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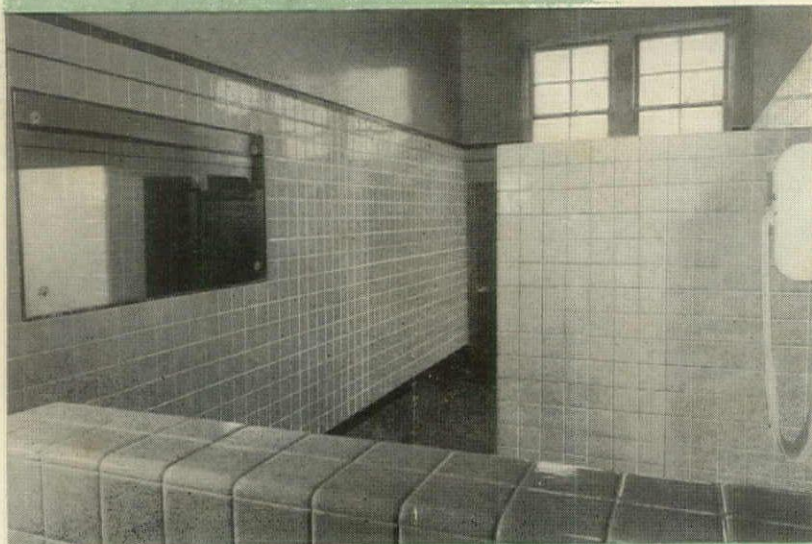
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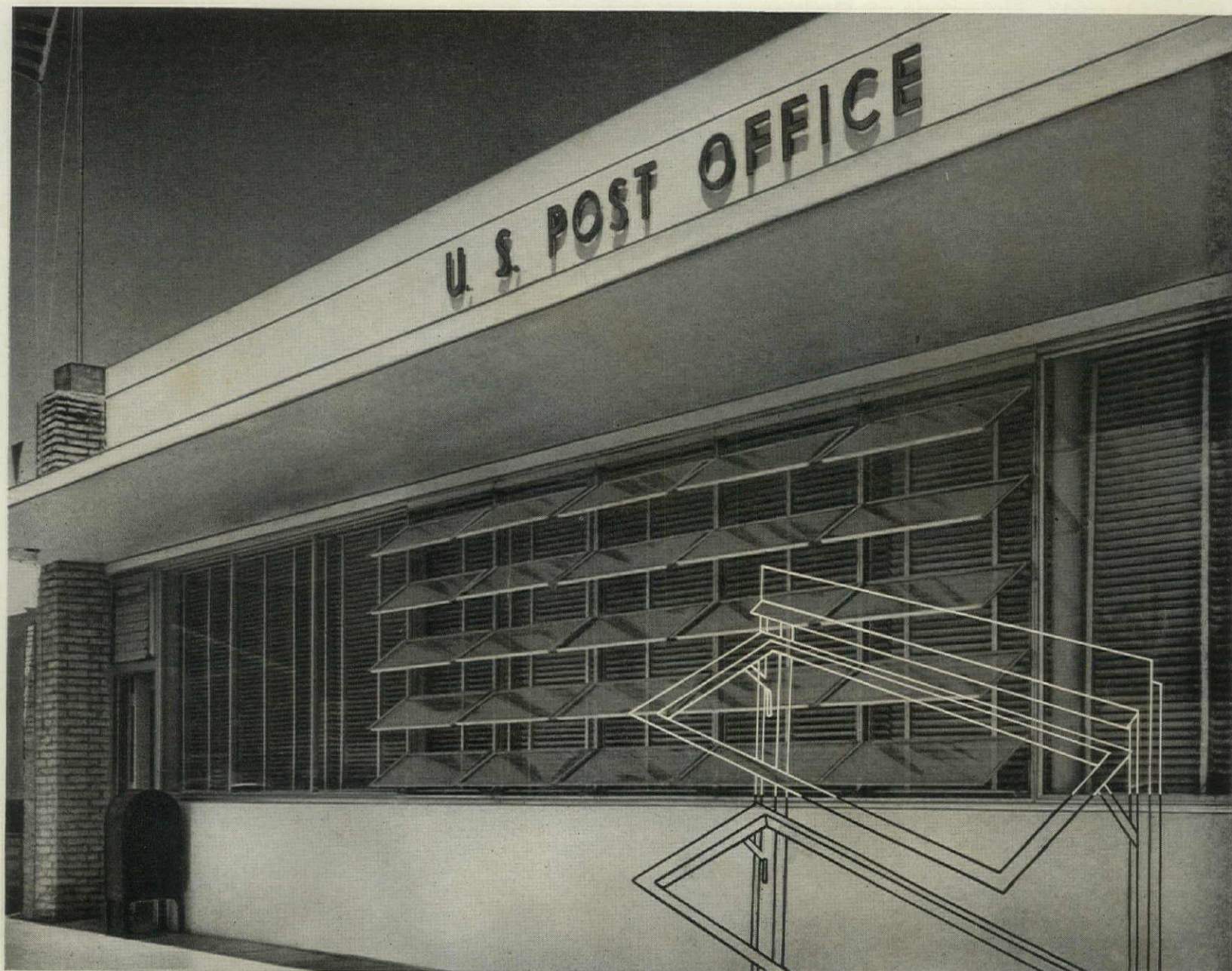
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Bramble Exchange, Cincinnati Suburban Telephone Company, Cincinnati, Ohio. The interesting mortar-joint pattern is effected by the use of two sizes of Insulux Glass Block, Pattern Nos. 216 and 416. Insulux is made in a variety of designs, in three sizes.



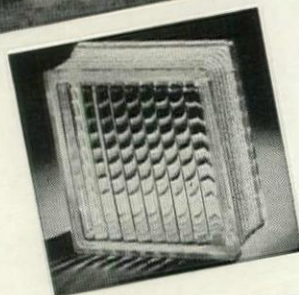
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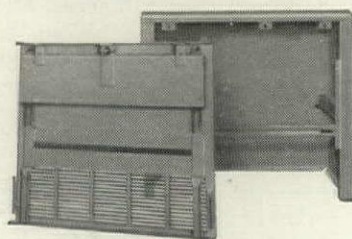
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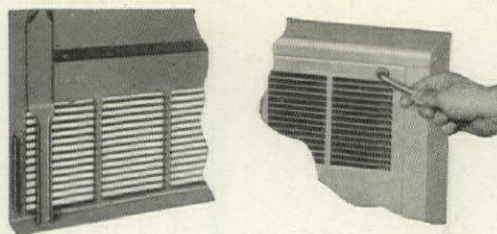


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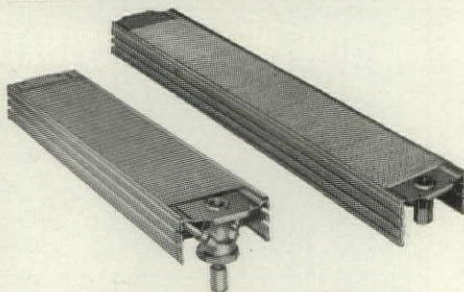
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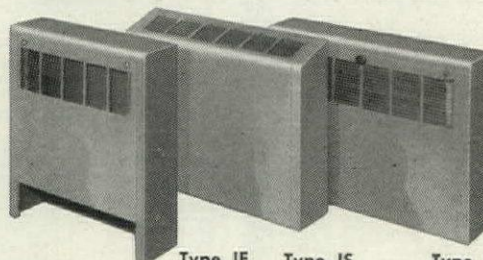
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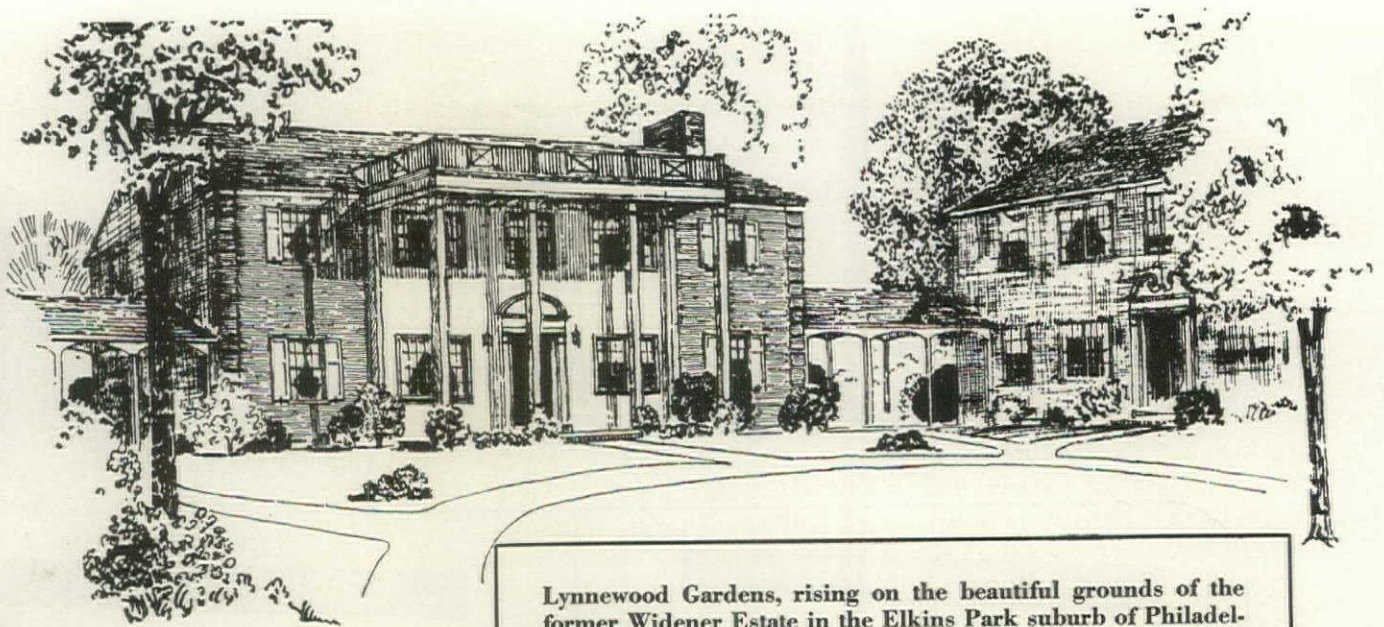
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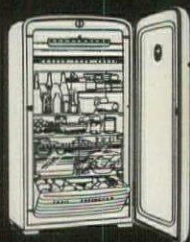


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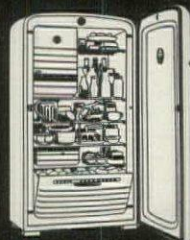
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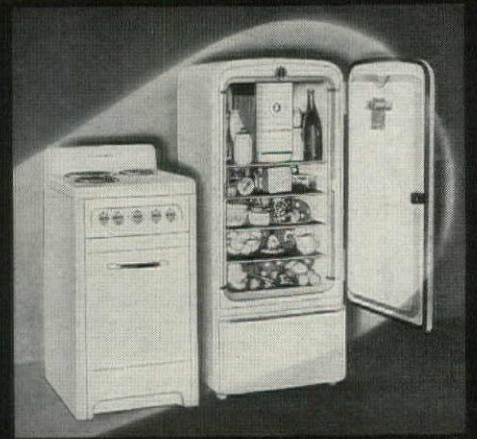


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BUILDING GOES OVER THE TOP — 1949 will set a record. What will happen in 1950 is everybody's guess, and almost everybody's guess is good

"This is it" said statisticians as they watched October roll up 100,000 housing starts — a record for the fourth successive month and 26,600 units over October, 1948. There was no doubt, now, that home-building in 1949 would reach an all-time high. Only one question remained: how far above the old 1925 peak of 937,000 dwelling units would home-building go this year? A safe prediction was 950,000. Washington economists were confidently quoting 975,000. A few even hazarded a cool million. Total construction looked good for more than \$19 billion — a record high in dollar volume and exceeded in physical volume only in the boom years of the late twenties and the peak war year of 1942. With a good year almost behind them, builders looked ahead. What would happen in 1950?

Experts agree. Building volume in 1950, says almost everyone, will be about as great as in 1949. Industry and government economists agree, however, that private construction will recede as public building takes up the slack. A joint estimate by the Department of Commerce and the Bureau of Labor Statistics says private construction will drop \$925 million from the 1949 total of more than \$14 billion, a decline of 7 per cent, with public expenditures increasing by a like dollar amount (a rise of 18 per cent.). Estimates by Economist Miles Colean and F. W. Dodge vary somewhat from this forecast, but both agree on the trend. As for home-building, BLS and Commerce predict that 1950 "will be only one of the better years" with about 900,000 housing starts. Of these private housing will account for 830,000 units, compared with 960,000 this year, while public housing will comprise 60,000 to 80,000 units, up 82 per cent from 1949.

Even much "private" residential building will, in effect, be public—40 per cent of it coming under federal insurance, guarantee or mortgage purchase programs. Together with public construction, government-supported building will comprise 45 per cent of total construction.

Dark side. There were solid reasons for predicting less private residential building in 1950. Rental housing, which was chiefly responsible for the record total this year, is bound to slip, assuming FHA's section 608 will not be renewed next March.

Says the Real Estate Research Corp., flatly, "we are beginning to overbuild." The term "overbuild," says RERC, does not mean we are approaching a condition in which there are more dwelling units than families, but that we have arrived at a point in which the number of housing units is equal to the number of families who can afford to buy them at current levels of price and income.

Bright side. After all, the predicted 830,000 private housing starts is not far below the total for 1947, when 849,000 units were built with little help from public housing. But if FHA gets the new private housing bill enacted soon enough next year, it might generate an impressive amount of the so-called "bargain-basement" housing under Title I. The new bill improves the deal un-

CONSTRUCTION FORECAST FOR 1950*

(Millions of dollars)

Type of Construction	Per cent	
	1950	1949** change
Total Private.....	13,100	14,025 — 7
RESIDENTIAL		
(EXCL. FARM)	6,500	7,000 — 7
NONRESIDENTIAL		
BUILDING	2,950	3,175 — 7
Industrial	725	975 —26
Warehouses, office & loft		
bdgs.	300	300 0
Stores, restaurants &		
garages	725	700 + 4
Other nonresidential		
building	1,200	1,200 0
FARM CONSTRUCTION..	400	450 —11
PUBLIC UTILITY	3,250	3,400 — 4
Railroad	350	385 — 9
Telephone & telegraph...	500	575 —13
Local transit	40	40 0
Petroleum pipeline	160	160 0
Light and power	1,350	1,440 — 6
Gas	850	800 + 6
Total Public	6,150	5,225 +18
RESIDENTIAL	400	220 +82
NONRESIDENTIAL		
BUILDING	1,875	1,645 +14
Educational	900	840 + 7
Hospital, institutional ..	575	450 +28
Other nonresidential	400	355 +13
MILITARY AND NAVAL..	100	120 —17
HIGHWAY	1,900	1,650 +15
SEWER AND WATER....	650	560 +16
ALL OTHER PUBLIC.....	1,225	1,030 +19
TOTAL NEW CONSTRUCTION	19,250	19,250 0

* Joint estimates of the Department of Commerce and the Department of Labor.

** First 10 months actual; last 2 estimated.

der Title I for low priced housing in rural areas where FHA can relax its rigid requirements imposed on construction in built-up areas. Under such conditions, mortgages might run up to 95 per cent on a \$5,000 house.

Plenty of money. If prospects for expanded building under a private housing bill with relaxed FHA administration seem over-optimistic, there is still the sure effect of a mass of investment money seeking a market. Reserves of private insurance companies are increasing by some \$3.5 billion a year and savings and loan shares by about \$1.4 billion. Time deposits in commercial and savings banks are increasing annually by \$1.6 billion. New money from these sources alone will approach \$7 billion next year.

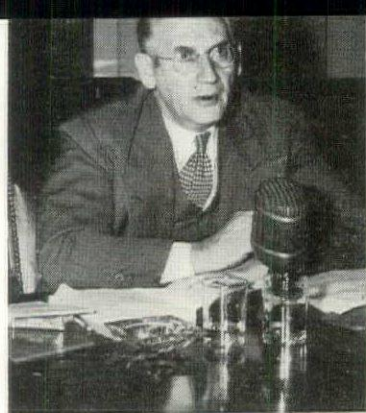
On top of that, 18 states have passed veteran's bonus legislation calling for distribution of \$2.5 billion. And starting in 1950 the Federal Government will dispense \$2.8 billion in rebates on veterans' insurance. Furthermore, if pension plan accumulations spread throughout all American industry, as much as \$10 billion more could pile up for investment. This total would not be reached immediately, but the possibilities are tremendous.

Add to all this money the Federal Reserve Board's survey indicating that seven million families plan to buy or build before the end of 1953—and there is a convincingly impressive prospect for home building in 1950. Conservatism of the "slide-rule squad" is based, primarily, on the impact of public housing, on the probability that, as more people are taxed to help pay the other fellow's rent, fewer will be able to buy new homes of their own.

WASHINGTON

FHA INFLATION dangers, growing Fanny May questioned by Douglas

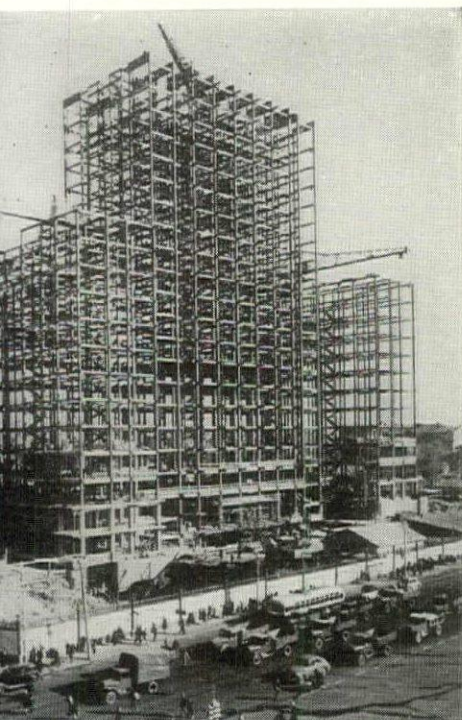
How much is FHA's easy credit pumping up the balloon of real estate inflation? At one time or another, almost everyone to whom the term FHA means anything has mulled that question over. The latest to do so is Sen. Paul Douglas (D. Ill.), who heads a Joint Committee on the Economic Report subcommittee, and who has been confounding the Fair Dealers (he is one of them) by casting a critical eye over the price tags attached to many an administration program. He wondered whether FHA should be used mainly in dull periods and suspend



Reni Photos (top)

NO INFLATION IN FHA, says Foley

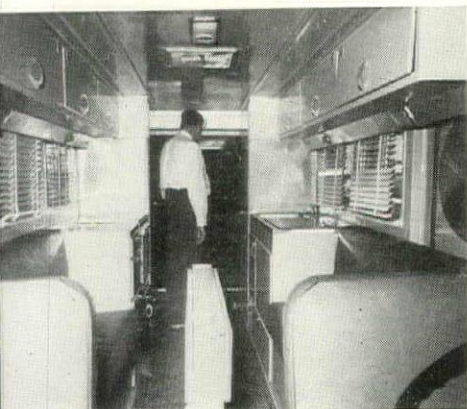
HHFA Administrator Raymond Foley (above center), testifies before a committee headed by Sen. Paul Douglas (above left) that FHA's program of easy credit carries with it no seeds of inflation (see story, right). Sitting next to Foley is Berchmans T. Fitzpatrick, Deputy Administrator of HHFA.



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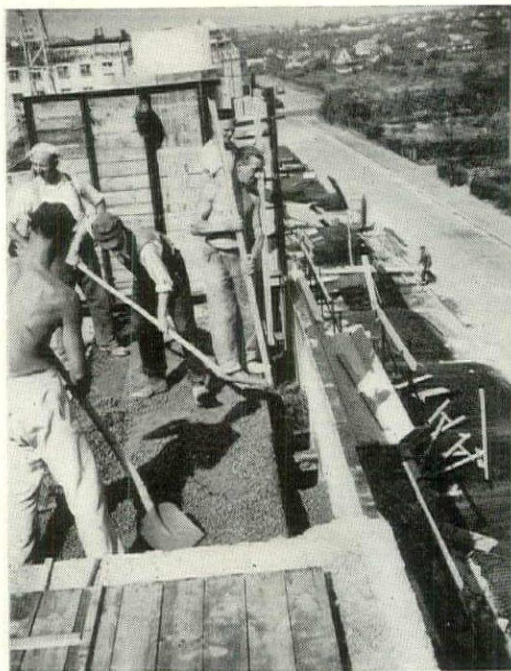
MOSCOW OFFICE building

Now underway in the Smolensky Square in Moscow is this 26-story office building, showing that the Russians are apparently as fond of steel cage structure as are Americans.



GERMANY BUILDS homes from rubble

Workers in Hamburg, Germany, crush the rubble of blasted building materials to use in rebuilding the city's homes. Much of it is used as aggregate in poured concrete walls and floors to help meet Hamburg's yearly need for 200,000 homes.



Wide World

FORD HOUSE ON WHEELS

Housebuilding has been constantly compared to auto building by critics who maintain that "autos are produced cheaply, why can't houses be?" Finally one leading automobile manufacturer has turned his talents to housebuilding. The result: a "tour wagon" 18½ ft. long (bumper to bumper), 6 ft. 2 in. wide, 71 in. high, all mounted on a Ford delivery truck chassis. Tour wagon body is manufactured by Boyertown Body & Equipment Co. of Boyertown, Pa. Wheel-house will sleep four persons. Price: around \$3,500.

its operation when building was at a high level, or whether it should plough right ahead, conforming to the bullish market by hiking its interest, increasing its insurance premium, tightening up its appraisal policies and cutting down on amortization periods. He called HHFA Administrator Raymond Foley before his committee to get a few answers.

No surprise. Foley's answers surprised no one—nor did they shed much light. They accurately reflected the popular belief shared by many an anti-New Deal private builder that FHA was the only New Deal brain child conceived without the taint of original sin.

Standing firmly on the contention that anything which brought new housing on the post-war house-short market was good for the economy, and pointing out that most of FHA's incentives are offered in the lower price fields, Foley insisted that the insured mortgage system was completely anti-inflationary, except perhaps for the emergency operations under Title VI—which had been extended just before each expiration date by congress. (He suggested that any such future emergency measures could be handled more realistically by giving the shut-off power to the president.) Aside from that, Foley could see no reason for tinkering with any part of the FHA program—not even the amortization period which Sen. Douglas was curious about. (It might discourage construction in a building-heavy year, he reminded the Senator, but it would also keep lower income families off the housing market.) Left to itself, Foley insisted, FHA would do all right. Backed up by FHA Commissioner Franklin Richards, he stoutly maintained that the prevailing price curve and FHA's long term valuations are now about at the same level.

Other worries. If Sen. Douglas took any encouragement from Foley's answers, he didn't acknowledge it. He went on instead to another question which was worrying him: Why was the Federal National Mortgage Association getting so big? The \$30 million a week rate at which RFC's secondary market was buying FHA and VA mortgages was considerably higher than was anticipated in the budget. Were bankers anticipating higher interest rates? Every existing sign indicated that that was not true. Were banks "selling their sour loans to the government?" Foley didn't think so. He thought it was more likely that lenders had to sell their mortgages in order to make new ones.

Sen. Douglas might get a more complete answer by putting his question to a few

frank private lenders, who were now beginning to look with more tolerance on the VA 4 per cent loan because they had to (see pg. 15), but who were no more pleased with its unnaturally low interest rate than they ever were. And as long as the interest rate remained low, they would keep right on feeding their mortgages to Fanny May.

SENATORS like Sweden's co-op housing, especially the financing

Sen. John D. Sparkman (D. Ala.), one of the congressional backers of the proposal which came up last year to grant Federal loans to cooperative housing for middle income families, took off on a junket to Sweden and northern Europe to prove that the cooperatives in those countries were successful. He returned last month, still impressed with Sweden's co-ops but impressed even more with the system of joint Federal-private financing he had seen there.

So impressed was the Senator with Sweden's system of allowing a private investor to hold the first mortgage on a development, amounting to about 70 per cent of the total investment, and the government to hold a second mortgage on the rest, that he thought it might be wise to revise, along Swedish lines, the co-op bill now waiting for action in January.

Not only Sparkman and Sen. Ralph Flanders of Vermont, who sees eye to eye with Sparkman on housing matters, were impressed, however. Swedish co-op financing had caught the fancy of two other junketing senators who had stoutly opposed the idea of government sponsored co-ops. John Bricker of Ohio and J. Allen Frear of Delaware indicated their opposition might wither in the face of a program modeled after the one they had seen in northern Europe. (The Mortgage Bankers Assn. promptly announced that it would send a delegation abroad, to see just what this Scandinavian financing is all about.)

PUBLIC HOUSING starts with bang, slum clearance trails behind

The Public Housing Administration finally fired the first salvos of its big guns: \$20,375,400 worth of loans were shot out to 108 communities to cover the cost of 134,500 public housing units, all to be started within the next two years. (Biggest grant: \$2,790,000 to New York, \$2,180,000 of which will go to New York City.) And it was only the beginning. Also earmarked for distribution in the first two-year period were allocations to another 100 local housing authorities.

It appeared that few of these units would be built on slum land cleared with federal funds. Title I (Slum Clearance) of the Housing Act was getting started much more slowly than the more dramatic public housing section. (The Slum Clearance division last month was still filling the vacancies on its staff; see *People*.) Chicago and Detroit were the only cities which had started demolition (and they were doing it with their own money). Several others were fairly well along in preliminary planning. But HHFA's official regulations and application blanks would not be ready until January.

No hoopla. One reason for Slum Clearance's slow start was that it had not had the hoopla and build-up that had fixed Public Housing securely in the public imagination. Another reason was that the high cost of public residential construction (see *Market*) would force many a government project to the cheaper land of the suburbs. (In a "statement of principle," PHA Commissioner John Taylor Egan told the public housers convening in Boston that PHA feels "bound to assure" that funds are used primarily for low-cost housing rather than for "write-downs for the cost of land where high-priced slum clearance sites are used.")

MARKET

HOUSE-BUILDING heads for the cities—but centers in the suburbs

Last month the Bureau of Labor Statistics released a new analysis of housing starts by area, confirming the trend toward concentration of home-building in metropolitan markets. Said BLS: "In both rural and urban areas, 1949 has brought some rise in the proportion of new housing starts in metropolitan districts."

More specifically, during the second and third quarters of this year, 70 per cent of all private nonfarm dwelling starts were in metropolitan markets, either rural or urban, compared with a 61 per cent concentration in 1946 and 67 per cent last year.

How can the proportion of "metropolitan" housing be rising even in rural areas? That's simple, says BLS. Many "rural" areas are so defined because they are unincorporated or have a population under 2,500, yet they are really suburbs of cities. And it is these "rural" areas, well within metropolitan trading districts, which are attracting so many home-buyers (because of their low taxes) and so many merchant builders (because of their cheap land) that

Once the program got started, what use would the cities make of this newly cleared land? None of those with plans already on the boards seemed to be interested in the sort of project which seemed to make most sense to planners who were pumping for decentralization within cities—the development of close-in land into play or park areas. Instead, they were all thinking in terms of the most profitable type of commercial re-use. Most would invite private housebuilding for middle income families. Others were hoping for new factory sites.

Code activity. Preparatory to the review of applications, Slum Clearance would take on one major task, however. It agreed to work with the Building Officials Conference of America, which had just completed a modernized performance code for cities of more than 25,000 population, to stimulate code-revision activity throughout the country. To receive federal assistance for Slum Clearance, a community must set its code in order. And HHFA Administrator Raymond Foley, acknowledging that this could not be done "overnight," made it nonetheless clear last month that any city hungry for federal funds would have to take some kind of definite action.

they are beginning to rival the cities as centers of residential construction activity. Examples:

Baltimore: The suburban area, in October, again outdid the city itself in volume of total building—\$5.7 million against \$3.8 for the city proper. In home building the suburban area hit \$3.6 million against \$1.4 million for the city.

Cleveland: In the city, through October, permits were issued for \$31 million, compared to last year's \$33 million for the same period. But in the suburbs permits for more than \$75 million were issued compared to \$59 million last year. The suburban gain enabled the Greater Cleveland area to show an income of about 15 per cent despite a 6 per cent loss in the city.

Houston: Construction of homes and apartments inside the city limits dropped 31 per cent during the first eight months of this year (latest available figures) but rose 37 per cent in the metropolitan area outside the city limits.

Seattle: In the city proper, through October, residential permits were issued for \$11.8 million, compared to last year's \$17.6 million. City home-building permits were



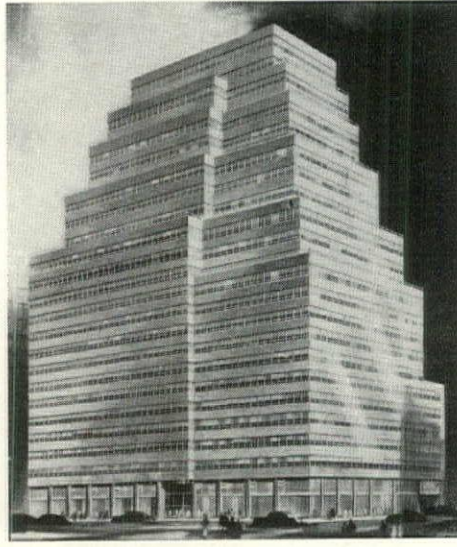
1407 Broadway. Architects: Kahn & Jacobs



The Mutual Life Bldg. Architects: Shreve, Lamb, Harmon Associates



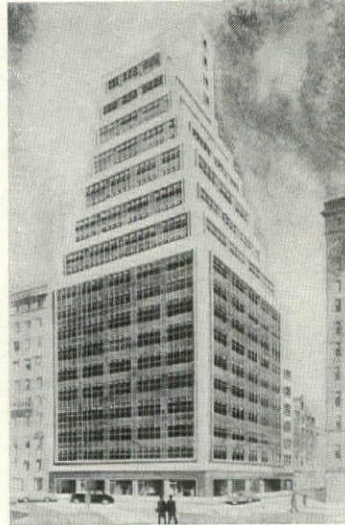
488 Madison Ave. . . . 505 Park Ave. . . .



575 Madison Ave.
Architects: Emery Roth & Sons



161 Williams St. . . .



657 Madison Ave.
Architect: Sylvan Bien



600 5th Ave. Architects:
Carson & Lundin



Left: 250 Church St.
Engineer: Victor Mayer

Right: Crowell-Collier Bldg.
Architects: Leonard
Schultze & Associates



below last year (136 compared to 143 in 1948). But in Kings County, 253 residential permits were taken out in October compared to only 176 a year ago.

Chicago: While all building in the metropolitan area for the first ten months of this year is ahead by some \$3.6 million over last year, Chicago itself fell \$1 million behind October 1948. Simultaneously, the suburban towns gained more than \$1.6 million in October over September—and more than \$6 million over October of last year. Reported the Bell Savings & Loan Association: "More than three and a half times as many homes are being built in the suburban region as in the city."

Los Angeles: October rang the cigar bell in number of permits—5,263 valued at \$261½ million, the highest in history and a 37 per cent increase over October, 1948. There, befitting the fondest desires of the Chamber of Commerce, the trend to the suburbs was a tribute from the nation. Said a proud native: "More than 10 per cent of the nation's total dwelling units built in the last two years have been constructed within a 25 mile radius of the Los Angeles Civic Center!"

NEW YORK SKYSCRAPERS are changing Manhattan's profile

It looked suspiciously like 1925 again. As in the roaring twenties, a dozen new skyscrapers inched their way upward, adding new peaks to New York's famous skyline and promising 5 million sq. ft. of office space to alleviate the town's shortage. And, as before, most owners rushed to fill every cubic inch inside the zoning envelope. With the notable exception of 1407 Broadway (see picture) whose architects, Kahn & Jacobs, had convinced the entrepreneurs that greater profit could be achieved by concentrating on high-rent tower space and cutting down on the cheaper, lower floor areas, almost all the new buildings ignored the obvious lesson of Rockefeller Center's successful open plan. Unlike the last lush decade, however, the 1949 crop boasted no 100-story super-scrappers. The tallest, 42 stories, was no match in height for the 70 story RCA Building, or the 102 stories of the Empire State.

DIRT CHEAP HOUSE costs builder \$2,000 —only 88 cents for materials

J. McConnell Andersen of Ocean Springs, Miss., celebrated his tenth anniversary in his rammed dirt house. His three-room home cost \$2,000, including wages for three laborers and 88 cents for dirt at 2 cents a cu. ft. The 18-in. thick walls, says Anderson, are becoming stronger with time.

Photos: Adolph Study,
Drix Duryea, Louis Dreyer

PUBLIC HOUSING COSTS still high compared to private market

As its members met last month in Boston (see page 13), the National Association of Housing Officials, in its *Journal of Housing*, listed total average dwelling-unit costs (including land) of several public housing projects, most of which have been completed during 1949 under state and local financing programs. Examples:

City	Project	Unit cost
Northampton, Mass.	Hampshire Hgts.	\$12,138
Milwaukee, Wis.	Northlawn	11,896
Milwaukee, Wis.	Berryland	8,928
Milwaukee, Wis.	Hillside	13,819
New York City	Jacob Riis	11,247
New York City	Gun Hill Houses	11,255
Taunton, Mass.	Project 200-1	12,059

How land clearance, equipment, relocation and other items can affect the total cost of a project is shown by a breakdown of component costs on Milwaukee's Hillside project. At Hillside construction costs were \$7,771 per dwelling unit, but supplemental costs ran an additional \$6,048, bringing the total cost per dwelling unit up to \$13,855.

Total cost, however, is what private builders pay, and it was total cost they looked at when studying NAHO's survey of cost trends on 39 public projects. NAHO revealed that "development costs of public housing projects have declined more than \$1,500 per dwelling in the last year." NAHO gathered its data from five states: Connecticut, Illinois, Massachusetts, New York and Wisconsin, reported: "median costs per dwelling of the projects built in the third quarter of last year were \$12,464 as compared to \$10,814" in the third quarter this year. Of the 39 projects surveyed, three cost less than \$10,000 per dwelling, ten ranged between \$12,500 and \$15,000. The remainder were in the \$10,000 to \$12,500 bracket. But, said NAHO, the survey covered only the high-cost northern and eastern cities. A broader picture would show a lower average, and, "there has been a definite trend toward lower prices on competitively bid construction jobs."

Hopefully, NAHO looked for lower levels under the new federal-aid program.

Washington housing officials, about to embark upon that program in a big way, would have to stick to lower costs or face the embarrassing prospect of having their own admonitions to private enterprise tossed back at them. (The average price for houses paid by veterans under the VA loan program in 1949 was \$8,941 in January; \$8,700 in May and \$8,565 in August). Nevertheless, HHFA Administrator Foley and his top aides were still exhorting the industry: "the way to get more homes built is to lower costs and prices."

MONEY

VOTERS APPROVE \$1.5 billion in bonds, most of it for building

Last month voters polled more prosperity for builders with a record-breaking total of \$1.5 billion in bond issues for schools, hospitals, housing, airports and various civic improvements. More than half the total was for building. Biggest spenders were: New York State (\$300 million for slum clearance and public housing); California (\$250 million for schools); New York City (\$150 million for hospitals).

Only in New Jersey did voters curb their spending urge, turning down a \$100 million issue for public housing.

