFORMATION AND RELIABLE REFERENCES.



Mount Airy Granite Sawed Bed Ashlar greatly reduces masonry labor costs. It is a biotite granity of medium grain, very light grey in color. Our vast deposits assure a matching supply for years to come.

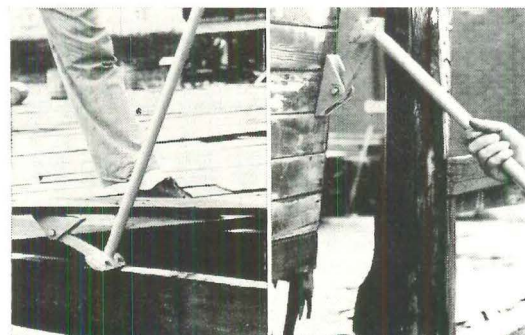
NORTH CAROLINA GRANITE CORPORATION
MOUNT AIRY, NORTH CAROLINA

WRECKING TOOL can be used to salvage lumber in good condition.

A combination crowbar, pry rod, nail puller and sledge, the sturdy steel Ripper Jack may be used to dismantle wood structures with a minimum of damage. Very often, the lumber can be re-used. Weighing just 8 lbs., the tool handles easily in almost any position from either side or above or below the structure being taken apart. It can be used on sheathing, siding, flooring or roofboards. The Ripper Jack sells for \$6.98.

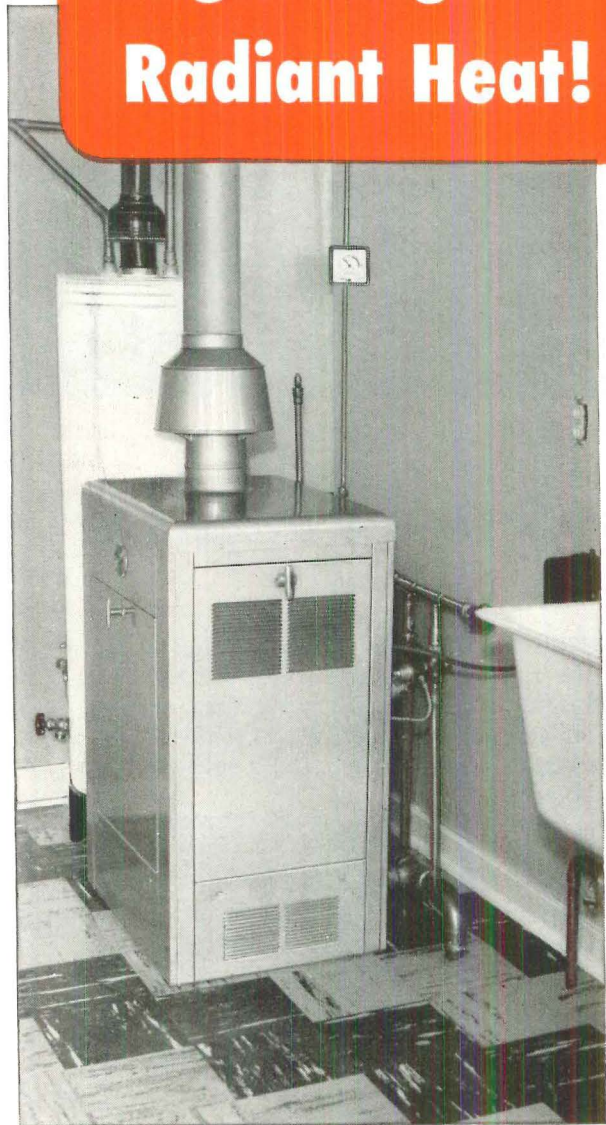
Manufacturer: Calumet Steel Castings Corp., 1636 Summer St., Hammond, Ind.

(Continued on page 162)





**Small Homes
Continue
Big Swing to
Radiant Heat!**



LOW-COST HOUSING PROJECT at McCook, Nebraska, built by Frank Lockhart. Twenty of these small homes were completed recently, each equipped with A. O. Smith gas-fired, forced-circulation hot water boilers and were radiant panel installations.

**McCook, Nebraska, Firm Installs
A.O. Smith Gas-Fired Boilers**

Strong believers in the principle of radiant heating, the Quality Plumbing and Heating Company of McCook, Nebraska, recently completed the installation of radiant panel heating in the low-cost housing project shown here.

Impressive savings on installation costs and continuing savings on operating costs are just two of the factors that made A. O. Smith gas-fired boilers the choice of this builder. Speedy hot water travel to all points of the home is another outstanding feature.

No heavy, cumbersome cast-iron sections mean far easier handling on the job. "Water-wall" combustion chamber is copper tubing with a highly efficient finned heat exchanger. Water touches nothing but copper, brass and bronze—completely rust-free.

No wonder, then—for one home or one hundred, the A. O. Smith Boiler is easier to install . . . easier to sell.

MAKING EVERY SQUARE INCH COUNT! Compact, space-saving design of A. O. Smith Hot Water Boiler makes it the perfect unit for utility rooms of McCook housing project. Boilers were purchased from Western Supply Company, Lincoln, Neb. Jobs were laid out and engineered by Verne Simmonds Co., Omaha, Neb.

A.O. Smith



FORCED-CIRCULATION GAS-FIRED

HOT WATER BOILERS

- Boston 16 • Chicago 4 • Denver 2 • Houston 2 • Los Angeles 12
- Midland 5, Texas • Milwaukee 2 • New York 17 • Phoenix • Pittsburgh 19
- Salt Lake City 1 • San Diego 1 • San Francisco 4 • Seattle 1 • Tulsa 3
- Washington 6, D. C. • International Division: Milwaukee 1

A. O. Smith Corporation

Dept. AF-1250 Toledo 7, Ohio

We would like complete information on A. O. Smith gas-fired hot water boilers. No obligation.

Name _____

Firm _____

Street _____

City _____ State _____



Only
KENCORK offers all the subtle shadings of Natural Cork

Now you can specify the beauty and durability of Kencork for any installation. New 3/16" gauge Kencork is now priced lower to meet any building budget. And, don't overlook the new trend in housing, Kencork for walls, too.

KENCORK'S BEAUTY IS NATURE'S BEAUTY! Only Nature could plan the fascinating variances in the rich nut-brown tones of a Kencork Floor. Each Kencork tile is all pure cork...and only pure cork...compressed under tremendous heat and pressure, yet retaining all of its natural resiliency. Only Kencork spares no expense to bring each tile to perfection. Because no artificial binders are used, longer baking is necessary. Yet, even though this process is more expensive, Kencork costs no more.

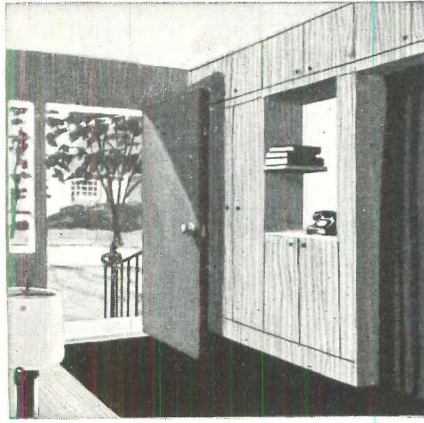
Your clients will prefer the natural, random beauty of a Kencork Floor. Be sure you insure their satisfaction by insisting on Kencork, the only cork floor that meets every client's demand for beauty and proven durability.



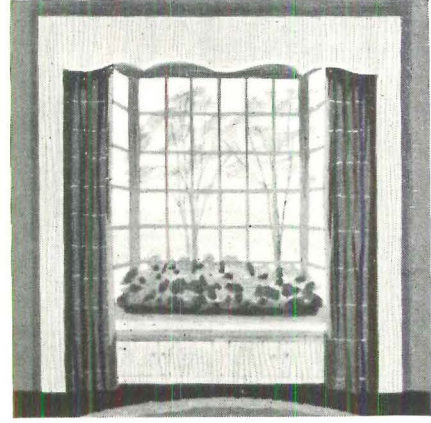
DAVID E. KENNEDY, INC., 58 SECOND AVENUE, BROOKLYN 15, N. Y.



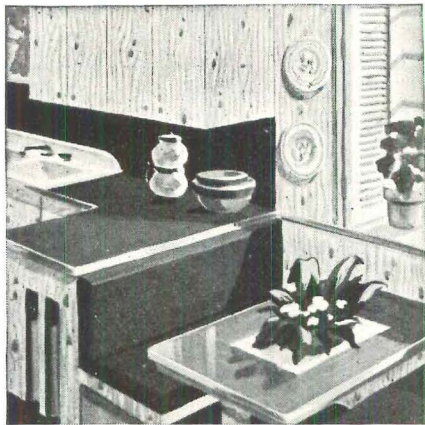
Half-High Storage Wall gives your clients the ideal division between living and dining sections in small homes.



Dress up your client's Foyer to create a good first impression. Weldwood paneling here adds real luxury.



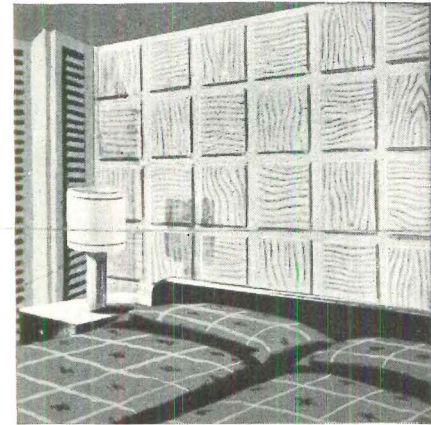
Set off a Bay Window with Weldwood and watch it become a commanding point of interest in your client's eyes.



Design a Bright Breakfast Nook into the kitchen. Weldwood makes it easy for you, an eye-catcher for your client.



Playroom Ceiling of Weldtex® Squares goes up quickly and easily. Squares fit 16" on center joists.



Panel the Wall behind your client's bed and bring real distinction to the bedroom. It's inexpensive.

6 MORE SUGGESTIONS

FOR BRINGING INEXPENSIVE BEAUTY INTO CLIENTS' HOMES

You can design so much *extra appeal* into clients' homes . . . in so many inexpensive ways . . . when you work with Weldwood®.

Buyers are always looking for the "extras" that make some of the new homes stand out over others. That's why your suggestions in this regard . . . if you're designing a Builder's project . . . will be most welcome.

When you panel a room with Weldwood . . . or finish a wall with Weldwood . . . or specify it even

for just a corner cupboard . . . you're adding appeal, you're lifting that house above the ordinary.

The few ideas sketched above are only the beginning of endless possibilities . . . in the designing of a new home, or in remodeling.

Available in birch, oak, Korina®, walnut and many other fine decorative hardwoods, Weldwood is a stimulating and unusually versatile material with which to design.



WELDWOOD Plywood

Manufactured and distributed by

UNITED STATES PLYWOOD CORPORATION

New York 18, N. Y.

and U. S.-MENGEL PLYWOODS, INC., Louisville 1, Ky.

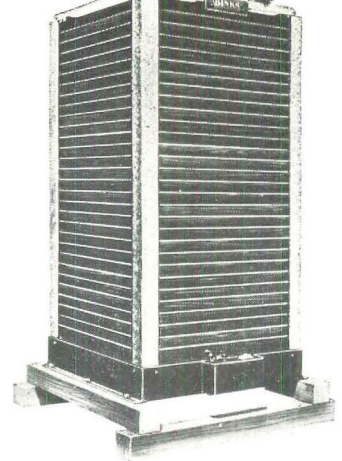
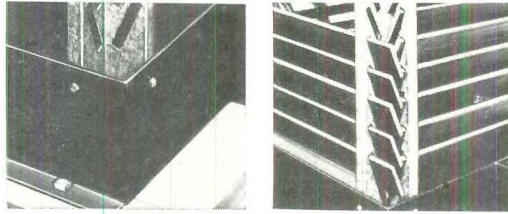
Branches in Principal Cities • Distributing Units in Chief Trading Areas • Dealers Everywhere

PRODUCT NEWS

COOLING TOWERS for small capacity air conditioners are easily assembled.

Produced in 10 frame sizes with refrigeration loads of 3 to 35 tons, the new Binks type H cooling towers are engineered for use with small water-cooled air conditioning and refrigeration condensing units. These atmospheric spray towers feature several design innovations which make them easier to put together on the site. Convenient external bolting flanges on the pan provide for firm anchorage without piercing the

floor of the water basin. Corner posts are then fastened to pan sides and louvers slipped into place through slots in the posts (factory cut for

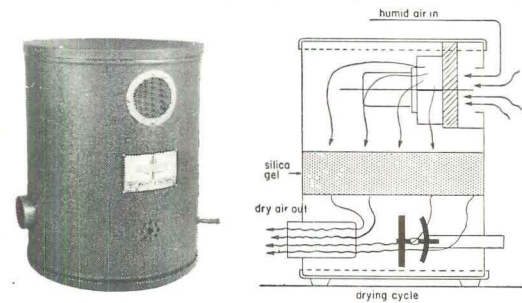


accurate spacing). Also, the float box is mounted on the outside of the basin for easy access to the control valve. Rotojet brass spray nozzles work on a patented off-center, whirl chamber principle. The high efficiency claimed for type H towers is said to be due largely to the maximum fluid break-up obtained from these clog-proof nozzles. Prices range from \$96 for the 3 ft. x 3 ft. x 6 ft. tower with redwood louvers, and \$120 for the same size with galvanized steel louvers, up to \$408 and \$510 for the 8 ft. x 8 ft. x 10 ft. sizes, f.o.b. Chicago.

Manufacturer: Binks Manufacturer Co., 3114-40 Carroll Ave., Chicago 12, Ill.

DEHUMIDIFIER reactivates itself, requires little maintenance.

Protecting against mildew, mold and clammy discomfort caused by dampness, the Desomatic air dryer has no drip-pan to empty, nor quickly exhausted chemicals. Its desiccant silica gel bed is guaranteed to be effective for two years. Mode SRR-8, designed to service volumes up to 5,000 cu. ft. (an average basement or large storage room), has a moisture removal capacity of 7½ lbs. a day at 70° F. Its \$125 price includes 6 ft. of reactivation air hose, hose clamps and window panel. If desired, a humidstat controller may be purchased for \$45. Measuring 14 in. in diameter and 18 in. high, the compact unit works

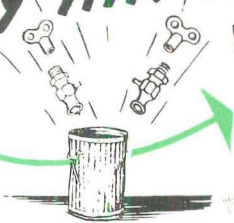


by drawing humid air past a dust filter through the silica gel bed where a large amount of water vapor is adsorbed. Dried air is then returned to the room. After 90 minutes the valve closes the dry air outlet and a wet air outlet opens. An electric heater then is energized and the adsorbed moisture discharged as warm water vapor to the outside. After a half hour, the valve shifts back to drying position. Electric consumption is said to be moderate. Where very low humidities are required for materials kept in vapor sealed spaces, two larger Desomatic units are available: the SOR-8 and the DOR-8, which sell for \$225 and \$525.

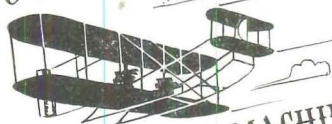
Manufacturer: Daly, Merritt & Sullivan, Inc., 935 Hughes Court, N.W., Washington 7, D. C.

(Continued on page 166)

LET'S THROW AWAY ALL KEY AIR VALVES



They're as old fashioned as



THE FIRST FLYING MACHINES

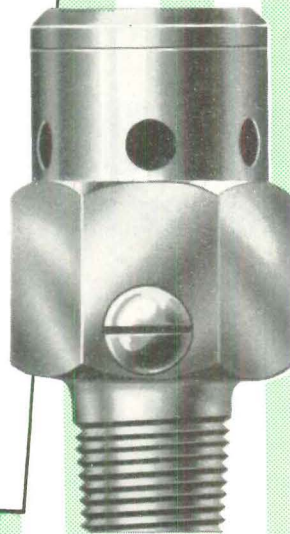
install TACO VENT

AUTOMATIC HOT WATER AIR VALVE

AUTOMATICALLY VENTS

RADIATORS, CONVECTORS AND BASEBOARD RADIATION ON HOT WATER HEATING SYSTEMS

NO MORE OLD FASHIONED HAND VENTING

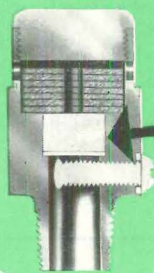


NO ADJUSTMENT NECESSARY...

Just install it . . . and forget it!

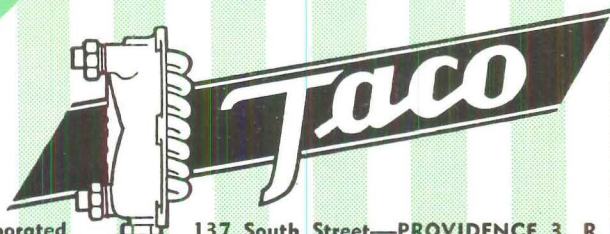
SAFETY PLUG MEANS YOU'RE ALWAYS SAFE

Porous bronze plug safely controls water flow to valve mechanism



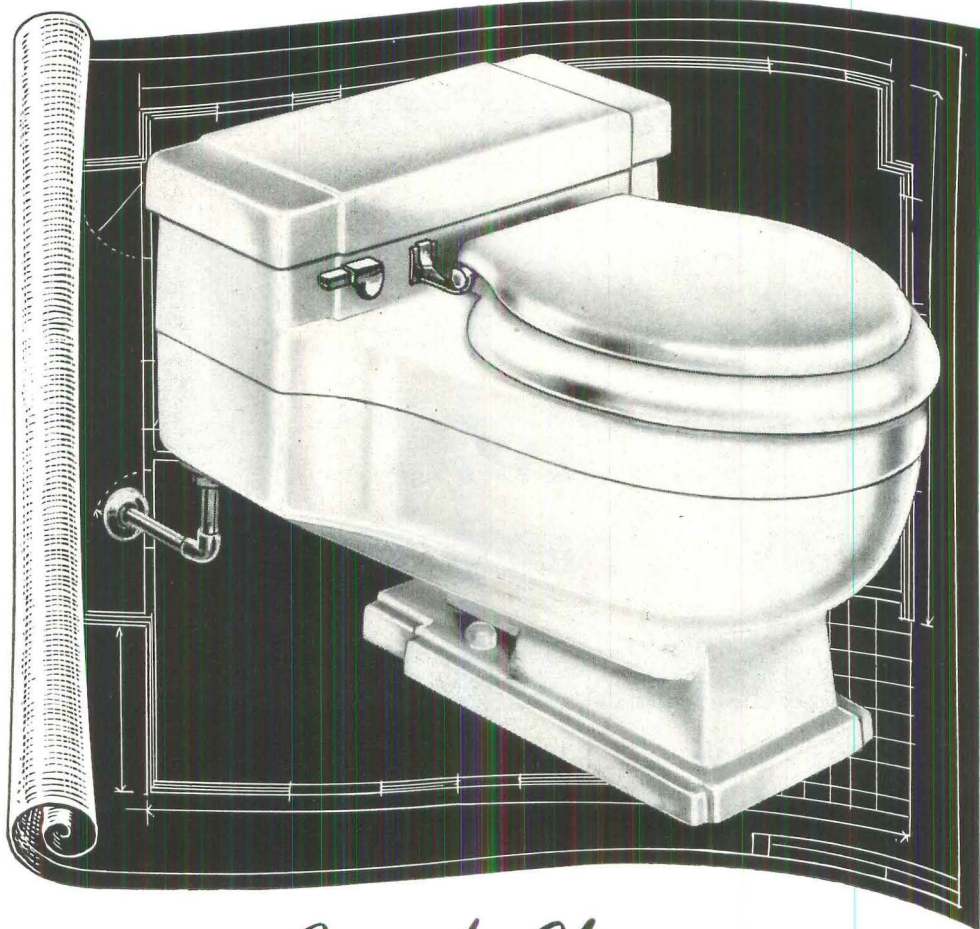
**Better Heating—
Better with Taco**

TACO HEATERS, Incorporated



137 South Street—PROVIDENCE 3, R. I.

Case advanced design makes good homes better



Five Great Favor-Features

BUILT-IN TANK. The modern low-level design first sponsored by Case.