On their own. Not all big outlays were voted at the taxpayer's expense. The Federation of Jewish Philanthropies of New York announced they had raised more than \$20 million of a \$54 million fund for hospitals, community centers and other buildings—biggest private, charity construction program in the nation.

ECONOMY

TWO MILLION NEW HOUSES A YEAR —says Keyserling, "fantastic" say critics

Reaction to Economic Adviser Leon Keyserling's proposal that the U.S. should strive for 1¾ million new homes a year for the next ten years and 2 million a year thereafter was prompt and vociferous. Said Henry Bubb, President of the U. S. Savings & Loan League: "If we built all those houses we'd have houses coming out of our ears."

Housing economists, no less prominent than Mr. Keyserling said that "his estimate, taking into account family formations, undoubling and building up of vacancy reserves would leave us with an oversupply of 1 to 1½ million houses, requiring replacement of homes at less than forty years of age."

PRICES ARE STABLE—some up, some down, general movement is sidewise

Building material prices in November were spotty, with the stability the overall pattern. Copper advanced 7/8 of a cent to 18½ cents a pound and held firm. Tin was still offered by RFC at 85 cents a pound but down 3½ cents from levels earlier in the month. Zinc, which rose a quarter of a cent after settlement of the steel strike, was still at 9¾ with some producers asking 10. Lead, cut

a quarter-cent to 12½ cents a pound, was still lacking active demand. Steel scrap, early in the month, had risen \$1.50 a ton, then, at month's end, dropped back. Semi-finished steel was increased \$5 a ton by one producer late in the month. Republic steel was "considering what effect" increased fabricating and labor costs would have on its selling prices.

Engineering News-Record reported cement up one cent a barrel to \$2.95 for its 20-city index and lumber down an average of .53 cents per thousand. At mid-November, ENR's average on short leaf yellow pine and Douglas fir 2 x 4's was down to \$78.56 per thousand board feet from \$79.09 a month before.

The Bureau of Labor Statistics' wholesale price index for building materials was virtually unchanged in October (189.2 compared to 189.4 in September).

How long prices would remain stable depended on how rapidly pension plans spread and how soon pension costs might be reflected in final quotations. The general economic picture was more inflationary than deflationary. Builders weren't figuring on prices falling much.

DESIGN

ARCHITECTS FEES for public housing being reconsidered by PHA

Was the architect interested in taking on a public housing project? He would signify by answering a questionnaire and stating his qualifications. His statements would be "verified" by the Housing Authority, which would also check his references and "evaluate" his application on the basis of what it found. Then the architect would be interviewed and, finally, selected.

Next, if he were "a younger man" he might find the Housing Authority wanting to associate him with "an older firm" And he would be "instructed" that the program is "to serve people in a democratic society and to do so we must build acceptable buildings instead of barrack-type poor houses." Finally, the architect "should meet the people on the project including the tenants."

Thus, at a panel session of the National Association of Housing Officials meeting in Boston, was pictured a public housing project in search of an architect. What manner of man the architect was had been settled—now it was just a matter of price.

James P. Murrin, PHA's Deputy Assistant Commissioner for Development rose to review the agency's methods of setting fees

in the past and to announce a new fee schedule:

Project	Architect's fee
100 dwelling units	\$ 24,000
300 " "	50,000
500 " "	69,000
1,000 " "	110,000

Mr. Murrin closed by asserting that PHA had always been willing to revise its fee schedule and would do so again whenever it could be shown that PHA's fees were inequitable. He was shown in short order.

Following Mr. Murrin to the platform, A.I.A. President Ralph T. Walker argued the case for increased fees as the only way architects could afford to take on public housing projects and attain the objectives PHA sought to achieve. When Walker finished, NAHO voted to reopen the fee question with PHA. Late last month PHA, Walker and NAHO officials were closeted in conference. It appeared that a new fee schedule was in the making.

LABOR

BUILDER LOSES LABOR LAWSUIT— \$6,000 is "trifling and microscopic"

Finding "the impact of this labor dispute upon commerce trifling and microscopic," the U. S. Circuit Court of Appeals in Denver last month denied a claim for damages filed by Groneman & Co., Utah builders, against the International Brotherhood of Electrical Workers.

Groneman had contracted with the Provo, Utah, school board to build a school. The board had subcontracted on its own with a nonunion electrician, Lloyd Engle. The IBEW promptly picketed the job (even though Engle and his son were not working) and Groneman's union carpenters walked out in sympathy, stayed out nine days. By the time the trouble was patched up Groneman was out \$6,000. He sued in District Court, lost, and appealed, and lost again. Says Groneman's lawyer: "Only a lack of funds prevents a further appeal." The decision was instantly seized upon by Dan Tracy, President of the IBEW, who saw in the case proof that the Taft-Hartley Act won't work in the building trades.

Small loss, small recompense. The point at issue was the dollar stake involved in interstate commerce, not the principle, not the real fact of Groneman's loss. Under Taft-Hartley, a contractor, presumably, has recourse for damages suffered through an unlawful labor dispute involving interstate commerce. The Court admitted that, to some

extent, Groneman was engaged in interstate commerce (i.e. his materials came from outside Utah). But, said the Court: "Assuming then, that this labor dispute was unlawful and that it interrupted commerce to the extent of \$6,000, can it be said that this has such an effect upon commerce as is sufficient to give the court jurisdiction under the act?"

Apparently a contractor had to lose a lot more than \$6,000 before his case would be big enough for Taft-Hartley treatment.

* * *

Put up or shut up. A Buffalo union offered to pay \$1,000 for proof that bricklayers are restricting their output.

PEOPLE

Frank Lloyd Wright added a new award to his collection last month—the Peter Cooper medal, at Cooper Union in New York City, for the advancement of art. He also hopefully predicted that before long a man, using a concrete block which can be laid up dry, will be able to build his own house for from \$1,500 to \$3,500. Wright explained to a reporter from the *Milwaukee Journal* that the house "has been on drafting boards at Taliesin since 1921. Now seems to be the propitious time for it."

A.I.A. President **Ralph Walker** foresaw a new kind of responsibility for the Institute. Said he, to the Virginia chapter, at Roanoke: "The A.I.A. must take the position of determining the qualifications of a competent architect, and its responsibility in this matter is greater than any individual school or registration board." A.I.A., he maintained, "must take a strong stand as to what a professional education should be; aim to establish it by either granting or withholding approval or credit, and further set up and be responsible for an educational program and the means of its accomplishment for the interim period between graduation and registration."

HHFA's new Division of Slum Clearance and Urban Redevelopment kept right on adding staffers: **Carl L. Feiss**, director of the University of Denver's School of Architecture, became Chief of the Community Planning and Development Branch; **G. Raymond Meade**, formerly chief engineer of RFC, was named Chief of Cost Review; **Charles L. Farris**, from National Security Resources Board, Chief of Field Operations; **James E. McCormack**, from War Assets Administration, Land Branch Chief.

Elections: President of the National Lumber Manufacturers Assn.—**H. M. Seaman**,

Houston, Tex.; Vice President of Gunnison Homes, Inc., prefab subsidiary of U. S. Steel—**Frederick J. Samerdyke**, Cleveland; President of the American Society of Heating and Ventilating Engineers—**Lester T. Avery**, Cleveland (his nomination was tantamount to election); President of the Structural Clay Products Institute—**W. J. Goodwin, Jr.**, Des Moines, Ia. (reelected).

OPEN FORUM

Bette Jenkins, Supervisor, Tenant Relations Division, Detroit Housing Authority: "I think all housing should be public, just like public education."

Catherine Bauer (wife of M.I.T.'s Dean William Wurster): "Homes built on FHA mortgages with a floor space of 650 sq. ft. are the ideal size for a modern two-car garage. For a family of three, they are a little more adequate than a standard dairy barn is for occupancy by cows."

Robert Moses, New York City Construction Co-ordinator: "If one-tenth of this construction (New York's public housing) were being done in any other city . . . the welkin would ring with extravagant encomiums, leading citizens would be giving away big cigars and the surrounding waters would be choked with a Niagara of self-congratulatory molasses."

Elizabeth Wood, Executive Secretary, Chicago Housing Authority: "Architects are entitled to more than their out-of-pocket costs, how much more I don't know."

Alfred P. Sloan, General Motors' Board Chairman on giving \$1 million to M.I.T.: "Let's spend our money and get something for it while we can. The way our country has been going lately, God knows how much your dollar will be worth five years from now."

Nathaniel C. Curtis, Jr., New Orleans architect, sees "an opportunity for a regional architecture for our time in Louisiana. We don't need Cape Cod cottages, Monterey villas, Spanish haciendas and Virginia colonials. We don't even have to copy the lovely old homes in true Louisiana or Creole style . . . we are perfectly capable of developing our own and have far more to chew on."

David T. Ellis, Atlanta architect, explaining the unusually low cost of an addition to the Georgia State Hospital: "All this building is to be is a warehouse in which to keep ill human beings."

HOUSING OFFICIALS MEET to toast their 1949 victory and to ponder their 1950 problems

Plenty of puzzles perplexed more than 1,000 public housers at the 16th Annual Meeting of the National Association of Housing Officials in Boston last month:

1) *How to provide 810,000 housing units at an average cost of \$8,450 per unit, including land?* Already public housing projects are building at an embarrassingly high cost (see Market). Apparently, the only answer is to locate projects on low cost, outlying land, rather than to pay for high priced slum land. Thus, the purpose of Title I (and the passionate plea for slum clearance which helped sell the Housing Act to Congress) would go by the boards. But, by starting with outlying projects, "housers" would postpone solving another problem. . .

2) *How to relocate families displaced by slum clearance?* In Chicago, for example, of 3,500 families to be relocated under one project, 1,200 are ineligible for public housing because their incomes are too high. Yet there is "no private housing for them to move into." What is HHFA's answer? Said Director of Slum Clearance and Urban Redevelopment Nathaniel Kieth: "The extent to which the expenses of relocation can be absorbed by subsidy raises serious problems. It is important that we do not create any false hopes for fast results." Said PHA's First Assistant Commissioner, Warren Jay Vinton "There will be plenty of difficulty." Not the least of which was. . .

3) *How to hurdle the racial issue?* "Living space for minority groups is the most important part of our program" said Director Kieth. Two days later the Massachusetts Housing Council charged Boston's Housing Authority with discrimination, threw a bombshell into NAHO's convention with a rump session on the issue. Fired by charges of Negro segregation in Boston's Public Housing, and a phillip against discrimination by New York attorney Charles Abrams, NAHO decided to study displacement of minority groups in public housing projects. Said HHFA Deputy Administrator B. T. Fitzpatrick "the Act makes it clear we are obligated" (to nonsegregation). Was there anything the Act did not make clear? There well might be, for example. . .

4) *What about enabling legislation?* Local housing officials were wondering about many a measure involved in the Act. Ohio's law is still pending before the state Supreme Court. On the second day of NAHO's convention, Rhode Island's Supreme Court, in a split decision (2 for, 2 against, one undecided) cast doubt on the



Warren Jay Vinton, First Assistant Commissioner of the Public Housing Administration toasts public housing's big year with Dorothy Gazzolo, Associate Director of NAHO and hub of its Chicago office.



Photos: James Coyne

constitutionality of that state's redevelopment law. Said Administrator Fitzpatrick: "We're going to have litigation before we're through." Even the Housing Act itself faced a test with reference to the Federal Government taking over and operating a project if the local authority flunked out on its obligations. Said bond counsel Charles Kades of New York: "It is possible that Title III will be fought as unconstitutional." And that brought up the question. . .

5) *How much autonomy is left to local housing authorities?* Peace-pipe talk of "cooperation" and "understanding" between PHA and the cities was quickly followed by an admission that "It is from PHA that all good blessings flow" (by Chemical Bank & Trust Co.'s vice president



Leon Keyserling, one of President Truman's Economic Advisers (right) called for public housing to serve "well-to-do" as well as middle and lower income groups. With him (l. to r.) are Jeff Sullivan, Lt. Governor of Massachusetts, Chester Bowles, Governor of Connecticut and NAHO's new President, John I. Robinson.



Pipe-smoking Ruth Voris (right) PHA's Director of Statistics, throws a datum to (l. to r.) Robert Rusk, Akron Housing Authority, Lou Katz, U. S. Navy, Michael Batnick, PHA's Chief of Management Analysis and PHA's Margaret Rutherford.

"In Europe it isn't just the poor who are living in housing projects" said Chicago architect E. A. Grunsfeld, Jr. (center). "In England you haven't got opposition by real estate boards" said his associate Milton Shufro, (right). Listening: W. B. Randall, Chairman, St. Paul Housing Authority.

William Laemmel) and a straight-from-the-shoulder shot by the National Housing Conference's Executive Vice President Lee Johnson: "In a program that is so completely dependent upon Federal contributions, the words 'local autonomy' are just so much nonsense." The federal power of the purse involved another problem. . .

6) *How to get good architects and how to pay for them?* James P. Murrin, Deputy Assistant Commissioner for Development, PHA, explained the agency's method of determining architects fees and announced a proposed fee schedule. He was followed by A.I.A. President Ralph Walker, whose reply resulted in a resolution by NAHO directing its Board of Governors to reopen with PHA the whole fee question (see Design).

NATION'S REALTORS look toward large but smart 1950 market and ways to tempt it out, note a

Photos: Arthur E. Haug

The nation's realtors, assembled in Chicago's huge Statler Hotel for their 20th annual convention, had a cheerful and prosperous look. Three years of peak building and brisk trading were behind them. And most of these members of the National Association of Real Estate Boards saw no reason why 1950 would bring anything but continued prosperity. Harold G. Moulton, president of the Brookings Institution in Washington, D. C., told them that residential, office building, and some types of commercial construction would "continue at a high level for the next year or so." Realty Appraiser Albert Lockyer, White Plains, N. Y., saw a "brisk demand" for housing for "at least two or three years."

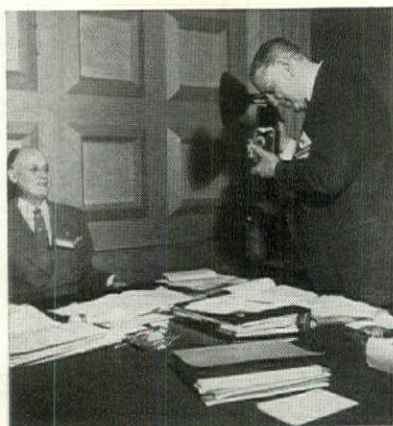
Smart market. However, the realty delegates knew they were now dealing with the "smart market"; desperation customers were a thing of the past.

But the big building years that had bettered their tailoring and their pocketbooks had sharpened their know-how, too. If the new market was perfectly willing to stay put until it was offered a building bargain, the realtors were perfectly confident that they knew how—and with what—to tempt the market out. Handsome Bob Gerholz, Lansing, Mich., who got the nod as NAREB's new president, spoke for most of the big merchant housebuilders present: "We shall continue to enjoy a market whose size can be gauged by the fact that only 10 per cent of the veterans have so far used their VA-guaranteed home loans. But the market is no longer automatic. The customer wants a better neighborhood, better design, better quality. We're giving it to him."

Grim voices. Among the generally cheerful delegates, only a few grim voices were heard. Chicago Real Estate Researcher James Downs expected a "marked change in the building climate by May of next year." Downs believes we are already overbuilt in most building types, and points to such tokens as a marked atrophy of occupancy in secondary stores, decline in family formations, an increasing lag in 608 rentals in most parts of the country. Houston Realtor Hugh Potter thought there were clear signs pointing to "possible over production of suburban shopping centers." And one insurance executive predicted that, since life insurance companies are nearing their legal limit of real estate ownership (3 per cent of assets), the wide practice of selling buildings to these companies and leasing it back is virtually over.



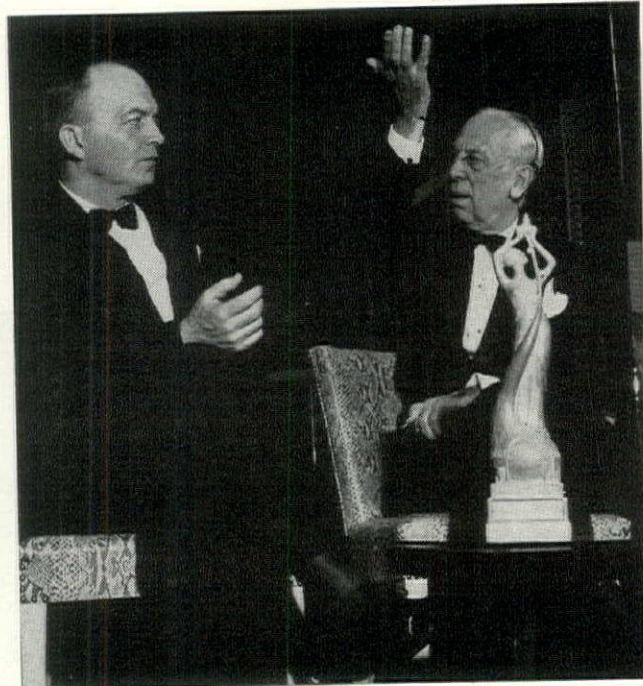
New President Robert Gerholz, Flint, Mich., housebuilder, said merchant builder's chief problem is high cost of "land manufacture; improved sites are a thing of the past. Surplus of the twenties has been entirely used up."



Camera enthusiast Herbert U. Nelson, NAREB executive vice president, snaps Outgoing President T. H. Maenner, Omaha. Maenner urged realtors to join other business groups in program of "political action" to "help elect men who believe in our great tradition of freedom."



Realtors John W. Lake, Brooklyn; Ward Smith, Tacoma; Henry S. Miller, Dallas; A. F. Bassett, Detroit. Miller said Dallas hopes to find oilman bent on rivaling Glenn McCarthy's Shamrock Hotel in Houston.



University of Pennsylvania President Harold Stassen presented Alfred P. Sloan, Jr., chairman of the board of General Motors Corp., Society of Industrial Realtors' 1949 Industrial Award. Stassen declined to discuss housing or his own political plans. Sloan warned that U. S. is "moving toward serfdom," took pot shot at RFC loans to Lustron.

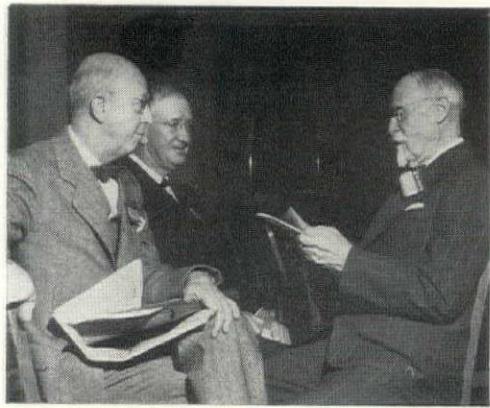


Albert Balch, Seattle, and San Francisco's David Bohannon were among big builders present. Bohannon plans to capture "smart market" by putting quality housing on volume basis. Paying close attention to grading, orientation, and "personalized" architecture, he is starting 200 \$11,000-\$14,000 houses, will increase number as he tests market.



At executive session meeting: Arch I. Madden, Des Moines; Joseph W. Lund, Boston; Tom Coppage, Seattle.

few signs of overbuilding



George A. Kuhn, Indianapolis; Harry W. Goodwin, Louisville; and Fenton M. Parke, Buffalo, relax before session of Society of Industrial Realtors. Later, outgoing president Roland Randall, Philadelphia, (new president: Laurence H. Lang, Cleveland) said SIR, at request of HHFA, will begin investigating possibilities of industrial re-use of slum-cleared land. Randall said also that increasing shortage of industrial land had been "intensified by restrictive practices which zone against industry."

Other corridor sessions on residential real estate heard Oklahoma delegates report most marked recovery from let down at year's beginning. In Texas, where building boom had reached sharpest peak—and had the sharpest fall—much less marked recovery had been felt. Houses in Houston built to sell at \$9,000-\$10,000 were on the market at a 30 per cent price slash.



Above: Chicagoans Edmund A. Martin, James S. Saleson. Below: Education committee members V. T. Chiott, Ashville, N. C.; A. L. Gridley, Couer D'Alene, Ida.; Lon Forbush, Seattle.



Judson Bradway, Detroit, presides at Urban Land Institute session. (Seated at table: Director Seward Mott; ULI President Richard Setzer; John Taylor, Kansas City; Hugh Potter, Houston; John Mowbray, Baltimore.)

A joint panel of ULI and NAREB's committee on city planning pumped for enlargement of number of realtors sitting on planning commissions. One speaker pointed out that local planning commissions will be required to pass on sites for public housing projects, and that "this should not be construed as encouragement for public housing."

SAVINGS AND LOAN MEN promise ample money for veterans, construction loans for builders

How much money will be available for house-building next year? Plenty. Will builders be able to get construction loans? Easily. Will the money for home purchase loans be obtainable only at high interest rates? Not at all: veterans' 4 per cent loans will be made in quantity; the rate on conventionals will not go up. It will stay right around 5 per cent (where it is in all Federal Home Loan Bank districts except the 6 per cent districts of Topeka and San Francisco.) It may even dip to 4½ per cent in some areas.

These prophecies—many of them—sound like the components of a builder's dream in a money-tight year. They may indeed be. They are also the sober conclusions reached by 2,000 members of the United States Savings & Loan League, meeting in annual session in Chicago last month. Looking cannily at the signposts they passed in the record breaking \$3 billion lending year behind them, and applying the lessons hanging on those posts to the year ahead, the leaguers charted this picture of 1950:



U. S. Savings & Loan League's 50-man Board of Directors decided to keep pushing for 75 per cent home ownership in U. S. As threats to this goal, the board saw: 1) tax increases; 2) public hous-

ing; 3) local real estate taxes. Encouraging factors: 1) high building volume; 2) high rate of individual savings; 3) ample mortgage supply; 4) disappearance of premiums on older house prices.

USSL Leaguers want to end feud with bankers, fight public housing locally

Photos: Arthur E. Haug



New USSLL President Henry A. Bubb, president of the Capitol Federal Savings & Loan, Topeka, Kans.; Outgoing President M. K. M. Murphy, Rutherford, N. J.; and Morton Bodfish, chairman of the executive committee, preside over meeting of Board of Directors. Elected with Bubb as vice-president: Walter J. L. Ray, Detroit. Bubb said that present building volume carried over two years would lick housing shortage.



At conference table: Ralph Crosby, president, Old Colony Cooperative Bank, Providence, R. I.; Ralph Cake, president, and Leslie Peyton, vice president, Equitable Savings & Loan, Portland, Ore.; and Henry J. Sinnett, Casco Homestead, Portland, Me.



At lunch table: Home Loan Bank Board Chairman William K. Divers; Ralph M. Smith, president, the Middlesex Federal Savings & Loan, West Somerville, Mass.; Dandridge Murrell, 1st Federal, Lynch, Va. Divers told League "now is time to strengthen ourselves for such rough times as the future may bring."



Ben H. Hazen, Portland, Ore., urged League members to end feud with banks: "We should discontinue practices which may be perfectly honest but which are necessarily antagonistic . . . In turn, bankers (should) recognize our rights to modernize our savings service just as they are modernizing their banking service."



Staff Vice President Frank Hardinge, Jr., said League would fight public housing on local levels.

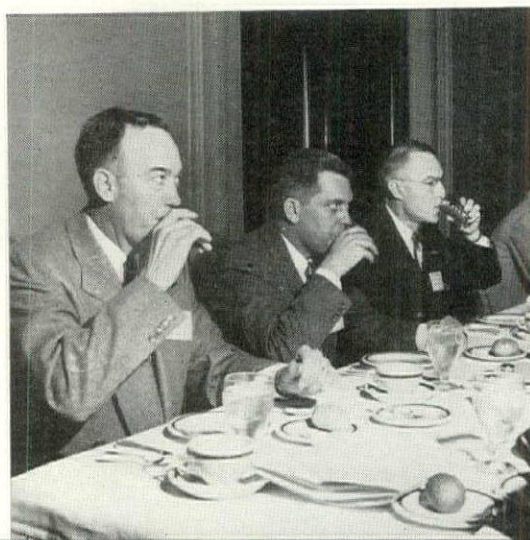


Visitor Conrado Benitez, Manila, said Philippine Islands government is creating independent farmers, home owners.

Below: George Bliss, president, Century Federal S & L, New York, and Washington Counsel Abner Ferguson.



Right: L. M. Shirley, Raleigh, N. C.; Ed D. Kuykendall, Greensboro, N. C.; Kingston S. Lister, Tacoma, Wash.



Construction prices will drop very little, if at all. (Prices, however, the League's statistical department reported, are lower than they were six months ago on used and new high cost houses. They hover between the same price and slightly lower on medium-cost houses. On low cost units there has been no change.) Price stabilization is no surprise to builders and lenders. Now even the buying public, which had been hopefully holding out for a return to the prewar price structure, knows it too. That knowledge gives new strength to the market. It poses an effective demand for houses (mainly in the low cost and middle-cost field) sufficient to assure a satisfactory year for the industry.

Money for buyers. To give meaning to the demand is the continued ample supply of mortgage money which the industry has been noting with deep interest for the last several months. S & L members, along with the banks and insurance companies, had lots of money to dispose of. They had added another \$1 billion plus to their assets last year. They would do as well next year, without having to change the average 2 1/2 per cent dividend they pay. The delegates saw no reason why the existing money supply would diminish at all. As a matter of fact, they thought mortgage lenders would now begin to feel the effects of the seller's market tasted by the rest of the industry. Warned Dr. Arthur H. Weimer, dean of Indiana University's School of Business and the League's economist: "You will be competing more directly than at any time since the end of the war with the sellers of automobiles, television sets, clothing, food, vacations and radios." Moreover, competition would be keener among all kinds of mortgage money sellers. One direct and foreseeable result would be the continuation of the recent rebirth of the VA 4 per cent program. Saving & Loan men who were still holding out against 501's admitted that they would probably have to court the market, now that the big banks and life insurance companies (spurred as much by the threat of direct government lending as by competition; see FORUM, Nov. '49) were winking once more at the veterans.

Money for builders. Another result would be more construction money for builders. The leaguers, who had used one-third of their lending money last year for construction loans were advised by the committee on trends and economic policies to cultivate builders and subdividers, for "construction loans will probably be relatively more important than during the coming year." (No one would venture the guess, however, that a lender getting a premium on construction loans would cut down on that practice.)



It makes disturbing noises whisper

WHETHER your client is planning a new office building, a theater, a hospital, a restaurant—or, for that matter, any structure in which sound is a factor—he'll want it to be relatively free from distracting and disturbing noises.

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Fiberglas Acoustical Tile is well-known for its fire-safety.† That's why it is found in so many

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But, most important, Fiberglas acoustical materials combine beauty with exceptionally high sound absorbing efficiency—up to 85%. Your clients know that with Fiberglas noises will be whispers forever.

†Rated Incombustible under Fed. Spec. SS-A-118a.

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ACOUSTICAL
MATERIALS

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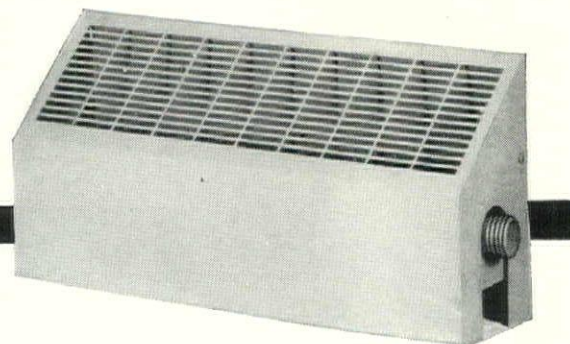
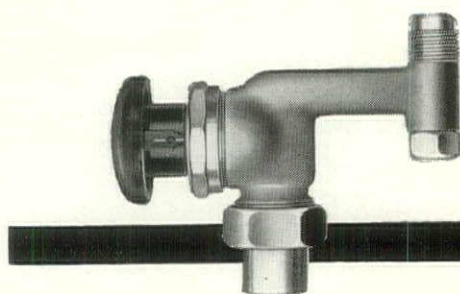
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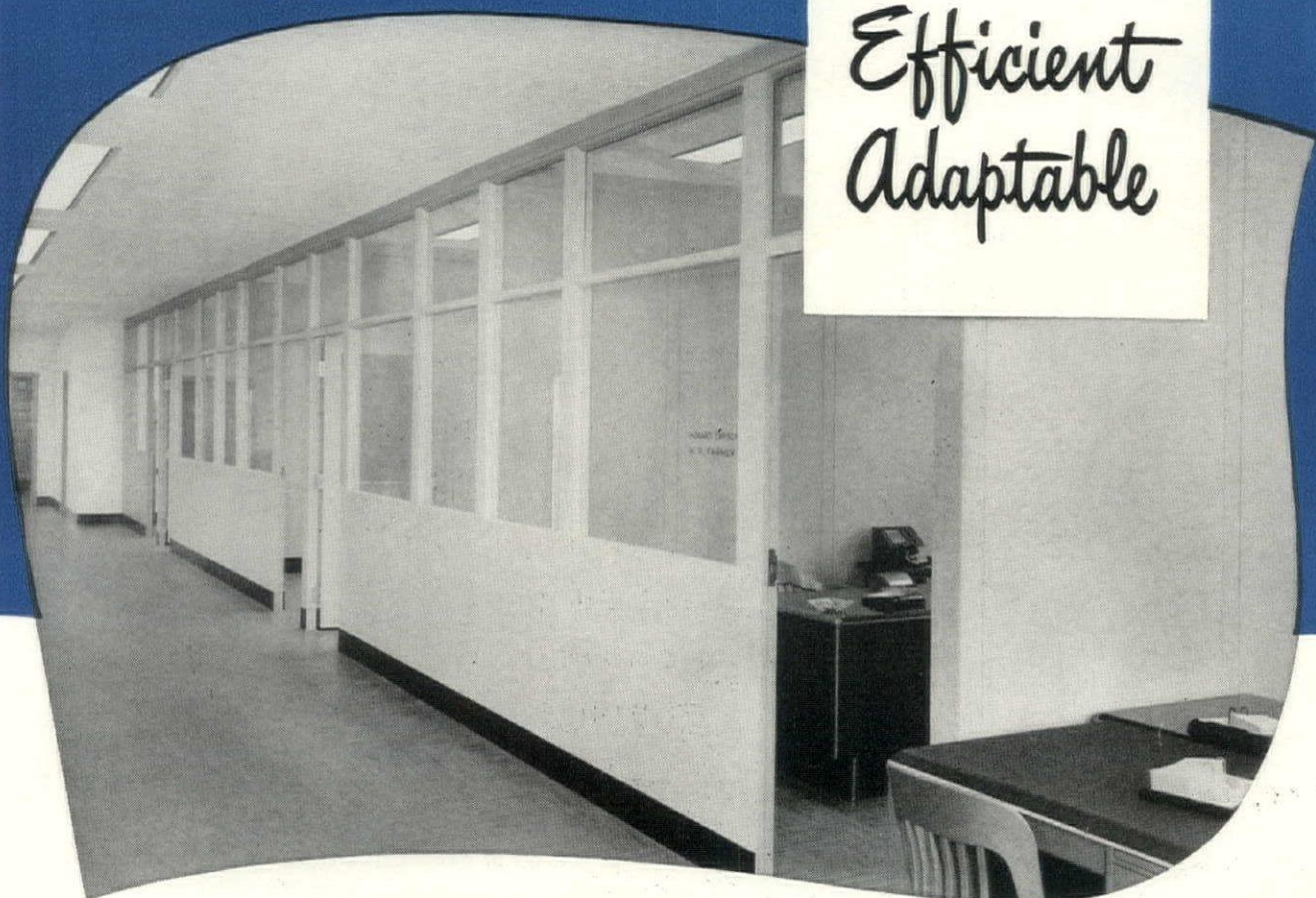
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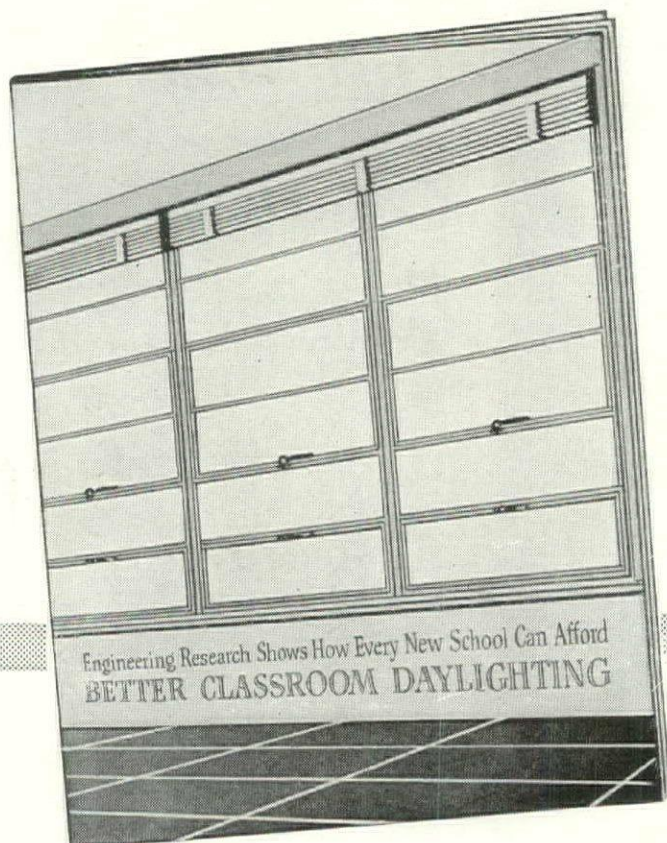
Insulated and soundproofed, with surfaces specially treated to eliminate all harsh light reflection, they create beautifully efficient business interiors.

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- Results of new tests made under actual classroom daylighting conditions
- Recommended daylighting practices
- Engineering proof of the method recommended
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How to bring more eye-easy daylight *into* the room.

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How to incorporate in your original design a greater quantity and a better quality of daylight... and get good results at remarkably low cost.

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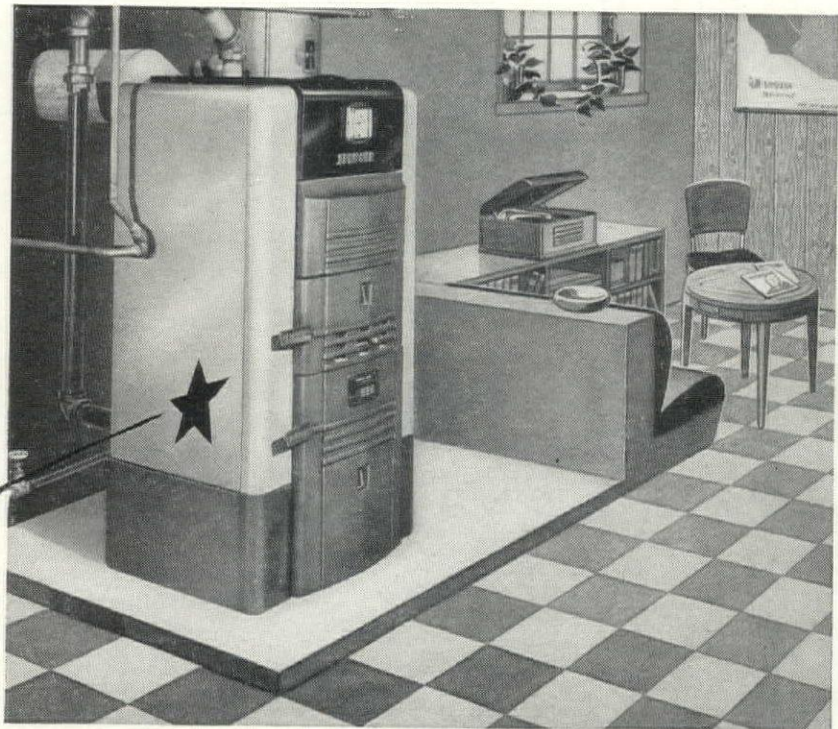
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Company

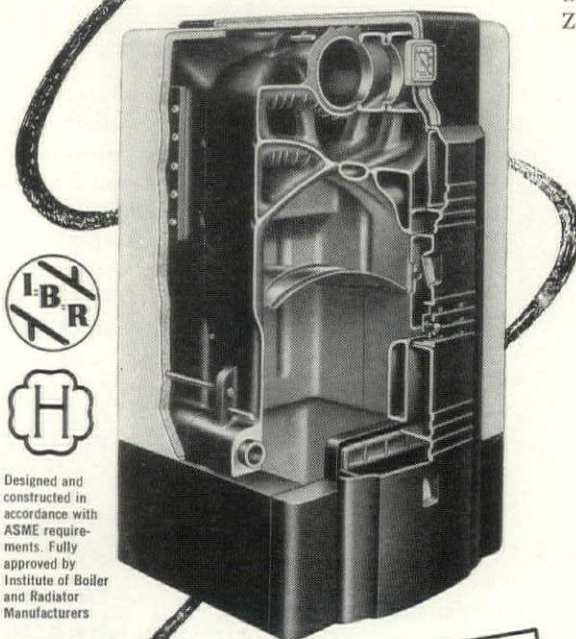
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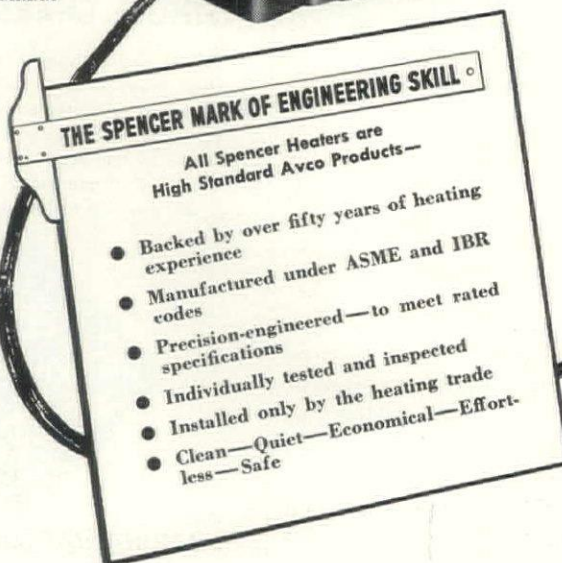
Spencer "21" Heater and proposed game room in the beautiful new home of the Zeverino family, Valley Stream, Long Island. *Owner and builder: Mr. V. Zeverino. Heating Contractor: Mr. Stephen H. Martin, Rosedale, Long Island.*



Designed and constructed in accordance with ASME requirements. Fully approved by Institute of Boiler and Radiator Manufacturers

For the finest in home heating and domestic hot water service, you'll make more clients happy by installing a Spencer "21" All-Purpose Boiler. It means clean, effortless operation all year round, at a surprisingly low cost. If you're not already familiar with the Spencer "21," drop us a line. We'll be glad to send you our illustrated booklet that tells about the features listed below—and many others, too—

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- Quickly and easily installed—all section headings precision-ground to eliminate caulking
- Handsome, colorful jacket, with Pyrex glass observation port
- Available with built-in instantaneous or tank type service-water coils
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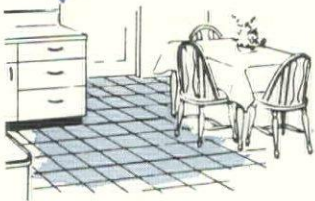
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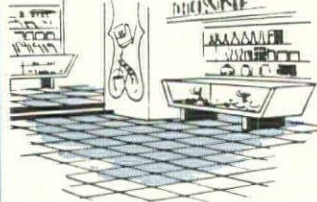
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SCHOOLS

FORUM's mail last month was heavy with comment on the special October reference number on schools, so this month's LETTERS department is devoted exclusively to this subject. For the editors' after-thought reaction to the school issue, see p. 98.—Ed.

Forum:

I sincerely wish that every architect, superintendent of schools, school committee member, and school building committee member in the Commonwealth of Massachusetts could read carefully your October issue. . . .

I would ask them to study your pages to learn why today's average school is "an extravagant monument to a dead past."

And I would call their attention to Bill Caudill's urging that the educational plan, the financial plan, and the architectural plan must all be well done if the end result is to be right.

JOHN E. MARSHALL, Administrator
School Building Assistance Commission
Boston, Mass.

Forum:

This issue of FORUM should be in the hands of every school board member, school administrator, architect, engineer, and contractor. Also, all persons interested in having better schools in their communities should be acquainted with this material. It is provoking, constructive, and stimulating.

The whole issue is a swell job. Congratulations.

WALTER D. COCKING
Chairman, Board of Editors
The School Executive
New York, N. Y.

Forum:

You have done an excellent job, and I am sure that many schoolmen will find much of real value in it. My congratulations.

WALTER E. HESS
National Association
of Secondary-School Principals
Washington, D. C.

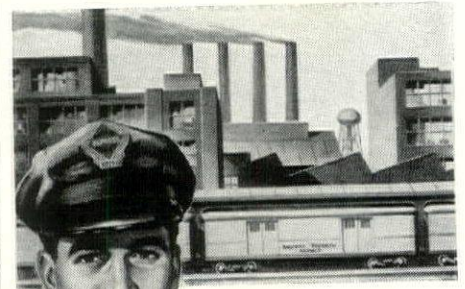
Forum:

. . . I was very much impressed with your October issue on the general subject of Schools.

For some years I have been a member of the School Building and Planning Committee of Middlebury, and it so happens we are about to start preliminary work as a committee on a new school building this coming week.

Would it be possible for me to purchase eight copies of this October issue? I'd

(Continued on page 26)



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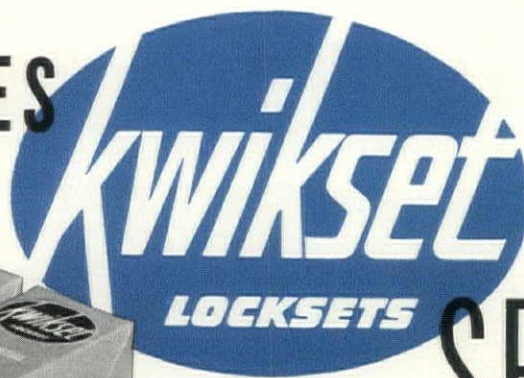
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Simple beauty and clean modern design make Kwikset locks adaptable for installation on both traditional and modern homes. And, there's a Kwikset lockset for every door in the house.

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Kwikset locksets are precision built to give years of trouble-free service. Individual lock parts are made of wrought brass, bronze, steel, and tough durable Zamak No. 5. Materials and workmanship are *unconditionally guaranteed!*

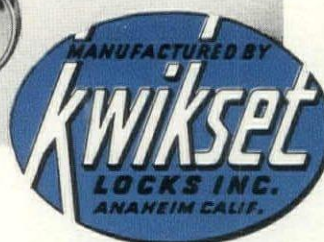
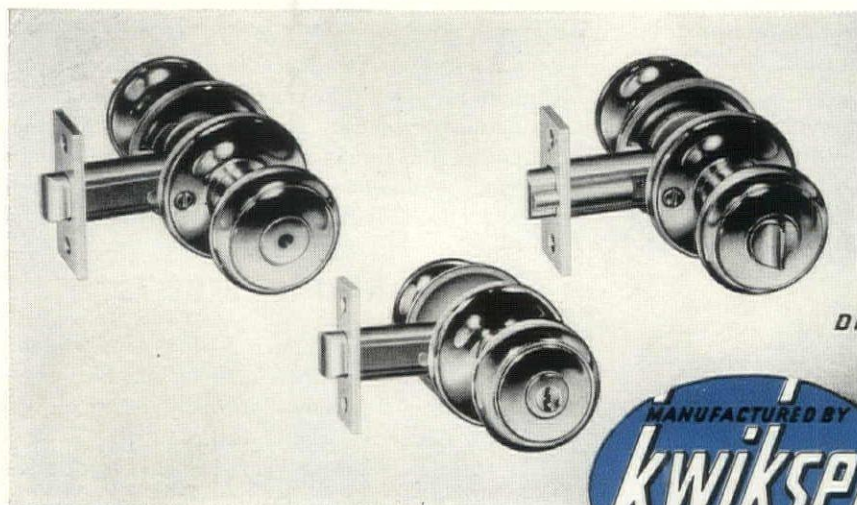
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In the Nation's Capitol—\$5,000,000 for renovation . . .

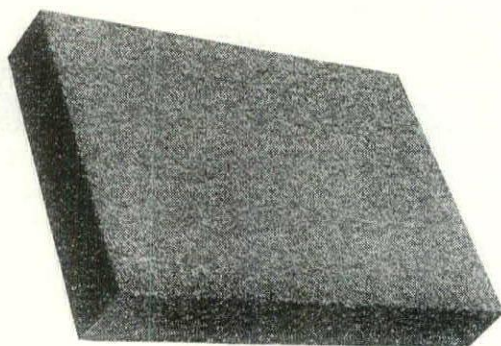
PC FOAMGLAS



This photograph shows the location of the two roofs which were replaced, and in which PC Foamglas Insulation has been installed.
General Contractors: Consolidated Engineering Co., Inc., Washington, D. C.

The two wings of the Capitol at Washington, which contain the Chambers of the House of Representatives and the United States Senate, are being re-roofed and redecorated at a cost of about \$5,000,000.

An important addition to the new roofs is insulation, which must meet exceptionally exacting requirements. The material selected is PC Foamglas, the permanent insulation, which has met similar requirements successfully for years on all sorts of buildings.



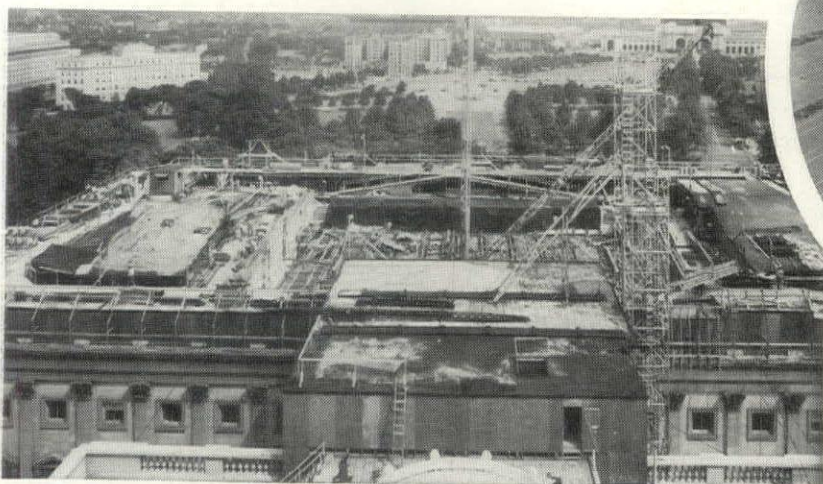
ARCHITECTS, engineers and insulating specialists have come to rely on PC Foamglas to solve their most pressing insulating problems. They have found that the unique properties of Foamglas make it the ideal insulating material for roofs, walls, floors and ceilings of all kinds of structures, from small dwellings to monumental public buildings.

WHAT IS FOAMGLAS?

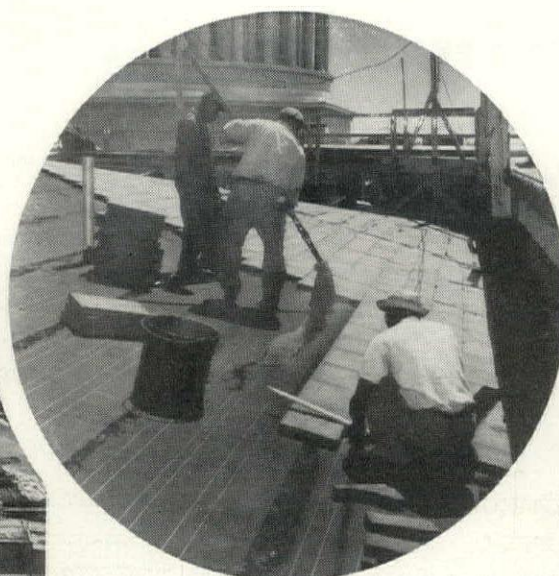
Foamglas is the only material of its kind, different from the wools, boards and batts, the various fibrous and granular insulating materials with which you are already familiar. It contains no organic matter.

To make Foamglas, a very special kind of glass is subjected to a controlled heating process which produces strong, rigid blocks, composed of millions of tiny closed glass bubbles, full of still air. Because it is made of glass and because of its cellular structure, Foamglas is an exceptionally effective insulating material.

FOR INSULATION



Center section of the old roof has been removed from the Senate Chamber at this point. Later both end sections were also removed and the new roof, containing PC Foamglas Insulation was installed. Roofing Contractor: Lloyd E. Mitchell, Inc., Baltimore, Md.



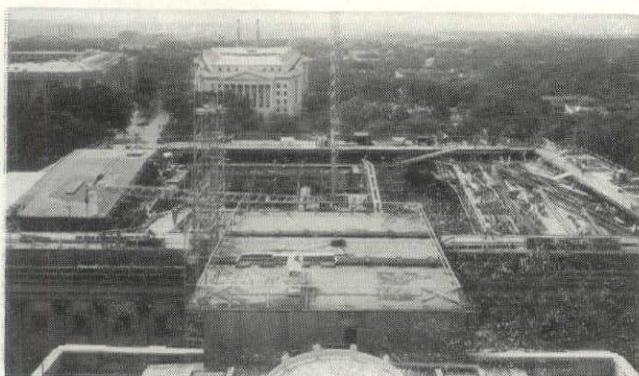
Here you see PC Foamglas being laid on a sloping section of roof deck. The big lightweight blocks are easily handled, lay up quickly, form a firm level base for roofing felts. Foamglas can be cut to fit around pipes and other obstructions right on the job with ordinary tools. Later, roofing felts were applied, and the entire job was finished with a metal roofing material by The Fingles Co., Baltimore, Md.

LIGHT - RIGID - STRONG

Husky big blocks of Foamglas are so light that the large expanses of roofs in which they are used as insulation need no extra structural reinforcement . . . so rigid that they readily support their own weight, become an integral part of the structure, when built into walls . . . so strong that they safely support more than ordinary loads when used to insulate floors, platforms, ramps, etc. in all sorts of structures.

FIREPROOF - MOISTUREPROOF - VERMINPROOF

There is no food for flames in Foamglas, for glass will not burn. Its continuous cellular structure does not permit moisture to penetrate or pass through Foamglas. Vermin cannot eat into or through it, nor can they nest or breed in Foamglas Insulation. Foamglas is also vaporproof, fumeproof and acidproof. It withstands high humidity, minimizes condensation.



At this stage of construction, temporary girders are being removed from the House Chamber, making way for the new steel-supported concrete roof deck on which PC Foamglas is used as insulation. Roofing Contractor: Warren Ehret Co., Washington, D. C.

FIRST COST IS LAST COST

You need fear no costly repairs, maintenance or replacements when you insulate with PC Foamglas. Being glass, Foamglas is impervious to many elements that cause other materials to lose insulating efficiency. In fact, when installed according to our specifications and recommendations, PC Foamglas retains its original insulating efficiency *permanently*.

Its ability to retard heat travel, to reduce condensation, to withstand humidity, make Foamglas an exceptionally effective insulation. Freedom from repairs, maintenance and replacement make PC Foamglas an exceptionally economical insulating material.

SEND IN THE COUPON

Send for a sample of Foamglas. Test its light weight. Step on it. Cut it. Send the convenient coupon for our detailed, authoritative booklets. Consult our insulating specialists. Then you can show your clients where they can use PC Foamglas to the best advantage, whether they are concerned with small modern dwellings or vast public buildings.

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Please send me without obligation a sample of PC Foamglas and your FREE booklets on the use of PC Foamglas Insulation as checked below:

Normal Temperature: Roofs ☐ Walls ☐ Floors ☐
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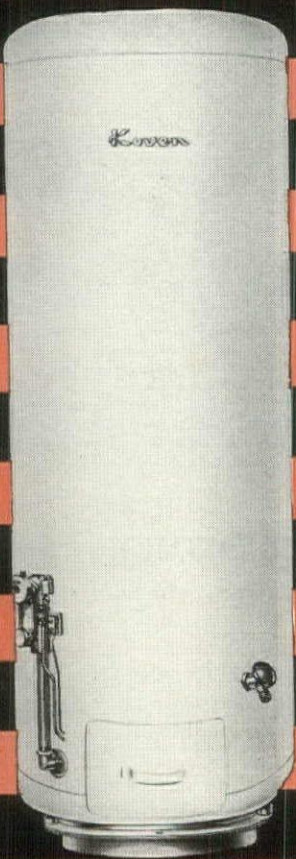
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- Precision engineering
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HAVE THEM ALL!

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vides clean, silent, safe, dependable operation. There's a model and size for every requirement.

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like to furnish each member of my committee with a copy for his serious study. . . .

CHARLES H. UPSON
Middlebury, Conn.

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

Forum:

The school issue is a honey, Congratulations!

WILLIAM W. CAUDILL
Research Architect
Texas Engineering Experiment Station
Agricultural and Mechanical College
College Station, Texas

Forum:

This issue is an epic. Congratulations.
JOHN LYON REID, Architect
San Francisco, Calif.

Forum:

. . . A significant contribution to the solution of the critical schoolhousing problem.

RAY L. HAMON, Chief
School Housing Section
Office of Education
Federal Security Agency
Washington, D. C.

Forum:

I was particularly pleased with the following: the cover design, "Today's Schools," and the treatise on mechanical and acoustical work.

I was not particularly pleased with the rectangular 1950 school. I feel that the overhead daylighting scheme would be quite monotonous in a very short time and am also not convinced that the lunchroom would work well through the center of the building. I was much more impressed by the circular school with the possibility of several of these units dotted on the landscape and connected by galleries or porticoes.

HENRY L. BLATNER, Architect
Albany, N. Y.

Forum:

I wish to congratulate your entire editorial staff on the excellence of the entire issue.

I have been following the issues in the FORUM for a number of months quite closely and each issue has dealt with a specific situation very timely. I only hope that other consumer magazines will do something like you have done for people in the building industries. It may inspire others to do a similar job to that done in Arlington, Va.

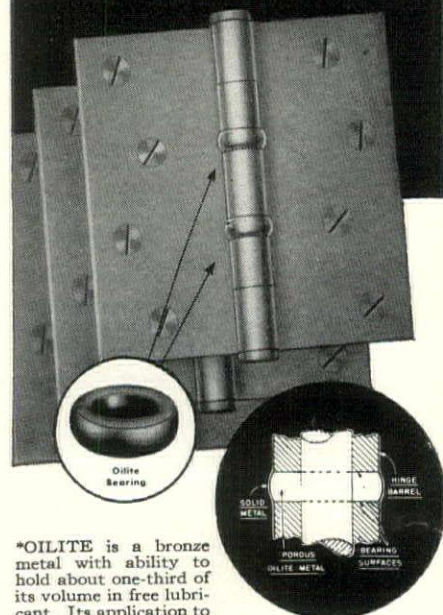
ROBERT W. TEICHMANN
Gypsum Association
Chicago, Ill.

(Continued on page 30)



hour after hour
day and night

BUSY DOORS
NEED McKINNEY
OILITE
BUTT HINGES



*OILITE is a bronze metal with ability to hold about one-third of its volume in free lubricant. Its application to butt hinges was developed by McKinney in 1938, after exhaustive tests and research.

SOLID METAL to protect exposed surface and drive lubricant to bearing surfaces.

Doors that are subjected to constant opening and shutting need the continuous self-lubrication provided by McKinney OILITE Butt Hinges.

They swing easily on a slick, smooth film of lubricant automatically supplied by the bearing itself*—and only to the bearing surfaces. Quiet operating, trouble-free, and wear resisting, McKinney OILITE Butt Hinges assure extra long door life and service. They come in all sizes and finishes . . . all sizes are equipped with two or more OILITE bearings to carry the vertical load.

Ideal for doors exposed to exterior weather conditions or moisture because McKinney OILITE bearings will not rust.

Specify McKinney OILITE Butt Hinges for office buildings, schools, hotels, hospitals and homes.

Details of McKinney Oilite Butt Hinges are shown in Section 17-b-8 of Sweet's Architectural File.

McKinney Butt Hinges with OILITE bearings have been approved for use on Veterans Administration Hospitals and Buildings by the Veterans Administration and by The Corps of Engineers, U. S. Army.

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Size AWG. or MCM.	Single Conductor in Free Air type of insulation				Not More Than Three Conductors in Conduit type of insulation			
	R Copper	R Aluminum	RH Copper	RH Aluminum	R Copper	R Aluminum	RH Copper	RH Aluminum
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12	25	25	25	34	20	20	20	20
10	40	34	40	55	30	34	30	38
8	55	46	65	80	40	45	45	55
6	80	67	95	105	55	67	65	85
4	105	88	125	122	70	80	85	100
3	120	101	145	143	80	92	100	115
2	140	118	170	164	95	105	115	130
1	165	139	195	193	110	122	130	150
0	195	164	230	223	125	139	150	175
00	225	189	265	260	145	164	175	200
000	260	218	310	302	165	181	200	230
0000	300	252	360	340	195	202	230	255
250	340	285	405	374	215	218	255	285
300	375	315	445	424	240	235	285	310
350	420	353	505	458	260	269	310	335
400	455	382	545	521	280	298	335	380
500	515	432	620	580	320	323	380	420
600	575	483	690	634	355	336	420	460
700	630	529	755	659	385	344	460	475
750				685	400	365	475	490
800				731	410	382	490	520
900				785	435	416	520	545
1000				895	455	437	545	590
				986	495	458	590	625
				1075	520	470	625	650
				62	545		650	665
					560		665	559

Q Can I replace copper with ALUMINUM, size for size?

A In many cases, YES.

Tables courtesy Factory Management and Maintenance, based on tables 1 and 2, National Electrical Code.

Check the current ratings! You'll see that wire and cable with Alcoa E.C.* Aluminum conductor with type RH Insulation can replace copper with type R Insulation. This gives you superior insulation plus aluminum's lighter weight and low cost.

Mechanical, soldered or welded joints are used. Fittings are supplied by reliable manufacturers.

Alcoa makes light, strong, conductive E.C. Aluminum; leading wire manufacturers draw, strand and insulate it, and sell it under their own trademarks. Investigate the savings it can yield on a single job!

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*E.C.: Electrical Conductor Aluminum

Insulated and sold by leading wire manufacturers



ALCOA **EC ALUMINUM**



FOR ELECTRIC WIRE AND CABLE

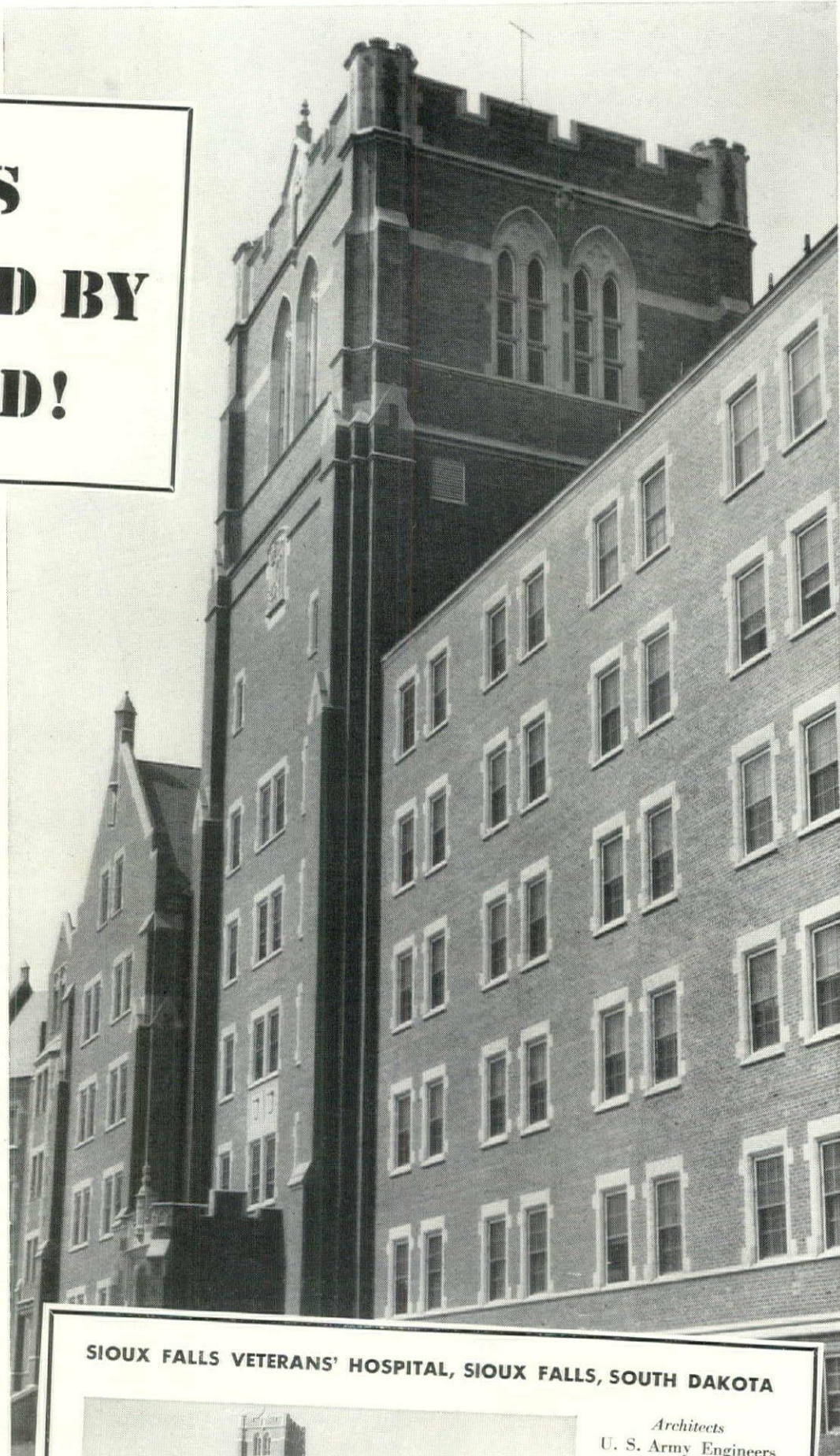
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HERE'S a Gold Bond job we're especially proud of. It's the big new Veterans' Hospital at Sioux Falls, South Dakota. Gold Bond metal lath, plaster and accessory products were used all the way down the line—in every building of the hospital.

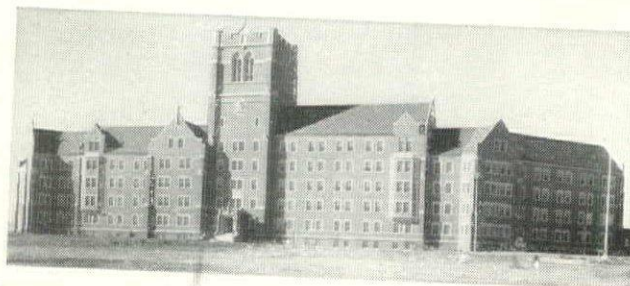
When Gold Bond products are used *exclusively* on a job, there are no worries about responsibility because one reliable manufacturer—National Gypsum Company—stands behind *all* the products used. There are now more than 150 better building products bearing the Gold Bond label. Each one is the result of careful research, each is designed for top quality performance. They're all fully described in Sweet's and available through your local Gold Bond Lumber and Building Supply Dealer.

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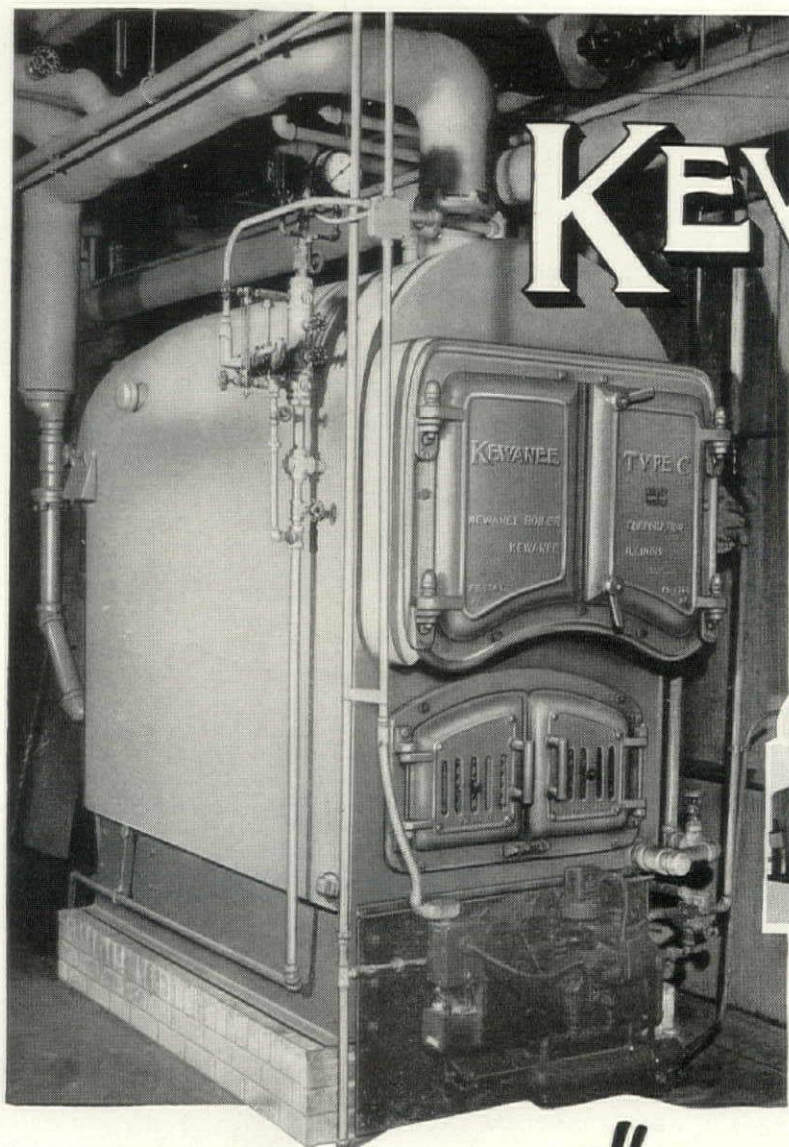


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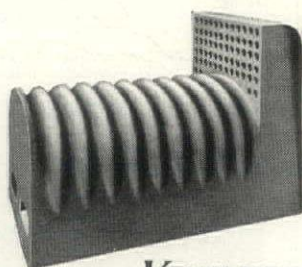
Type C

STEEL BOILER



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A Kewanee 7L78 Type "C", Oil Fired, generates
1,313,000 Btu to heat 24,500 sq. ft. floor area.



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over the hottest part of the
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a design that fits handily into restricted floor area . . . PLUS the
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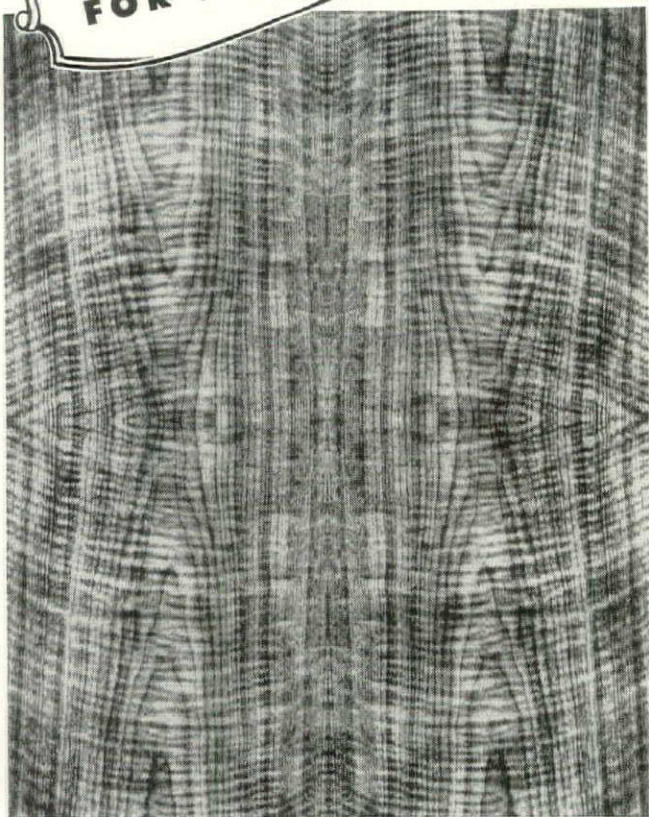
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Forum:

Warm congratulations for the thorough, comprehensive and honest analysis of the subject. Let us hope it will stimulate action and constructive thought.

ANTHONY CAMPAGNA, *Builder*
New York, N. Y.

Forum:

The idea of a one-story school is extremely compelling. Upon first consideration, it occurred to me that the greater land coverage which will be necessary would mean a prohibitive cost, but it becomes apparent that the saving of construction costs would more than outweigh the land cost problem.

NEWBOLD MORRIS
New York, N. Y.

Forum:

Congratulations for the excellent job on "Schools." As a member of our local Board of Education serving on its building committee, this issue contains valuable data which we have been seeking for some time.

A. HAROLD MACNEIL, *Treasurer*
Concord Cooperative Bank
Concord, N. H.

FORUM:

SCHOOL ISSUE SUPERB ACHIEVEMENT. MARK IT DOWN, IN OUR DAILY CLIENT'S RELATIONSHIPS OCTOBER FORUM WILL BE OUR BIBLE IN SPREADING THE GOSPEL OF BETTER SCHOOL ARCHITECTURE.

HAL CRUZAN
KUMP & FALK, ARCHITECTS
SAN FRANCISCO, CALIF.

Forum:

As a piece of original thinking and creative analysis, Henry N. Wright's article on school heating and ventilating in October's FORUM is tops. The analogy between an eye that sees and an object that feels heat is brilliant. Wright has actually invented a tool in his use of spherical perspective to visualize the effects of radiant heat. You are to be congratulated for publishing articles of such high caliber.

M. F. KIRCHMAN, *Architect*
New York, N. Y.

Forum:

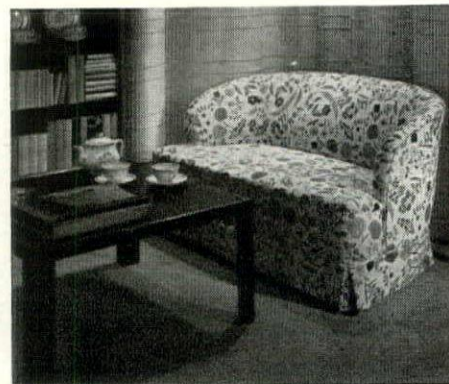
The cover of the October issue of Architectural FORUM is interesting. It has a freedom of form and a clever design pattern that contributes to a good cover. While the rendering is simple, it does not look to have been drawn by a child, as do some of the covers today.