NON-OVERFLOW. This Case development provides complete overflow prevention.

QUIET ACTION. Strong rim flush and tank filling are exceptionally quiet.

LOWER BOWL. A brand new feature. Bowl is 14" high in line with modern hygiene.

WATER PROTECTION. Special safeguards include china channel enclosing riser—open atmospheric vent, etc.

• • •

And a new lavatory with the same distinctive design motif—the Case *Windell* #785.

It's the New

Case ONE-PIECE

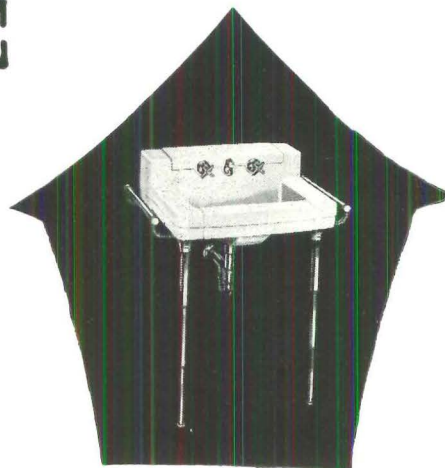
With the Case One-Piece Water Closet #1000* you can now provide a new degree of refinement and sanitary protection in the modern bathroom. Lower bowl height, new water-supply safeguards, non-overflow design, and unusually quiet operation make this the most advanced water closet ever offered. The Case low overall height and integral tank make for unequalled economy of space—the One-Piece can be installed under a window, in a corner, or even under a stairway.

It belongs in the finest homes—it adds to the value and livability of moderate-priced ones. In 26 colors and white. Distributed nationally—see your Classified Telephone Directory.

W. A. Case & Son Mfg. Co.,
33 Main Street, Buffalo 3, New York.
Founded 1853.

Case

Fine Vitreous China



*What acoustical ceiling combines
all the advantages we want?*



*I'd say J-M
SANACOUSTIC*
-for a dozen reasons!*

Yes, and here are some of the most important reasons: J-M Sanacoustic is noncombustible, highly efficient in sound-absorption, easy to clean or wash, ideal for suspended ceiling construction. And it's a favorite choice for institutions, offices, hospitals, etc. . . .

THERE IS NO NEED to do without a single feature that you consider desirable in an acoustical ceiling, because J-M Sanacoustic Panels combine the advantages of fire-safety, good appearance, removability, high light-reflection, ease of maintenance, and extremely high sound-absorption qualities.

As a result, *millions* of square feet of Sanacoustic have been installed in institutions, offices, hospitals, schools and places of public assembly.

Consisting of *perforated metal panels* backed up with a fireproof sound-absorbing element, Sanacoustic Ceilings will not burn, rot, or disintegrate. They may be applied over new or existing construction. The method of installation assures perfect alignment of units, allows easy removal without damage.

An exclusive J-M patented construction system permits interchangeability of flush-type fluorescent lighting and acoustical ceiling units. Write for our brochure, "Sound Control." Johns-Manville, Box 290, New York 16, N. Y.

*Reg. U. S. Pat. Off.



Johns-Manville



J-M
SANACOUSTIC
is

- NONCOMBUSTIBLE
- DEMOUNTABLE
- EASY-TO-CLEAN

All-metal-and-mineral construction provides numerous advantages.

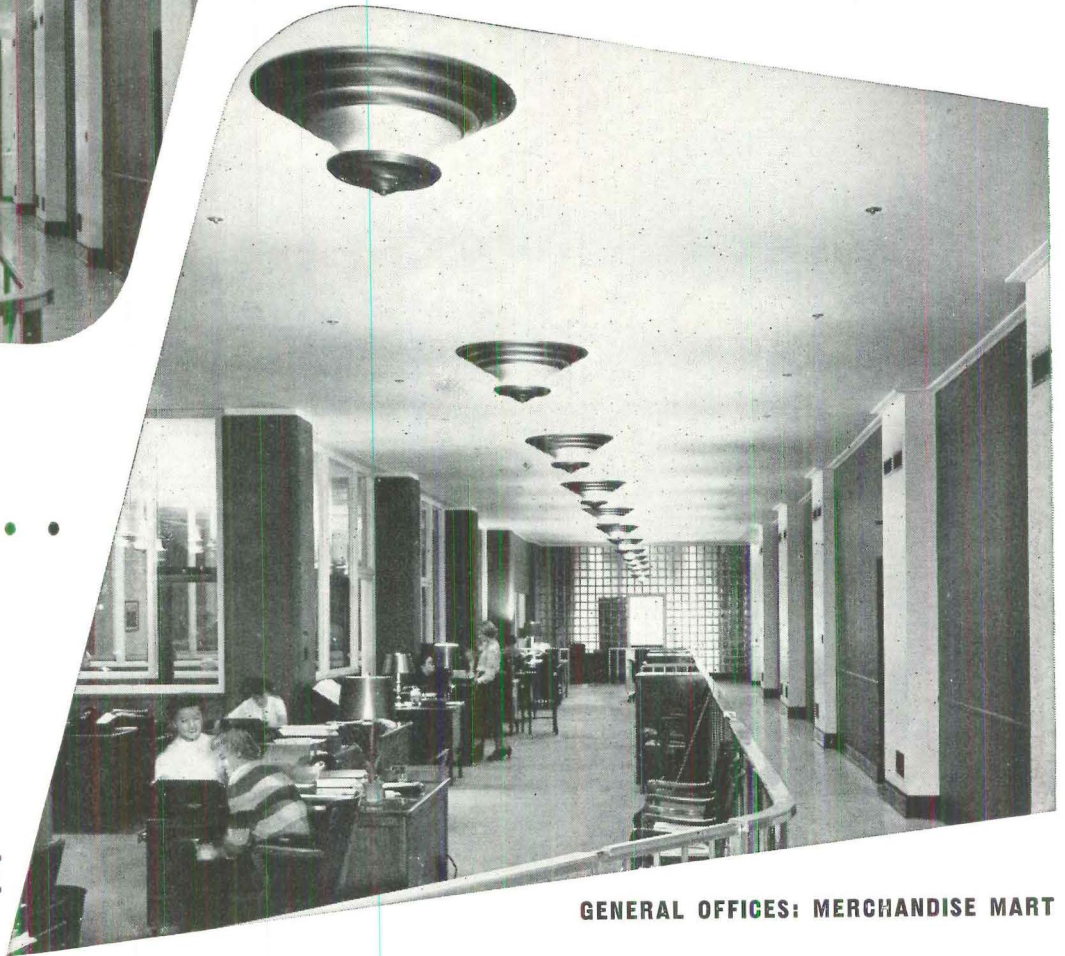
J-M Acoustical Materials include Sanacoustic Panels, Asbestos Transite*, and drilled Fibretone*

**...NOW YOU
SEE
THEM**



**NOW
YOU
DON'T**

**..with VIKING FLUSH TYPE
Sprinkler Heads**



GENERAL OFFICES: MERCHANDISE MART

Here's proof of the greater beauty of Viking Flush Type Sprinkler Heads. Notice how Viking Flush Type Heads blend quietly and beautifully . . . even ADD a note of beauty to the office in the illustration. The Flush Type Head is unobtrusive. When a fire starts it springs into action . . . equalizes the chance of water against fire by instantly drenching it. In fact, the Flush Type Head is unexcelled for water distribution.

The Viking Flush Type Head is a typical example of the farseeing yet practical engineering that makes Viking the leader in the sprinkler field. And this engineering skill is complemented by the best distribution system . . . and the finest installation and service facilities available.

ALL VIKING DEVICES ARE APPROVED BY UNDERWRITERS' LABORATORIES AND
FACTORY MUTUAL LABORATORIES

Your nearest Viking representative is ready to help you with the design of a sprinkler system for your next building. Because he maintains a completely stocked warehouse, a complete engineering staff, and an experienced, full-time installation crew, you'll find that he gives you the finest sprinkler system available. Contact him today, or write direct to the Viking Corporation.

Write for your copy of "Fire and Your Business" . . . facts on how a Viking Sprinkler System can protect your buildings from fire; forever.



the VIKING corporation
H A S T I N G S , M I C H I G A N

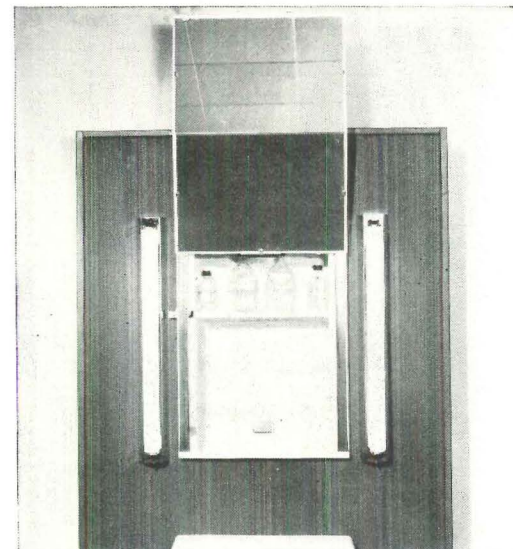
OFFICES IN PRINCIPAL CITIES

BATHROOM CABINET does it all with mirrors.

Off the drawing boards of two young industrial designers, Ornas and La Barre, comes a medicine chest with a split personality. Its prism-shaped door has a mirror divided in two sections—one tilted slightly upward, the other down. A child or adult can look into the portion convenient to his height. The top half makes an excellent shaving mirror and the bottom half serves as a vanity mirror for the person seated at the lavatory. Instead of swinging out to invite head



A youngster can see into the lower mirror easily

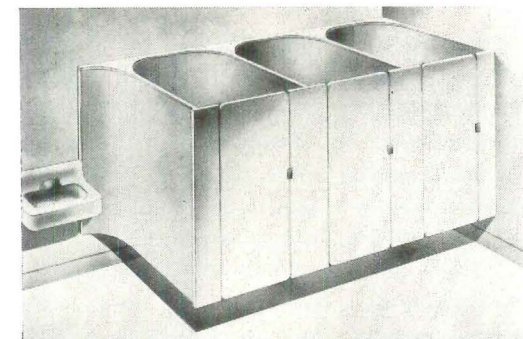


bumps, the door section slides up. Made of 22 gauge steel, the cabinet has a heavy baked enamel finish, and 1/4 in. plate glass is used for the mirror. The designers suggest that the unit be installed with the recessed portion 42 in. from the floor. Retail price is \$18.95.

Manufacturer: Ornas & La Barre, 28697 Mound Rd., Centerline, Mich.

PARTITIONS cantilever from wall, simplify washroom maintenance.

No overhead braces or floor posts are needed to support Wal-Sa-Port toilet partitions. Fabricated largely of non-metallic materials, these partitions are said to withstand hundreds of pounds in weight on the forward edge. They are rigidly supported by plate and angle iron frame anchored securely to the wall. By eliminating floor obstructions, Wal-Sa-Ports give washrooms neater lines and facilitate cleaning. Doors, faced with 1/8 in. tempered pressed wood over a truss rib core, close quietly. Exposed nuts, bolts, caps, moldings and fittings are



chromium plated for complete rustproof construction. Ordinarily furnished unpainted (for \$85 a section, f.o.b. Los Angeles) Wal-Sa-Ports can be purchased with a prime coat or with a synthetic enamel finish in grey, cream, coral or light blue. Installation runs about \$15 a partition. Panels, doors and stiles are 4 ft. 6 in. high and should be set 1 ft. from floor. They are made in any required series for compartments 2 ft. 6 in. wide and larger.

Manufacturer: J. C. Petterson Co., 3167 W. Mission Rd., Alhambra, Calif.

(Continued on page 170)

ROMANY TILES
ARE REAL TILES

HALLS AND WALLS and Real Clay Tile!

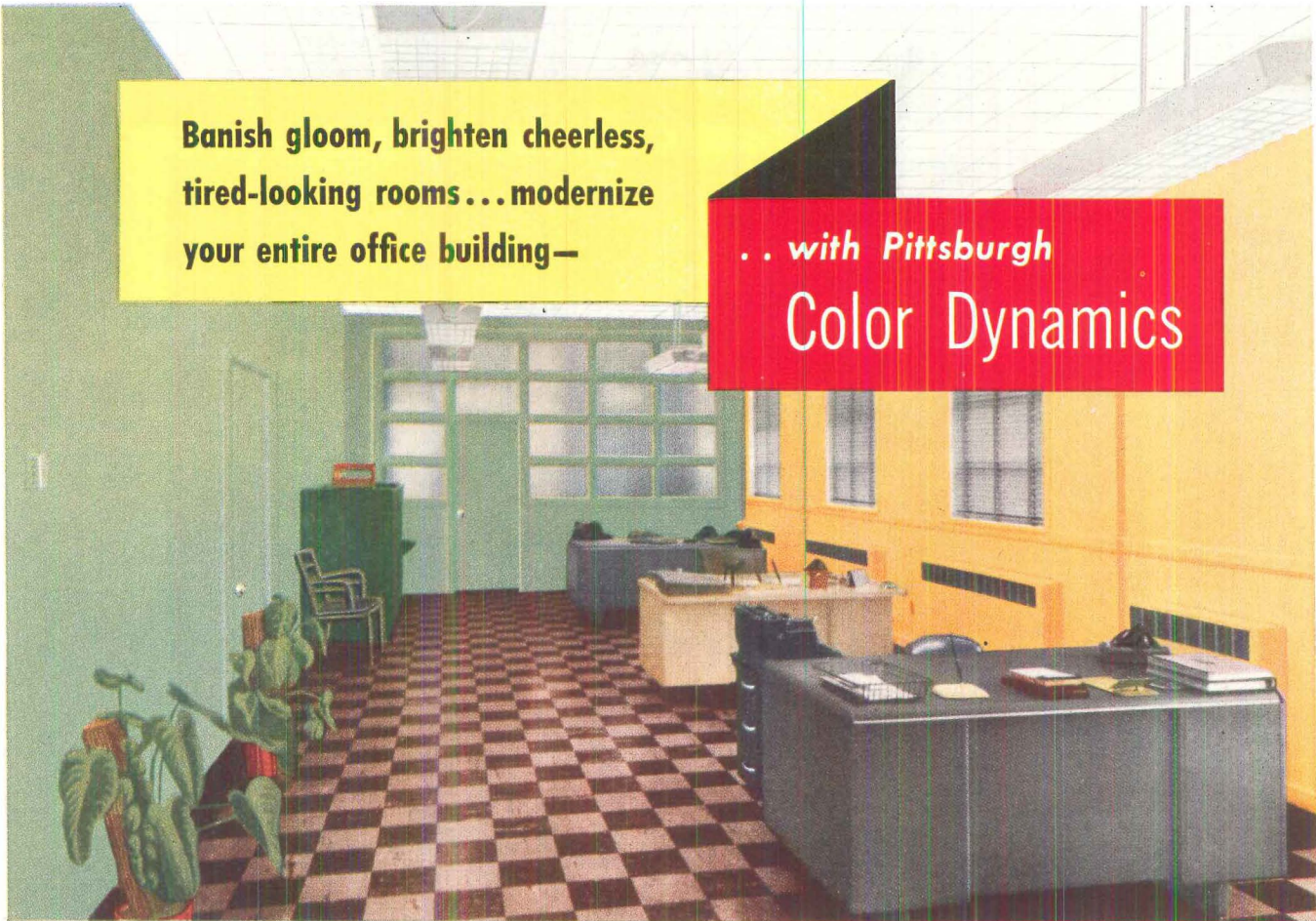
It is not mere coincidence that so many new school corridors, so many hospital walls and halls, are today lined with ROMANY Real Clay Tile. Architects know the answer. ROMANY is "wall-protection" at its best. Attractive, of course, with more than twenty different colors to select, but definitely unsurpassed for its hard glazed sanitary surface. Not only greater wear protection, but easier to clean and keep clean. No wonder so many miles of tiles in public buildings today are ROMANY Tiles. There's an interesting set of miniature tile samples for your file if you will

Write for Sample Chart No. 6

UNITED STATES QUARRY TILE CO
Member: Tile Council of America
217-J FOURTH ST., N.E.
CANTON 2, OHIO

**Banish gloom, brighten cheerless,
tired-looking rooms... modernize
your entire office building—**

**... with Pittsburgh
Color Dynamics**



• Portion of the offices of the Connecticut Manifold Forms Company after repainting with Pittsburgh COLOR DYNAMICS.

Now provide tenants in your office building a whole new world of helpful color—with scientific accuracy!

ACTUAL EXPERIENCES in numerous private and commercial office buildings with Pittsburgh COLOR DYNAMICS continue to confirm the fact that this scientific and purposeful use of the *energy in color* benefits management and workers in many ways.

● **With COLOR DYNAMICS** you modernize offices by giving them scientifically correct color arrangements that are in keeping with their uses and the natural and artificial light that is available.

● **Efficiency** of workers is increased as eyestrain is lessened and concentration is stimulated. Absenteeism is reduced, morale is heightened and housekeeping problems are simplified as working conditions are improved.

● **Typical of the comments** of executives who have used COLOR DYNAMICS is this letter from John Coolidge, President of the Connecticut Manifold Forms Company, of West Hartford, Conn.:

● **"We recently** constructed a new one-story daylight building to house our

offices and plant. We have used Pittsburgh COLOR DYNAMICS throughout. We have no more glaring walls and drab equipment—only restful colors to live and work with. Our employees are happy in their new surroundings and take great pride in keeping desks, machinery and work areas clean. We have also noted a decided improvement in the quality and quantity of the work produced, in morale and in safety. We are completely convinced that color is a 'must' for offices as well as industrial use."

● **Besides brightening** cheerless, tired-looking rooms, COLOR DYNAMICS makes them appear different and more attractive. It can also make them seem longer or wider, higher or lower. With it you can paint sunlight into dark, dismal halls and stairways. Lobbies and reception rooms can reflect the spirit and character of an organization.

● **Plan to use** COLOR DYNAMICS next time you paint and obtain these benefits for your building. Try it in a few rooms and see the difference it makes.

How you can get a COLOR DYNAMICS Engineering Study—FREE!

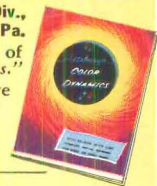
● Send for our free, profusely illustrated booklet which explains simply and clearly what COLOR DYNAMICS is and contains many examples of how it works.

● Better still, let us tell you exactly how you can apply it in your own building. We'll gladly submit a color engineering study of your building, without cost or obligation. Call your nearest Pittsburgh Plate Glass Company branch and arrange to have our COLOR DYNAMICS representative see you at your convenience. Or mail the coupon below.

SEND FOR A COPY OF THIS BOOK!

Pittsburgh Plate Glass Co., Paint Div.,
Department AF-125, Pittsburgh 22, Pa.

Please send me a FREE copy of your Booklet "Color Dynamics."
 Please have your representative call for a Color Dynamics Survey without obligation on our part.



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City _____ County _____ State _____



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PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

P I T T S B U R G H P L A T E G L A S S C O M P A N Y



Above: Manhattan Room, Hotel New Yorker, N. Y. Bar front covered with Kalistron of special design in black and two shades of gold. Special green Kalistron used on banquettes, side chairs. Table tops of Micarta Truwood. Designer, Walter M. Ballard Corp., N. Y.

WHY THIS BEAUTIFUL ROOM *will stay beautiful...*

When vulnerable surfaces are covered with Kalistron, they will *stay* colorful and unmarred for years. For Kalistron color is permanently protected from surface wear—fused to *underside* of clear vinyl sheeting. Kalistron is scuff-resistant; scratch-and spot-resistant; flame-resistant; can't chip, crack or peel; waterproof; easily cleaned with damp cloth; can't shrink; drapes beautifully; ideal for upholstery; easily bonded to surfaces. It won the latest Modern Plastics Award

for furniture and interior decorating material. 30 standard colors; special shades matched.

Coupon below will bring sample of Kalistron, plus top-quality nail-file . . . free. See if you can injure Kalistron even with this file!

Kalistron
FAST APPLIED FOR
 ← COLOR FUSED TO UNDERSIDE
 PLASTIC COVERING MATERIAL

U. S. Plywood Corp., Dept. F-37
 55 West 44th St., New York 18

Please send me FREE Nail-File Test (swatch of Kalistron plus actual nail-file).

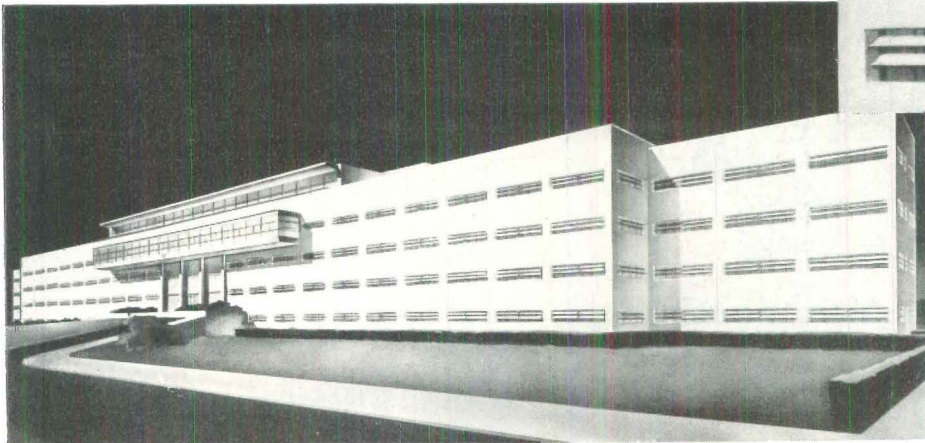
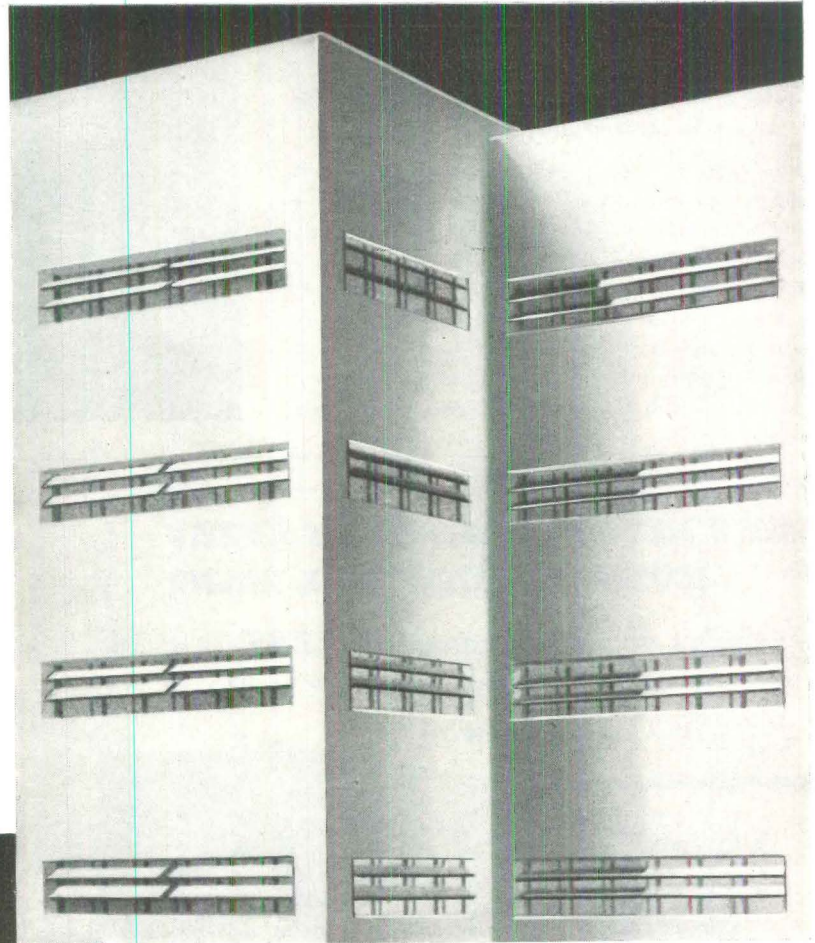
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Color fused to
 underside of
 transparent vinyl
 sheet . . . backed
 by flocking

**functional use
as sun shades**



gives added value to STAINLESS STEEL

Protection from the hot Alabama sun is a problem which has been solved for the Tennessee Coal, Iron and Railroad Company by the use of stainless steel sun shades on their new 4-story Flintridge Corporation office building at Fairfield.

These exterior horizontal solar shades, applied to 338 windows in sets of two, will cost about \$100,000; but the architects, Holabird & Root & Burgee & Assoc., estimate that this amount will be more than offset by the smaller size air conditioning equipment made feasible through shading from the sun and the resulting space-saving of the smaller unit.

In addition to its functional use, stainless steel is noteworthy

for its durability—of utmost importance in this particular installation as the building is adjacent to the manufacturing plants and subject to the usual atmospheric conditions of such a location. Its clean, bright surface is an attractive feature, and the economical advantage of its use has been proved by many records of long service life and very low maintenance cost.

We do not produce stainless steel but do make the alloy, ferro chromium, which gives it the stainless quality. Our VANCORAM Brand Ferro Chromium is produced by closely controlled processing methods from carefully selected raw materials to aid the steelmaker in the production of consistently high-grade steel.

MAKERS OF FERRO-ALLOYS



CHEMICALS AND METALS

VANADIUM CORPORATION OF AMERICA

420 LEXINGTON AVENUE, NEW YORK 17, N. Y. • CHICAGO • DETROIT • CLEVELAND • PITTSBURGH

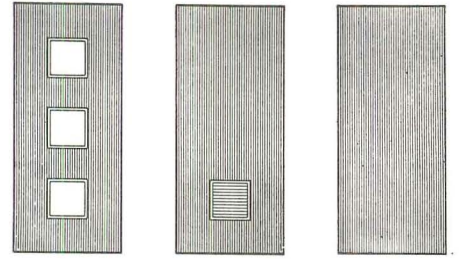
PRODUCT NEWS

ALUMINUM FLUSH DOORS are sleek complements to contemporary buildings.

Fine ribbing and chemical treatment give Kawneer's new aluminum flush doors a finish that is not only good looking but wear resistant and practically maintenance free. The delicate pattern masks most traffic abrasion marks. Practical for exterior as well as interior use, the doors are rugged but light enough to permit easy handling during installation and operation. They are made with either butt hinges which open



Doors can be furnished with openings for one or three 12 in. squares of 1/4 in. glass, or with fixed louvers in a 12 in. frame.

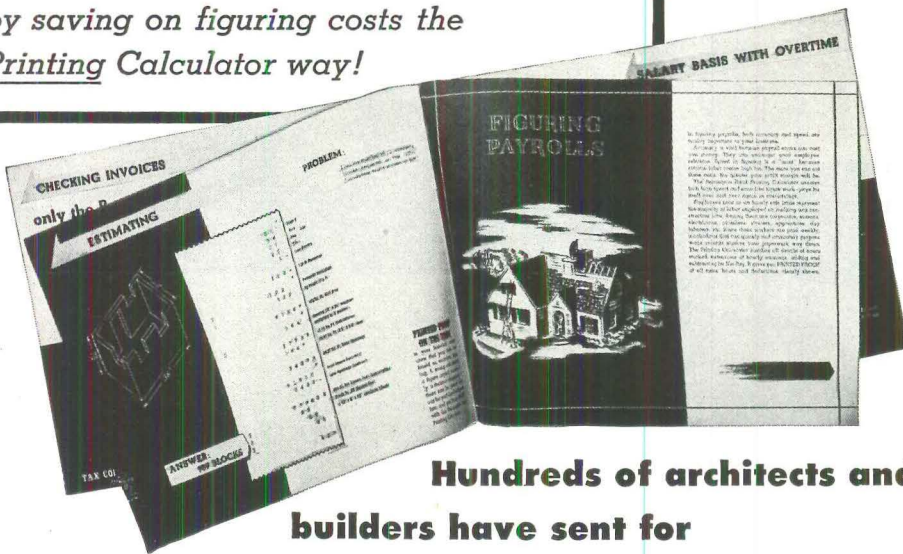


in one direction, or pivot hinges for double action. The single acting models have beveled stiles for adequate closure clearance; double acting and pairs of single acting doors are made with rounded meeting stiles. In construction, the door faces are locked together within the framework so that no bolts, screws or welded joints are visible on the faces. For stability, rails and stiles are of heavy .062 aluminum stock. Rolled channels form the horizontal interior reinforcing rails, said to eliminate warping, shrinking and other distortions. Chrome hardware, fitted and applied at the plant, is brushed to harmonize with door finish. Double acting and pairs of single acting doors may be ordered with mortised tubular dead lock bolts with one side keyed, the opposite with thumb turn. Single acting flush doors have tubular knob latches. Pairs of the latter are available with attractive pull handles. (Overhead closers also may be applied.) All doors are 7 ft. high and 1 3/4 in. thick. They range in width from 2 ft. 6 in. to 4 ft. Pairs of both the single and double acting doors are fabricated to fit openings 5 and 6 ft. wide. Installed price for the 3 by 7 ft., including hardware and aluminum jamb, is about \$150 to \$175 depending on quantity purchased.

Manufacturer: The Kawneer Co., Niles, Mich.

THE NEW, FREE BOOKLET EVERY HOME BUILDER WILL WANT

— helps you build homes for LESS by saving on figuring costs the Printing Calculator way!



Hundreds of architects and builders have sent for

their free copies — GET YOURS NOW!

When you estimate a job, do you laboriously cover sheets of paper with figures—figures that have to be checked . . . rechecked before you can be sure you're right?

Well, sir, all that's a thing of the past, as you'll see from Remington Rand's new publication "Blueprint for Figure-Fact Efficiency". It's a concise, graphic presentation of how to streamline your Estimating, Payroll work, Cost checking and many other phases of your business where minutes spent on obsolete fig-

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You'll discover how the famous *Printing Calculator*, with its faster 10 key keyboard and its automatic division, direct multiplication . . . lightning-quick addition and subtraction . . . its constant visual check by *Printed Proof on the Tape*—eliminates figure drudgery . . . boosts your paper-work efficiency and cuts costs way down. Send the coupon today for your *Free* copy. You'll discover how to *save* as you never saved before!

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Please send me a FREE copy of "Blueprint for Figure-Fact Efficiency"—the booklet that shows how to CUT COSTS the Printing Calculator way.

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Firm _____

Address _____

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CASEMENT WINDOW of cast aluminum is competitively priced with steel units.

Five basic sections which can be combined in numerous arrangements comprise the Maco residential casement window. Each section—the fixed single and double light, the right-hand and left-hand operating triple light, and the stationary triple light—is cast as a single unit. Rails, muntins and mounting flanges become an integral assembly. This jointless construction is said to make the window frame strong and rigid. All members are about 5/32 in. thick—slightly heavier than most aluminum window extrusions; however careful scaling and curved inner corners compensate for the additional bulk. The slight arc at the corners not only gives the windows a distinctive appearance but simplifies the window washing chore for the housewife. Of further benefit to the homeowner is the hinge design which permits moving sections of the unit to be rotated so that either surface may be cleaned from inside. This hinge device also makes it possible to install storm windows outside the casement sections. A durable synthetic rubber gasket forms a completely weathertight seal where the ventilating units close against stationary panels. Parts, such as hinges, brackets, rivets, etc., that are not aluminum, are made

(Continued on page 174)



*This is our Program
to help you build better*

It's a many-sided program. But in each of SCPI's diverse activities the end purpose is the same: *to help you achieve the finest results possible every time you design or build with brick and tile.*

Today many of the results of this all-industry effort are happily apparent.

You are assured of a steadily expanding supply of skilled masonry craftsmen. Modular coordination and its fast-growing offspring, engineered housing, are here *for good*. Our nationwide organization of trained personnel is ready to give expert assistance and technical information to building men everywhere.

In the future you can expect still greater results—for SCPI's plans encompass more progress-bent activity than ever before—a million dollar research program, for example. Healthy signs, we think, of an industry with faith in its products and, more important, faith in your industry.

For information on any part of our program, please write to the regional office nearest you.

14 regional offices to help you

Structural Clay Products Institute
New Haven 10, Conn., 341 State St.
New York 17, N. Y.

1949 Grand Central Terminal
Canton, Ohio, 306 Market Ave., No.
Pittsburgh 22, Pa.

502 Benedum Trees Building
Chicago 1, Illinois, 228 N. LaSalle St.
Ames, Iowa, 120½ Welch Avenue

Council Bluffs, Iowa
257 Elmwood Drive

Minneapolis 4, Minnesota
206 Wesley Temple Building

Denver 2, Colo., 208 Kittredge Bldg.

Phoenix, Arizona
1538 West McDowell Road

San Francisco 5, Calif.
55 New Montgomery Street

Seattle 4, Wash., Central Building

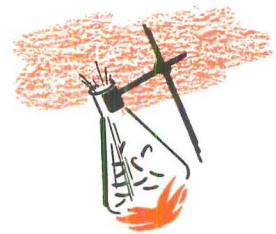
Clay Products Association
of the Southwest

Austin, Texas, Littlefield Building

Oklahoma City, Okla.
First National Building

MAIN OFFICE
**STRUCTURAL
CLAY
PRODUCTS
INSTITUTE**

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



RESEARCH

An appropriation of more than \$1,000,000 has activity booming on many vital new projects.



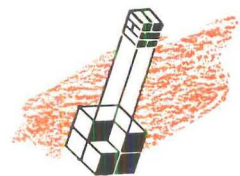
MASON TRAINING

More than 13,000 brickmason apprentices are now bolstering the supply of skilled craftsmen in this SCPI-promoted activity.



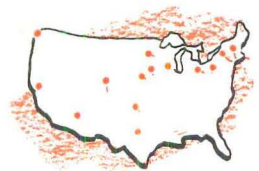
FACT AND IDEA SERVICE

Through SCPI's regional offices, literature covering every aspect of masonry design and construction is available on request.



MODULAR BUILDING

First industry to accept and promote modular, SCPI has maintained its leadership through the successful promotion of Brick Engineered Housing in modular designs.



TRAINED ADVISORY PERSONNEL

14 regional offices give SCPI a nationwide organization of building experts to serve you personally.

READY!

**A NEW
DUAL DUCT
AIR CONDITIONING
SYSTEM**

FOR

MULTISTORIED BUILDINGS

EMBODIES THE ADVANTAGES OF ALL CURRENT PRACTICE WITH HIGH PERFORMANCE AND LOW TOTAL OWNING AND OPERATING COST. EXISTING STRUCTURES ARE SERVED AS WELL AS NEW BUILDINGS.

MAJOR FEATURES

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NATURALLY NO POSSIBILITY OF CORROSION
NO WATER OR STEAM COILS IN DISTRIBUTING UNITS TO CATCH DUST THEREFORE NO AIR CLEANING DEVICES REQUIRED IN THE UNITS

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NO POSSIBILITY OF CONDENSATION AT THE DISTRIBUTING UNITS
NO FANS AND CONSEQUENTLY NO ELECTRIC CONNECTIONS ARE REQUIRED AT THE DISTRIBUTING UNITS
ALL THE CONDITIONING AND CLEANSING OF THE AIR IS ACCOMPLISHED AT CENTRALLY LOCATED STATIONS WHERE IDEAL MAINTENANCE CAN BE HAD

FLEXIBLE

EACH AND EVERY CUBICLE CONDITIONED HAS ITS INDIVIDUAL TEMPERATURE CONTROL PERMITTING THE HEATING OF ONE CUBICLE WHILE COOLING THE NEXT ONE

**REASONABLE
COST**

PARTITION ALTERATIONS AS MAY BE NECESSARY FOR TENANT CONVENIENCE REQUIRE NO CHANGE OF THE AIR CONDITIONING DISTRIBUTION. ALL THIS WITH SMOOTH PERFORMANCE AT THE LOWEST TOTAL OWNING AND OPERATING COST

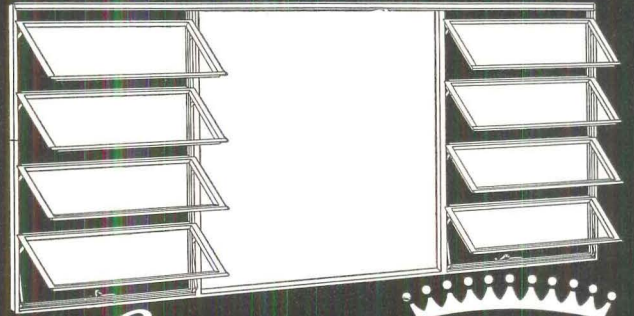
SYSTEM PROTECTED BY PATENT APPLICATIONS

THE BUENSOD-STACEY DUAL DUCT SYSTEM HAS BEEN THOROUGHLY OWNER-TESTED ON MANY PROJECTS.