But, one thing bothers me. There are twelve desks shown of which nine are occupied. At one end of the room there are four
(Continued on page 36)



DUNBAR

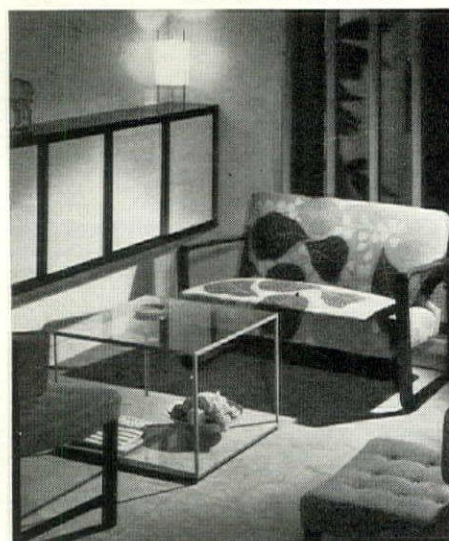
for Modern

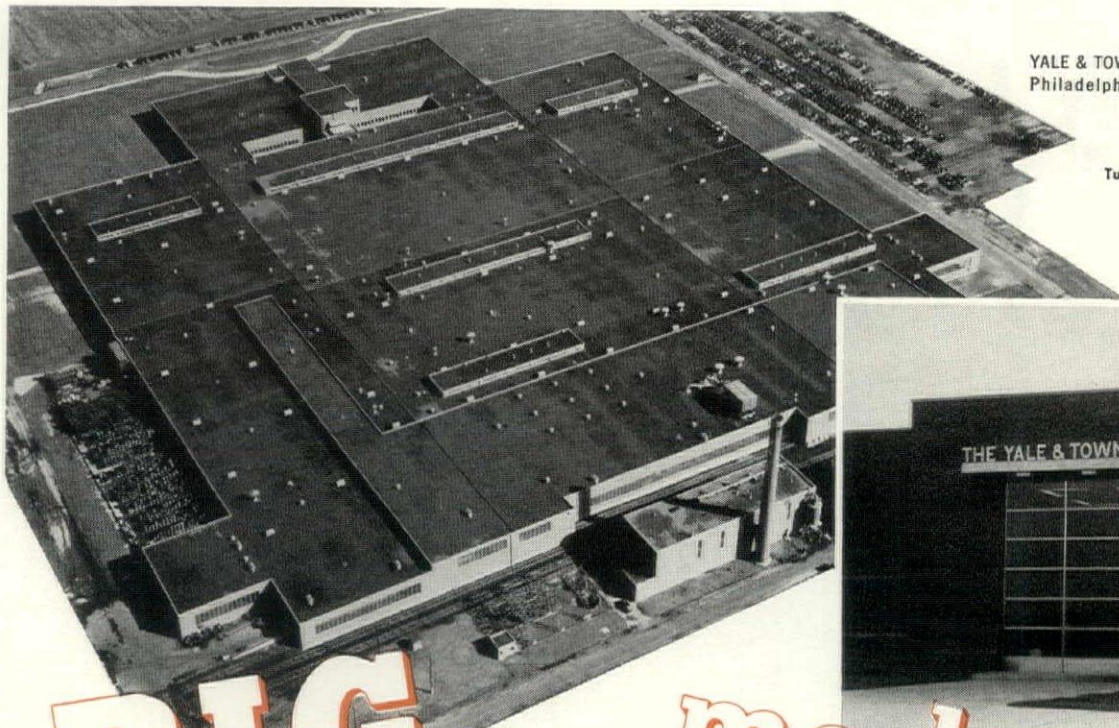


Three to make attractive any interior requiring the space-saving convenience of a comfortable love seat.

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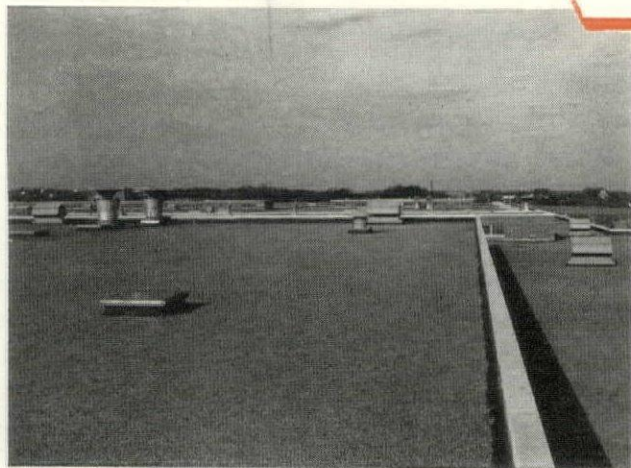
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Philadelphia Division, Philadelphia, Pa.

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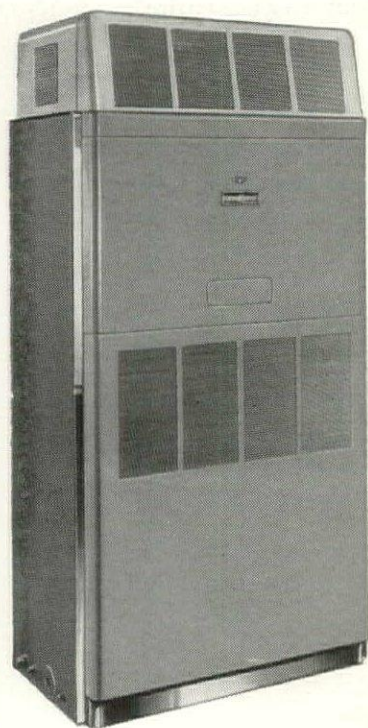
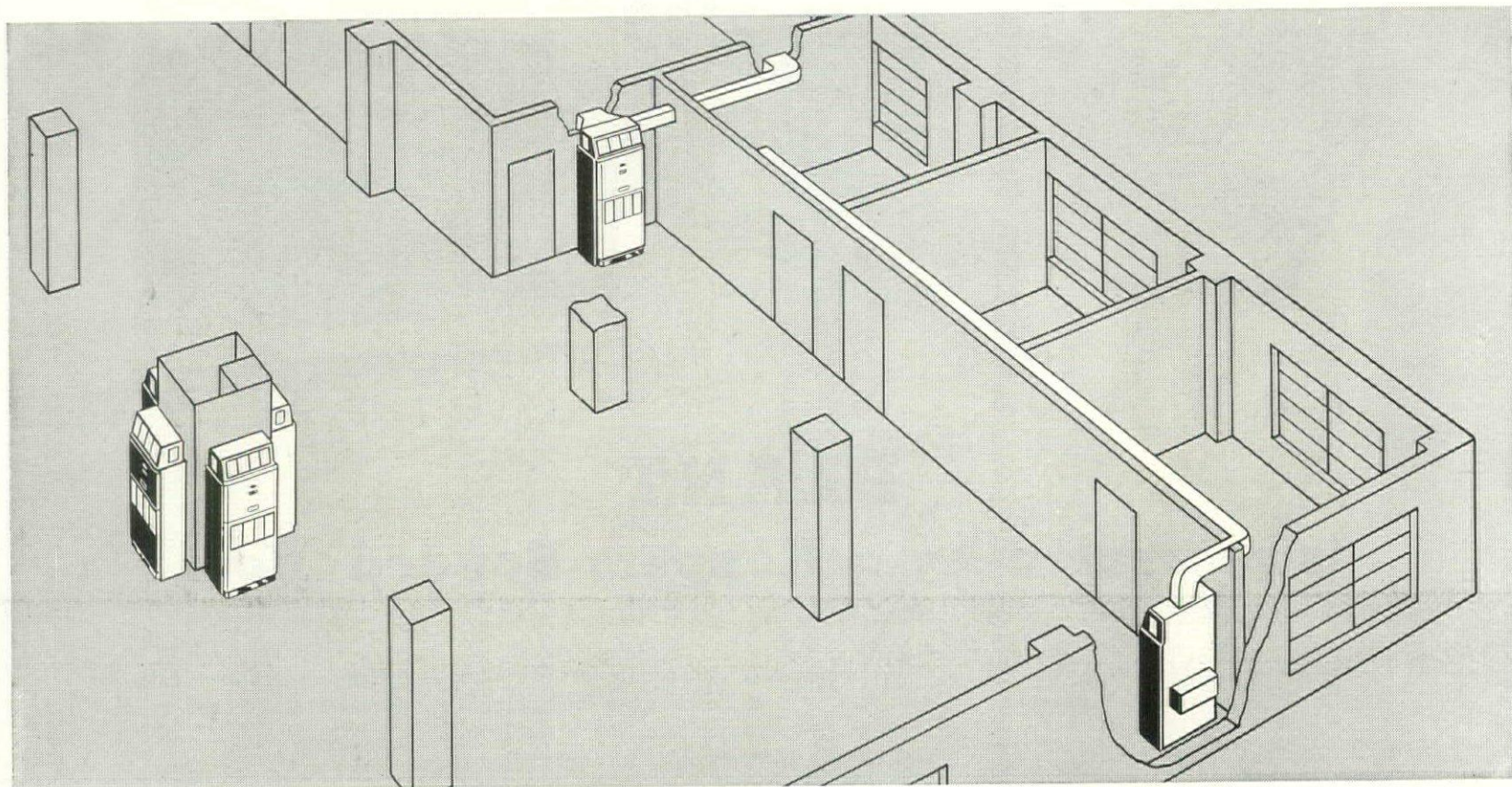


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Columbia Venetian Blinds and Window Shades are sold only through Columbia Authorized Dealers: leading department, furniture stores and shade shops. Your nearest Columbia Authorized Dealer will be glad to consult with you on your special needs.

Columbia Authorized Dealers are now in position to quote very attractive prices on jobs involving a quantity of blinds. Be sure to get their estimates.

Columbia
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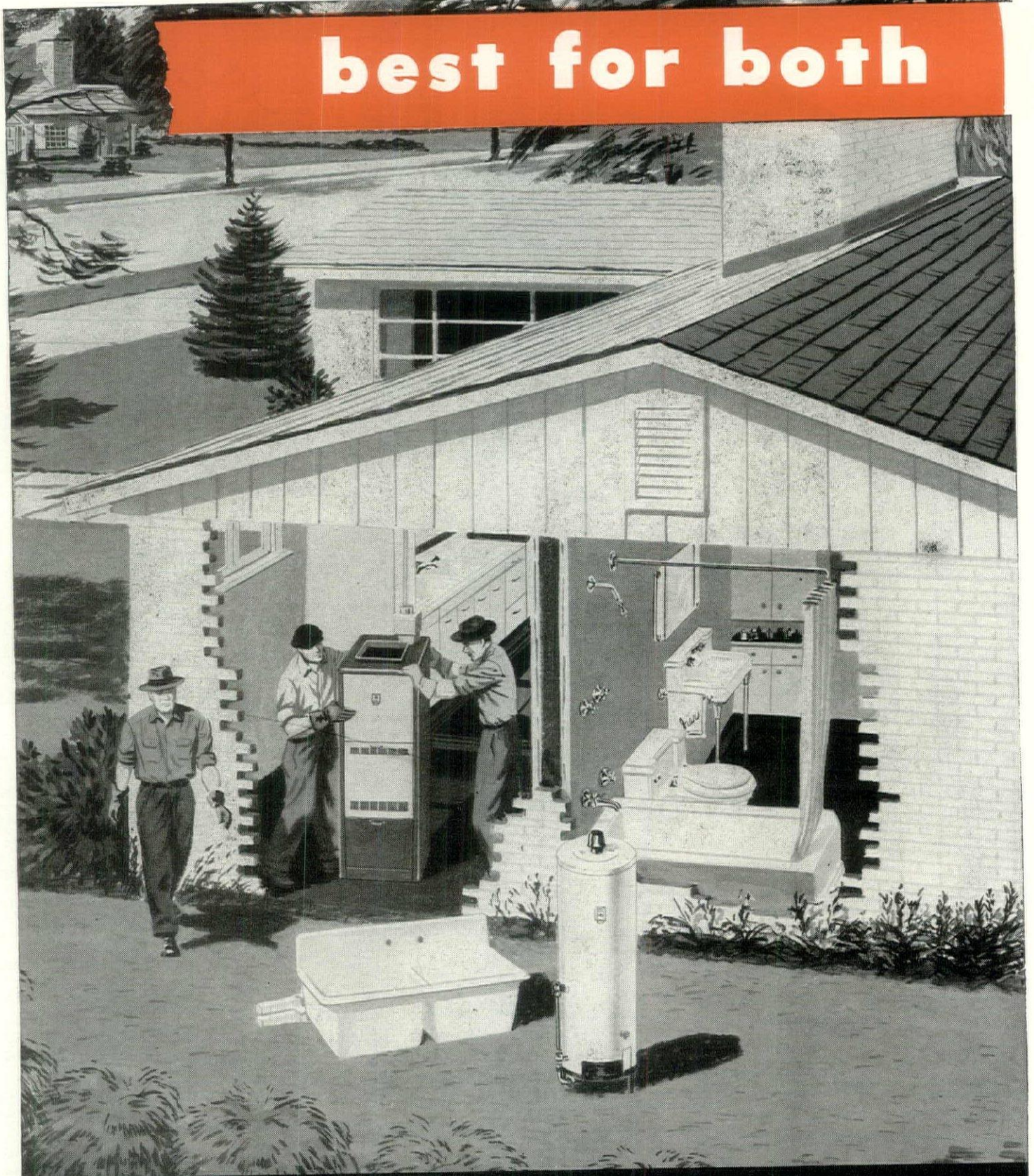
FIND full details on Columbia Venetian Blinds in Sweet's Catalog.

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CHECK THESE COLUMBIA QUALITY POINTS

- handsome headbox, dust-and-rustproof, completely encloses all satin-smooth working parts.
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- Columbia's special Snap-Stop keeps blind from rattling, banging when window is open.
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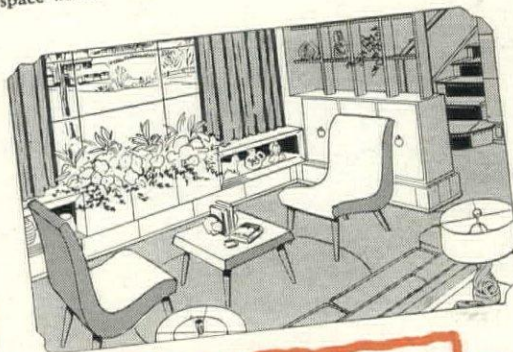
important jobs

When it comes to heating and plumbing make it **AMERICAN-Standard** all the way!

■ You will find that American-Standard is your most dependable source for both heating equipment and plumbing fixtures . . . for every product American-Standard makes is backed by research, engineering and manufacturing facilities that are second to none. Not only does American-Standard give you the widest choice of styles, types, models, and sizes, but it also is your assurance of the finest quality in both heating equipment and plumbing fixtures. That's why more American homes have heating and plumbing by American-Standard than by any other single company. Yes, you'll find that it pays to "make it American-Standard all the way"! For detailed information about the complete range of products, contact your Heating and Plumbing Contractor. **American Radiator & Standard Sanitary Corporation**, P. O. Box 1226, Pittsburgh 30, Pennsylvania.

BASEBOARD RADIANT PANELS

Baseboard Radiant Panels by American-Standard represent an advanced form of radiant heating. Replacing the regular baseboard, they become an integral part of the room. They take up little more than an inch of floor space when recessed.



The MASTER PEMBROKE Bath

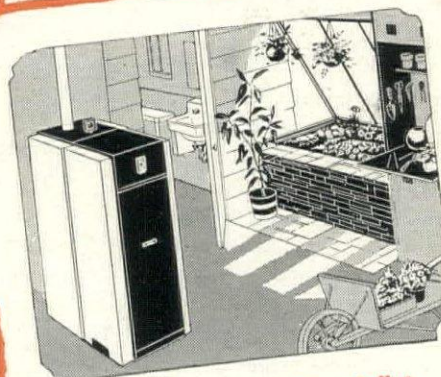
and the **COMRADE** Lavatory and **COMPACT** Water Closet shown here are but three of the many fixtures available for your selection when you specify American-Standard. They're styled to stand out . . . and constructed to stand up!



The SIGN of a GOOD HOME



An American-Standard "Installed Here" sign on the job tells everyone who passes that only the best is good enough for the homes you build or remodel. Be sure your Contractor puts up this sign when he begins the installation.



The ARCOLINER Wet Base Boiler

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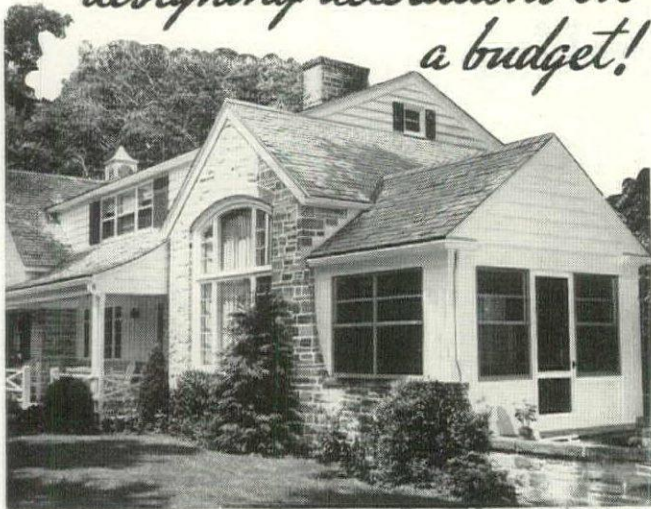


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*T. M. REG. APP. FOR

children standing. Since there are but three empty desks, where is the fourth child going to sit?

The issue on schools is rather complete and all-informative. While, perhaps, I do not agree with all the points in question, I do, nevertheless, agree with most of them. But it is not enough that I agree. Most designers and architects today are convinced that the current approach to building and design is better and offers more in the way of functionalism. The drawback is that the public in general has not been convinced and is not sold on the modern approach and, as a result, is reluctant to buy. You are doing a good job of informing us as designers, but in order to coordinate your efforts, we need more education of the general public, the man on the street, the prospective buyer.

This is especially true here in Dayton where modern architecture does not sell. Instead, people are buying traditional homes they cannot afford, rather than the better-made prefabs that they could afford. Builders, as a result, will not build modern for fear of losing their shirts. As a result, we progress slowly, and many a good design has to be altered to fit traditional thinking.

EDWARD W. DELAET
 Industrial Designer
 Dayton, O.

• Let Reader DeLaet count again. FORUM's cover classroom has desks for 16 children—ten of whom are seated, five are standing at the rear of the room and one is playing hookey. —Ed.

Forum:

The cover on your October issue is one of the most attractive I've seen. It's the perfect beginning for your though-provoking treatment of so important a subject.

HAROLD BURSON
 New York, N. Y.

FORUM:

OCTOBER ISSUE IS NOT ONLY A STAR IN YOUR CROWN BUT AN IMMEASURABLE SERVICE TO THOSE OF US WHO WILL USE IT TO SLUG SCHOOL BOARDS. CONGRATULATIONS.

LARRY PERKINS
 PERKINS & WILL
 CHICAGO, ILL.

Forum:

Nowicki's school looks very interesting and it certainly ought to be tried out somewhere soon.

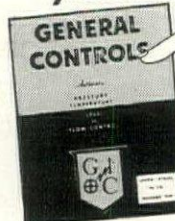
I am an enthusiast of cheese-hole roof lighting. With the possible exception of the late afternoon incandescence thrown off by the stained glass windows of an old cathedral, there is no lighting that com-

(Continued on page 42)

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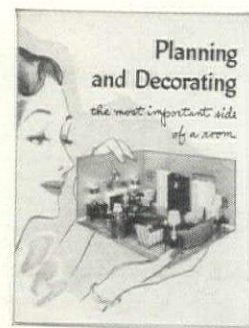
This happy *plus*, added to the top measure of beauty, durability, and economy provided by oak flooring, is an enduring satisfaction. Your wisdom in making all this possible for your clients, and predicting their satisfaction, is certain to arouse favorable comment when they display their new home to friends.

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SUBJECT: Flooring FOR LOW COST HOUSING

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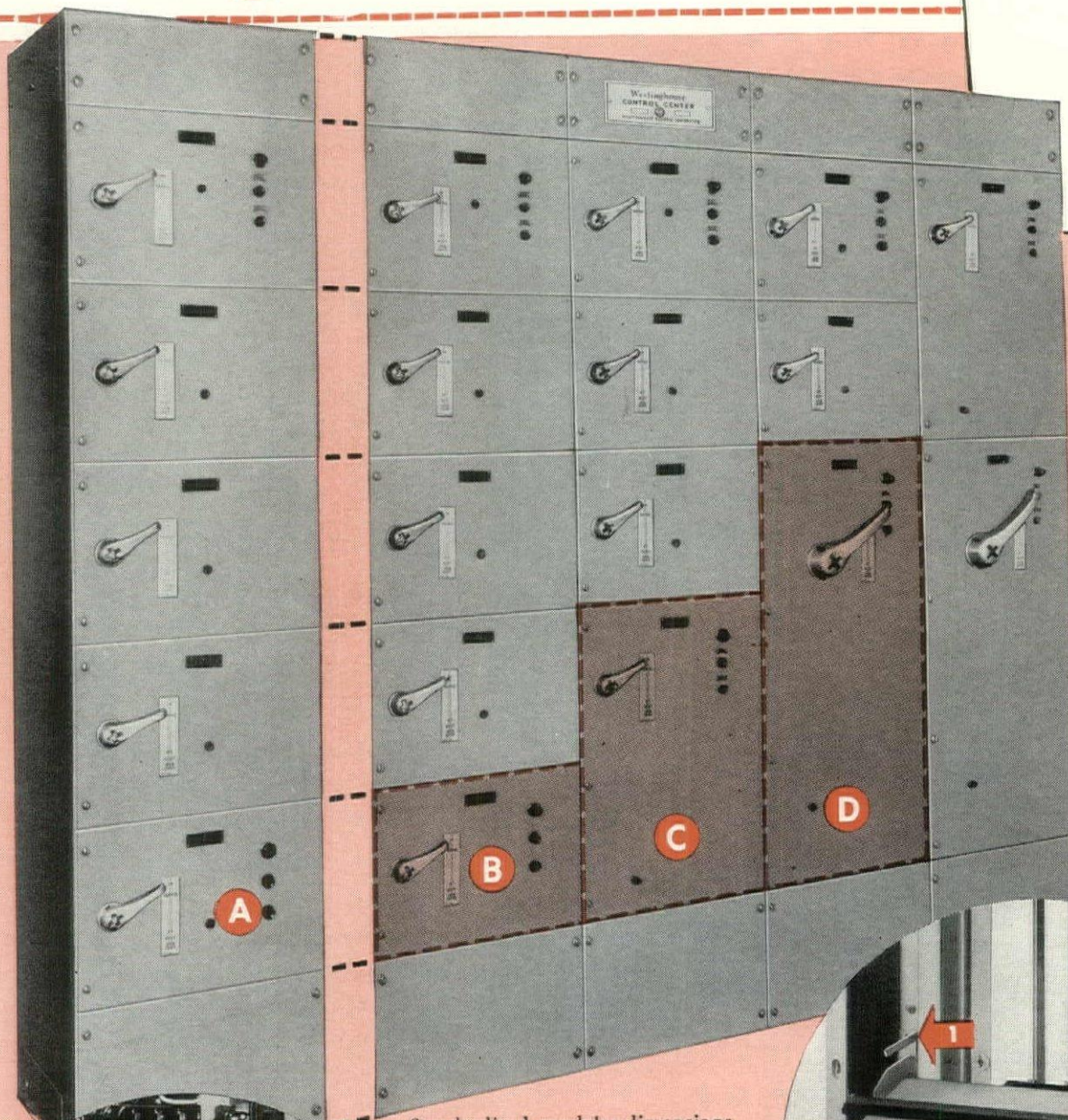
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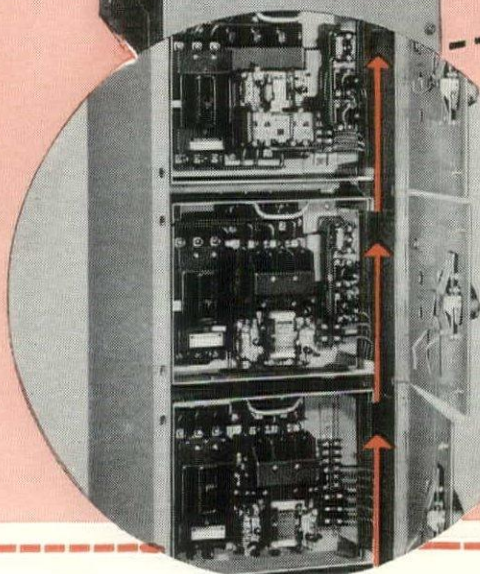


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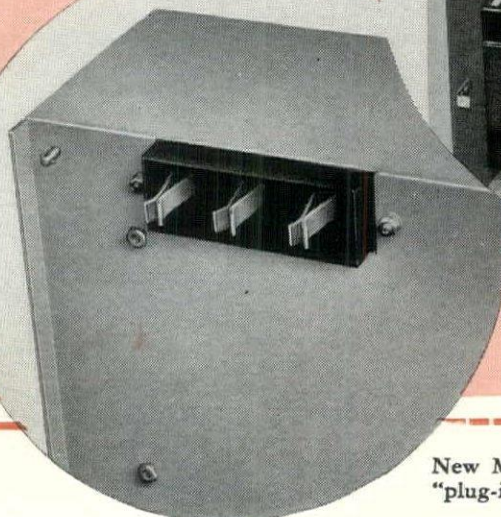
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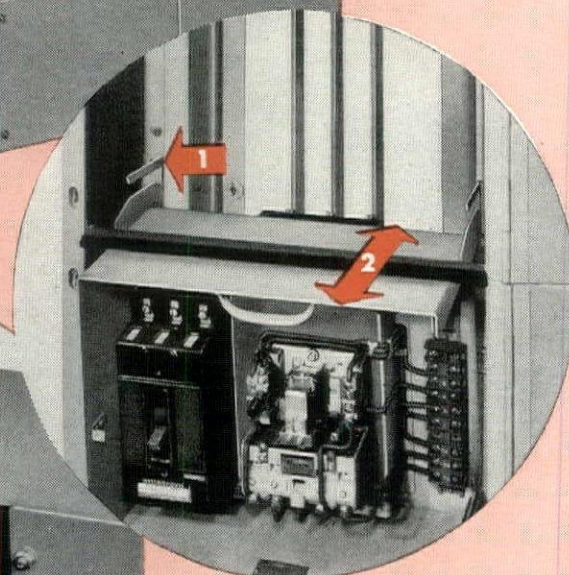
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"plug-in" safety and convenience.



1. Guide rails assure perfect alignment of stabs
2. "Tilt-out" disconnect position

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The **NEW** Westinghouse **CONTROL CENTER**

Unusual operating benefits—advantages never before offered by centralized motor control equipment—are yours in the new Westinghouse Control Center. Credit them to this matchless combination of design features:

"TILT POSITION" DISCONNECT . . . for unmatched safety! Interlocking handles prevent opening of starter doors unless the breaker is in the "off" position. The starter may then be withdrawn to a self-supporting "tilt position" which disconnects it from the power bus. This means double protection for the operator!

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GET THE COMPLETE STORY

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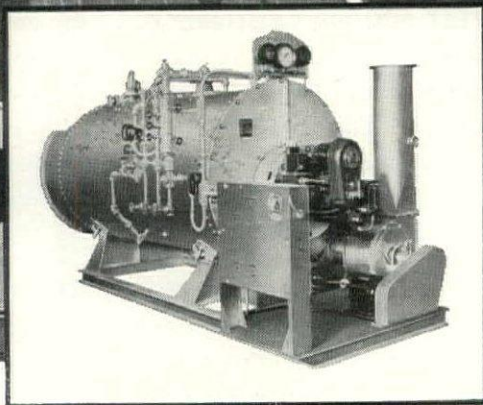
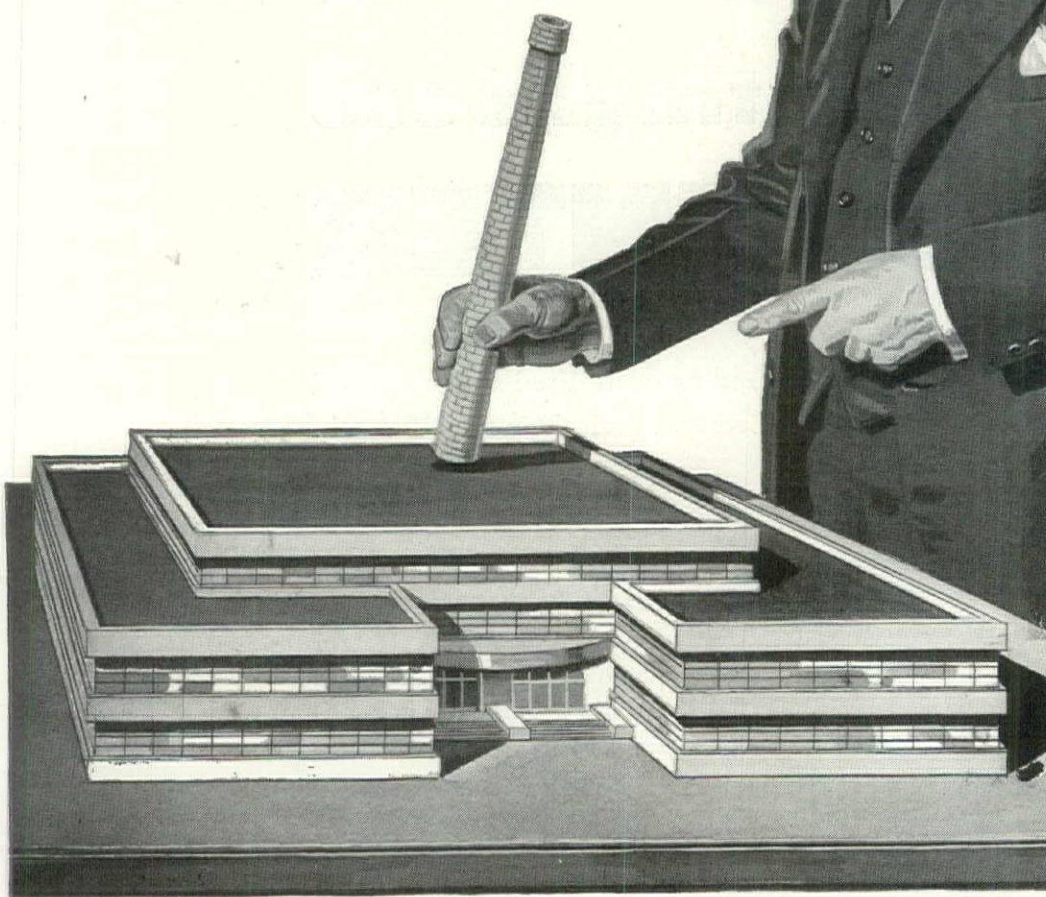
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CONTROL CENTERS



*We don't need that
expensive smoke stack*

Let's specify
PREFERRED!



Worried about "clean surfaces" when designing a factory? One way is to eliminate that industrial eyesore—the expensive smoke stack—by specifying a Preferred Unit Steam Generator.

Your building doesn't have to be as high, either. A Preferred unit requires much less headroom than a conventional boiler. And you don't have to allow as much floor area for the boiler room—only about half as much as needed by ordinary boilers of equivalent output.

A Preferred unit does the job efficiently and economically with a simple vent to the out-

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Your clients get all these advantages—plus the "extras" in the box at right. For complete details on the Preferred Unit

Steam Generator, write for your copy of the brochure specially prepared for Architects and Consulting Engineers.

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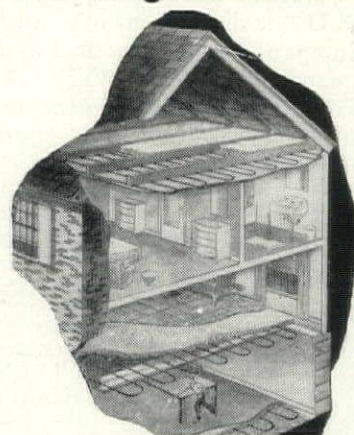


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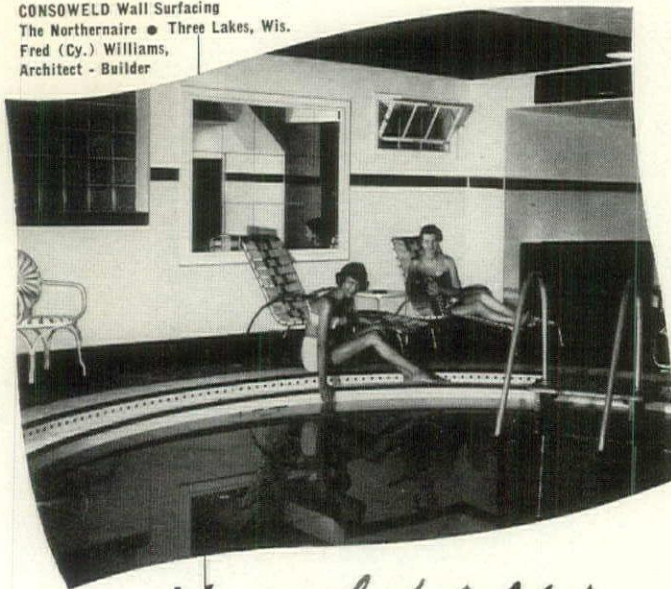


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pares in emotional quality to the effect Aalto achieved in the reading room of his library at Viipuri.

Corbusier obtained a wonderful quality of lighting in his "Urbanism" pavilion at the 1937 Paris Fair by the use of a canvas roof. I suppose that is what people liked in Saarinen's music tent out West. The light produced by the cheese-holes is somewhat like that of the tents except that it has a buoyancy which must come from the numerous reflections and refractions.

In Aalto's library one was not aware of the source of the light. There were hardly any shadows and the atmosphere in the large room had a sort of floating tangibility. I could become very rhapsodic about that big library room. It was wonderful to sit there—just the right physical environment for relaxed and contemplative reading. . . .

Unfortunately, I am not at all sure that cheese-hole lighting is appropriately used by Nowicki even though I think he ought to have a chance to try it. He'll get the fine light quality all right—although I believe his holes as shown on his section do not have enough depth to achieve the best results. The trouble with using this system in a school is purely psychological.

I had a similar problem on a recent hospital design. For functional reasons there seemed to be no need for windows in the operating rooms. They were air conditioned, the lighting was always electrical and the walls would have been easier to clean if unbroken by openings. Nevertheless, the surgeons, the nurses and even the cleaning personnel insisted on windows. I suppose there's some claustrophobia in all of us. I argued that we don't mind the absence of windows in theaters, in many restaurants and even in types of classrooms and lecture halls. But I lost and we had to include fixed windows at eye level.

I think it will be similarly difficult to get acceptance for the practically windowless classroom, especially where children are involved. (I recall that the only thing which made my four years of Latin tolerable at Boys High School in Brooklyn was the bird-filled church steeple which I could see from the classroom window. Without that window it would have been horrible.)

Perhaps the reasons why we accept the absence of windows in some rooms and demand them in others need investigation. There may be many factors at work. But before I went as far as Nowicki does in his school, I would want to be sure of the effect on the room occupants.