NAMES ON REQUEST.

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INCORPORATED
NEW YORK GREENSBORO CHARLOTTE

LEMCO Monumental



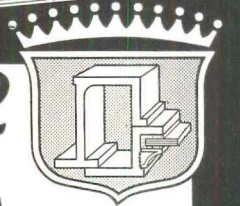
Series 62

• AWNING TYPE •
EXTRUDED ALUMINUM
WINDOWS

• Especially designed for use in
Schools, Hospitals, Public Buildings
and Fine Residences

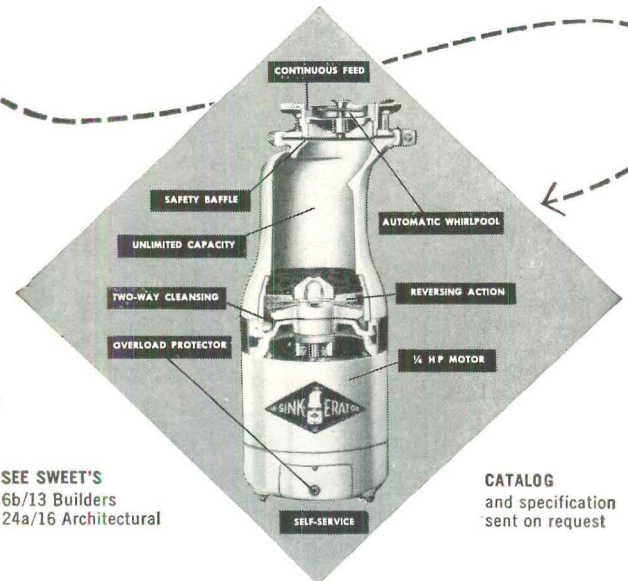
HEAVY 2 1/8" SECTIONS

Write for descriptive literature or see our
Catalog in Sweet's Architectural File



CROFT STEEL PRODUCTS, INC.
16 MARKET STREET - JAMESTOWN, N. Y.

IN-SINK-ERATOR says:
check these vital points for best performance in
automatic **FOOD WASTE DISPOSERS**.



SEE SWEET'S
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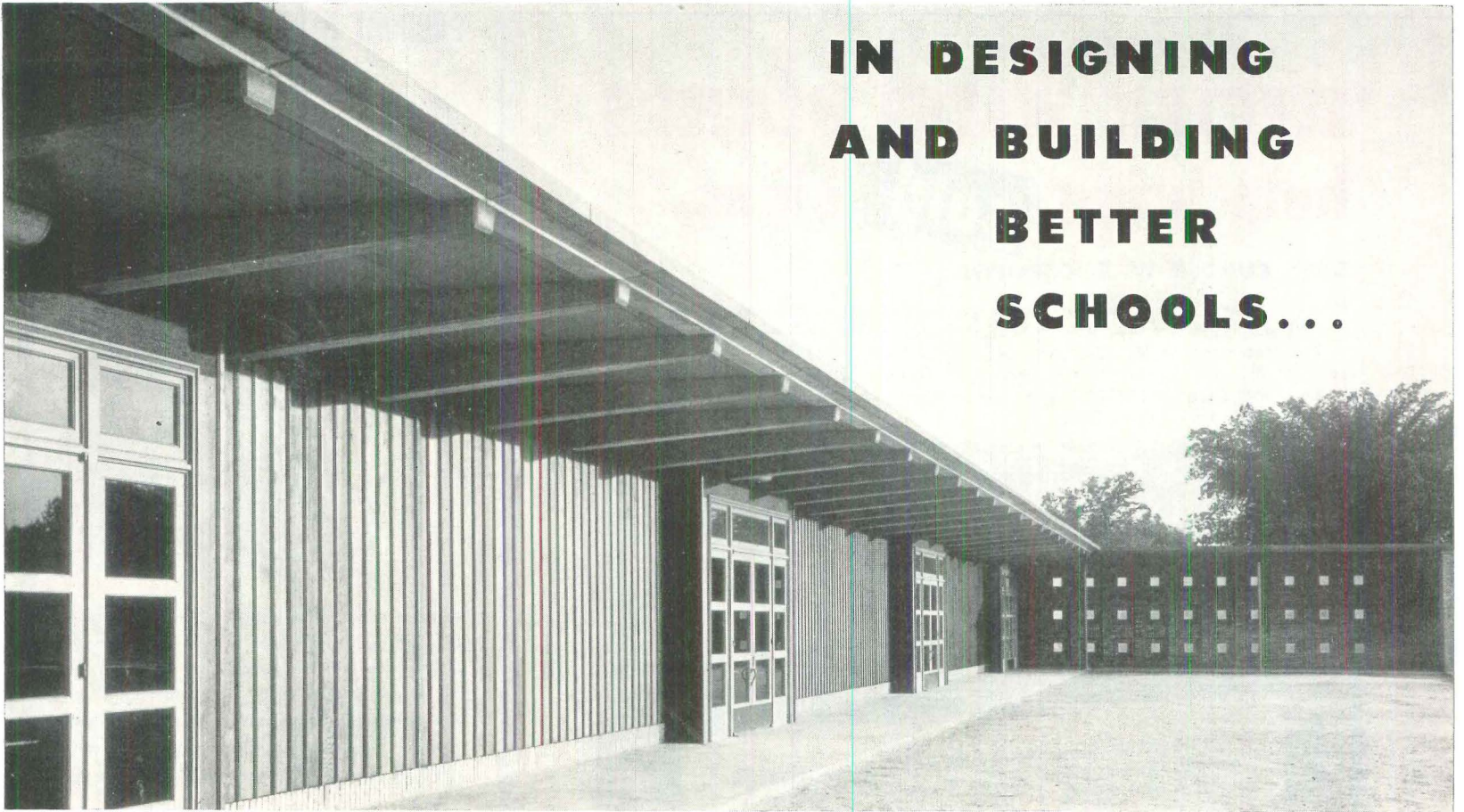
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ONLY IN-SINK-ERATOR offers all these vital product advantages.

ONLY IN-SINK-ERATOR was conceived and engineered by an Architect to meet the exacting requirements of the building profession.

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IN DESIGNING AND BUILDING BETTER SCHOOLS...



CROW ISLAND SCHOOL, Winnetka, Ill. Sarrinen & Saarinen and Perkins, Wheeler & Will, Architects.

Hedrich-Blessing Photo

Use wood to advantage in any type of school

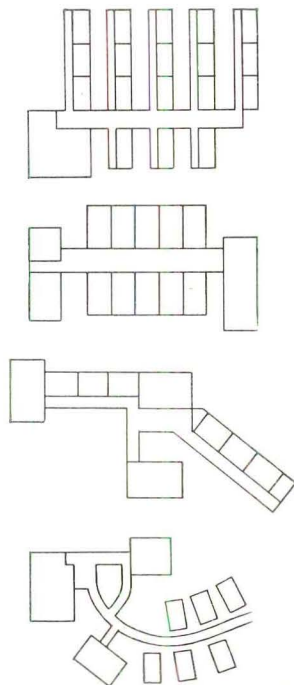
Examples of wood's adaptability are shown by these diagrams of some of today's modern schools of one-story wood construction.

FINGER or "tree" type school; rooms oriented to sunlight on trunk corridor and branches; may be extended easily.

CENTRAL CORRIDOR construction; rooms connected to straight-line corridors; short communications lines.

DOUBLE WING plan, with lines of classrooms branching off from a central hub of school buildings.

CAMPUS plan, with various classrooms and buildings connected only by sidewalks.



specify WEST COAST WOODS

DOUGLAS FIR • WEST COAST HEMLOCK • WESTERN RED CEDAR • SITKA SPRUCE

You add the utmost in economy, practicability, durability, flexibility and beauty to the best construction plans when you specify *wood* — especially the four quality West Coast Woods species. With this *time-tested* building material you also build wood's inherent qualities of friendliness and warmth into school structures.

Schools of quality construction — with highly functional classrooms that are inviting, healthy and safe — may be built quickly of wood. And you can be sure of community acceptance of a school of wood, as it may be designed to any setting, can be planned to fit the needs of teachers and students alike. Small wonder that more and more school buildings are being built of wood.

There's a RIGHT WAY to do everything... Build RIGHT with

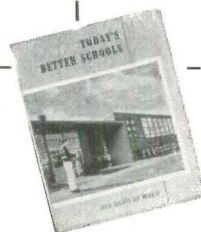
WEST COAST WOODS

DOUGLAS FIR • WEST COAST HEMLOCK
WESTERN RED CEDAR • SITKA SPRUCE

Lumber of Quality Produced by Member Mills
WEST COAST LUMBERMEN'S ASSOCIATION

SEND FOR FREE BOOKLET

Beautifully illustrated in natural colors, this booklet, "Today's Better Schools Are Built of Wood", points out many different applications of wood in schoolhouse construction. It tells how schools of wood help meet today's educational needs. Send coupon now for your free copy.



WEST COAST LUMBERMEN'S ASSOCIATION

1410 S. W. Morrison — Room 915, Portland 5, Oregon

Please send free copy of "Today's Better Schools Are Built of Wood".

Name _____

Address _____

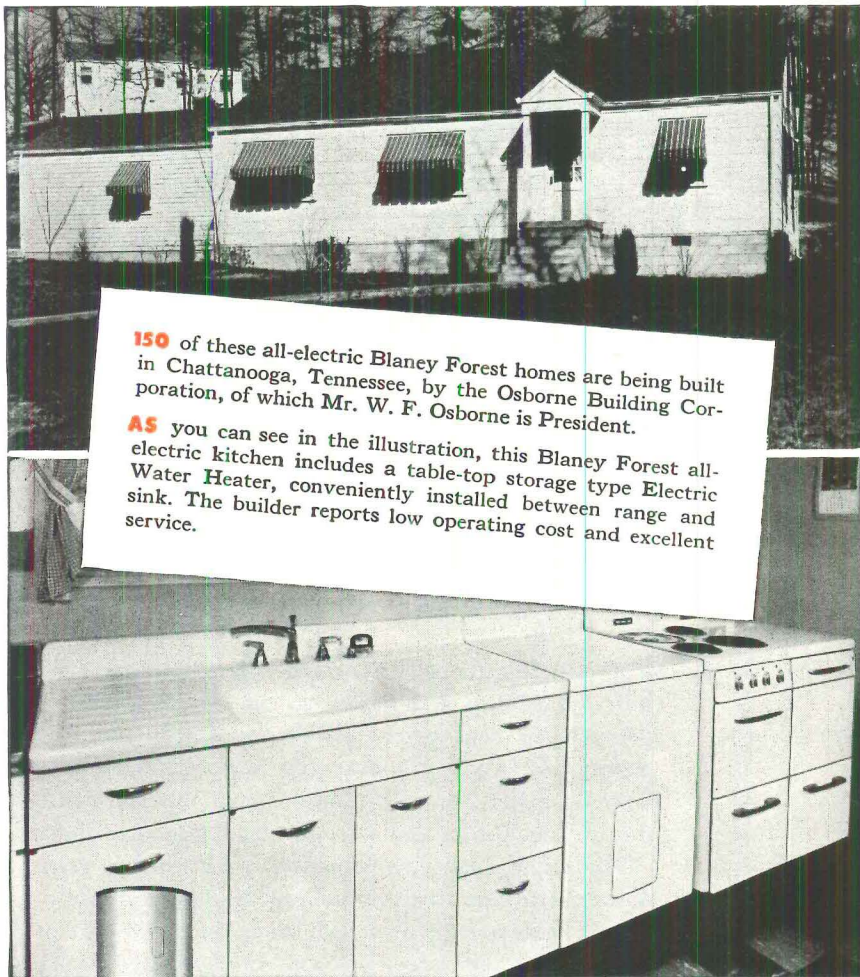
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"ELECTRIC WATER HEATERS help bring **sold** signs,"

SAYS BUILDER W. F. OSBORNE

"When a builder undertakes a housing project, one of his first concerns is seeing that a 'Sold' sign is erected as soon as possible, even before the house itself is completed."

This statement by Mr. Osborne explains why his homes include Electric Water Heaters, along with other electric appliances. Nationwide sales and survey figures indicate that people prefer Electric Water Heaters. When you give them what they want, you sell more houses, faster!



150 of these all-electric Blaney Forest homes are being built in Chattanooga, Tennessee, by the Osborne Building Corporation, of which Mr. W. F. Osborne is President.

As you can see in the illustration, this Blaney Forest all-electric kitchen includes a table-top storage type Electric Water Heater, conveniently installed between range and sink. The builder reports low operating cost and excellent service.



It pays to install Electric Water Heaters. They're completely automatic, clean, dependable in operation. They save money for builder and customer alike. Installation can be made anywhere—no flue or vent. This shortens hot water lines, cuts piping cost, prevents water waste. Fully-insulated storage tank for extra economy of operation. Safety assured by all electric, dependable temperature control.

... OF COURSE, IT'S ELECTRIC!

ELECTRIC WATER HEATER SECTION

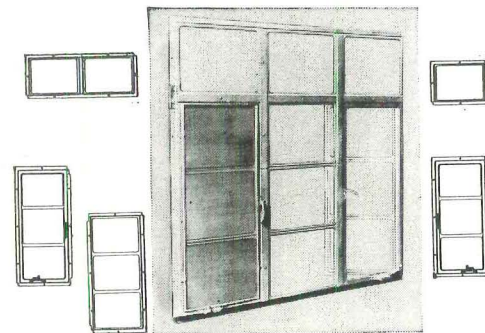
National Electrical Manufacturers Association • 155 East 44th Street, New York 17, N. Y.

ALLCRAFT • BAUER • BRADFORD • CRANE-LINE SELECTRIC • CROSLY • DEEPFREEZE • FAIRBANKS-MORSE
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IT'S EASY TO INSTALL an ELECTRIC WATER HEATER
 in a house wired for an Electric Range!

PRODUCT NEWS

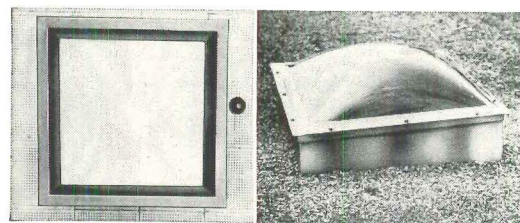
of stainless steel so that the entire window is rustproof. Glazing areas in single and double light fixed units are each 12 in. x 16 in., and slightly smaller in triple light sections. Windows receive a baked coat of aluminum enamel, or may be supplied with a primer for painting any



desired color. The simplified stocking of sections and unique cast construction are said to reflect dollar savings to the builder. Window No. 2413 (a fixed double light over one fixed and one operating triple light) costs \$18.58 in quantity orders. The window pictured above is about \$32. *Manufacturer: The Maco Corp., Huntington, Ind.*

PREFAB SKYLIGHT has shatterproof plastic dome.

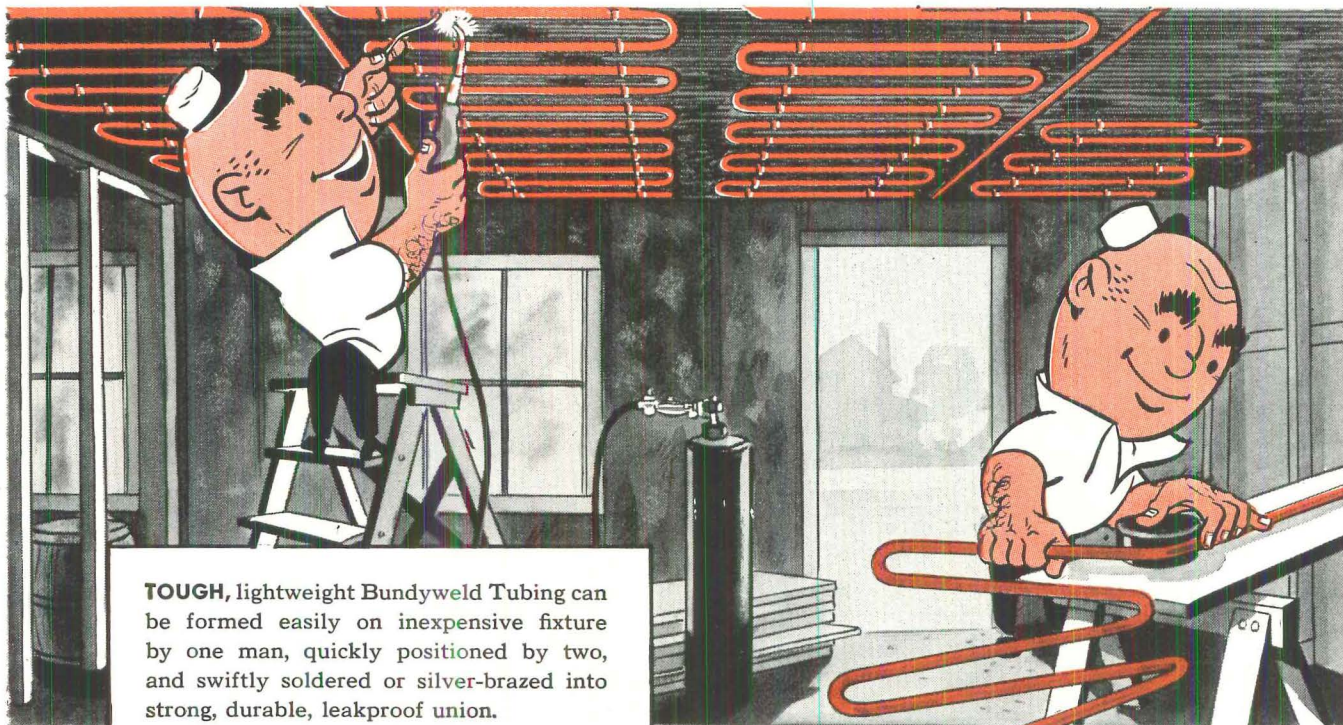
Weighing about half as much as a glass skylight of the same size, a Wascolite consists of a formed sheet of thermoplastic acrylic resin fastened to a precision matched frame of 16 oz. copper. Cross members and wire reinforcement are eliminated; from beneath, the skylight is barely noticeable. Installation is quite simple. The frame fits in position over a curb, allowing space for curb flashing under the outside edge. Units come with three types of plastic, each 1/4 in. thick: domes that will transmit beneficial ultraviolet rays (for use in hospitals, schools and laboratories); plastic that absorbs ultraviolet (for stores and warehouses to reduce the fading of materials); and white translucent plastic for greater light diffusion. All are sprayed with a protective coating before shipment to prevent surface scratches during installation. A long-wearing synthetic rubber and cork gasket is claimed to assure watertight construction. Rain and soot tend to roll off the rounded dome and the inside surface may be wiped clean easily.