Of course, these observations have nothing to do with the quality of the cheese-hole lighting which is bound to be good if properly designed. Nowicki might even

(Continued on page 48)



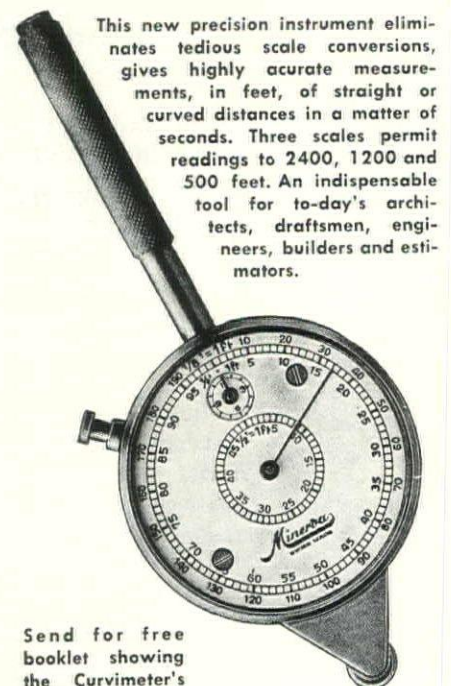
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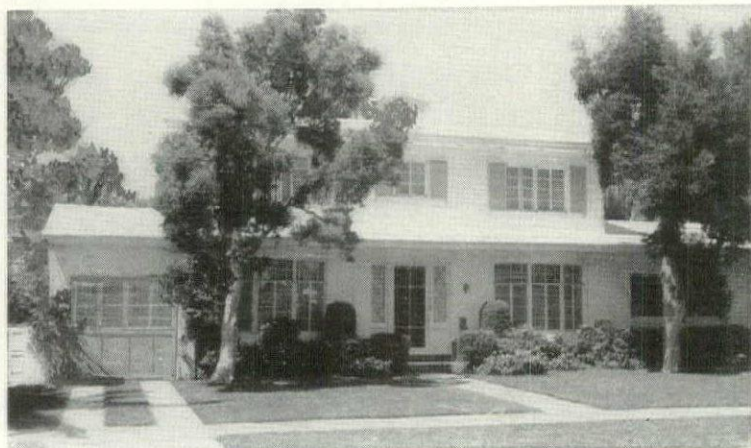


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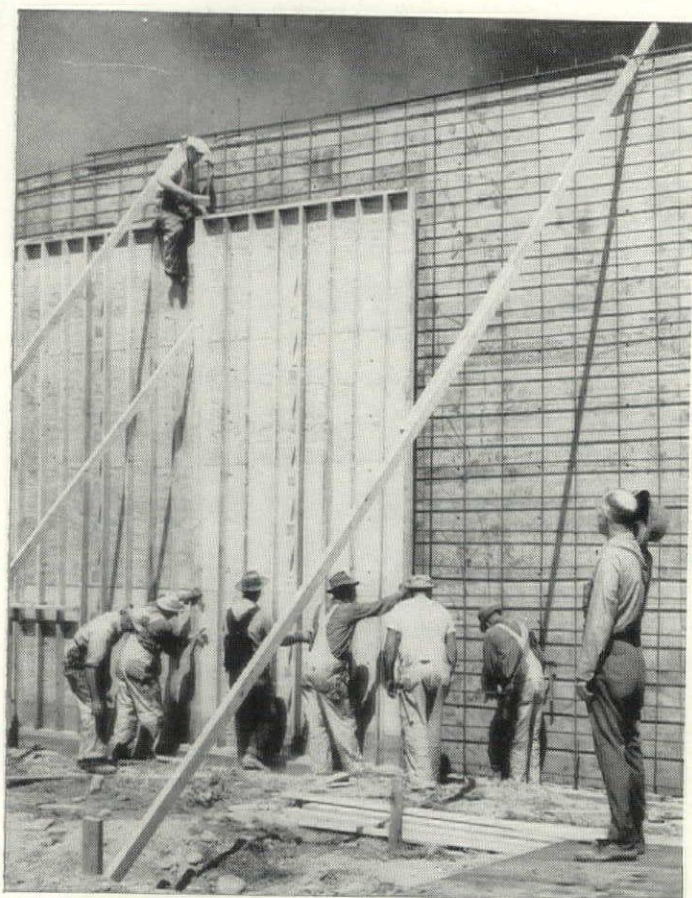
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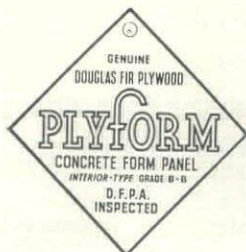


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BOX X. NEW EAGLE, PENNA.



Five 4 x 8 foot PlyForm panels, placed horizontally, made up the forms for the 20-foot walls on this job. Form units were kept intact and moved down the line for pourings as work progressed. Contractor for the job was Norman Strom, Tacoma, Washington.



PLYFORM — the multiple re-use concrete form panel of Douglas fir plywood — is now manufactured in strict accordance with the new grade specifications set forth in U. S. Commercial Standard CS45-48. Both faces are of B (Solid) veneer — smooth and firm, meeting virtually all concrete requirements.*

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"... easily handled ... produce stain-free finishes ... save money because of re-use factor ..."

ARCHITECTS Lance, McGuire & Muri, Tacoma, Washington, specified the new PlyForm concrete form panels for all pours on the new wholesale warehouse being constructed for Washington Hardware Company of the same city.

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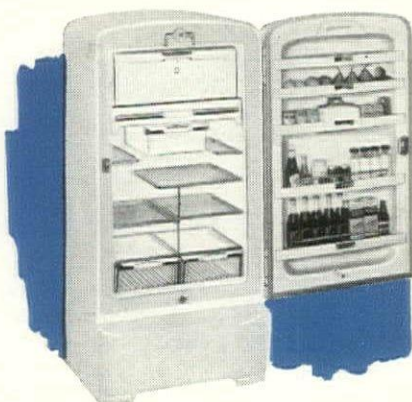
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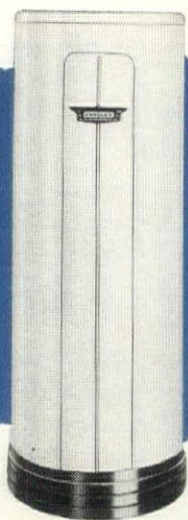
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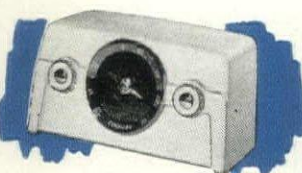
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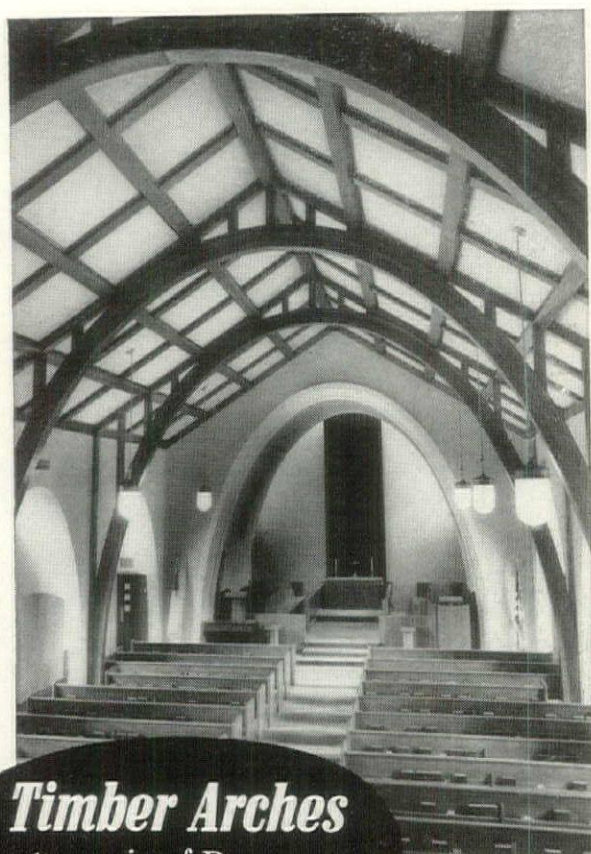
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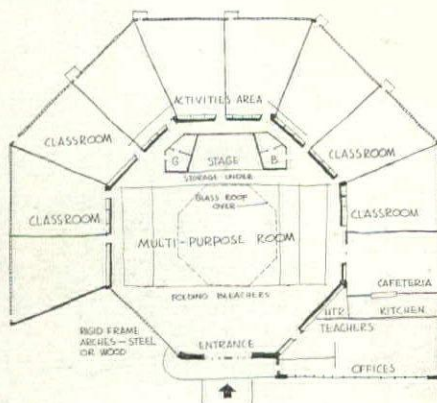
incorporate some normal windows without hurting his very fine plan.

SIMON BREINES, *Architect*
Pomerance & Breines
New York, N. Y.

Forum:

I am much interested in the school edition of October and have ordered five extra copies to hand to my friends on the School Board. I am particularly surprised in Mr. Nowicki's use of the circular plan with no corridors.

Shown below is a rough sketch of a similar design made by me in July of this year.



I have discussed the scheme with several superintendents in the surrounding area, and all have shown an interest and declared the idea as practical. I quote a part of my letter to the Director of State Building Facilities in explanation of my scheme. "I believe the solution represented could be expanded or contracted to comply with the requirements of nearly any building program, by merely adding or subtracting from the number of sides to the multi-purpose room. . . . With the lighting systems and glass materials now available the orientation of the classrooms is no longer as important as it was in the past. Also by using the small end of the room for an activities area the tapered room presents a logical solution to a combination classroom. Beside the obvious elimination of corridor space with the resulting saving in square foot area and cost, I believe this solution presents an extremely simple and economical construction problem. The entire floor could be poured first. Once the rigid frames are in place and purlins set the roofing over the multipurpose room could be asphalt, metal or glass with ceiling material of some commercial acoustic insulation board. By controlling the sound in the multipurpose room and placing wardrobes and closets at the end inside of the classrooms, I am sure the noise of the multipurpose room can be eliminated from the classrooms."

JAY ROBINSON, JR., *Architect*
Pasco, Wash.

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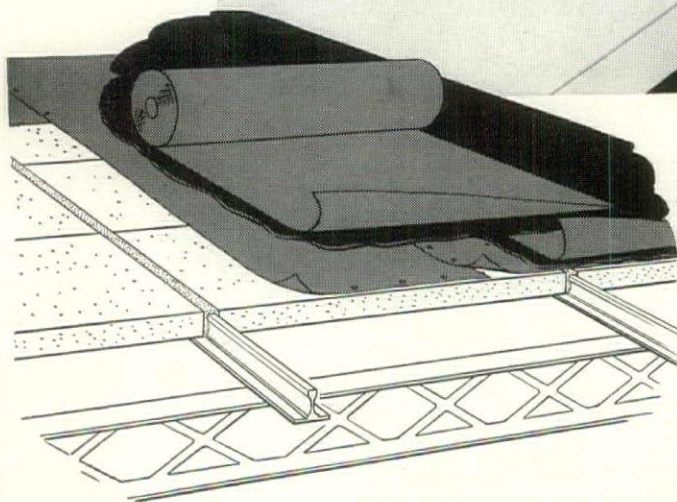
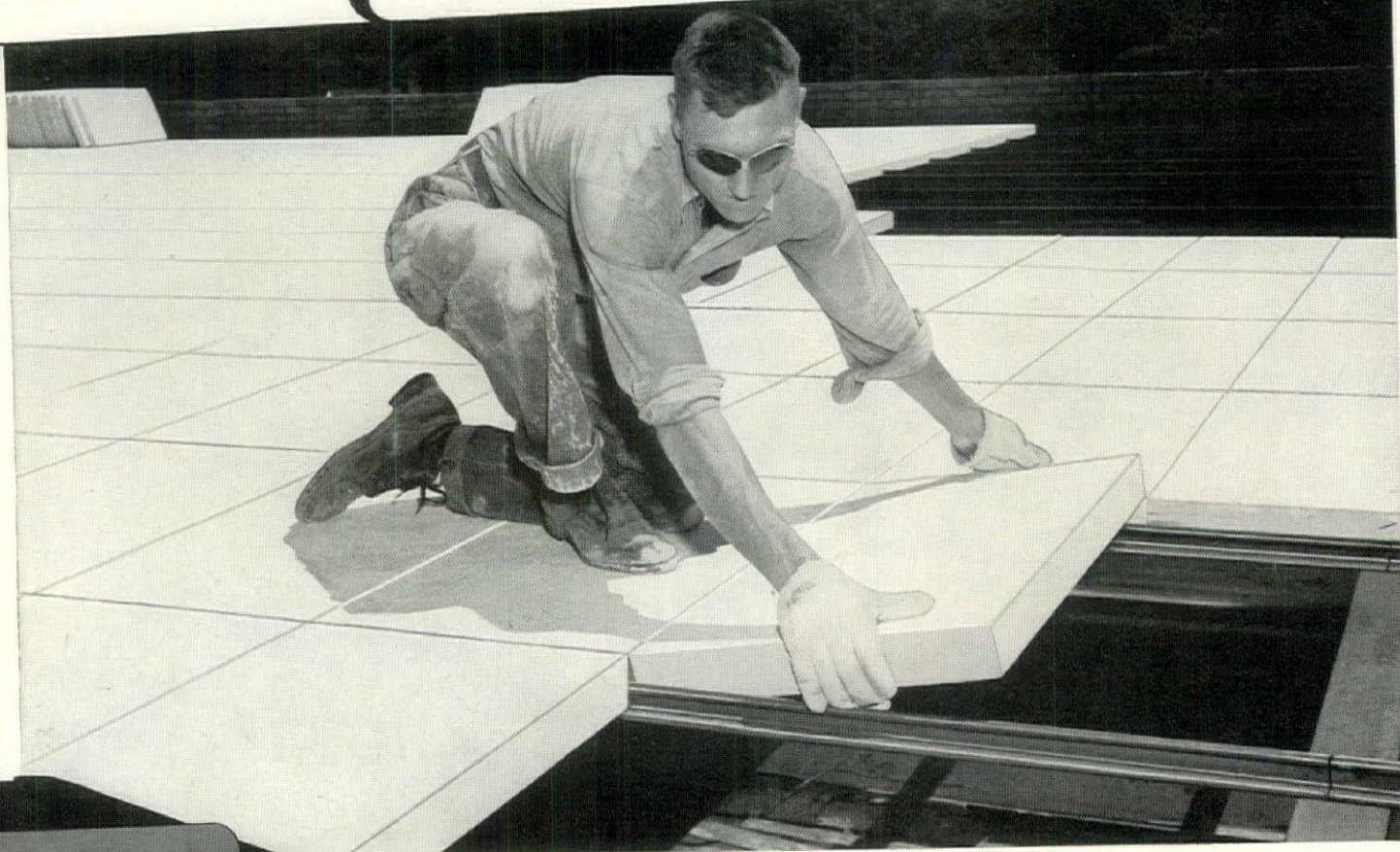
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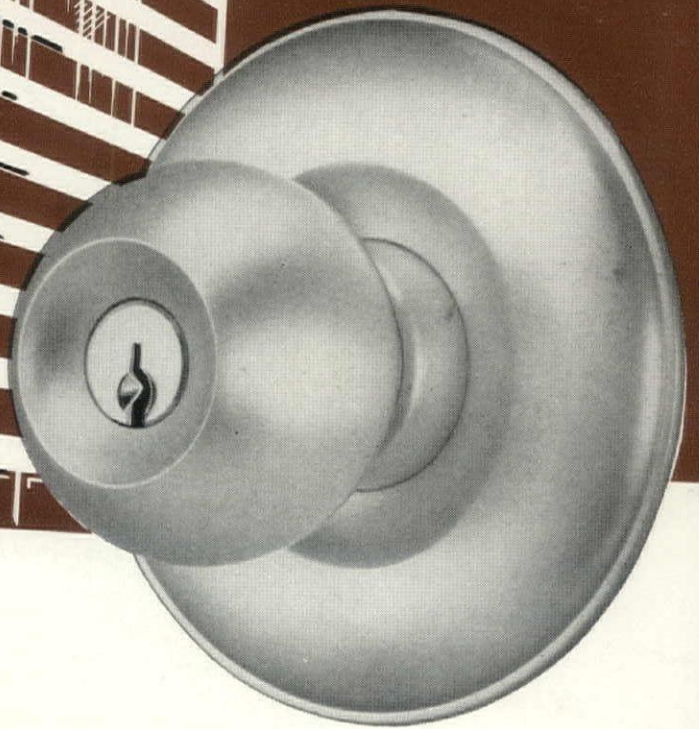
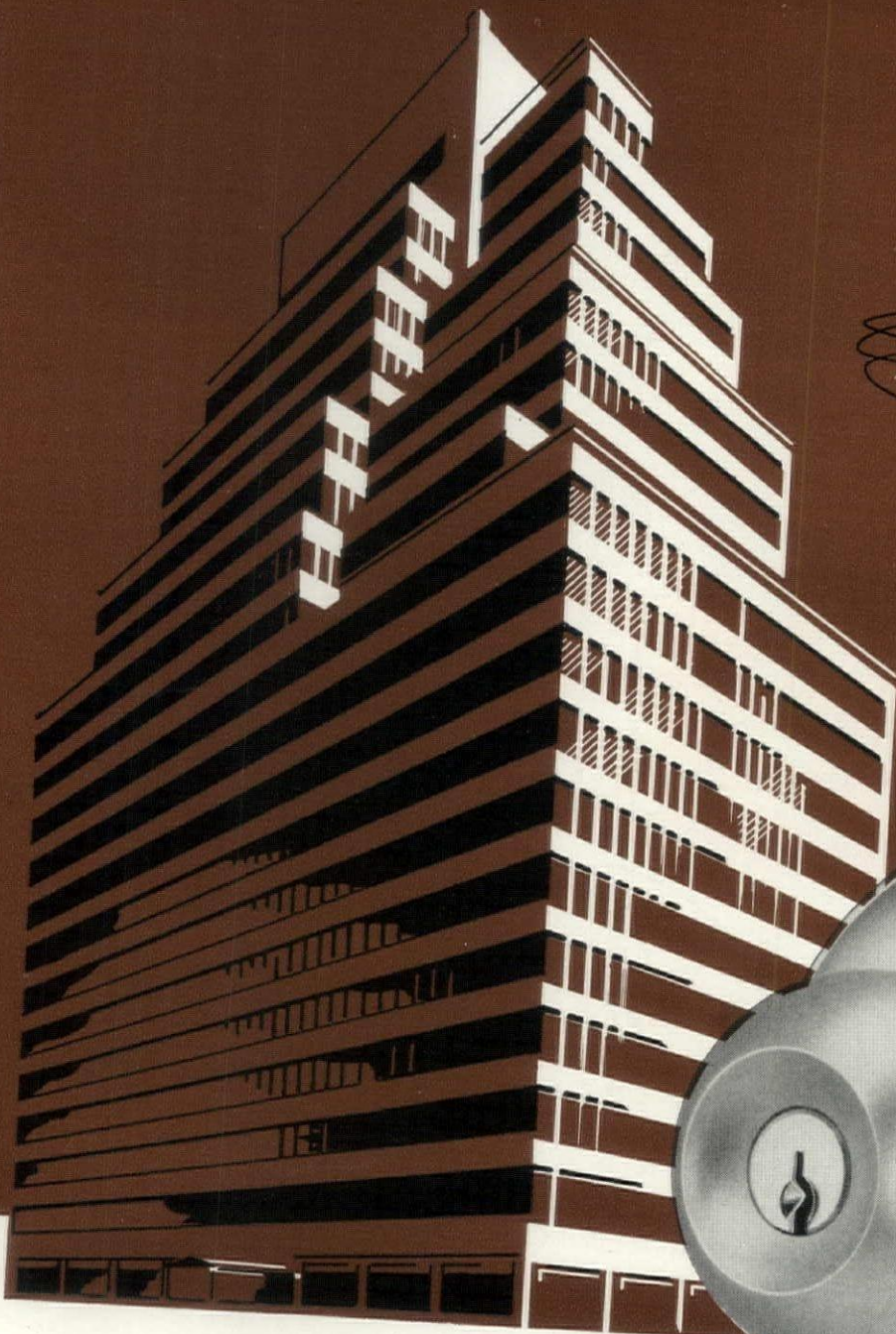
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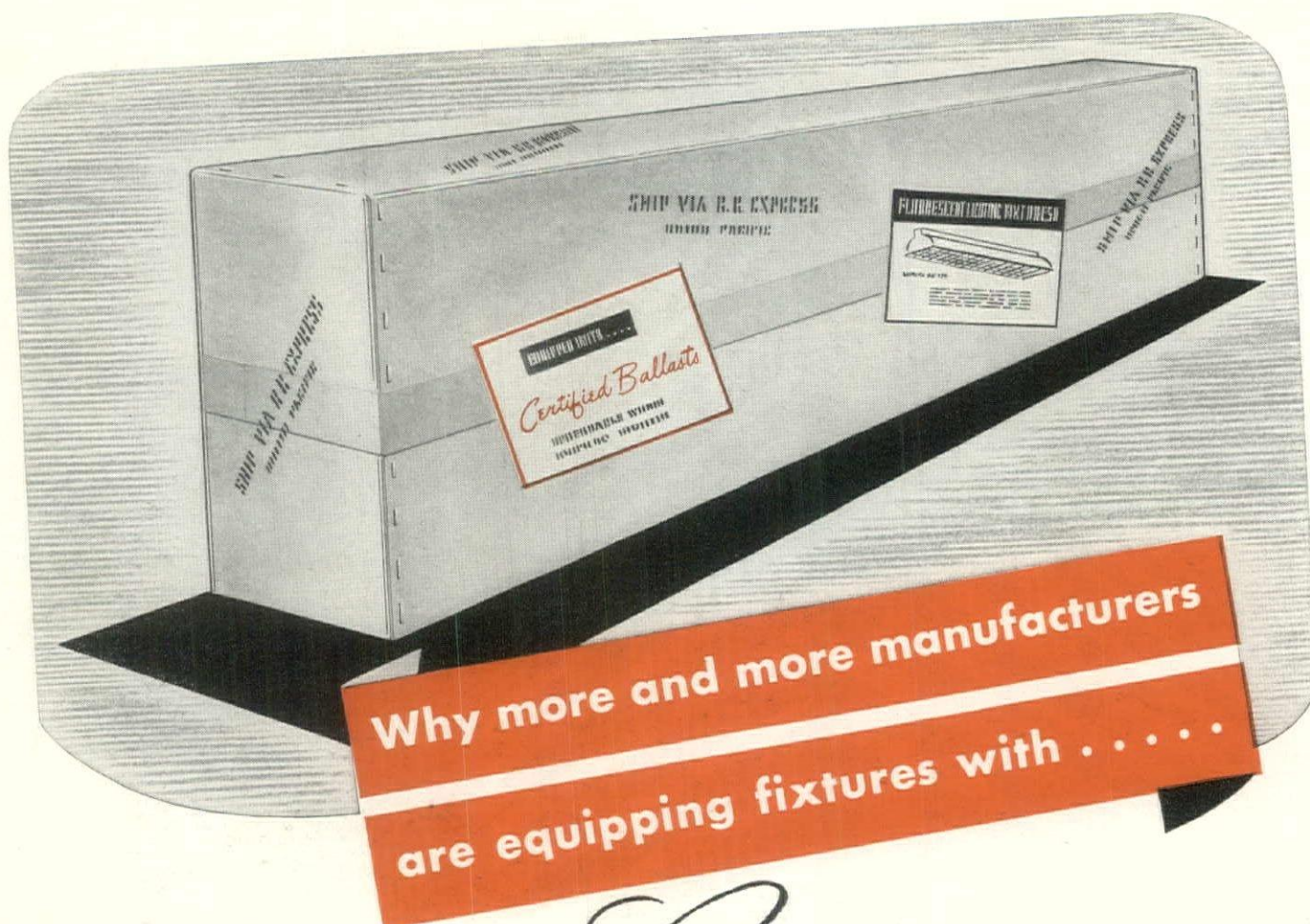
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a Schlage installation of heavy-duty cylindrical locks...Architects: Kahn and Jacobs

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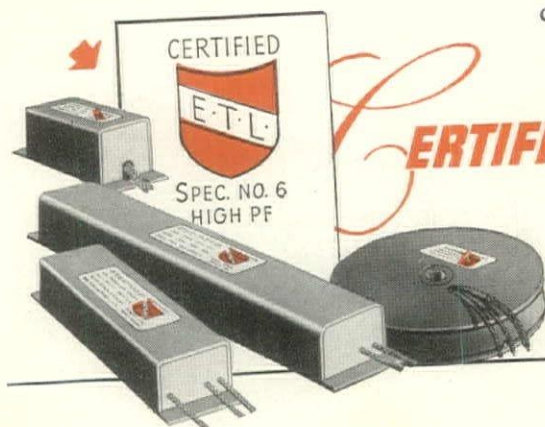
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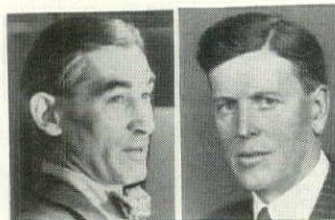
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LUMITE DIVISION, Chicopee Manufacturing Corporation of Georgia
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HUGH STUBBINS was born in Birmingham, Ala., 37 years ago, earned his Bachelor of Architecture in 1933 at the head of his class at Georgia Tech. Awarded a Harvard scholarship, he migrated north to win a Master's degree and at least seven different prizes in two short years. He has been an instructor at the Harvard Graduate School of Design since 1940, playing the dual role of architect and teacher, and peppering conservative Boston with some of the best examples of modern house design in America (p. 74).



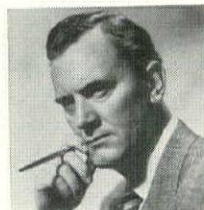
Architect **CHARLES GOODMAN** and Builder **ROBERT C. DAVENPORT** are responsible for Washington's newest modern subdivision, Hollin Hills (p. 80). Goodman has been on the Washington scene since 1934, when, as designer for the Public Buildings Administration, he fought stubbornly to banish "post-office Federal" architecture. He was wartime architect for the Air Transport Command, has been in private practice for 8 years. Davenport was in the Department of Agriculture for 13 years, became interested in building after joining a cooperative to erect his own home.



HARRY NAGIN, president of Reliance Homes, Inc. (p. 84), is a Russian-born civil engineer with a degree from Cooper Union. A prolific inventor, Nagin has 185 patents to his name, is generally credited with the design of the famous steel airport landing mats that achieved global fame in World War II. **CHARLES LAWRENCE**, Washington (D. C.) dealer-erector for Reliance, was a sociologist and public official (FPHA), and one of the first half dozen to receive Reliance franchises. Lawrence received his in July, 1948.



ALFRED SHAW, C. A. METZ and **JOHN DOLIO** are Chicago designers with a roster of clients covering the city's leading merchants (p. 90). Partners since 1947, Shaw is the architect, Metz the structural and Dolio the mechanical engineer. In association with others, the trio has helped design some of Chicago's best-known structures, among them, the Merchandise Mart, the Field Building and the Dodge Chicago Plant. Shaw's old firm was Shaw, Naess & Murphy. Metz and Dolio have been practising engineers in Chicago for more than two decades.



BURTON SCHUTT, designer of the sumptuous Innes Shoe Store (p. 92) has designed buildings for many tropical climates. His structures have flourished in the heat of Mexico, Hawaii, Guatemala and Brazil, as well as in our own southwest, from Los Angeles to New Orleans. Schutt came to Los Angeles at the age of 16, worked his way through art school as an apprentice in the building trades. He is well-known for the Bel-Air Hotel in Beverly Hills, a successful project which he both backed and designed.



Architect **OSCAR STONOROV** was born in Germany in 1905, worked his way ever westward as he studied in Italy and Switzerland (under Karl Moser), then France (under Sculptor Aristide Maillol), and finally the U. S., in 1929. Stonorov has practised architecture here since 1932, first with Alfred Kastner in New York, then with George Howe and Louis I. Kahn in Philadelphia, and now alone (p. 94). An early public houser, Stonorov was consultant to PWA in 1933, and architect (with Howe and Kahn) of Carver Court, prize-winning public war housing project outside Philadelphia.



Architects **WALTER SANDERS** and **ARTHUR MALSIN** became partners in January, 1946, shortly after their return from overseas duty with the Army and Navy, respectively. When Sanders was appointed this fall to the faculty of the Architectural School of the University of Michigan, he opened a branch office in Ann Arbor, leaving Malsin and **DON REIMAN**, a recent associate, behind to run the New York practice. The firm specializes in residential and commercial work (p. 96), industrial research and product development.



Lamps that make you hungry

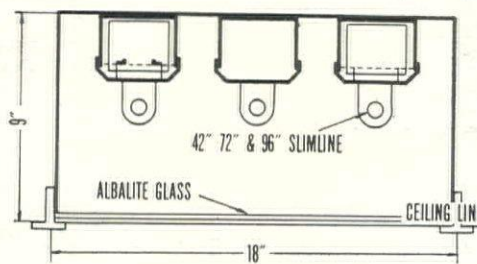
REMODELING and relighting with General Electric fluorescent lamps helped increase business 136% in one of Thompsons Restaurants (Chicago) shown above.

Management says the new lighting "... attracts the attention of passersby ... makes the food appear more appetizing than ever before."

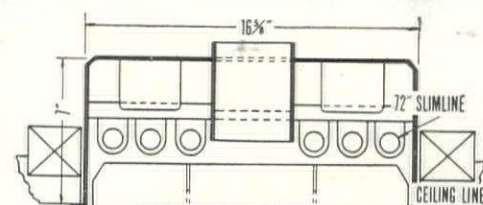
General Electric slimline fluorescent lamps in modern fixtures are used over the entrance and just inside the front window. Their high light output attracts customers. The long, unbroken lines of light give a clean, modern effect.

Other G-E slimline features important to owners are instant starting (no starters needed), ease and economy of maintenance and long life.

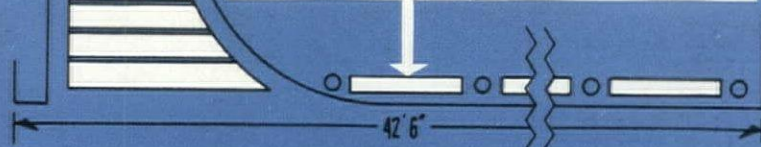
Whatever lamps *your* design calls for, specify General Electric. There are more than 10,000 types and sizes of G-E lamps to choose from, all constantly improved by research to **STAY BRIGHTER LONGER.**



Slimline lamps highlight entrance. Use of 3 sizes permits curved effect.



Slimlines in 6-lamp fixtures are placed just inside front window, attract customers.



8' G-E slimline fluorescent lamp



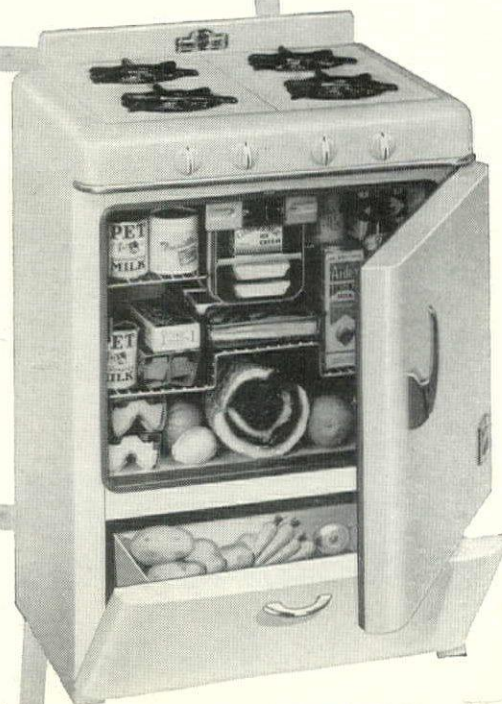
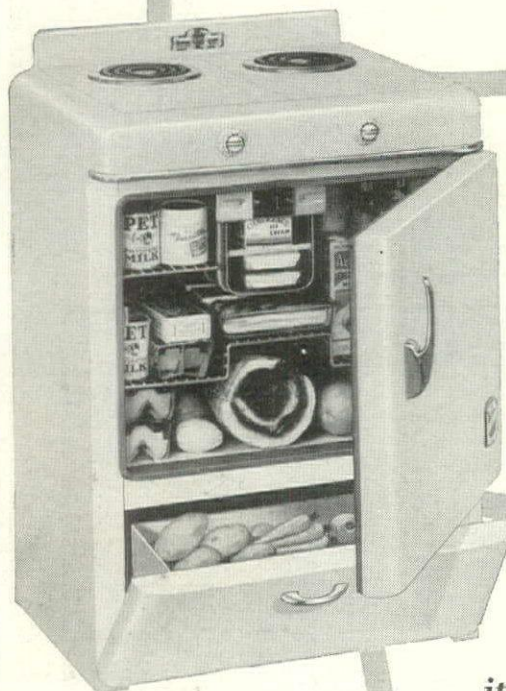
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Due to triple insulation, cooking heat does not affect refrigerator temperatures. A hermetically sealed, self-oiling Tecumseh compressor provides refrigeration, with seven-station temperature control. Hardware is triple chrome plated.