Wascolites are available in 8 sizes. The smallest, 20 x 20 in., sells for \$30; the largest square, 68 x 68 in., is \$192 f.o.b., factory; and the 36 in. x 96 in. skylight, \$185. Units with translucent plastic are slightly higher.

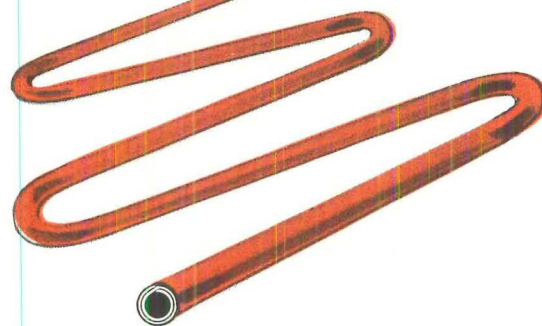
Manufacturer: Wasco Flashing Co., Cambridge, Mass.

(Continued on page 178)



TOUGH, lightweight Bundyweld Tubing can be formed easily on inexpensive fixture by one man, quickly positioned by two, and swiftly soldered or silver-brazed into strong, durable, leakproof union.

Better radiant heating with Bundyweld ...because it's better tubing!



No other tubing offers more practical, on-the-site fabrication advantages or more desirable properties to your radiant heating systems than Bundyweld.

No other tubing is double-walled from a single strip! It's sturdy and strong—takes knocks and jolts of handling without denting or collapsing structurally. Yet Bundyweld's ductility allows one-man forming with no special fixture, while its lightness means quick two-man positioning of formed grid. In short, when Bundyweld goes on the job, extra savings in time and labor go right with it.

Bundyweld is copper-bonded through 360° of its double-wall contact; *double* the protection against breaks or leaks through years of use. Tinned or copper-coated Bundyweld is available for immediate delivery in sizes up to 5/8" O.D. in quantities to meet any job requirements. For floor installations, tinned Bundyweld is recommended.

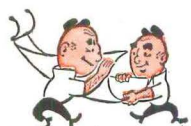
Get the complete, amazing story of Bundyweld Tubing in the Bundy radiant heating brochure.

Write: **Bundy Tubing Company, Detroit 14, Michigan.**

Bundyweld Tubing

DOUBLE-WALLED FROM A SINGLE STRIP

WHY BUNDYWELD IS BETTER TUBING



Bundyweld starts as a single strip of basic metal, coated with a bonding metal. Then it's . . .



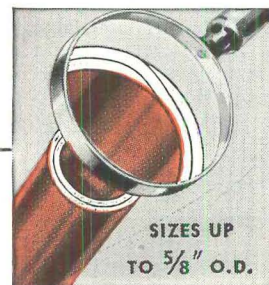
continuously rolled twice around laterally into a tube of uniform thickness, and



passed through a furnace. Bonding metal fuses with basic metal, presto—



Bundyweld . . . double-walled and brazed through 360° of wall contact.



SIZES UP
TO 5/8" O.D.

NOTE the exclusive patented Bundyweld beveled edge, which affords a smoother joint, absence of bead and less chance for any leakage.

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A fresh approach to small house design DINING 12-10

BEDROOM 14-2 IN JUST 5 SHORT DAYS!

ATTEND

Annual CONVENTION-EXPOSITION NATIONAL ASSOCIATION OF HOME BUILDERS

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BEDROOM 13-2 x 12-0 BEDROOM 13-2 x 10-2

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NAHB invites you to join in promoting a great new era of architect-builder cooperation. The incomparable facilities of our famous Convention-Exposition afford all of us a splendid opportunity to carry this great program forward.

An exciting array of outstanding Convention-Exposition features awaits you—each and every one an event of positive personal benefit to you.

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***CONVENTION PROGRAM**—The subject of better house design and architect-builder teamwork will be given a prominent place in Convention sessions. Be here—express your views—hear others!

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REGISTER NOW! HERE'S HOW. Members of local NAHB chapters register through their local secretaries. All others use coupon below. Advance registration (\$15 for men, \$10 for wives) must be sent with hotel reservation request. Confirmation and registration certificate sent to you at once. Make checks payable to National Association of Home Builders. If registration is for more than one person, please give, on separate sheet, names, addresses, business classifications and dates of arrival.



National Association of Home Builders
Convention & Exposition Headquarters
111 W. Jackson Blvd., Chicago 4, Ill.

Enclosed find my check for \$.....

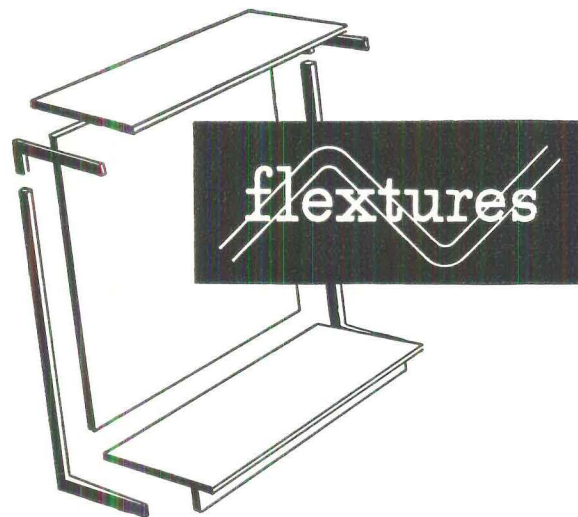
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Flextures, unlike an assortment of hardware fittings involving costly detailing and hand labor, are complete free-standing, self-supporting structures, easily moveable as needed for rearrangement. No structural partitions needed to obtain the "off-the-back" effect demanded by contemporary design.

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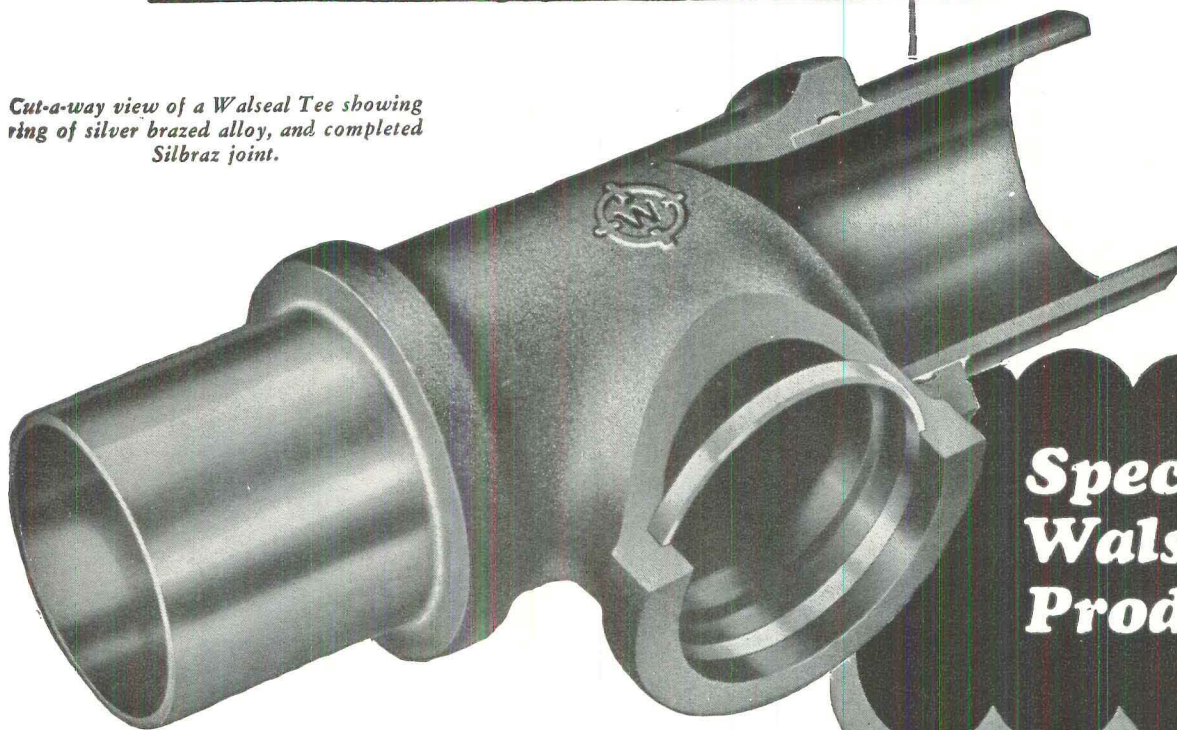
For detailed information and test data write for catalog.

The tough, 100 per cent vinyl surface resists cuts and scratches caused by dirt and grit—outwears ordinary floor material many times over.

DODGE CORK CO., INC. • LANCASTER, PA.

FOR LEAKPROOF, TROUBLE-FREE PIPE RUNS

Cut-a-way view of a Walseal Tee showing ring of silver brazed alloy, and completed Silbraz joint.



**Specify
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Products**

On all types of piping jobs where Type "B" copper or red brass pipe is used, trouble can be avoided by installing Silbraz* joints — made with Walseal valves, fittings and flanges.

Threadless, patented Silbraz joints are silver brazed (not soft soldered) pipe joints that are leakproof, trouble-free — permanent . . . connections that will not creep or pull apart; that literally join with the piping system to form a "one-piece pipe line". Thus, these modern joints eliminate the need for maintenance and costly repairs — especially important where lowered operating costs are imperative.

For complete details on the modern Silbraz joint, made with Walseal products, write for a copy of Walworth Circular 84.

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

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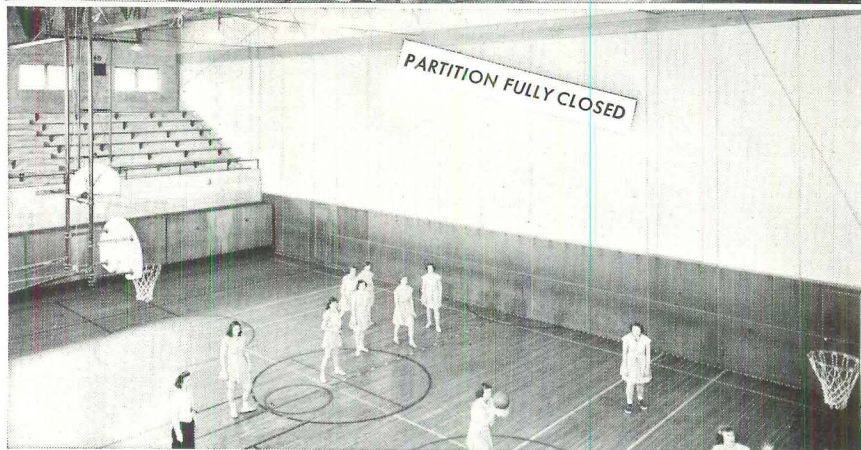
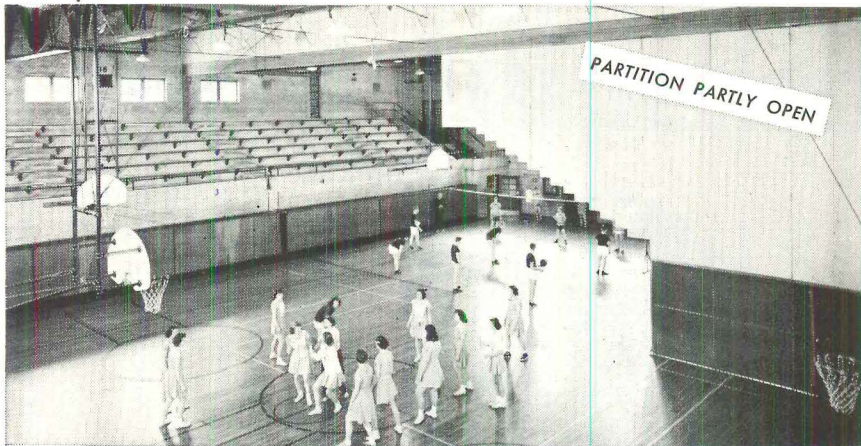
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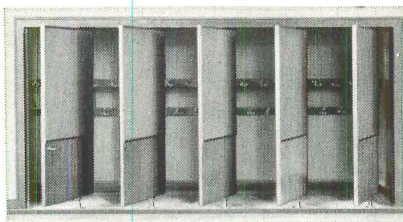


ONLY R-W DeLuxe FoldeR-Way Partitions Completely Eliminate Manual Effort!

Here you see how effectively you can segregate recreational activities with a 3-in-1 gymnasium—made possible by R-W FoldeR-Way Automatic Electric Partitions. But did you know that . . .

- ONLY R-W FoldeR-Way completely eliminates manual effort.
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Exclusively specified by leading School Architects, and demanded by progressive Boards of Education, R-W FoldeR-Way Partitions quickly solve the most difficult problems of space and economy.



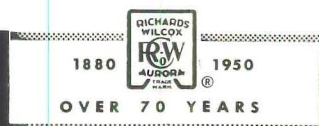
R-W OFFERS COMPLETE LINE OF SINGLE AND MULTIPLE ACTION CLASSROOM WARDROBES... ALL NEW FOR 1950

Richards-Wilcox Classroom Wardrobes, completely re-engineered, now use only modern, lighter, rustproof metals. Stronger—easier to install—custom-built to fit premises—stock sizes available at lower cost.

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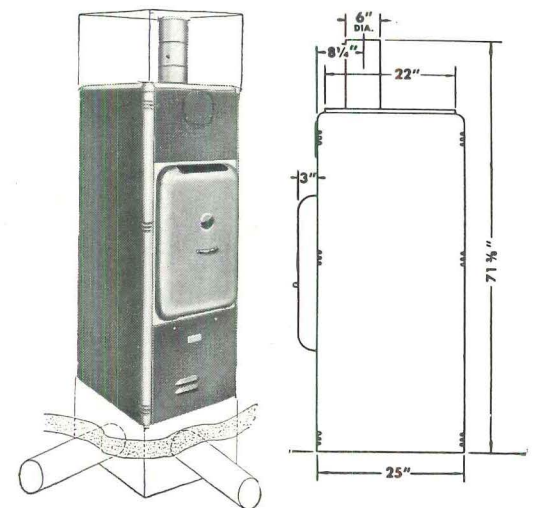
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 "A HANGER FOR ANY DOOR THAT SLIDES"
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PRODUCT NEWS

COUNTER FLOW FURNACE is designed for perimeter warm air systems,

As a follow-up to the satisfactory experiments conducted at University of Illinois on perimeter heating for houses built on concrete slab (BUILDING, Aug., '50), Morrison Steel Products has put down-flow gas and oil fired furnaces on the market. Both models, factory assembled to facilitate installation, are Underwriters' approved for "zero inches clearance" and so may be placed in small closets. The blower distributes heated air through the ducts so that floors are comfortable but never hot. The balance of warm air flows gently into the room from outlets at weather wall baseboards. Return air is filtered and heated as it is drawn through the unit. The CF-4-0 oil fired unit is said to provide balanced air delivery for mixing, preheating and vaporizing the oil. The CF-4-G gas model has an ef-



ficient single port non-clog burner. In each type, blower and blower motor are located at bottom of the furnace, out of the way of ambient heat during off periods. Casings are finished in two-tone grey baked enamel. A complete perimeter system, properly installed and insulated, including Morsun gas fired furnace costs the builder about \$550, and somewhat more with oil burning unit.

Manufacturer: Morrison Steel Products, Inc., Furnace Div., Buffalo 7, N. Y.

RESILIENT TILE FLOORING is grease and alkali resistant, moderately priced.

Because Vitachrome is unaffected by animal and vegetable fats and has good resistance to alkali, this plastic asbestos tile is especially suitable for flooring in restaurants, kitchens and food serving areas. It is manufactured in a variety of sizes in 10 marbled colors and five excellent solid tones. Its smooth satin gloss surface is lightly pitted, giving it an unusual rich appearance. Average installed price for the 1/8 in. thickness is about 37 cents per sq. ft. The 3/16 in. tile can be applied for approximately 47 cents per sq. ft. Installation on steel trowled concrete subfloors is somewhat lower, and on most wood subfloors—except plywood—slightly higher.

Manufacturer: Tile Tex Div., The Flintkote Co., (Technical Literature, page 184)



TOPS in Smart Places...

GENERAL ELECTRIC PLASTICS TOPS

General Electric Textolite* Plastics Tops impart a note of smart elegance to the new "Purple Tree" Room, Hotel Vanderbilt, New York City (Thomas J. Kelley, II, General Manager). Beautiful and durable, these bright tops combine customer-appeal with sturdy utility.

Architects and builders will find General Electric Plastics Tops ideal for private kitchens as well as for commercial installations like restaurants and soda fountains. There's a wide variety of original colors and patterns to choose from, and these handsome tops wear like iron . . . clean like glass.

FOR MORE INFORMATION about G-E Textolite Plastics Tops, see our Catalog in Sweet's File, or mail the coupon below.

*Reg. U.S. Pat. Off.



FOR KITCHENS



FOR SODA FOUNTAINS



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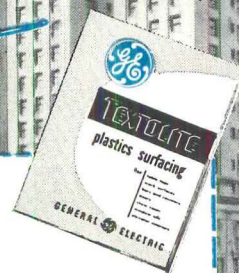
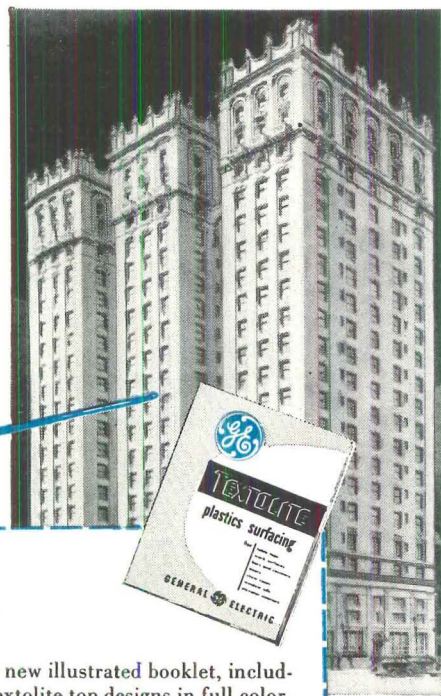
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General Electric Company
Section L22, Chemical Department
Pittsfield, Massachusetts

Please send me a free copy of your new illustrated booklet, including a pattern sheet showing G-E Textolite top designs in full color.