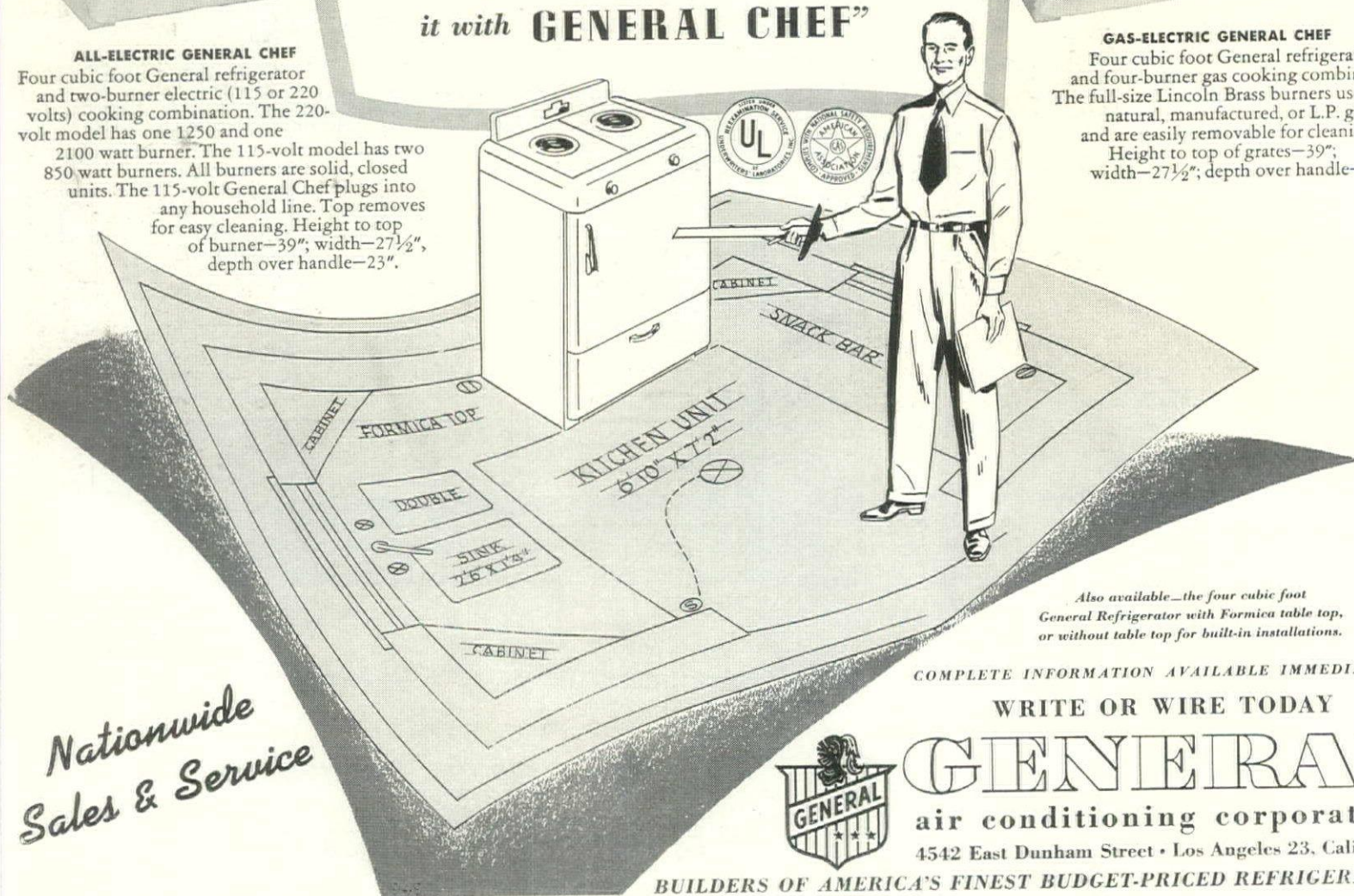
*"J.B. said we couldn't lay out a good kitchen this size. We did it with **GENERAL CHEF**"*

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GAS-ELECTRIC GENERAL CHEF

Four cubic foot General refrigerator and four-burner gas cooking combination. The full-size Lincoln Brass burners use natural, manufactured, or L.P. gases and are easily removable for cleaning. Height to top of grates—39"; width—27½"; depth over handle—23".



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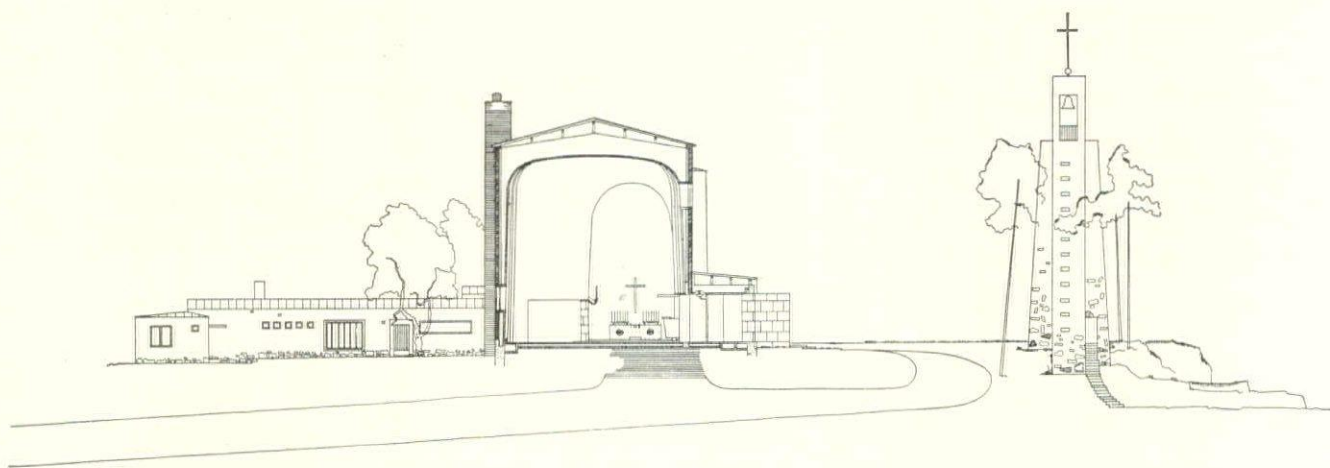
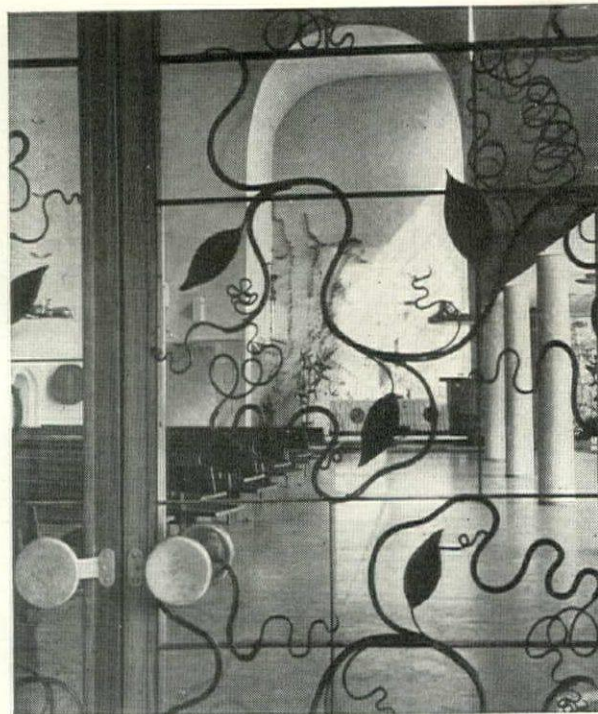
V. A. Wahlström

Can today's **CHURCH** contribute importantly to today's architecture, as did the church in ages past? Can contemporary architecture meet the spiritual needs and economic limitations of today's church as did the design of the Colonial meeting house, the Gothic cathedral, and the Egyptian temple? Such are the questions explored on the pages which follow.



CHAPEL AT ABO, FINLAND. ERIK BRYGGMAN, ARCHITECT

This chapel, shown also on the frontispiece, offers convincing proof that contemporary architecture, using such modern materials as plate glass, can create a really beautiful church. The entire south wall is glass and sunlight, playing through the surrounding firs, gives the interior an ever changing pattern of light. Pews are angled slightly toward the glass wall. The garden entrance (upper right) is a free standing masonry unit ornamented in bas-relief. Brick and concrete are the structural materials with walls finished in white plaster.



IN our generation the church is contributing little if anything to architectural progress, and contemporary architecture is contributing very little to the church.

Seldom, if ever before, has this been true. From the dawn of history to the mid-Victorian age the building of temples and churches was the highest form of architectural expression. The great buildings of Egypt were temples. The great buildings of Greece were temples. The great buildings of the Middle Ages were cathedrals. The most beautiful buildings of our own Colonial and early Republican days were churches. Through nearly five millennia ecclesiastical architecture set the pace and pioneered the development of architectural styles and forms which were later borrowed and adapted to secular architecture.

Even in Victorian times, when ugly churches proliferated over the world in amazing numbers, it could at least be said that church builders were doing their best to keep up with the times. If a General Grant church was no thing of beauty, it was, at any rate, on a par with most General Grant domestic and public architecture.

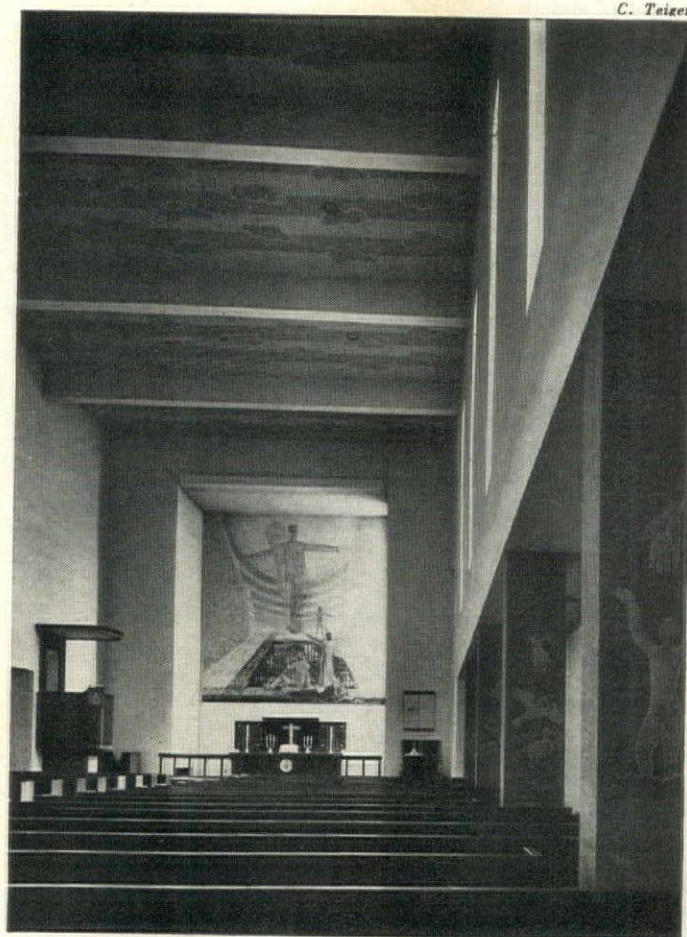
Only in our own generation has religious architecture broken away from the present. About the time that secular architecture began reaching forward for a new and truly contemporary idiom to replace the eclecticism of the turn of the century, church architecture in America took just exactly the opposite turn toward the past.

Most of the resultant churches have shown far better taste than their Victorian predecessors. Many of them have been excellent. Quite a few have, in fact, been worthy to rank side by side with the great churches erected in times long past. But almost without exception the houses of worship erected in this country since 1920 could more appropriately have been built in England about the time of Crecy and Agincourt or in Colonial America in the reign of George III. Its most famous architect spent his winters in a furnaceless Massachusetts house to put himself in the mood and spirit of long past centuries in order to design more perfect anachronisms.

Groined vaults to laminated arches

What kept the religious architecture of the Middle Ages great and vital through many centuries was its constant quest for new means of architectural expression in stone and glass, its unceasing use of new knowledge, new resources, new devices, new materials—groined vaulting, skeleton construction, diagonal ribs, sexpartite vaulting, pointed arches, flying buttresses, lierne vaulting, fan vaulting, pendant bosses, jeweled glass window tracery and half a hundred other new ideas each opening new opportunities for structural development or decorative advance.

In our generation, more new tools, more new materials, more new techniques have been placed at the disposal of

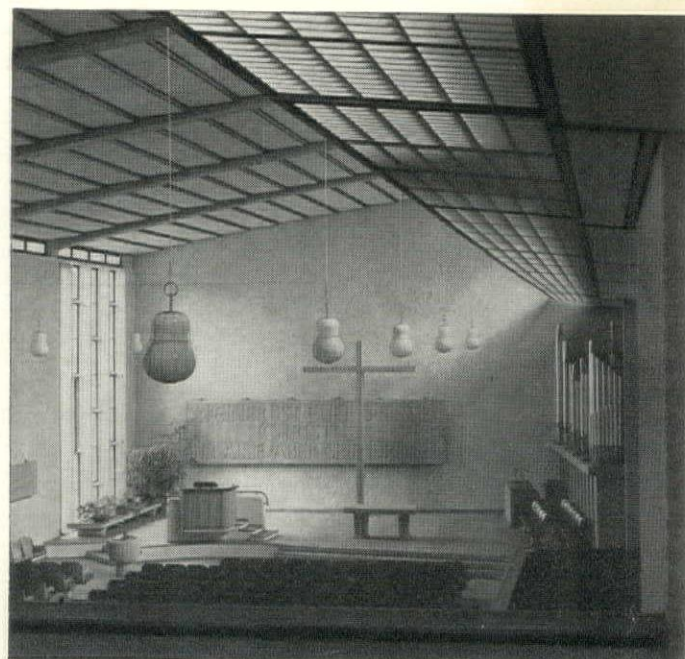


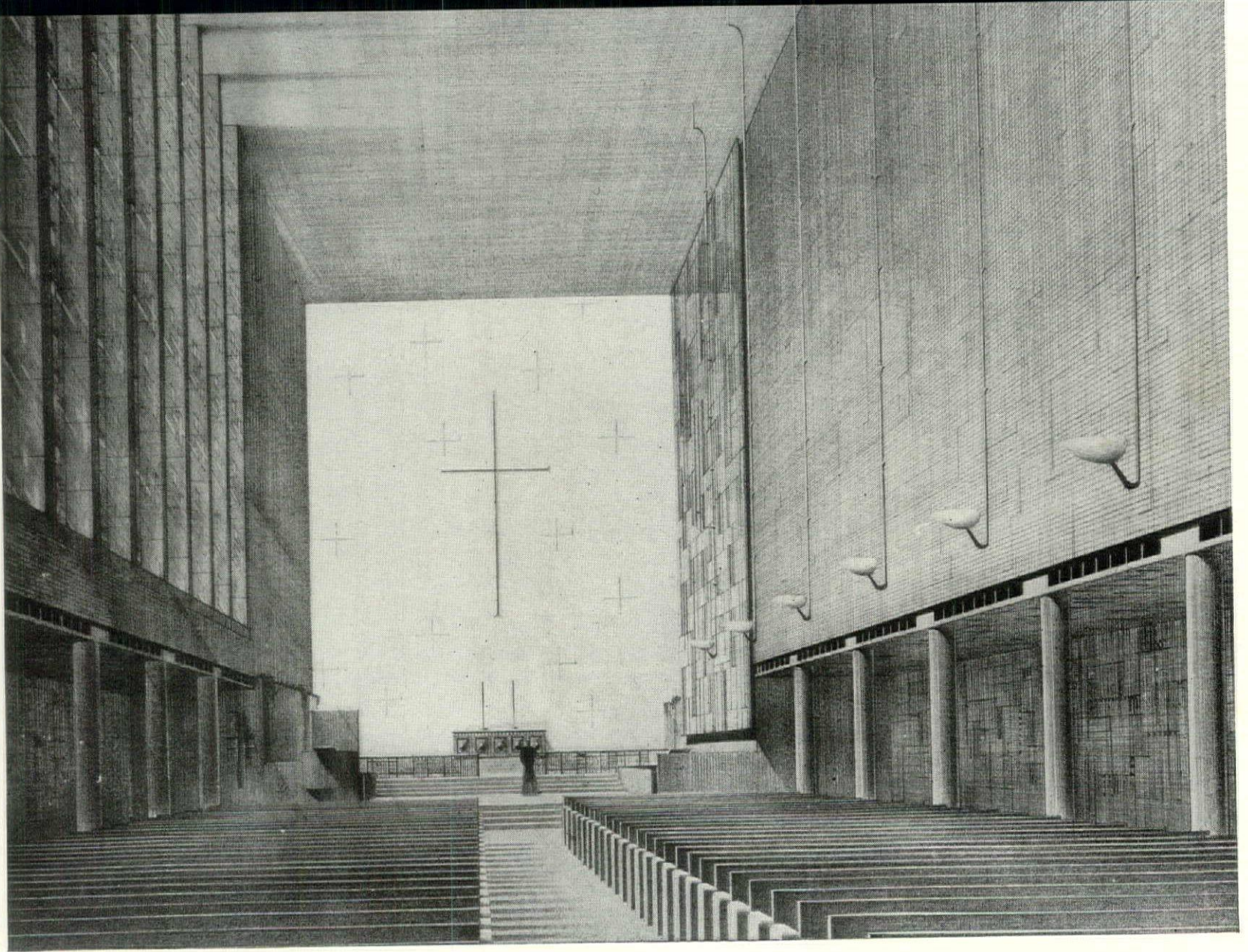
NOTODDEN CHURCH, NORWAY.
DAGFINN MORSETH & MADS WIEL GEDDE, ARCHITECTS

Demonstrating how vigor and simplicity can be used as elements of dramatization, the design of this church places admirable emphasis on the altar and mural above.

Swiss church (below), one of the finest in the country, has clerestory lighting softly diffused by means of a pierced overhead screen. The asymmetry of the structure is counterbalanced by the altar arrangement which, against a slightly canted wall, creates a handsome interplay of line, form and texture.

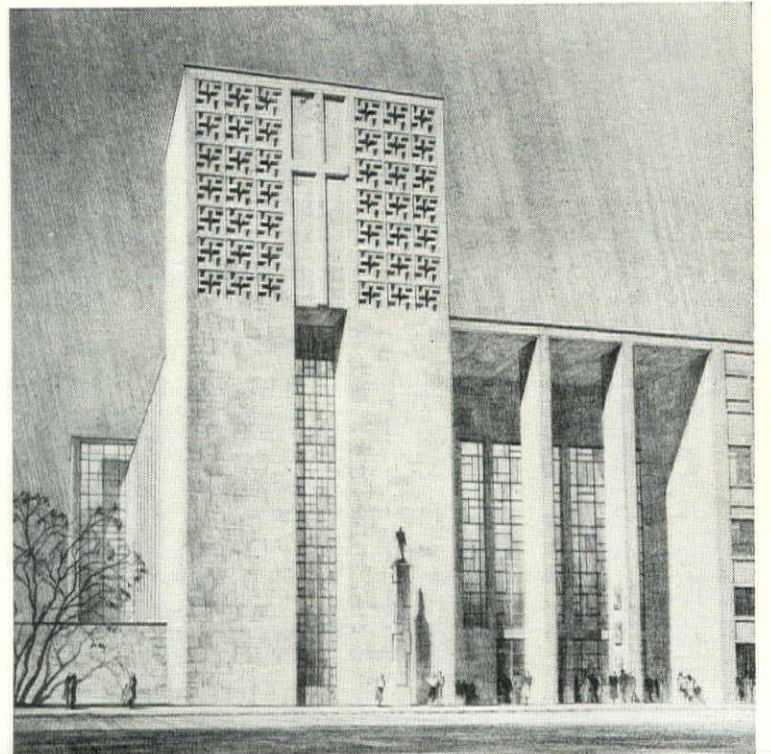
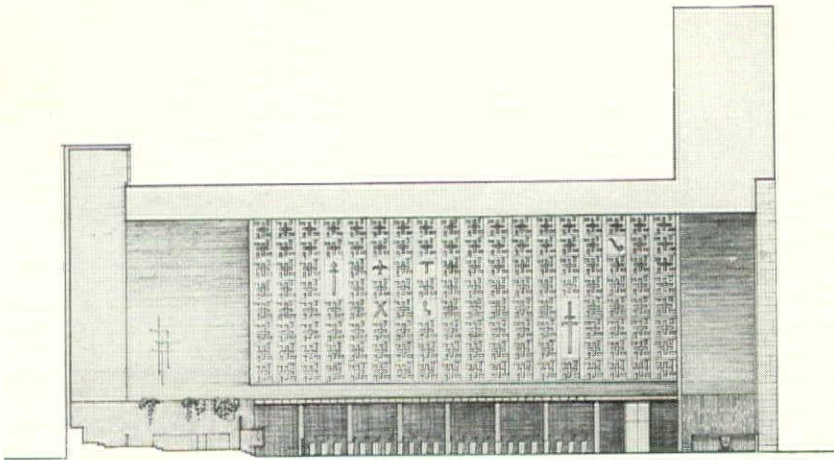
REFORMED CHURCH, ZURICH, SWITZERLAND
WERNER MOSER, ARCHITECT

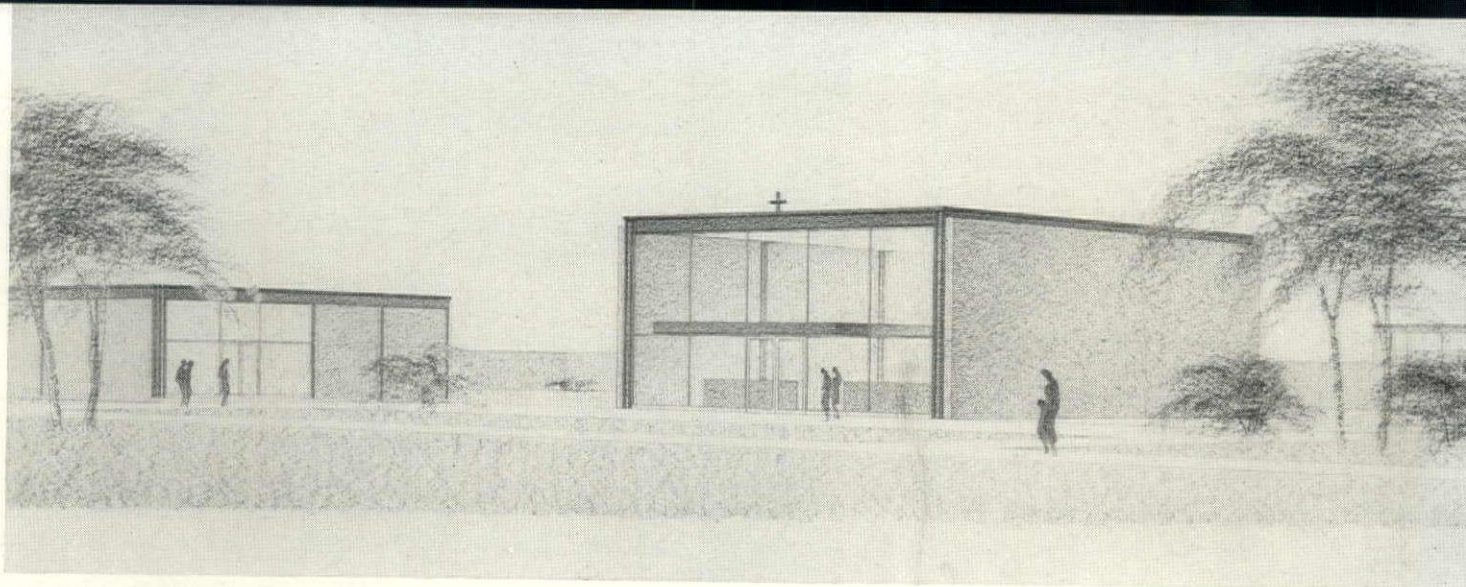




CHRIST CHURCH, CINCINNATI, OHIO
SAARINEN, SAARINEN & ASSOCIATES, ARCHITECTS

Like Saarinen's church at Columbus, Ind., (see cover), this is a good illustration of the dramatic effect achieved through scale and careful proportioning. The absence of all mystical implication was a wish of the church body. Characteristically, Saarinen offsets the blankness of vast flat areas by facing them with tapestry-like texture particularly noticeable in the vast pierced wall over the west colonnade and in the wood screen to the right of the altar. While still in the study stage and yet to be approved by the congregation, it is estimated that the church, including furnishings but excluding basement, will cost roughly \$1,136,000, or about the amount of a most Gothic reproduction of the same cubage.





CHAPEL, ILLINOIS INSTITUTE OF TECHNOLOGY. MIES VAN der ROHE, ARCHITECT

Hedrich-Blessing Studio

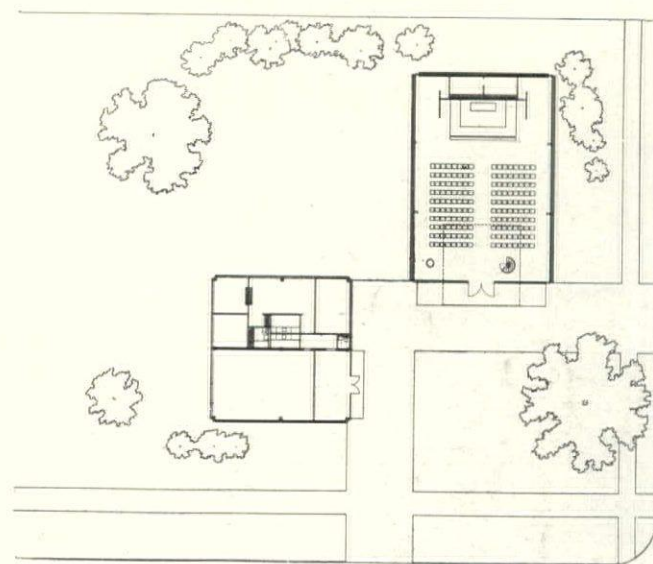
church architects than the Middle Ages ever dreamed of. But the adventuring spirit of the medieval builders has somewhere been lost. Among all the thousands of churches, Protestant and Catholic, on which so many millions of dollars have been lavished in the past three decades, not more than a few dozen have made any attempt to take advantage of present day building techniques to develop a religious architecture in keeping with our times.

Secular architecture today is so far ahead of secular architecture in the 13th Century that any comparison would be too absurd even to consider. But of our religious architecture, the best that can be said is that some of our recent churches could have been built 700 years ago.

In quantity and dollar expenditure, ours is probably a great church-building age. Congregations which pay hardly more than a living wage to their ministers are ready to spend up to a quarter of a million dollars on the bricks and stones of a new church. The Protestant denominations alone have more than a billion dollars worth of church construction planned. Much of that billion dollars will be spent on the strange effort to prove that church architecture can disregard all the progress the world has made since Magna Charta and build the way men built who could remember Coeur de Lion and Robin Hood. Very little of it will be spent utilizing the new tools and techniques unknown to our forefathers which might make possible a contemporary architecture more moving and more spiritually satisfying than that of any other age.

Clergyman, parishioner or architect?

Some architects place the blame for the backward march of church design on the congregations. They assert that rigid traditionalism is almost universal in both clergy and parishioners. But churchmen in all past generations have shown such a willingness to seek new architectural expression for their religious aspirations that this rigid traditionalism, if true, is in itself a surprising new phenomenon.



This rectangular hall proposes the ultimate in simplicity. The facade is entirely of glass, the other three walls of uninterrupted brick. A suspended mezzanine over the entrance accommodates the choir. Structure is an exposed steel frame with an acoustical ceiling suspended under the girders.

"Whether we like it or not, the cost of labor and materials is forcing modern design but we seem to be in the middle today and are groping for something different."

FRANKLIN X. MCCORMICK, *Editor & Publisher*
Church Property Administration

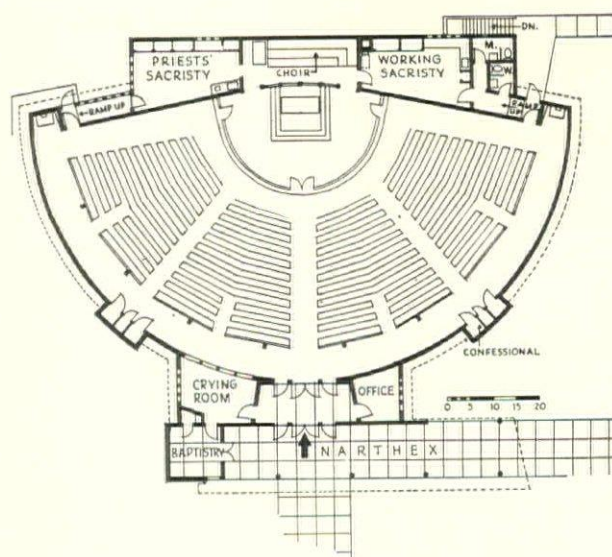
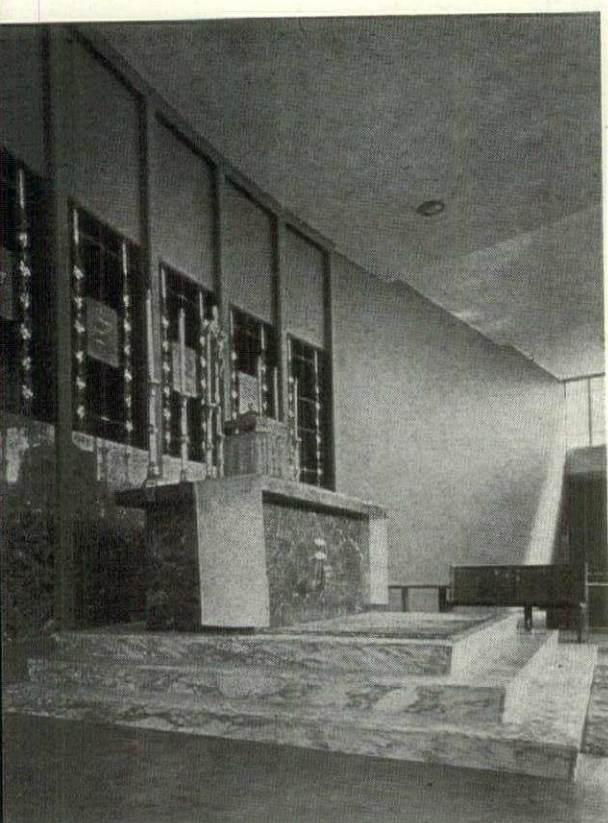
"There is something about the Gothic style which enables one to use the arch of the church as a tool, if for nothing more than to achieve spiritual atmosphere."

MERRITT FARREN, *Secretary*
Joint Commission on Church Architecture
and the Allied Arts of the Protestant
Episcopal Church

"A building functioning as a church should look like a church without having to stamp it with a cross."

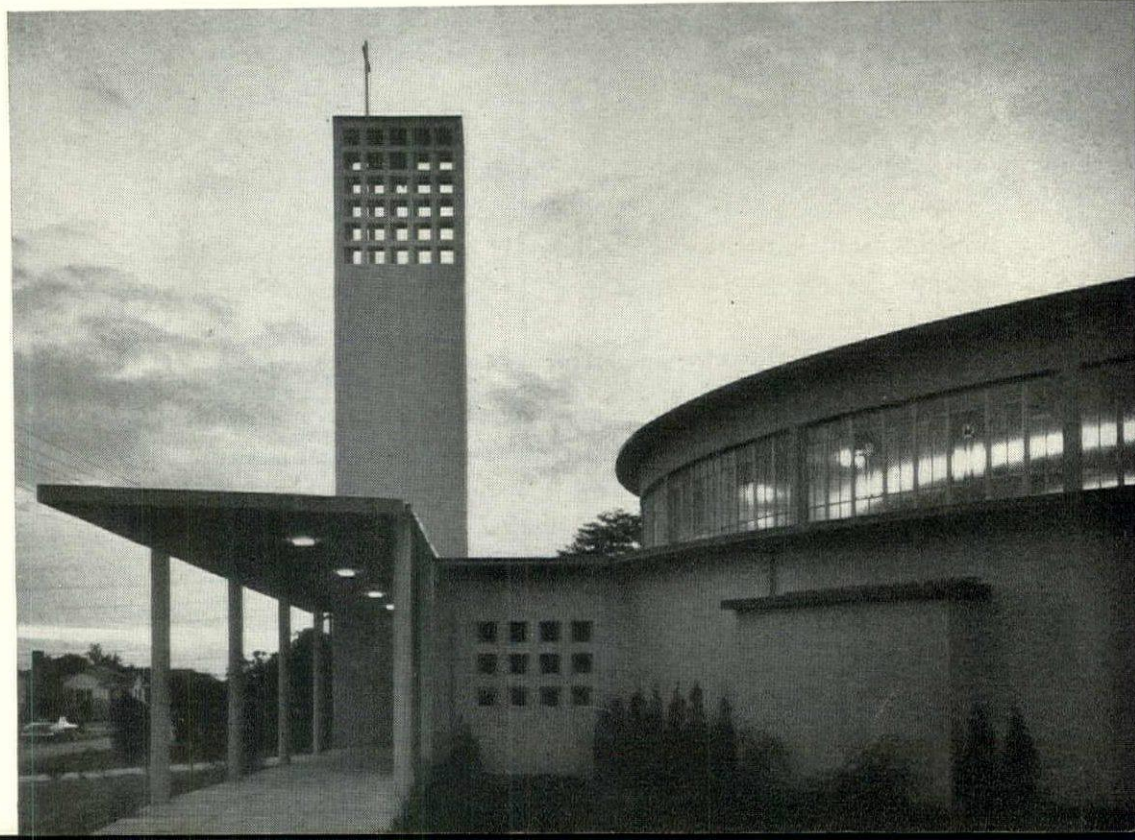
CLARENCE W. HALL, *Managing Editor*
Christian Herald

CHURCH OF CHRIST THE KING, SEATTLE, WASH.
PAUL THIRY, ARCHITECT



Charles R. Pearson

This church represents a radical break with traditional Catholic architecture in the U.S. Its semi-circular plan, seating 500, places no worshipper more than 50 ft. from the altar. A high clerestory window admits light from three directions, all of it directed toward the altar. A special effort to have the exterior of the building reflect the interior function explains projecting confessionals. The "crying room" permits babies to attend mass in audio-isolation. This church, built for \$300 a seat, contrasts sharply with Saarinen's Cincinnati church (p. 60), which will probably average about \$2,272 per seat.



Critics of the church would say that the failure of the church architecture to keep abreast of our times is a reflection of the failure of the church itself to keep abreast and to hold the same position of prestige and authority it held in the 13th or the 17th Centuries. Others would say the return of the church to earlier models expresses the turning back of Christianity itself to an earlier spirit.

Critics of Victorian architecture would offer a simpler explanation—that the church was so disillusioned by the ugliness achieved by its more experimental ventures two generations back that the church in our time has been well advised to experiment no more.

Perhaps a better explanation is that so far our best contemporary architects have offered churchmen so little alternative to a safe return to the tried and true architectural beauties achieved in other times.

Some architects, like Pietro Belluschi (whose comments on contemporary church architecture appear on page 72), maintain that modern architecture has almost invariably failed when it attempted to create something that would satisfy the emotions and the spirit rather than the mind alone, and question whether our modern architects can, in fact, create a new monumental architecture for the church.

A new church architecture

As for traditionalism among churchmen, Belluschi reports that every church client has begun by asking him to design a Gothic church. But when he told them he loved the Gothic far too much to design a cheap imitation, and gave them figures on what a really good Gothic church would cost, he found them more than ready to work out with him a contemporary solution to their needs.

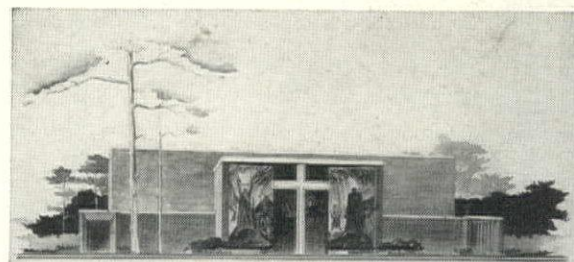
Certainly it is true that very, very few contemporary churches have been built which can invite comparison with the great churches of the past. It has taken months to assemble from home and abroad the examples presented pictorially on these pages of the FORUM. Perhaps a dozen other churches could have been included in the collection. Few as they are, however, they do show the possibility of a new church architecture which could make its own contribution to the same sort of mystic experience offered by Chartres and Notre Dame; a new architecture that would not dissipate the building resources of the parish on the imitation of obsolete methods but would rather call upon today's new techniques to create a new type of beauty.

A survey by the FORUM reveals that more than half the leading contemporary architects have done no recent church work whatsoever and consequently have played no part in the development of a contemporary church architecture. Now a real effort is being started to organize the participation of the best modern architects. Perhaps the time will soon come when congregations will indeed be offered an inspiring alternative to Gothic and Colonial.