Name _____

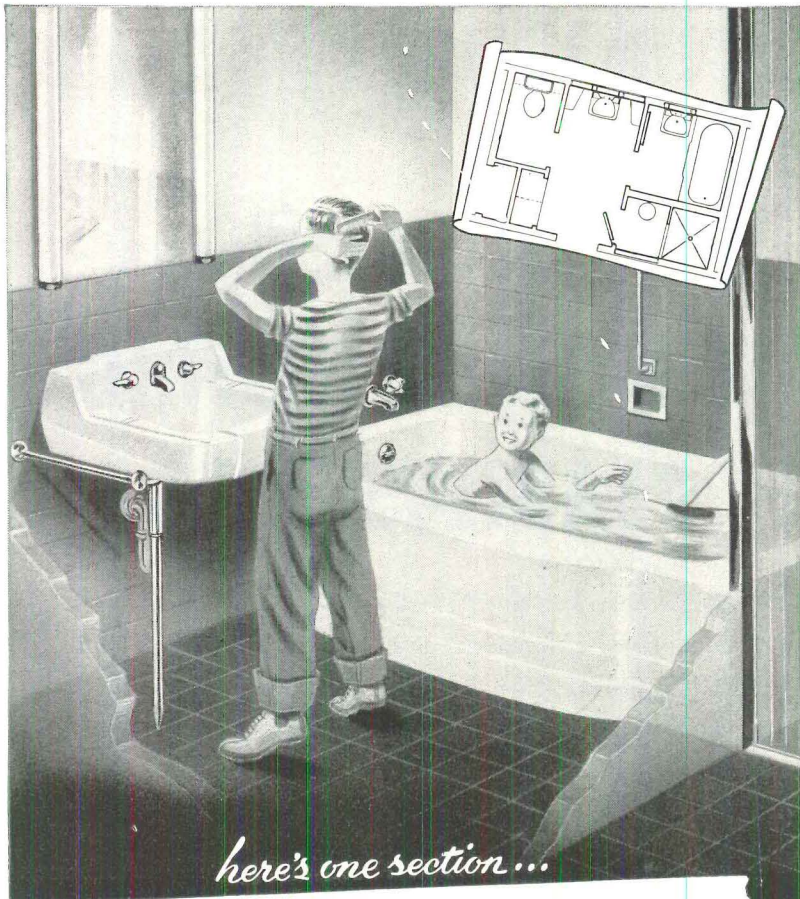
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SAVE TIME...add these architect specifications to your file

Send for free, illustrated building plans on the new Universal-Rundle Family Bathroom.

Architect Ernst Payer introduces many new ideas that add appeal to modern homes without increasing building costs.

Mr. Payer, like many other architects, specifies sparkling Universal-Rundle Fixtures because of superior quality, more adaptable styling.

Send in your request now. Ask for information about the entire line of U-R Bathroom Fixtures and Kitchen Equipment.

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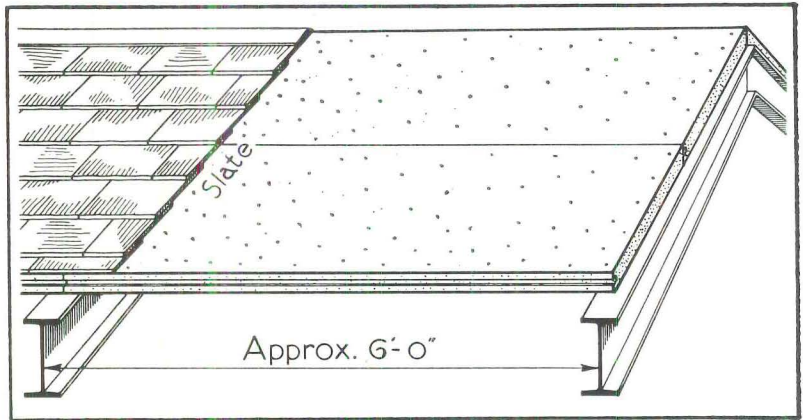
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Write for complete plans and illustration by Architect Ernst Payer, A. I. A.

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2" and 2 3/4" thick, T & G is made of lightweight nailable concrete and is reinforced with a galvanized welded wire mesh near the top and bottom.

The Porete Plank makes the most economical roof deck for sloped roofs, where the steel purlins or rafters are on about 6' centers and where slate or tile has to be nailed to it.

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Why so many businesses want Skylike



Orders for Silvray SKYLIKE* lighting — introduced a few months ago — are coming in by the mailbag-full! That's because the SKYLIKE system combines the best features of silvered-bowl incandescent lighting with the architectural appeal of a fluorescent-type troffer. No other type of lighting has all its advantages! Here are some quick facts:

- Warm color — most desired by merchandising experts.
- High initial and maintained light output.
- Softly diffused shadows.
- Low brightness and 90° shielding.
- No flickering, blinking, or hum.
- Instant starting.
- Variable lamp size — 150- to 500-watt.
- No light loss from darkened walls or ceilings.
- Floor-service relamping — no ladders or scaffolds.

- Hermetically sealed silver reflecting surface.
- Units fit 24" x 24" ceiling tiles, fully or partly recessed, or surface-mounted, in rows or patterns.
- Easily converted, with simple accessory, for directional or accent lighting.
- Simple in construction; simple in wiring; free of ballasts, starters, transformers.
- Lightweight; low-cost supporting construction.
- 87% reflection factor, easily maintained by occasional wiping with a damp cloth.
- Low-cost! 1/2 to 1/3 the cost of equipment delivering comparable results.

The steel shortage has slowed Silvray Lighting's production of SKYLIKE units, but orders are being filled as fast as possible. Get your copy of "Skylike Louvered Incandescent Lighting Systems". Write to Room 1511, Graybar Electric Company, Inc., 420 Lexington Avenue, New York 17, N. Y.

*Patent pending

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Chicago Tribune's Fifth Annual **BETTER ROOMS** **COMPETITION**

\$25,000.00 IN 145 CASH PRIZES

**ranging from \$100.00 to \$1,000.00 each
for the best ideas for furnishing and
decorating seven types of rooms**

All entries must be received by 5 p.m. of February 19, 1951

IN ORDER to bring to readers in 1951 stimulating ideas for furnishing and decorating various types of home interiors, the Chicago Tribune is conducting its Fifth Annual Better Rooms Competition, offering \$25,000.00 in 145 cash awards for the best ideas submitted.

Just as the Chicago Tribune's competitions in each of the past four years brought out a wealth of fresh and interesting ideas in this field of high popular interest, so the 1951 competition has been designed to set new standards of excellence in home interior fashions.

Here is your opportunity to plan one or more typical rooms just the way you would like them to be—and to win cash and nation-wide recognition for your efforts.

After the prize winners have been chosen, the Tribune, just as it has in previous years, intends to reproduce the winning ideas, or adaptations of them, in full color in the Chicago Sunday Tribune.

Everyone is eligible to compete, except employes of the Chicago Tribune and subsidiaries, members of their families, and of the Jury of Awards, which, as in the past, will be composed of authorities of recognized high standing in the field of home furnishing and interior decoration.

For complete information to help you prepare your entry, send today for your free copy of the rules which will be sent to you postpaid. The closing time is February 19, 1951. So don't delay.

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FILL IN THE COUPON—CLIP AND MAIL TODAY!

Better Rooms Competition
Chicago Tribune, 435 N. Michigan Ave.
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Without cost or obligation to me, please send to me by postpaid mail at the address below a free copy of the rules of the \$25,000.00 Chicago Tribune Fifth Annual Better Rooms Competition.

My Name.....

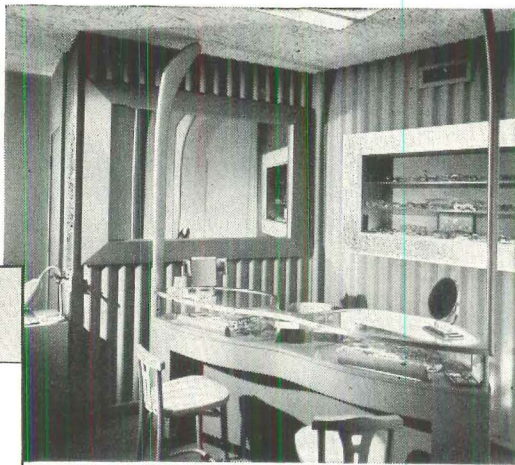
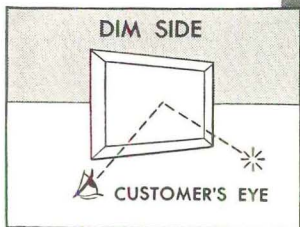
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City (and Zone No., if you know it).....State.....

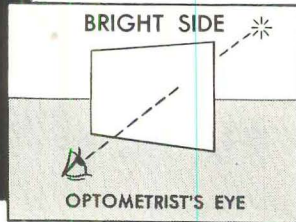
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Even when he's busy in his workroom, this optometrist can see his patients as they come in. Yet all they see is a beautiful, framed wall mirror. Actually, it's a *Mirropane** transparent mirror in the partition.

The lighting is the key (see diagrams) to this glass-making miracle of sight unseen. When viewed from the side having the stronger illumination, *Mirropane* looks like any mirror. But from the dimly lit side, it's transparent.

This mirror magic is easily adaptable to a wide variety of practical applications—wherever supervision, protection, or privacy is needed. It has many attractive decorative uses, too. Write for more information.

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A complete line of coolers, fountains, faucets, equipment, filters and accessories. A reputation for reliability since 1909. Check in Sweet's or write for complete HAWS catalog.

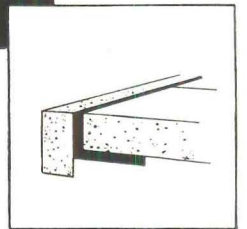
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STOP HEAT LOSS with KORK-PAK...The INSULATING VAPOR SEAL



- NON - EXTRUDING
- WATERPROOF
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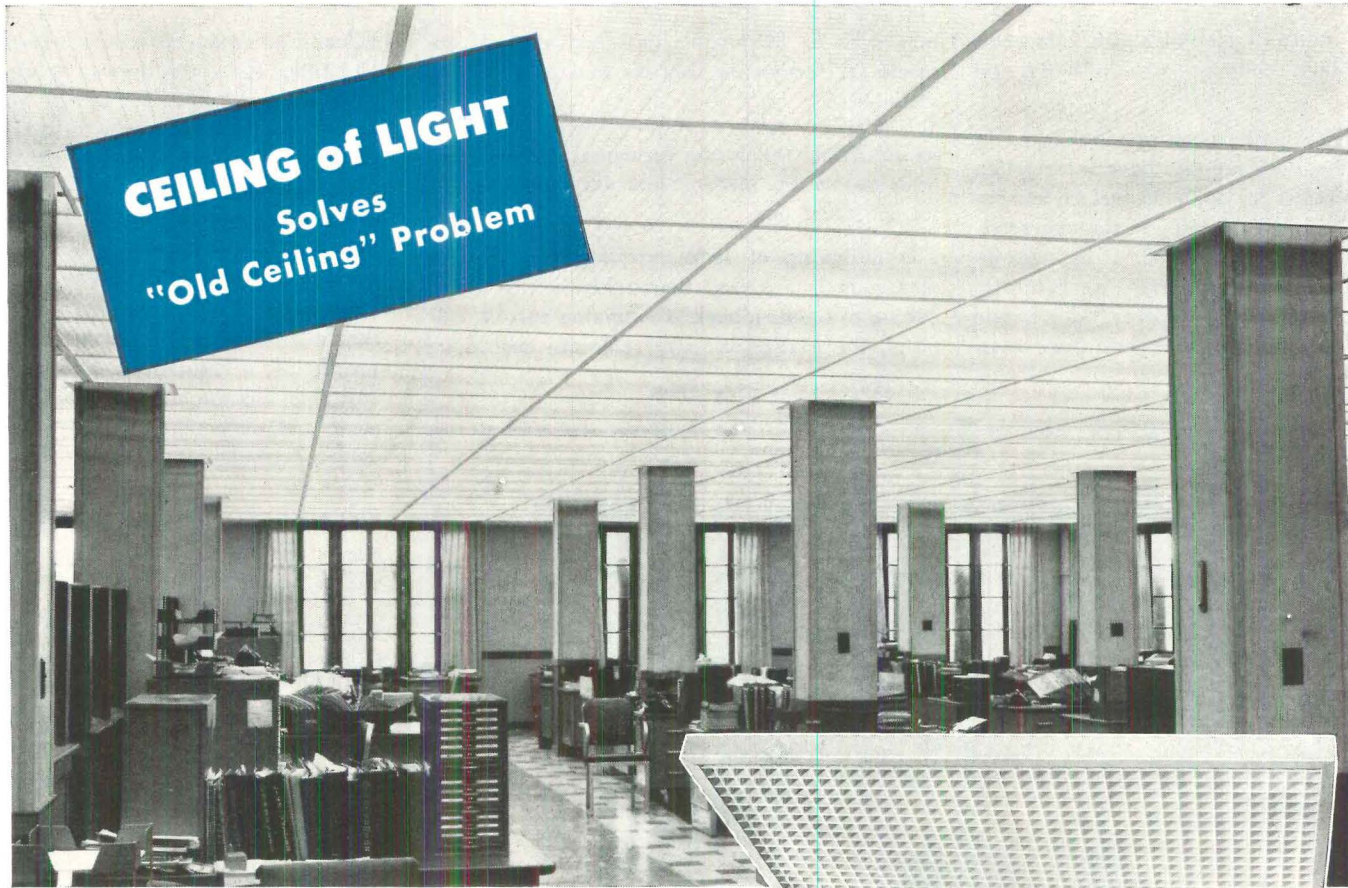


Install KORK-PAK at the slab-footing joint to prevent heat loss through concrete floor slabs in basementless houses and structures on grade — get maximum joint filling efficiency PLUS the highest insulating factor of any similar material. KORK-PAK'S low cost and easy handling make it ideal for many applications such as Sill Vapor Seal, Glass Building Block Seal, Joint Filler, etc., in every type of construction.



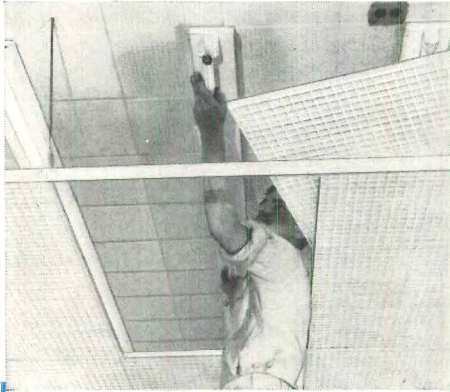
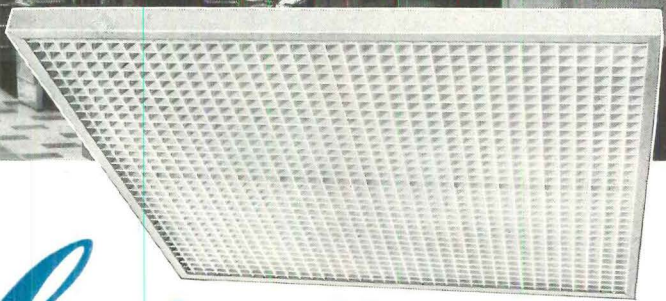
Write for complete details, illustrated circular and samples.

SERVICISED PRODUCTS CORP.
6051 W. 65th ST., CHICAGO 38, ILL.



CEILING of LIGHT
Solves
"Old Ceiling" Problem

Leaderall moulded plastic unit ceiling at Electric Supply Corp., Chicago. Approximate area 6,000 sq. ft. Average intensity 50 foot candles . . . light intensities may be varied, however, without visual effect. Indicated framed area of 4 sq. ft. Light source is simple, fluorescent strip with reflectors. Architect . . . Mr. Vic Charn.



An ideal Leaderall installation would consist of fluorescent slimline strip with reflector mounted to ceiling, plus Leaderall plastic ceiling grille installed below. Leaderall grille is easily removable for quick relamping. Grilles provide more apertures per foot for maximum "sifting" of lamp rays and greatest shielding of lamps. Units with 40°-40° cut-off available in 2' x 4' or 4' x 4' sections. Other sizes and curvatures custom made. Plastic is destaticized . . . dust resistant. No interference with sprinkler system or air conditioning.

Leaderall

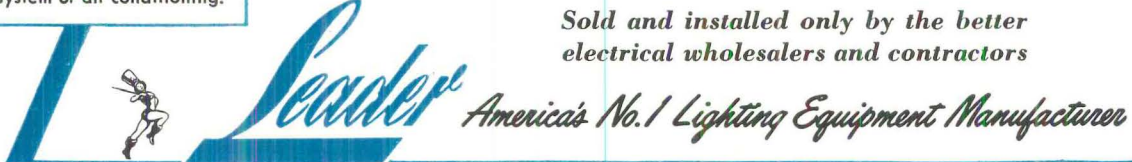
Illuminated Ceilings . . . Modernize, Beautify

Spreading a soft glow of even light from wall to wall, Leaderall ceilings simplify decorative planning two ways: They add a cool, quiet modern note to the completed decorative scheme! They cut remodeling costs by permitting old ceilings to be used without change!

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ALUMINUM. Finishes for Aluminum. Reynolds Metals Co., 2500 S. Third St., Louisville, Ky. 124 pp. 6 x 9 in.

A recent revision of the book first published in 1947, the 1950 edition supplies basic information on various processes for applying surface finishes to aluminum and gives details on the characteristics of the finishes so produced. It includes information on cleaning treatments, mechanically and chemically produced finishes, electrolytic oxide and organic finishes and specialized coat-

ings such as luminous paints and vitreous enamels. A section on controls and tests is also included.

ALUMINUM. Aluminum Structural Design. Reynolds Metals Co., 2500 S. Third St., Louisville, Ky. 130 pp. 6 x 9 in.

The designing of load carrying structures in aluminum is analyzed thoroughly in this latest edition of the handbook. Containing current material, the coat-pocket size reference should be

valuable to engineers who are planning original aluminum structures or converting existing designs for some other material to aluminum. Formulas and examples add to the usefulness of chapters on tensile, compressive, bending and shear stresses. A section devoted to fabrication and joining covers riveting, bolting, fusion and spot welding. Deflection and vibration problems are also discussed. Technical data, presented in a series of 39 tables, is exceptionally complete. Included are physical, chemical and mechanical properties; a list of sizes, alloys and tempers of available aluminum mill products; shear, moment and deflection formulas for beams; and column formulas.

WELDING. Procedure Handbook of Arc Welding Design and Practice. 9th edition. The Lincoln Electric Co., Cleveland 1, Ohio. 1200 pp. 6 x 9 in. \$2.

Savings in structural steel through welded construction loom more important as the supply of steel for building becomes critical. Here is a timely and authoritative volume based on recent research projects and recommended welding procedures. The section on structural design has been enlarged to cover details on welded rigid framing. A survey of the latest findings on weldability is also included. Current practices are presented for welding all metals and alloys which are commonly welded with manual open arc and hidden arc as well as automatic and semi-automatic hidden arc welding. The book gives design fundamentals (such as stress allowances) which may be applied to particular problems. Completely reorganized and re-edited, the 9th edition should provide the answer to almost any question on welded design of both structure and machinery.

LIGHTWEIGHT AGGREGATES. Permalite Job Data. Great Lakes Carbon Corp., Building Products Div., 18 E. 48th St., New York 17, N. Y. 50 pp. 8½ x 11 in.

Typical industrial, commercial, residential and institutional projects in which Permalite plaster or concrete was used are pictured in the booklet. Applications of these materials (containing the lightweight aggregate, perlite) include base coat plaster, plaster fireproofing of structural steel, acoustical plaster and lightweight insulating concrete for roof decks, floor fills and curtain walls. Construction details such as name of architect, contractors and quantity of Permalite plaster or concrete used in each job are also given.

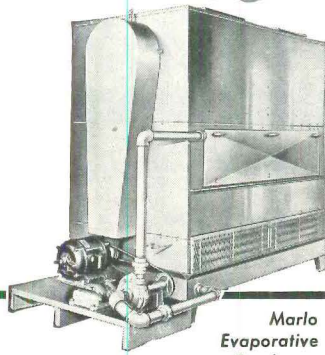
WALL TILE. Hako Coronet Plastic Wall Tile. Hachmeister, Inc., 2232 Forbes St., Pittsburgh, Pa. 12 pp. 3 x 6 in.

Complete directions for setting plastic tile—from measuring the room and preparing the wall surface to cleaning up the finished job—are covered in this folder. Each step in the process is illustrated with photographs.

(Continued on page 188)



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Cooling Towers and
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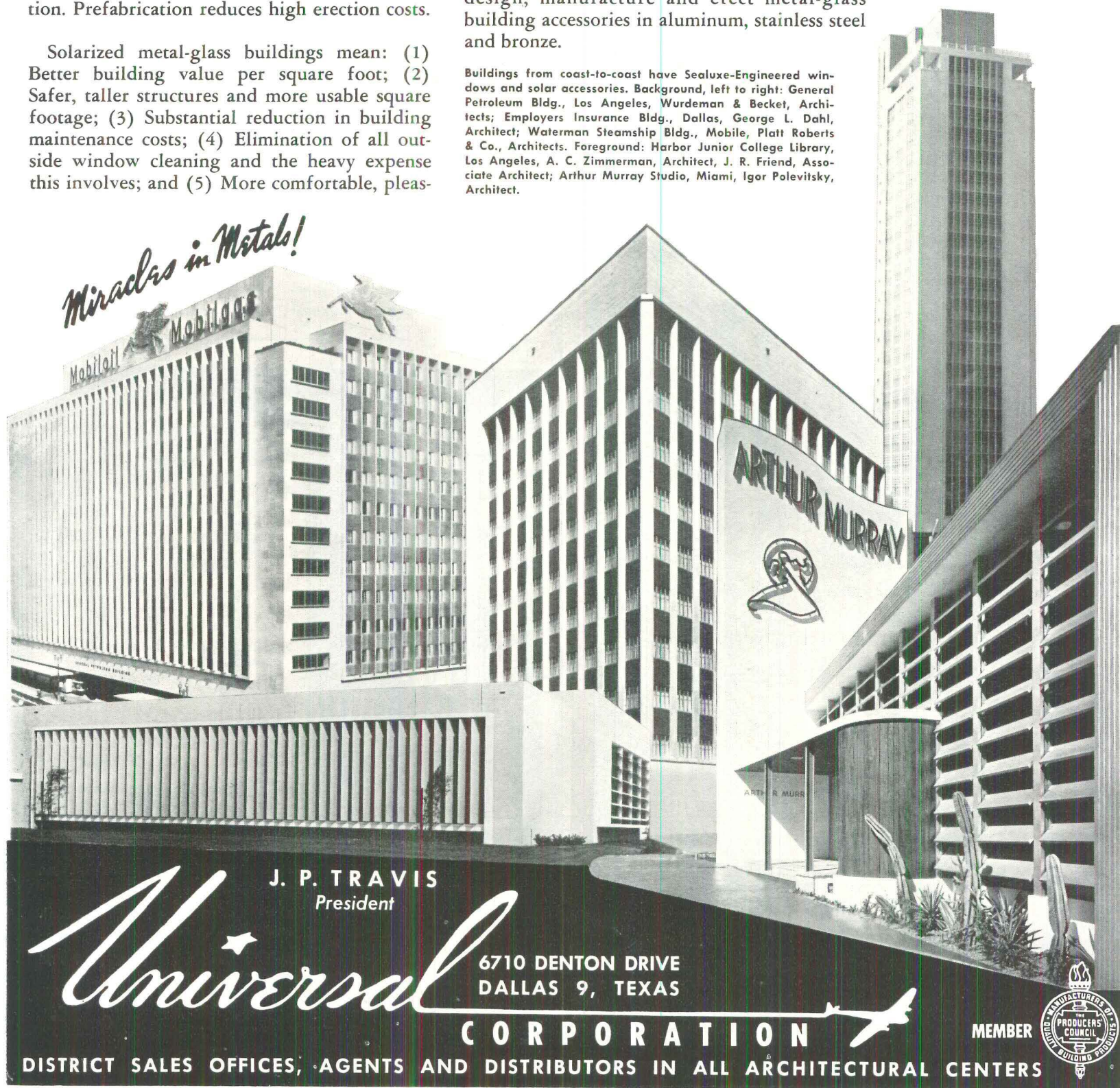
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Buildings from coast-to-coast have Sealuxe-Engineered windows and solar accessories. Background, left to right: General Petroleum Bldg., Los Angeles, Wurdeman & Becket, Architects; Employers Insurance Bldg., Dallas, George L. Dahl, Architect; Waterman Steamship Bldg., Mobile, Platt Roberts & Co., Architects. Foreground: Harbor Junior College Library, Los Angeles, A. C. Zimmerman, Architect, J. R. Friend, Associate Architect; Arthur Murray Studio, Miami, Igor Plevitsky, Architect.



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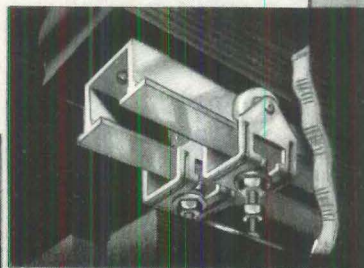
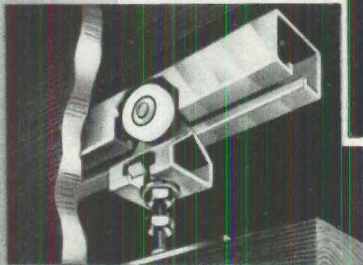


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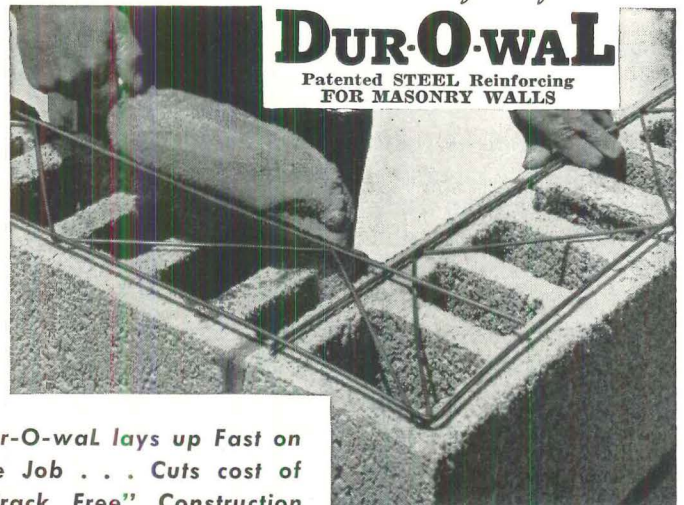
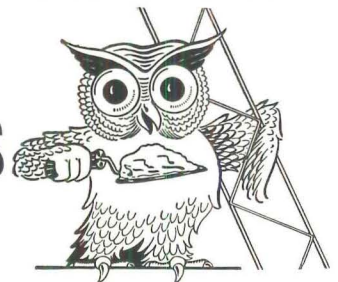
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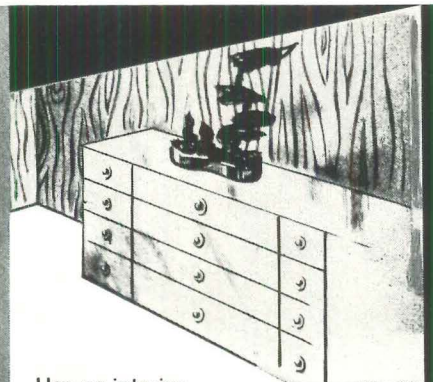
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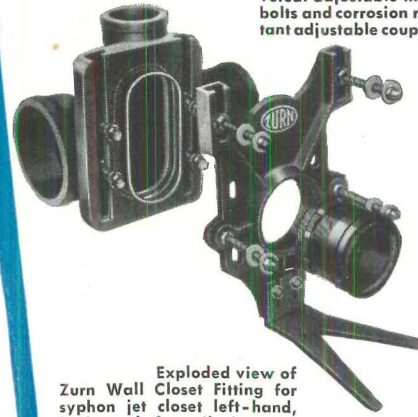
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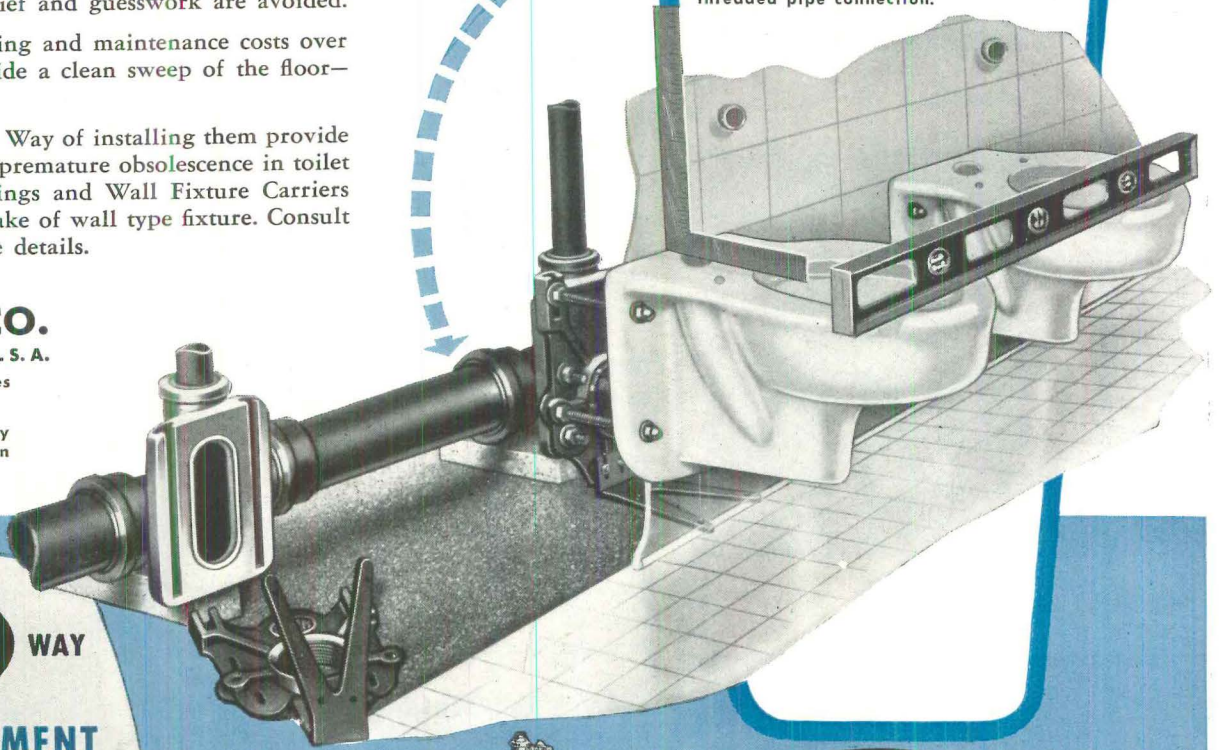
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Wall closet fitting—horizontal, single type shown with connections for soil pipe.

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Exploded view of Zurn Wall Closet Fitting for syphon jet closet left-hand, horizontal, for soil pipe connections. Also available for threaded pipe connection.



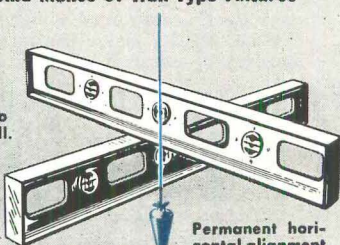
One of several types of Zurn Engineered Carriers for wall type urinals.



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TECHNICAL LITERATURE

WALLS AND CEILINGS. Metal Lath and Plaster. Metal Lath Manufacturers Assn., 636 Engineers Bldg., Cleveland 14, Ohio. 16 pp. 8½ x 11 in.

Written in a nontechnical style, the booklet familiarizes home builders and designers with the salient features of metal lath and plaster walls and ceilings. Beauty, strength and permanence are some of the advantages noted for metal lath construction. Well chosen photos serve as convincing supplements to the text. A two page illustrated chart explains various types of metal lath and metal plastering accessories.

WALL FINISH. Flexwood, Choice Wood in Flexible Sheets, United States Plywood Corp., Flexwood and Flexglass Div., Weldwood Building, 55 W. 44th St., New York 18, N. Y. 12 pp. 8½ x 11 in.

Flexwood, a wood veneer 1/85 in. thick pressure-glued to cotton backing, is described in this illustrated booklet. It shows how various architectural problems have been solved with this material, and lists wood finishes in which Flexwood may be obtained.

LIBRARY FURNITURE. New Life Library Furniture. Catalog L50. John E. Sjostrom Co., 1717 N. 10 St., Philadelphia 22, Pa.

The spiral bound catalogue presents photographs, drawings, dimensions, and applications of complete library furniture for use in schools, colleges, public and private libraries. It is carefully indexed for ready use by librarians, architects and educators.

EMERGENCY POWER. Onan Standby Electric Generating Plants for Hospitals. D. W. Onan & Sons, Inc., Minneapolis, Minn. 16 pp. 8½ x 11 in.

How hospitals throughout the country are utilizing Onan standby electric generating plants for protection against power failures is reported in this special issue of *Power Plants*, the company magazine. Photographs of the hospitals and views of the equipment are included along with pertinent details on capacity and installation.

ROOFING MAINTENANCE. Roof Savers. Johns-Manville, 22 E. 40th St., New York 16, N. Y. 4 pp. 8½ x 11 in.

How to prolong the life of a roof is the subject of this brief but informative folder. Its recommendations apply to commercial, industrial, residential and farm buildings. Roof problems are divided into three groups and a closeup photo illustrates each type: roofs that are starting to dry out, roofs that are dried out and eroded, and roofs and roof structures that are broken. Photographs indicate the difference in appearance and consistency of the firm's three maintenance materials for the various conditions: a smooth bodied roof coating, a fibrous bodied asbestos material, and a heavy bodied asbestos roof putty. The brochure includes a discussion of why roofs wear out and suggestions for applying the "roof saver" products.