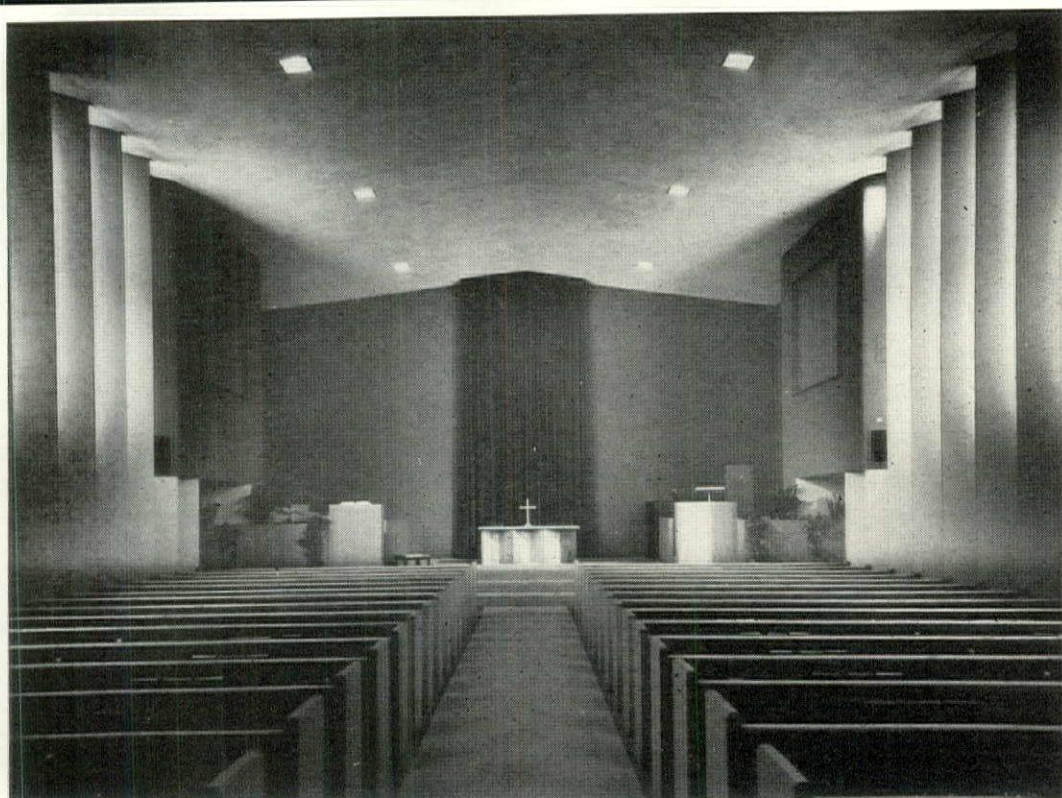
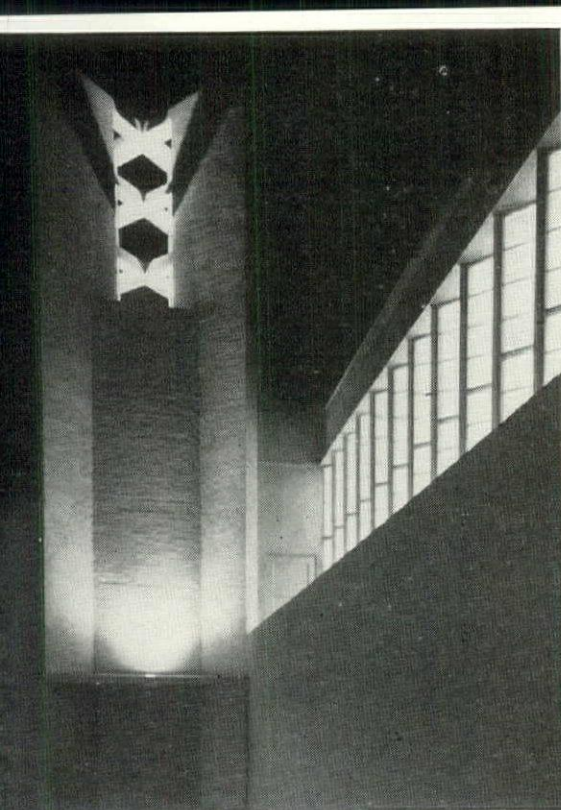
ST. CLEMENT'S CHURCH, ALEXANDRIA, VA.
JOSEPH H. SAUNDERS, ARCHITECT

Dark windowless walls and a ceiling studded with pin-point lights that render it almost invisible impart an unusual and dramatic mysticism. The church is treated much as a theater in the sense that the enclosure is entirely subdued—virtually ignored—in favor of the pagent. The building is rectangular in shape but the seating arrangement (plus lighting) gives a circular effect with the audience clustered around the central altar. Aside from its striking atmosphere, this design permitted the use of very economical building materials, a saving on cubage and circumvention of a familiar pit-fall: artificial and natural light canceling out each other. Exterior (below) reiterates the simplicity of the interior.



"The attitude of the Catholic Church toward contemporary architecture is one of benevolent indifference. It is still under the influence of the romantic past. Church people say they are being 'prudent' when what they mean is 'timid.' Ordination has not bestowed architectural knowledge on the clergy."

MAURICE LAVANOUX, Secretary
Liturgical Arts Society, Inc.



Photos (top), George Geyer

FIRST CHRISTIAN CHURCH, TUCSON, ARIZ.
ARTHUR T. BROWN, ARCHITECT

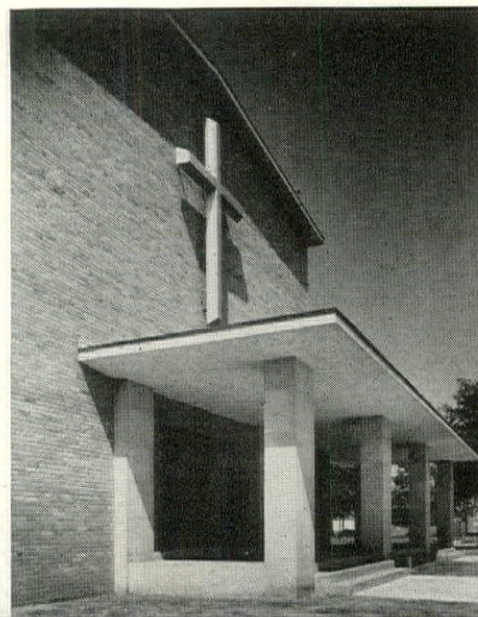
The worshipful, restrained quality of this church has been achieved principally through the handling of light, though texture and color also play an important part. The tall side louvers do more than to hide windows and to channel the light toward the altar; they also conceal the side aisles. The privacy they provide for people entering the church, arriving late, has turned out to be an important psychological factor. Incidentally, white cathedral glass was used for the windows which explains the mellow quality of the lighting. Interior colors range from yellow to very dark green with touches of terra cotta.



REDEMPTION LUTHERAN CHURCH, DETROIT, MICH.
EMMERLING, SPELLICY & HARTMAN, ARCHITECTS

In this church extreme emphasis has been put upon the chancel by the brilliantly illuminated cross behind the altar and, by the absence of any other lighting except that shining up from a cove on the righthand wall. The severe lines of the interior are relieved to some degree by a swastika-like pattern at the windows and by the fretwork flanking the altar. Exposed laminated timbers support the church's low pitched roof. Recently completed, it cost about \$.66 per cu. ft. to build.

Photos: John S. Coburn



NOTES ON CHURCH DESIGN

Because, before God, man is at his simplest, the contemporary idiom seems the most natural in the world for church design. As the primary instrument of man's religion the church deserves an architecture as vital and forthright in expression as his hard won privilege to worship according to his belief. Therefore, if it is true that the church is timeless, unscathed by and transcending the rough hand of history, should it not, symbolically, appear as a modern manifestation of the best inspiration, talent and technique?

The contemporary architect is more than justified in turning to the emotional elements of the Gothic cathedral for spiritual inspiration, but his interpretation should be solely through the materials and techniques of our own age.

However, where architects and churchmen alike have been unable to create a new contemporary standard for religious architecture, the FORUM certainly will not attempt to lay down any set of prerequisites. Instead, here are a few notes on the problems posed:

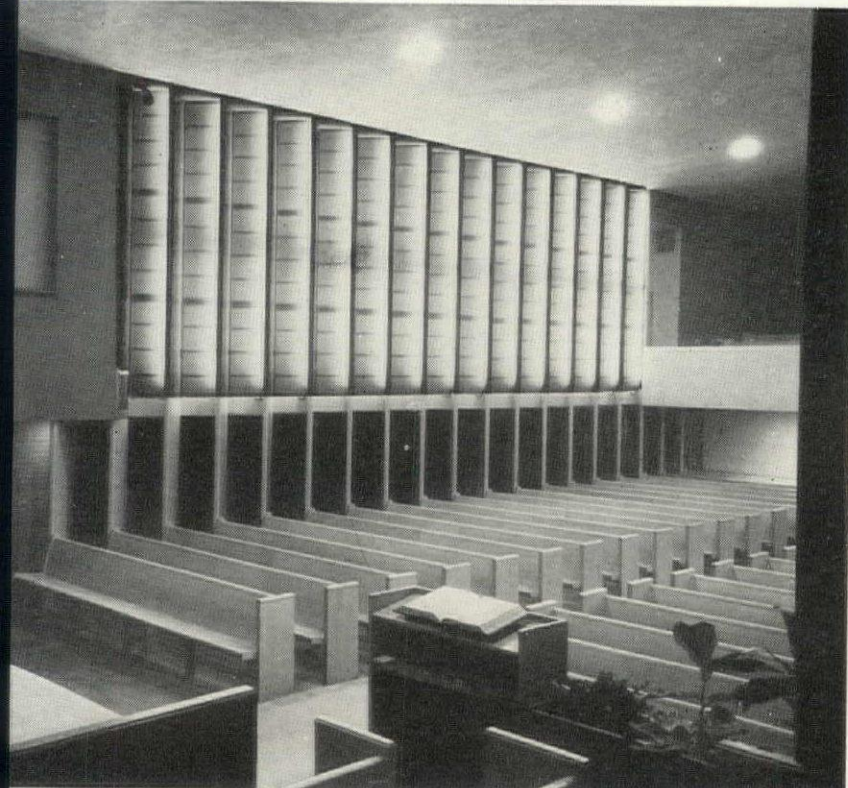
The machine age with all its conveniences and comforts has affected the church no less than it has the life of the individual. Stepped-up transportation, shifting population, the growth of cinema, radio and television have delivered a severe blow to the church as the nucleus of community life. In the new social aura the bite of man's conscience in terms of his religion has lost much of its sting. Huge individual endowments to the church have decreased in number. The future does not promise many more gifts comparable to those of Rockefeller and Mellon. Therefore it does not seem rash to prophesy that the completion of New York's St. John the Divine may mark the end of great cathedral construction in the U. S.

An expendable building

When, as in the middle ages, the church was a divinely mandated institution, claiming power in heaven and holding both economic and political dominion on earth, the wealth of the community and the bounty of the nobility poured into its coffer. This made possible the concept of the great Gothic cathedrals—eternal monuments to the glory of God and perpetual tribute to the artisans of the age. The church of the future, however, will have to be regarded as expendable. New York is currently witnessing the impact of present-day economy on the traditional concept of the church: the dramatic demolition of the Collegiate Reformed Church of St. Nicholas, which Frank Lloyd Wright declared the finest in New York. Located on one of Fifth Avenue's costliest and most coveted corners, it will make way for an office building. True, the Consistory will realize a substantial income from the site, but from a business viewpoint, the church's 77-year life span hardly justified its costly construction and elaborate Gothic ornamentation.

Wildly fluctuating values and the nomadic urge inherent in twentieth century living dictate that the life expectancy of the modern church should not greatly exceed that of other architecture. With so many denominations competing for survival and expansion within the U. S., it follows that the future of church construction will produce a quantity of small neighborhood churches rather than a few costly and imposing edifices. And with neighborhood complexions—not to mention current building costs—changing as rapidly as they do, it makes sense for the modern church to be economically constructed.

Despite the church's apparent reluctance to accept contemporary architectural forms, its cognizance of today's trends and values is demonstrated by the new emphasis being put on ambitious parish programs requiring expensive, up-to-date recreational and educational



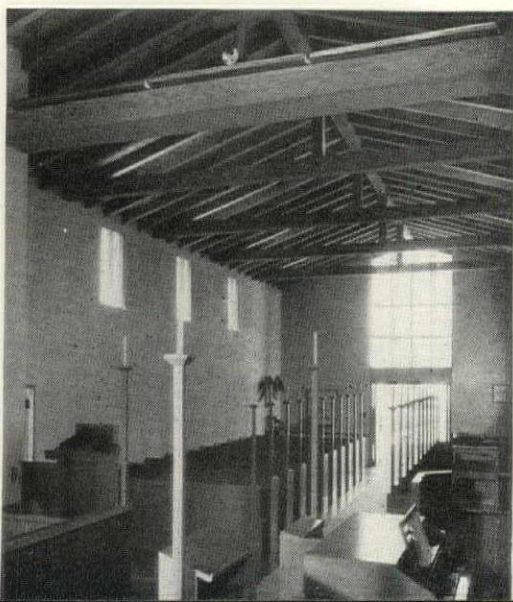
George Geyer

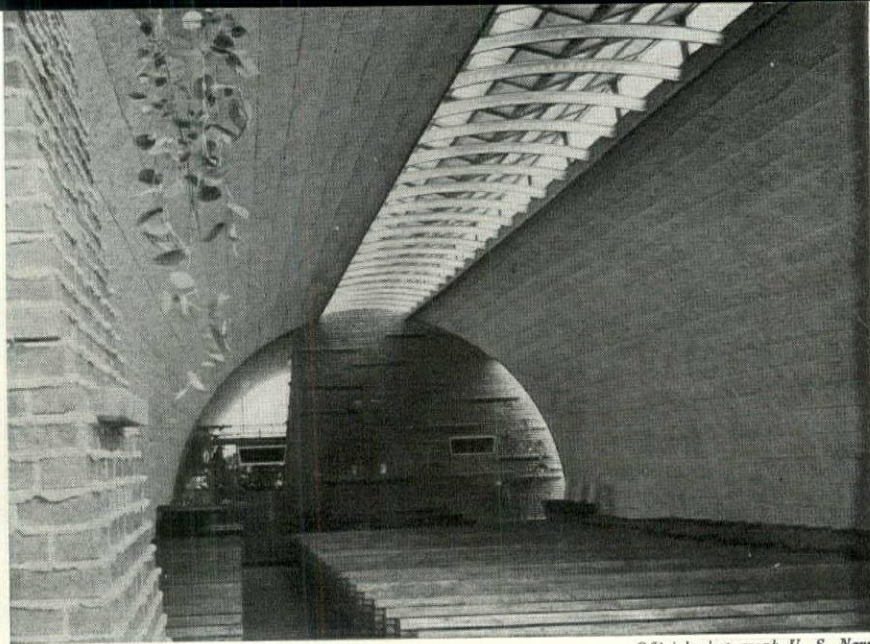
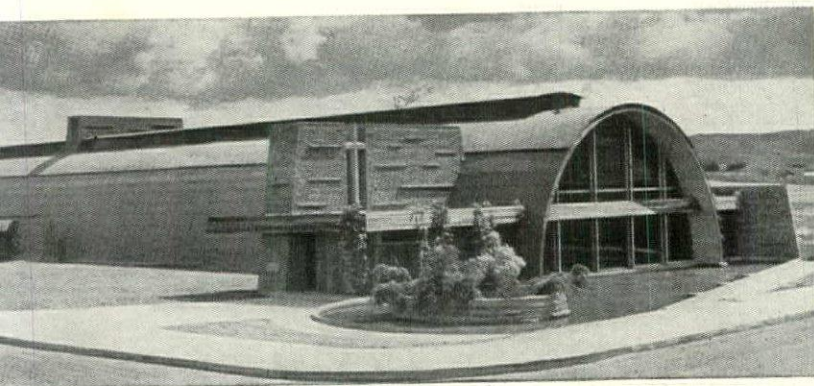
Photos (below): Julius Shulman



ST. PAUL'S IN THE DESERT, PALM SPRINGS, CAL.
CLARK & FREY, ARCHITECTS

That regional expression has its place in contemporary ecclesiastical architecture is demonstrated in this small chapel where a clean, simple handling of plan and detail is combined with logical hearkening to indigenous style. Because of its transient and seasonal congregation the building had to be kept to a minimum cost. Desert site and climate dictated easy-to-maintain materials. Cost: \$13,392.





Official photograph U. S. Navy

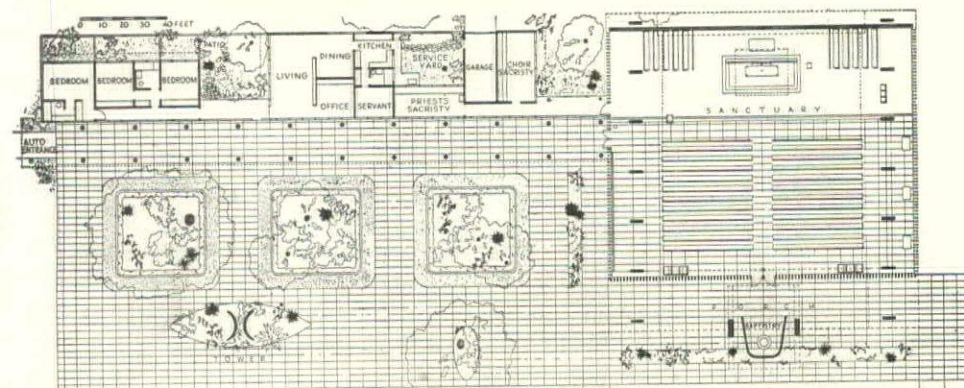
SAN LORENZO COMMUNITY CHURCH, SAN LORENZO, CALIF.
BRUCE GOFF, ARCHITECT

Producing one of the most successful wartime variations on the Quonset-type chapel, the architect has in this case substituted a ceiling clerestory for the usual, elbow-height ribbon strip. Exposed structural materials, inside and out, are complimented and softened by the use of indoor and outdoor planting. (Photos show the church on its original site—a Seebee camp near Pleasanton, Calif.)

CATHOLIC CHURCH, AMUAY BAY, VENEZUELA
SKIDMORE, OWINGS & MERRILL, ARCHITECTS
PHILIP IVES, ASSOCIATE ARCHITECT

Where climate permits, an open structure such as this has many advantages. Three lowered walls eliminate all problems of fenestration, make for pleasant, subdued lighting inside. The unusual location of the baptistery at the entrance of the church has symbolic as well as functional significance. It is protected by a cantilevered arch (which also serves the main entrance) and a free form concrete wall decorated with mosaic tile. Planned for a refinery town, the church is considered as an integral part of the community center. The bell tower, consisting of two concrete fins, is located at considerable distance from the church at the head of an approach esplanade. A double cantilevered concrete shell, spanning reinforced concrete arches, permits effective circulation of air within the roof proper. (The design has been approved by the Bishop of Coro.)

Ezra Stoller: Pictor



facilities. This is the church's obvious but intelligent bid to recapture some of its dynamic influence in community life. It also provides an added argument for economy since widespread construction of elaborate parish buildings will proportionately cut down the money available for the house of worship itself. The church's role of the future will no longer be that of an austere and aloof monument. In conjunction with its parish buildings, it is seeking to be regarded more and more as an active, integral part of the community center.

Regardless of type, stylistic mimicry is not worth its weight in cinder block. Currently available building materials and economically sound structural systems lose their meaning with traditionalistic handling. This applies even to the Johnny-come-lately "Colonial type" church that has recently met with such favor because it is the cheapest of all styles to reproduce and utilizes a popular economical material—brick.

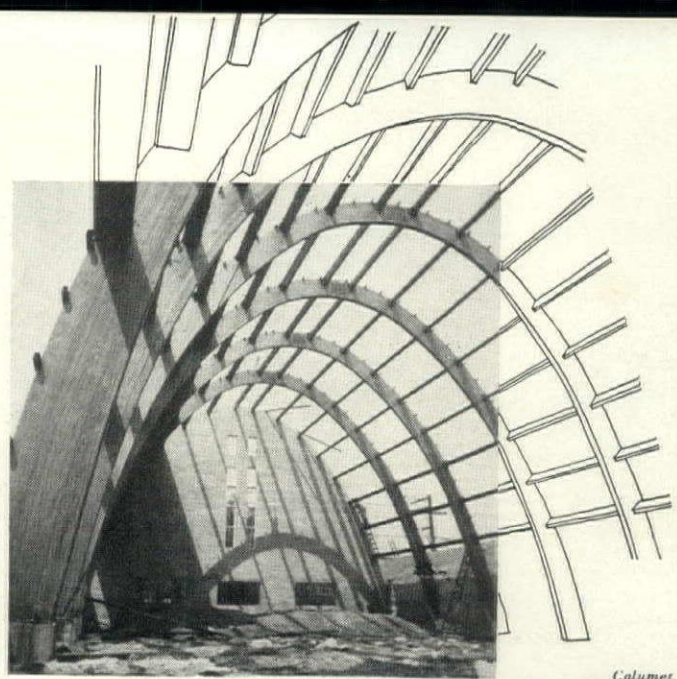
As in all other buildings, the church enclosure must be functional. However, unlike many other buildings, its function is primarily one affecting the spiritual and emotional side of man. If it were merely a matter of erecting a thermally and acoustically satisfactory shelter, there would be no problem. But the church service is in itself a manifestation of tradition as well as faith and, to date, it is in the complex interrelating of ritual and surroundings that the contemporary interpretation has fallen short.

High in volume, human in scale

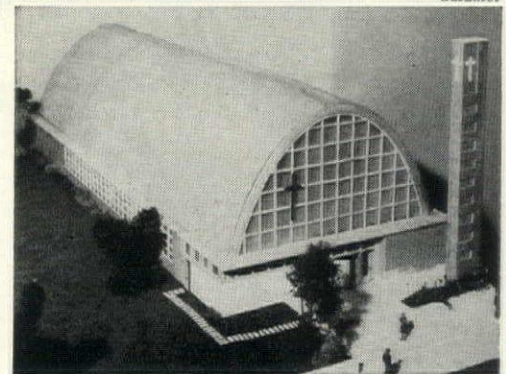
If it is true that a feeling of loftiness is directly connected in the average mind with ceiling height, then church construction will inevitably remain more expensive than lay architecture because of the additional cubage. Most denominations through boards and committees have made thorough economic studies of church requirements and costs. Building a seat for every member of the congregation is a thing of the past since attendance in Protestant parishes seldom runs over 30 to 40 per cent. Most churchmen now agree that, with provision for a 50 per cent growth, the seating provided should not exceed 60 per cent of the congregation. Incidentally, this expansion figure is not as optimistic as it may seem at a glance since church membership has increased from 19.9 per cent of the population in 1880 to 53.3 per cent in 1949. A query of all denominations reveals that the anticipated cost for an average church, exclusive of furnishings and equipment, runs from \$50,000 to \$350,000. Pews, rugs, organ, chapel, etc., usually add 10 to 12 per cent of the overall cost.

Since the church is acquiring more and more human scale, landscape architecture is becoming more and more essential to the overall design. The object is no longer to construct an edifice that will dominate the entire town (and in some instances the countryside as does Mont St. Michel and Chartres) but to design a building that will be harmoniously related to the community. As the church becomes more and more related to the human scale, so does its relationship with nature increase.

Whether or not it is the product of a deeply rooted association, arch construction—of all modern building techniques—seems the one most naturally adapted to the average requirements for church design. Whether it be of metal, wood or concrete, the arch's visual action of drawing the eye upward suggests symbolically the supremacy of God in terms that can be understood by all. (We do not mean the squat, barrel shape of the Quonset-type hut which, though it proved admirably adaptable to the design of temporary chapels for the armed forces during the war, generally enforces a tunnel-like interior and poses an unduly awkward problem of fenestration.) More than any other contemporary form, arch construction requires the greatest skill in handling. Nothing is quite so unwieldy as the poorly proportioned arch. But while the parabolic version would theoretically



BETHEL CHURCH,
CHICAGO, ILL.
A. L. SALZMAN & SONS, INC.
ARCHITECTS & ENGINEERS

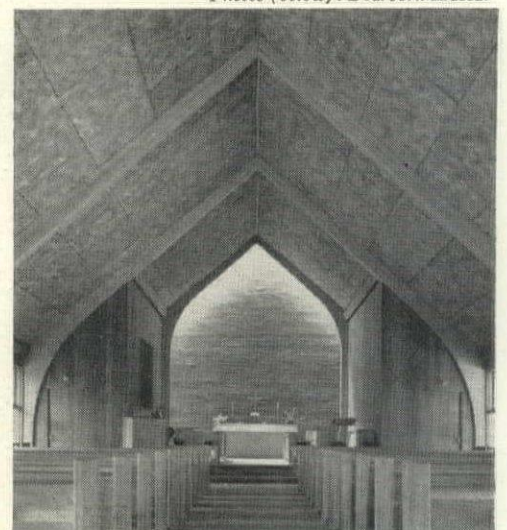


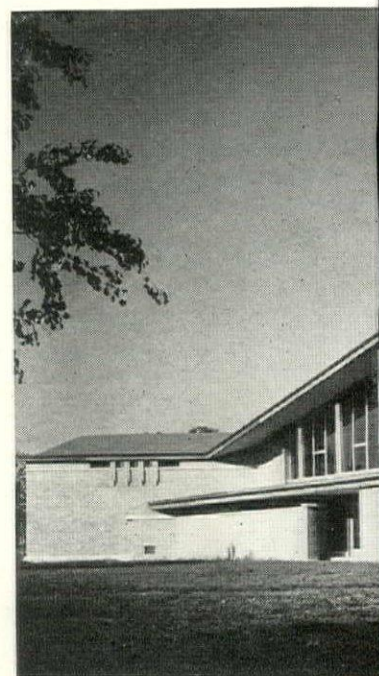
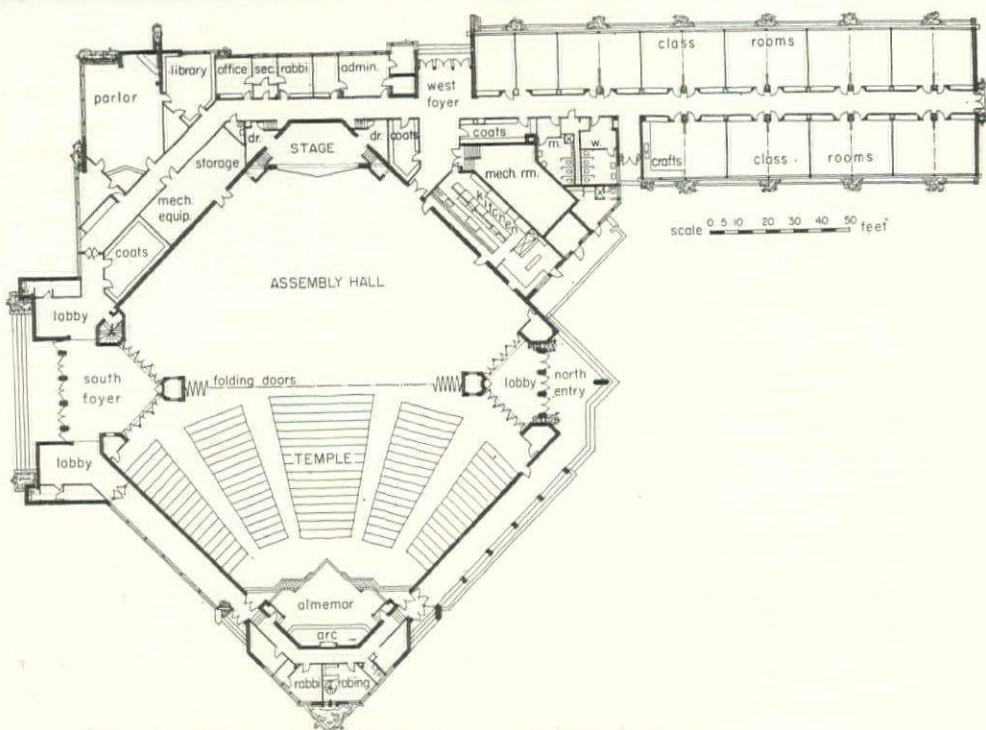
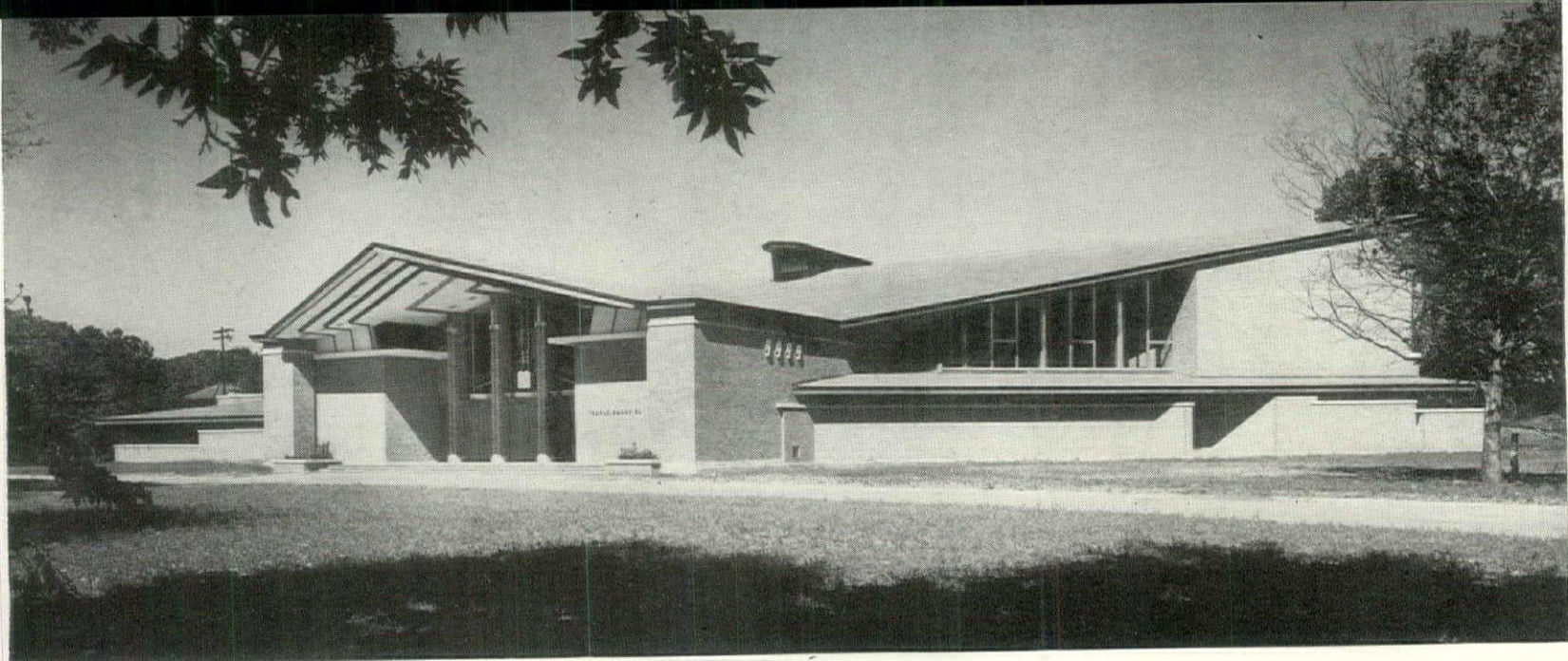
The most promising new structural technique, laminated parabolic arches saved about 50 per cent over rigid steel frame and truss construction. Such a structure may be designed with sufficient height for the insertion of a second floor at some future date.

Laminated, broken arches and simple, effective altar illumination characterize the church below. The Roman brick altar wall is lighted by a corrugated glass strip skylight extending down both sides of the roof. Cost was approximately \$35,000.

Photos (below): Dearborn-Massar

CHURCH, SEATTLE, WASH.
CHIARELLI & KIRK
ARCHITECTS

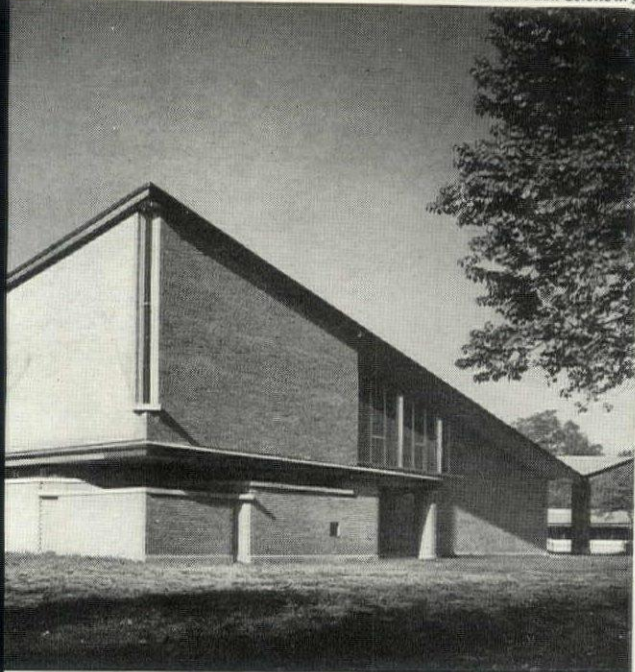




TEMPLE EMANUEL, HOUSTON, TEXAS
LENARD GABERT; MACKIE & KAMRATH,
ARCHITECTS

As organic a solution as has yet been seen in contemporary church architecture, the structure of this synagogue is simply a functional expression of the plan; it also has the distinction of having been executed with great ability and imagination. Most salient are the building's economy and very interesting structural system. Cost was 73 cents per cu. ft. Construction corners were cut all along the line. A comparatively inexpensive face brick was used on all exteriors and is, in some places, exposed on the interior. However, this

Photos: Jack Richburg



material in no way detracts from the quiet, religious atmosphere of the building. All plaster work is unpainted and a gravel roof was substituted for the copper one originally proposed by the architects. Important in Houston's rainy climate, wide overhangs protect entrance and large plate glass windows.

The interesting pattern of the steel work over the main temple is the result of some original structural handling devised by the architects. Two sets of heavy steel columns on the north-south centerline of the two triangular rooms are located 110 ft. apart. They hold up two large steel trusses that in turn support an inverted cantilever truss which forms the top horizontal east-west ridge line. In turn, the cantilever truss supports the steel beams that hold up the steel bar joists of the roof. In this way it was possible to roof over two very large rooms with no interior columns. The system not only provides mechanical space for an economical air-conditioning system but also allows the temple's ceiling to follow the form of the roof, thereby greatly increasing the rooms' volume. It has also proved the greatest factor in giving the building's excellent acoustical properties.

A set of automatic operating doors, 20 ft. high and 100 ft. wide, may be opened to combine the temple and the assembly room. Together, they seat 2,000.

seem the most natural for church design, there remains to be built a church in which this form has been gracefully or subtly adapted. Truss construction, with its inevitable angular product presents the age-old problem of ideal proportioning and tends to present a chillier, more austere interior. Furthermore, in order to achieve a psychologically satisfying auditorium, the rectangular form more often than not dictates proportionately greater height than arch construction and consequently a higher cost per square foot.