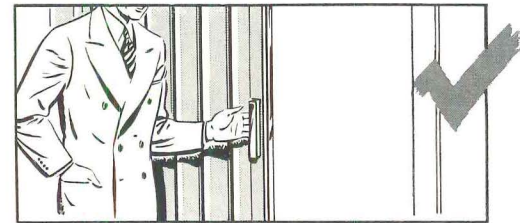
(Continued on page 192)

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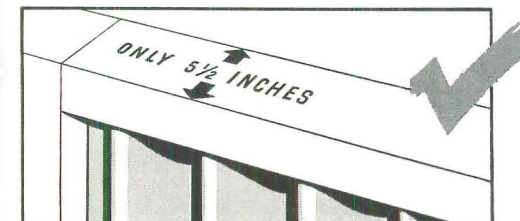
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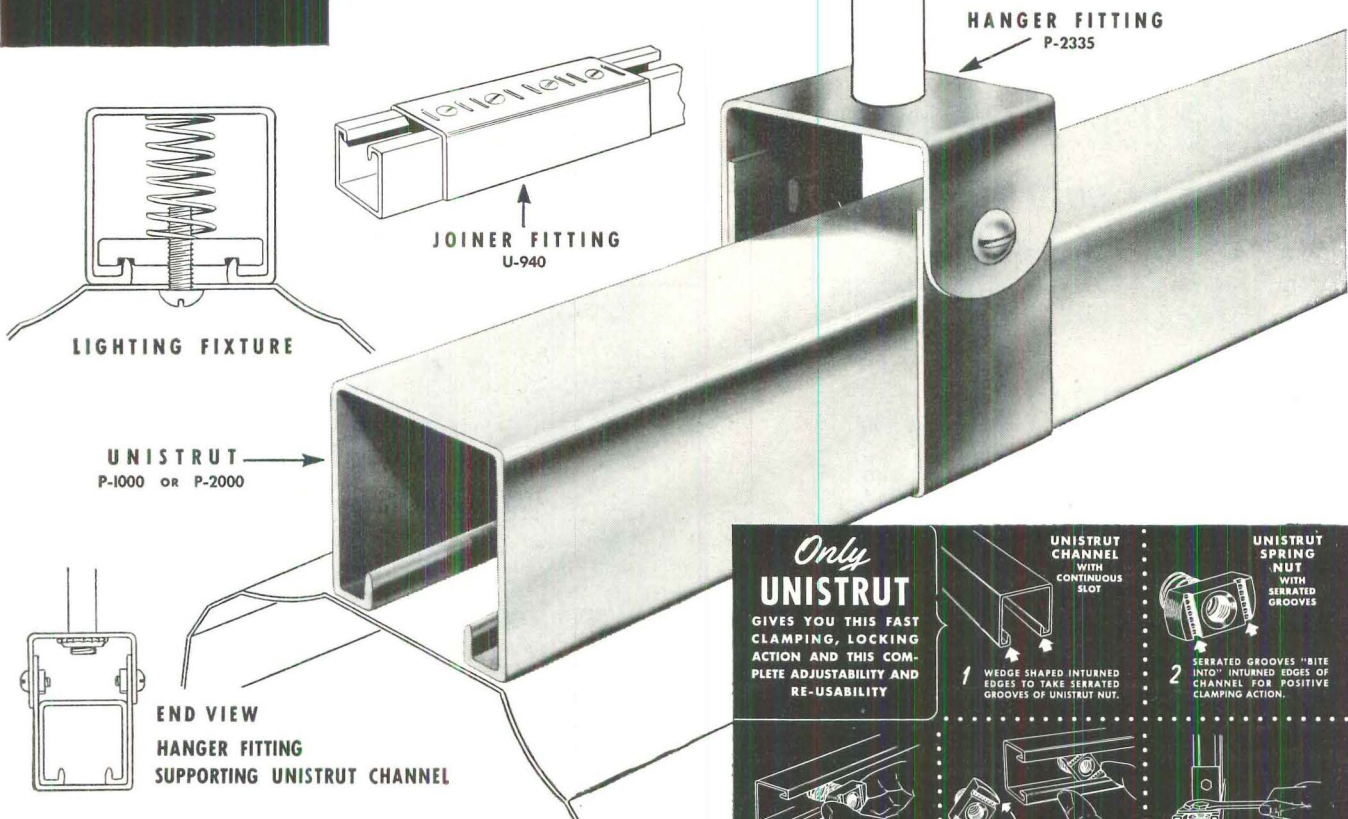


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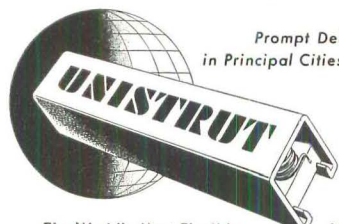
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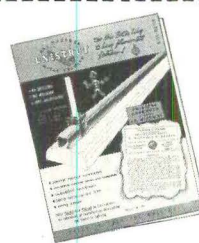
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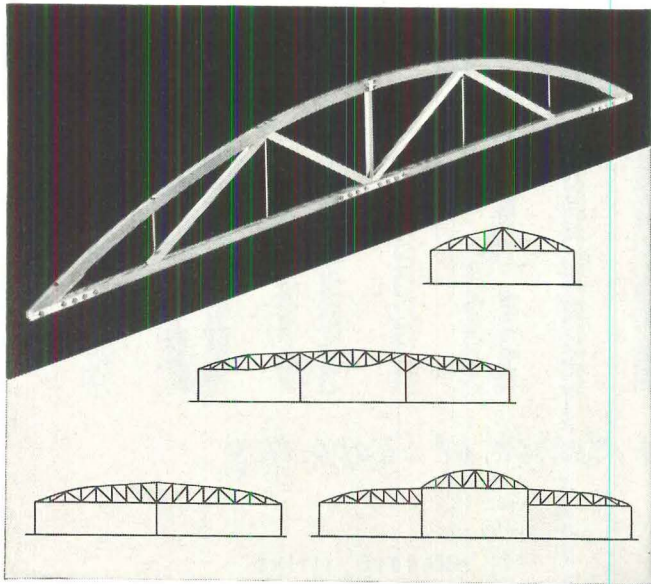
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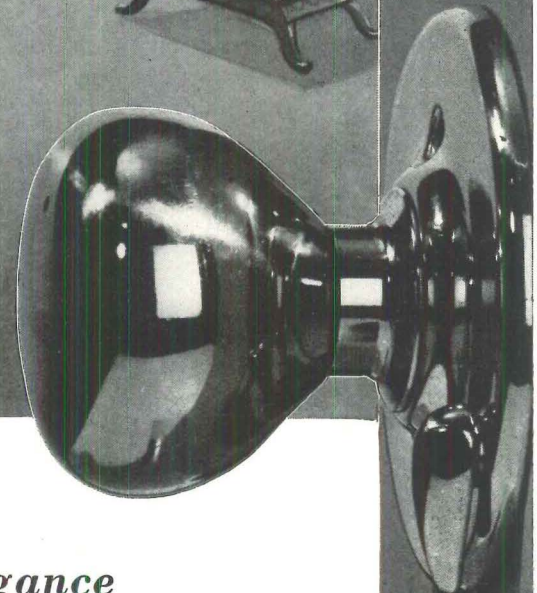
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TECHNICAL LITERATURE

ROOFING. Roofing Specifications and Data. Foliansbee Steel Corp., Pittsburgh 30, Pa. 4 pp. 9½ x 11½ in.

Enclosed in a conveniently tabbed folder, the illustrated application guide presents characteristics of the firm's seamless terne metal roofing, and also gives specifications. This roofing material consists basically of copper-bearing steel strip dip-coated in terne metal (80 per cent lead, 20 per cent tin). Several installations are shown, as well as closeups of standing seam, ribbed or batten, and flat locked seam roofs. Suggestions for weathersealing and painting are also covered.

FLOORING MAINTENANCE. Make Yours a Beautiful Floor Picture. Multi-Clean Products, Inc., 2277 Ford Parkway, St. Paul 1, Minn. 38 pp. 8½ x 11 in.

Prepared for use by architects, contractors and building superintendents, the full-color booklet and accompanying reference manuals contain detailed instructions on the proper care and maintenance of wooden, asphalt tile, terrazzo, rubber tile, concrete and linoleum floors. Suitable flooring materials are suggested to meet various industrial conditions.

HEATING. Hot Water Controls. Bulletin F-3157-1. Barber Colman Co., Rockford, Ill. 8 pp. 8½ x 11 in.

This new comprehensive file folder on automatic controls for hot water heating systems should facilitate the selection of the manufacturer's equipment in this line. The data sheets contain well drawn schematic operation diagrams as well as basic wiring information.

CABINETS. New Uses for Youngstown Kitchens Equipment. Mullins Mfg. Corp., Warren, Ohio. 12 pp. 8½ x 11 in.

Unusual adaptations and professional uses for the manufacturer's steel cabinets are depicted in this booklet. Several photographs illustrate the erstwhile kitchen equipment being used in clinics, pharmacies, laboratories, dental offices, schools, hospitals and work shops. A section shows how trouble spots such as obstructions, recesses and crowded corners can be met with special accessories.

CONSTRUCTION. Concrete Piles and Caissons. Western Foundation Corp., 2 Park Ave., New York 16, N. Y. 8 pp. 8½ x 11 in.

Featured in this bulletin are suggested standard specifications for cast-in-place concrete piles. The manufacturer's button bottom piles, which have been driven to depths of more than 100 ft., are described and illustrated, as are pedestal piles (designed for improving the bearing value of the soil), composite piles (combinations of thin shell encased concrete with lower sections of wood or concrete filled pipe) and compressed concrete piles. The last are said to be driven in such a way that separation of the concrete is prevented. They are of particular interest at this time because they require no steel and therefore may be available for immediate installation.

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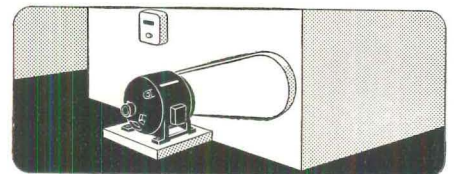
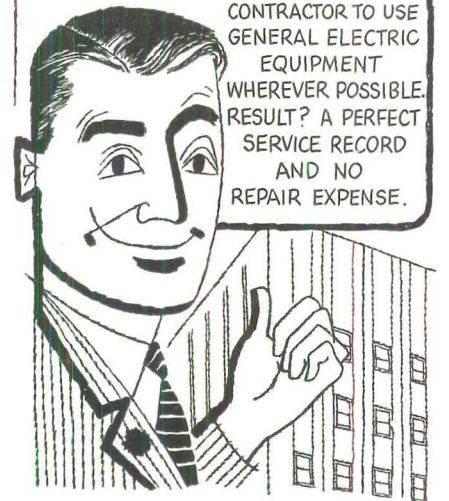
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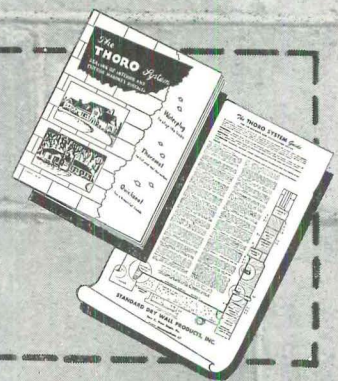
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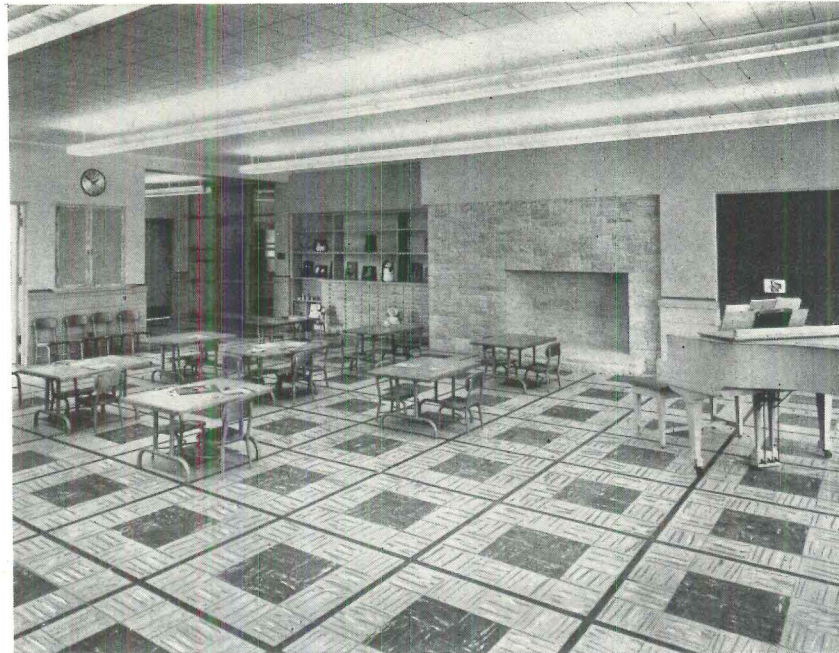
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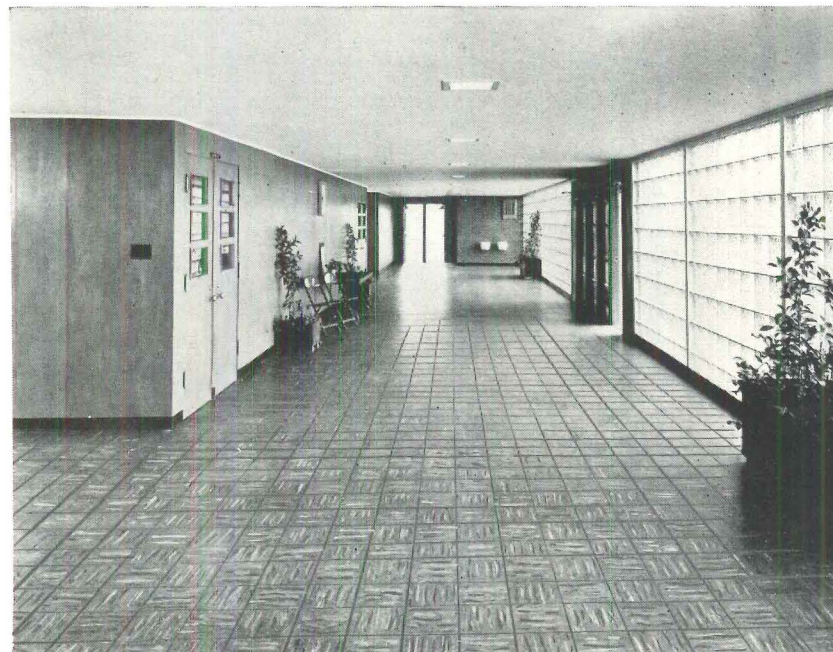
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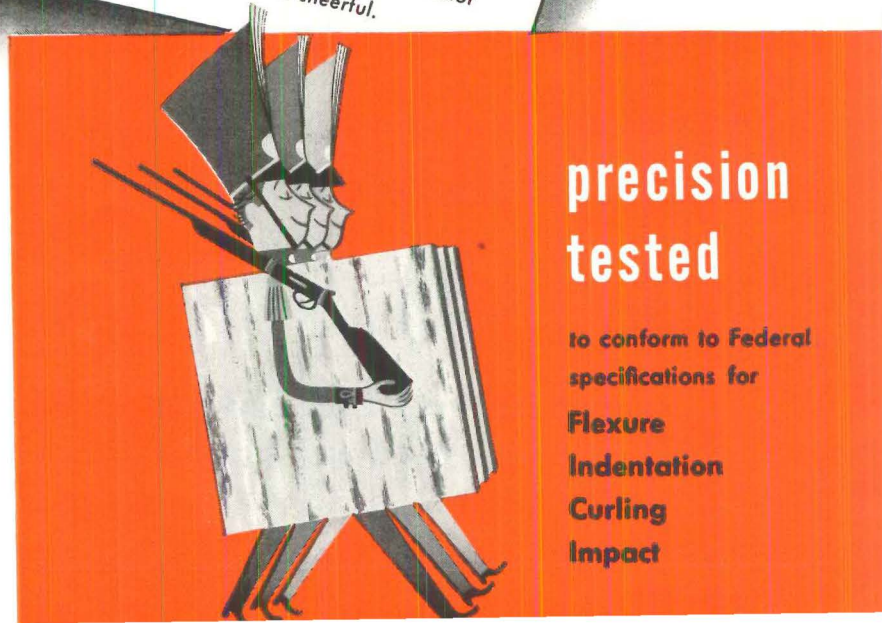
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1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, P. I. Prentice, 9 Rockefeller Plaza, New York, N. Y.; Editor, Henry R. Luce, 9 Rockefeller Plaza, New York, N. Y.; Executive Editor, Joseph C. Hazen, Jr., 9 Rockefeller Plaza, New York, N. Y.; General Manager, Robert W. Chastaney, Jr., 9 Rockefeller Plaza, New York, N. Y.

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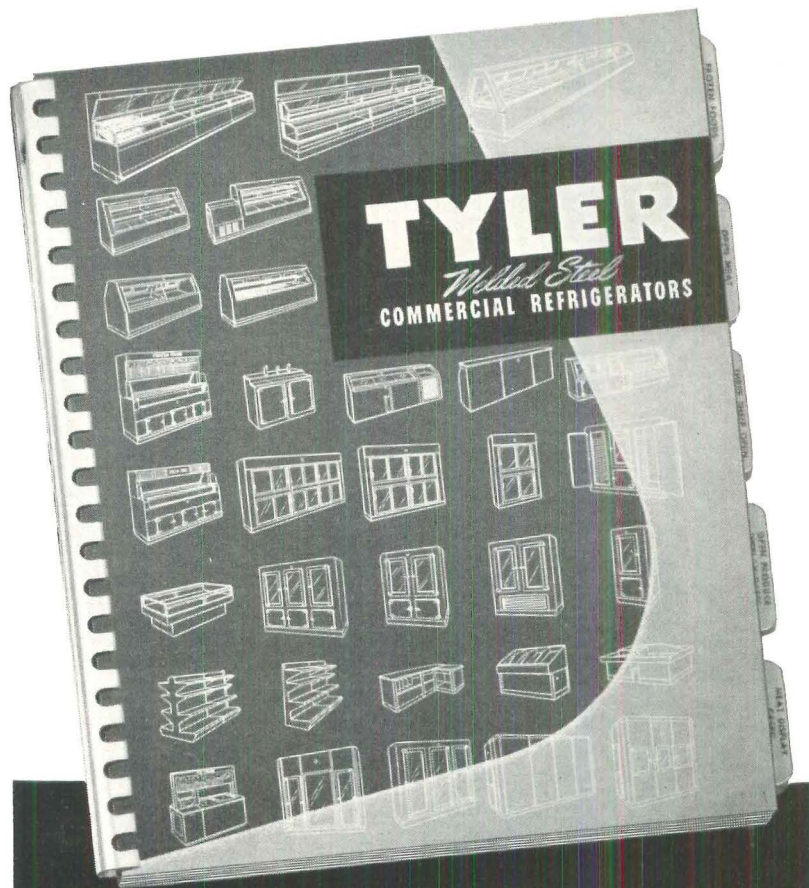
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(My commission expires March 30, 1951)

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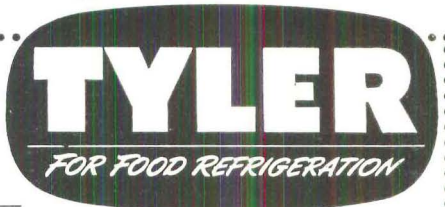
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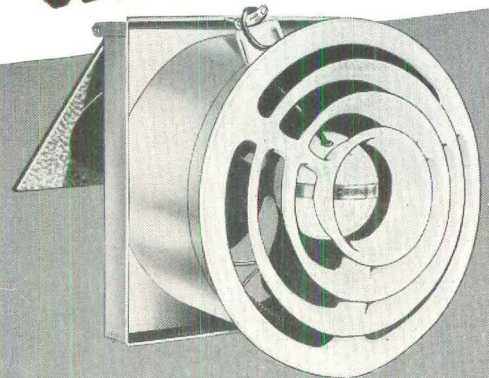
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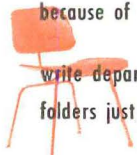
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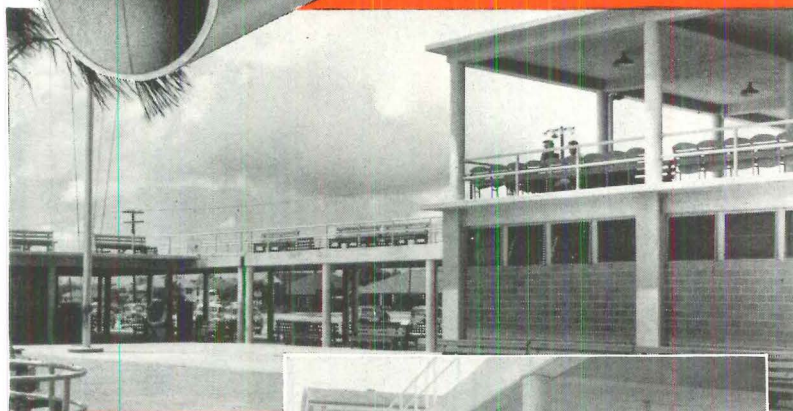
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