Wood, stone, color and art

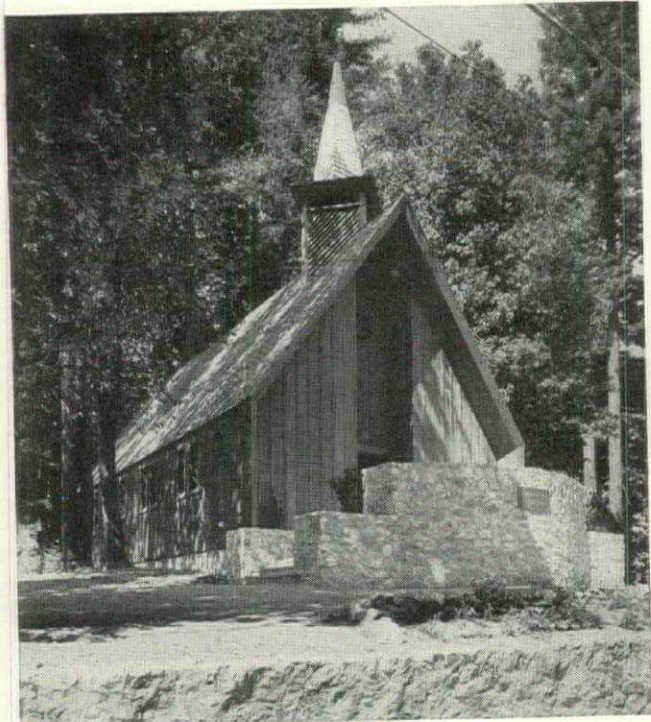
Like that of the theater the church enclosure is used as a setting for a highly personal and usually emotional reaction on the part of the audience. Visual stimulation is one of the most important design elements. Structure, color and the handling of light appear to be its chief components. But can we hope to achieve the "visible energy" of the Gothic cathedrals—ultimate in stone construction—until the contemporary idiom evolves into a much more highly refined and disciplined art? There is no question but that past civilizations were more deft and profound in their treatment of spaces embodying awe; temples, monuments and churches. Somewhere along the line the formula was lost. But, whether dealing with large or small areas, it can and must be rediscovered. And copying the exact proportions of the Parthenon is not the answer. Monumentality in terms of great size may be a dying form of ecclesiastical architecture, but in spiritual significance it is anything but dead. In the latter sense, the psychological elements that appear most important are dignity, loftiness and reverence. Contrary to popular belief, however, none of these qualities need necessarily be expressed through formality. The unostentatious little California chapel by Donald P. Smith (p. 70) embodies them all in its disarming simplicity of line and frank use of raw native wood.

The Gothic cathedrals to which all turn for spiritual inspiration are the ultimate examples of exposed raw materials in church construction. Perhaps because of their profound influence on the emotions of all who have ever studied them, the use of raw materials has carried over as one of the happiest elements in contemporary church design. There is a warmth about wood and stone that speaks directly to man's most fundamental instincts. Yet rare spiritual quality is expressed in the Abo chapel built almost exclusively of man-made materials.

The large plain areas that characterize our contemporary churches make perfect spots for color, murals or sculpture, but at the risk of wearing thin a much repeated admonition, it is essential that the ornamentation of a church be planned from the beginning with the active collaboration of the architect and all other artists involved.

Heating and air conditioning

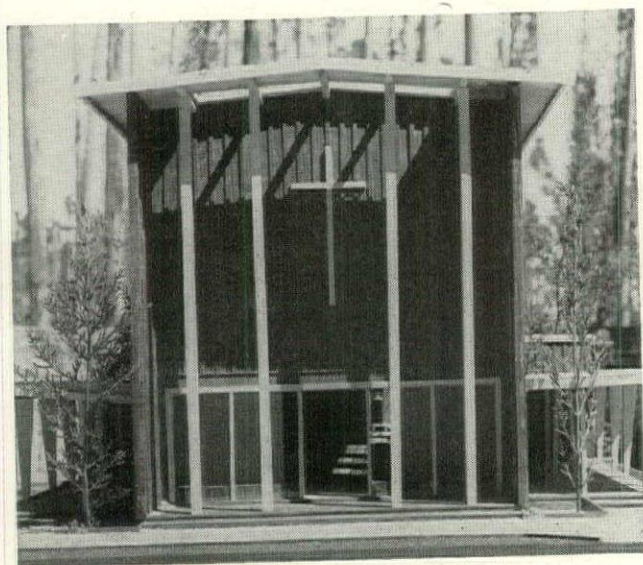
When all churches were unheated, draughty edifices, there was no need for the plan to include facilities other than those for worship. Now, however, that it is not considered sinful to pray in anything but acute discomfort, adjuncts such as cloakrooms are assuming more importance in the plan. In the south air-conditioning has become a must. All churches should have scientific acoustical treatment. And in almost every church, the congregation requires adequate light for reading. Radiant heating is too widely accepted as the latest and only means of turning a church into a thermal heaven on earth. Too many people recall interminable sermons punctuated only by the tapping of congealed toes against an icy and unresponsive marble floor and tend to regard warm floor panels as the end-all in church heating. Actually in many structures, convected heat would be scien-



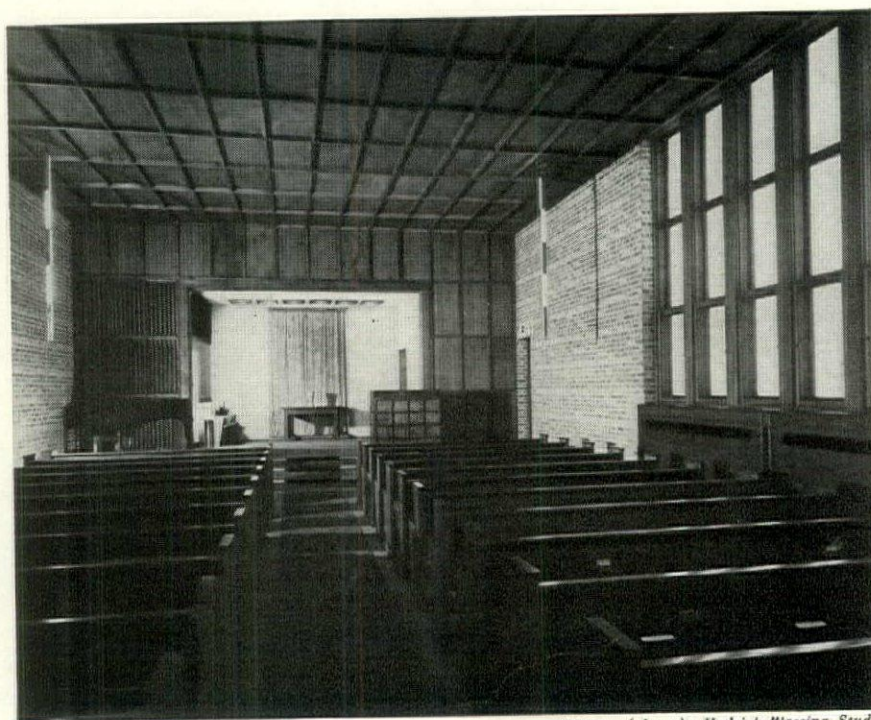
MEMORIAL CHAPEL, MT. HERMON, CALIF.
DONALD P. SMITH, ARCHITECT



THIRD UNITARIAN CHURCH, CHICAGO, ILL.
PAUL SCHWEIKHER, INC., ARCHITECT

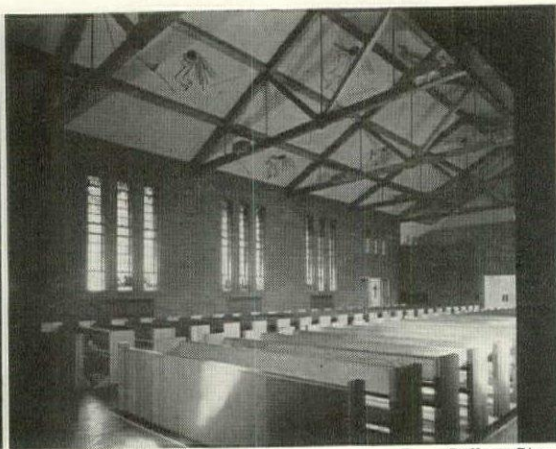
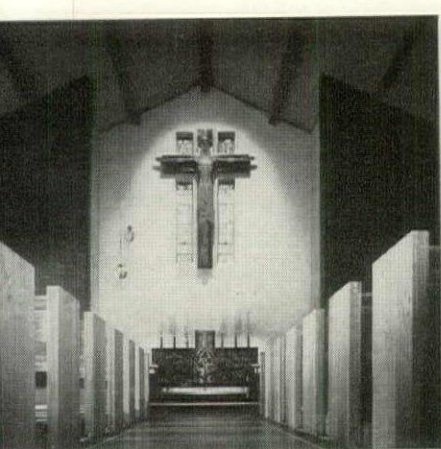


MEMORIAL CHAPEL, SAN MATEO, CALIF.
GARDNER DAILEY, ARCHITECT



Photos (above): Hedrick-Blessing Studio

ST. PETER CLAVER MISSION, MONTCLAIR, N. J.
ALBERT HOFFMAN, DESIGNER, PAUL C. REILLY, ARCHITECT



Kara Stoller: Pictor

This group of churches illustrates two of the most important elements of ecclesiastical architecture: skillful handling of raw materials and planned collaboration among the arts. Both the small California chapels are built of native redwood. The top one, while contemporary in feeling, has all the warmth and appeal of a village church in the Tyrol; the lower displays a more studied dignity and grace—it was originally part of a Merchant Marine training school, but is now used as a library. Interesting texture has been achieved on the exterior of the Chicago church, though it boasts only modest brick contrasted on the interior with rich wood paneling. The Negro mission (left), familiar to many, is characterized by fine sculpture set off against a simple interior, realistic in its rigid economy.

tifically more appropriate. The problem of church heating is exactly the same as that in domestic or commercial architecture and should be governed by the same rules. Cubage, proportion of glazed areas, insulation, etc., remain the governing factors.

Most contemporary churches have retained the rectangular plan, in some instances chosen the semi-circular. Both make for more intimate atmosphere of group participation than the cruciform. Contrary to common belief, the practice of bringing the altar forward to the center of the church is no innovation. As a matter of fact it was the arrangement of some of the earliest Christian churches. Not unjustifiably, many people feel that a circular or semi-circular seating arrangement is distracting because it emphasizes the presence of other worshippers and tends to detract from the importance and significance of the service. Nor is the location of the choir in front of or flanking the altar a liturgical requirement. In most traditional churches it blocks the vision of the altar and adds only one more distracting element. Side or rear choir seating, either at ground level or in balconies seems a logical answer. The former also has the advantage of retaining the facilities for the processional.

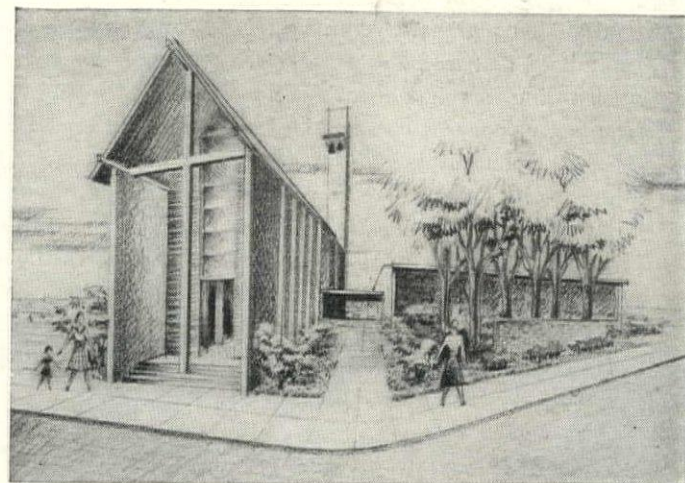
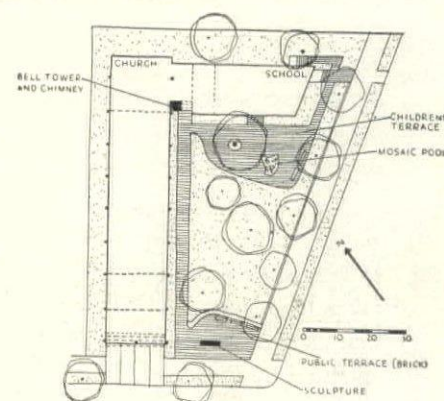
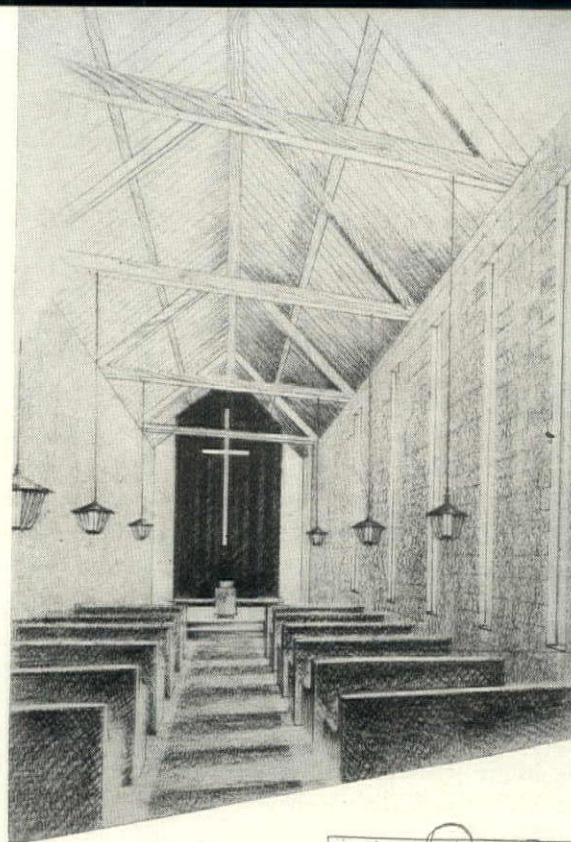
Windows and light

The creators of the great Gothic cathedrals were well aware of the psychological impact on the congregation when they introduced color into churches. Even by present day standards, luminous color can be an extremely moving design element and therefore leads many to question the obsolescence of stained glass. But even though moderns have never been able to duplicate certain medieval colors in stained glass—the blue of Chartres, the red of La Sainte Chapelle—some very fine examples are being produced today. They are, of course, costly amenities. Much the same effect can and has been achieved through colored lighting.

White light, so popular with many of our contemporaries and widely used for many years in Protestant churches, is the most ticklish of all to handle as it has little or no emotional or symbolic content. It is generally agreed that when white light is used, it is best directed from the rear or sides of the church toward the altar. Since the church service is usually a ritualistic pageant, it is as illogical to confront and distract the congregation with clear or translucent spots of white light as it would be a theater audience. Many contemporary churches have utilized clerestory windows for general illumination but in few cases does this device seem as pleasing, no matter how skillfully handled or controlled, as concealed natural light. Most churchgoers seek to be taken out of themselves, to concentrate and to be elevated. By using ordinary windows many architects and clergymen seem to deny the need for all mystery in the church and its ritual (and many are rabidly opposed to it) but, dispassionately speaking, they are forcing on the congregation a source of disconcertion.

An architectural seminary

In most architectural schools, the curriculum can only afford to give the student one or two brief exercises on church design. However, the complex ramifications of ecclesiastical building require a substantial amount of specialized knowledge. The overwhelming number of inferior contemporary churches proves how involved the problems are. A correlation between seminary and architectural education has even been suggested for students expecting to specialize in the field—and in view of the amount of planned building, why shouldn't they want to? However, suggestions such as this, a thoughtful one, have fallen on the deaf ears of architects and clergy.



BAPTIST CHURCH, CEDAR MANOR, L. I., NEW YORK
NEMENY & GELLER, ARCHITECTS

Planned for a poor but touchingly devout congregation, this small chapel pushes economy to its limit. It is to be built of simple timber trusses and a concrete block wall strengthened at 10 ft. intervals by piers. The altar will be of wood, the cross itself a prism illuminated from behind. So far only a quarter of the required \$40,000 has been raised, but the parishioners plan to do a substantial amount of work themselves. Not discouraged by their modest means, they hope to have murals by Romare Bearden, a mosaic pool by Max Spivak and a piece of garden sculpture by Ahron Ben-Shmuel and landscaping by Lynch & Kline. In its utter simplicity this little church proves that dignity and reverence do not require the glitter of gold.

AN ARCHITECT'S CHALLENGE

Photos: Lionel Freedman: Pictor

Has contemporary architecture lost the power to create churches that will satisfy the spirit as well as the mind?

by Pietro Belluschi

Two centuries of materialistic progress have done great damage to all forms of emotional expression. Painting has had to retract into a sort of individualistic and rebellious introspection; sculpture has lost itself by becoming unrelated to its surrounding; and any endeavor to create purely monumental architecture has become sterile as the stimulus of emotional urgency ceased to be a reality in the lives of men.

After four hundred years of struggle through the sterile and circumscribing influence of the Renaissance and the blind alleys of revivalism, architecture has at last found a certain emotional quality in the drama of scientific progress. What it now lacks in human understanding it makes up in honesty and logic. But the last four or five generations, with very few exceptions, have been incapable of producing works of real monumental character, unless mere size can be accepted as a substitute for spiritual significance.

Of all creative efforts, the design of the church is the one which shows most clearly the decay of our spiritual heritage.

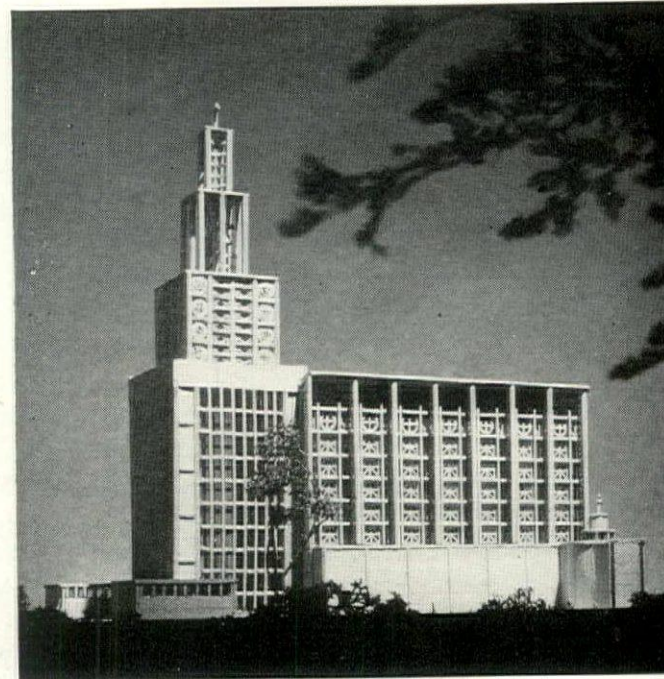
Our society believes mainly in the importance of scientific progress, pays only lip service to the old images of God—and finds it difficult to formulate more convincing ones. Our heaven is now on earth; it takes the shape of social security, the thirty-hour week, and restless and uncreative leisure—a heaven, of course, that gives no serenity nor spiritual nourishment.

In spite of the advantages and satisfactions accruing to the modern religious congregation by its advocacy of social advances, it must be admitted that to many persons the result of this course is the least rewarding in spiritual satisfaction. To them, God is still an intimate necessity, not satisfied by the knowledge that social advances have been made. To these, and to the many persons who are lonesome and bereaved, to the unhappy people whose only source of courage in their daily tribulations is their opportunity of prayer and emotional release; to the sick and the dying, and the fearful to whom the last source of strength is the image of a personal loving God; to all those, our modern religious establishments have to a large extent failed—and the measure of this failure is shown in the miserable architecture of their churches.

Then what is to be done about church architecture if we cannot find refuge in a sterile copying of the past? Many architects have been baffled and impotent in their struggle to become again simple and believing. Only a handful have succeeded in recreating the atmosphere in which the religious man, the man who still deeply and humbly believes in God, may worship him in appropriate surroundings.

The number of conflicting denominations has tremendously weakened the church as a divinely mandated institution, and the time and wealth which a community can devote to construct its church could not possibly be compared with the wealth devoted to the same purpose in the middle ages, when life revolved around the religious institutions. However, if we cannot erect great monuments, we may endeavor to create small temples, in a more human scale, designed in a sensitive and creative manner so as to produce the kind of atmosphere most conducive to worship.

Architect Belluschi has recently designed eight churches to meet this need, four Protestant, four Roman Catholic. Examples of this work will be shown in future issues of the FORUM.—ED.



A DESIGN FOR A CATHOLIC CHURCH

ANTONIN RAYMOND AND L. L. RADO, ARCHITECTS

A church was always an expression of a spiritual idea and as such inspired architects to a supreme demonstration of their genius both as to special and technological concept.

In the Gothic era man's desire to detach himself from earthly matters and approach God was a force that made him create structures of lightness to such an extent that, even today, when our structural knowledge has reached a state of exact science, we could not surpass were we limited to the same materials and methods.

In the Gothic church knowledge, intuition and faith were fused to create the material expression of an idea through men's genius.

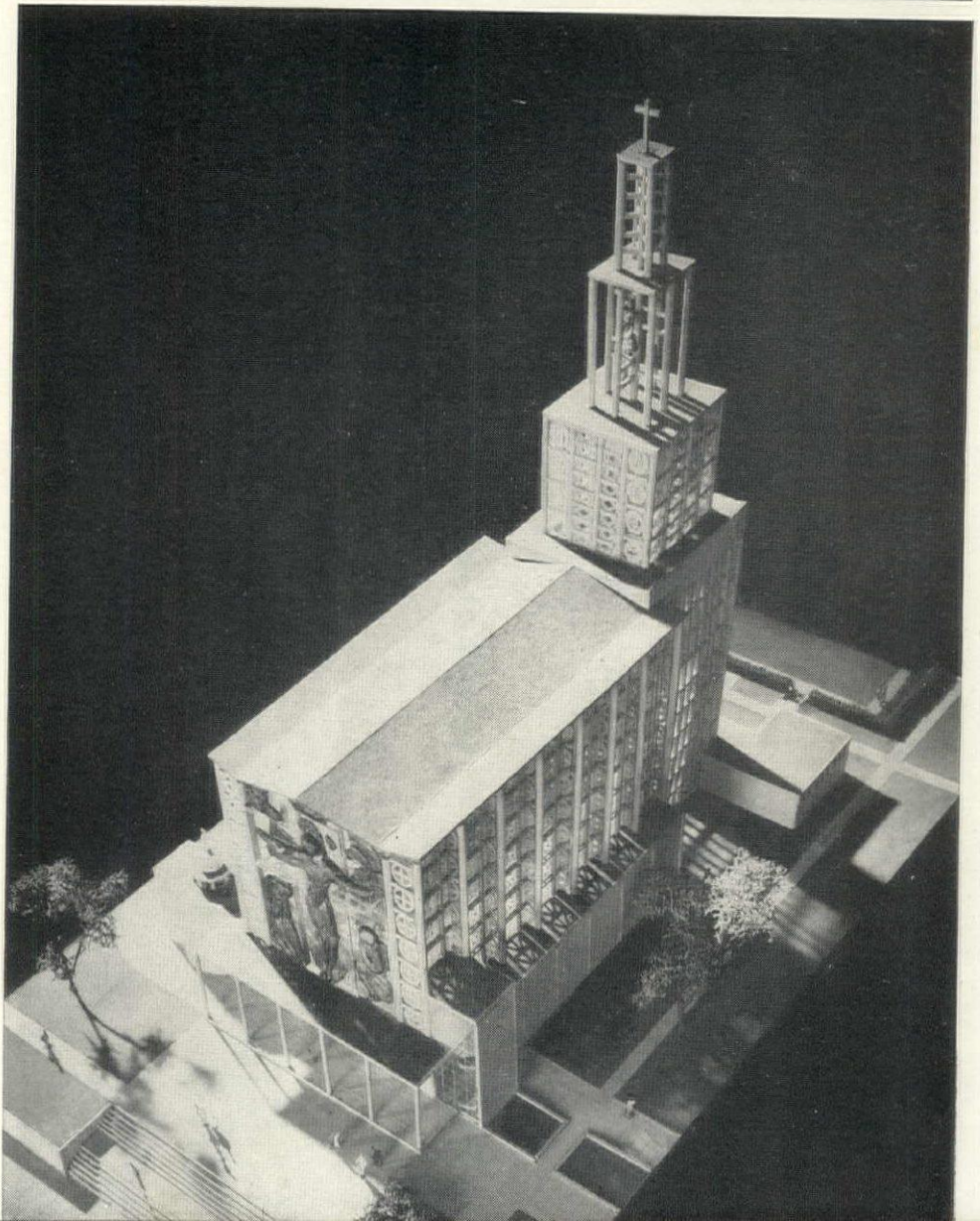
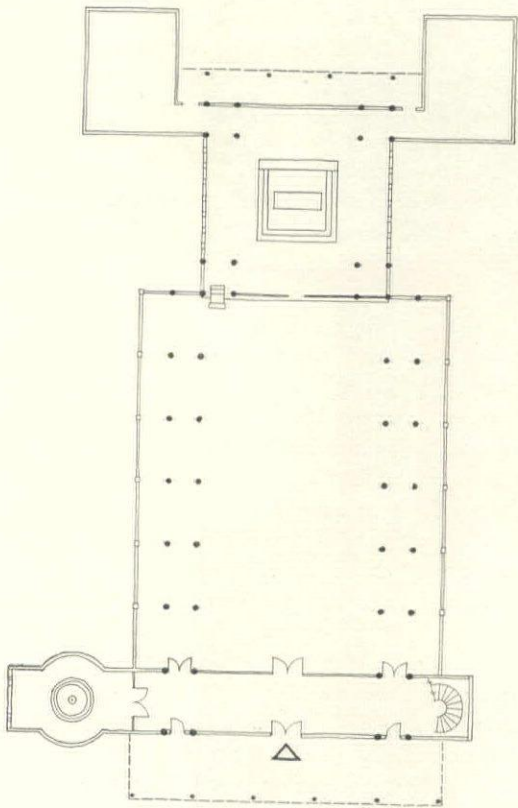
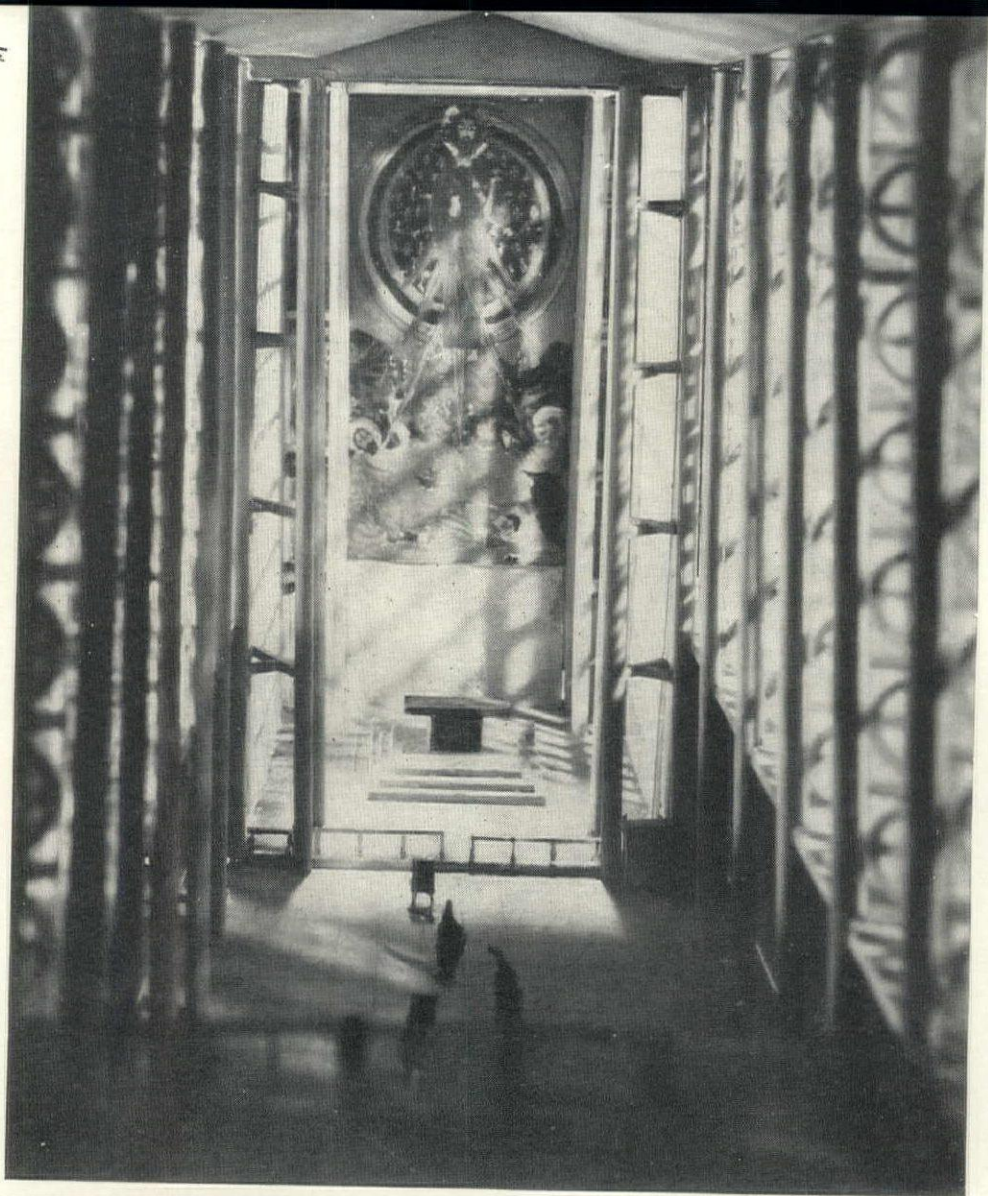
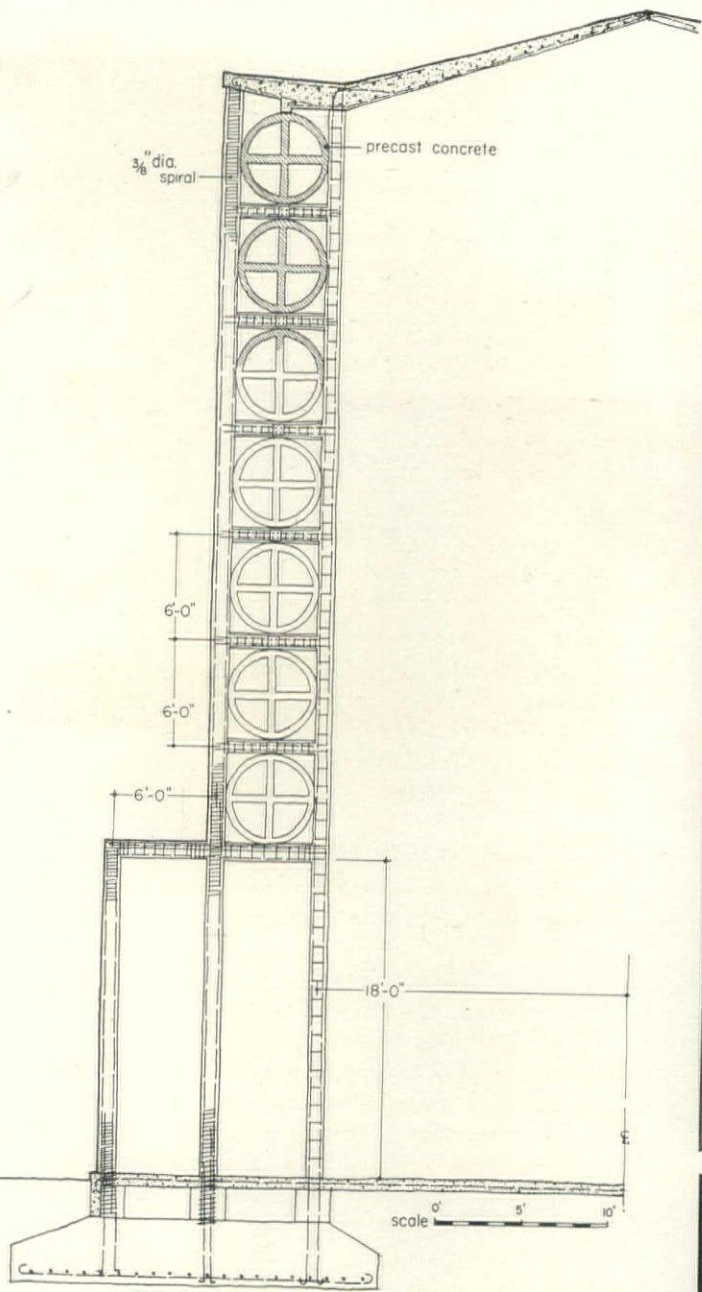
In this particular project an attempt was made to use the Gothic concept of the church design as a point of inspiration and departure and transpose it into today's language: the static concept with a vertical emphasis, the structural clarity with members dematerialized to the limit, the rhythmic quality, the use of sculpture and painting as integral parts.

Through the special system of construction the structural members—all reinforced concrete—though very tall are reduced to a minimum. The structure is pure, exposed, articulated, rhythmic and consistent. The concrete tracery fulfills the function of cross-bracing. Proportions and spaces are strictly modulated in all three dimensions and are based on the primary shape of the square.

Thus the potentialities and limitations of the reinforced concrete system were the material factors. The established tradition and character of a Catholic Church, the spiritual factor. The fusing of both is the task.

Will the rising slender structure and the space of the tower open above the altar convey man's desire to approach God? Will the light penetrating through the precast concrete tracery convey the mystery of faith? Will the simple material of concrete treated with honesty assume the symbolic meaning and emotional content? Will the sculpture and painting with the overall concept of space and light convey the atmosphere of passion which is characteristic of a Catholic Church?

That is the test—whether our intellectual process and advanced technology can rise to the spiritual level of expressing an idea—the test of architecture as not only a science but one of the great arts.—The Architects



Riverfront house

Photos: Damora

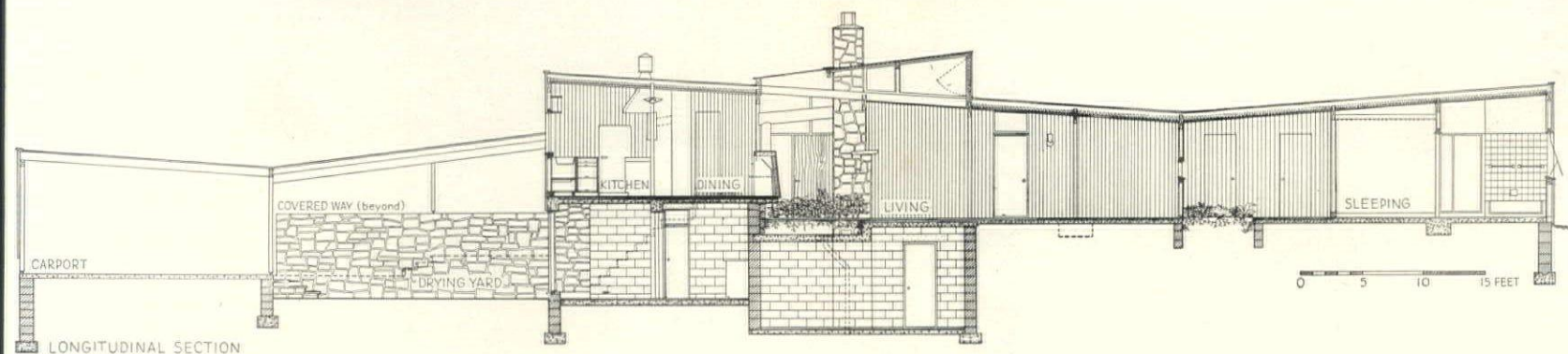
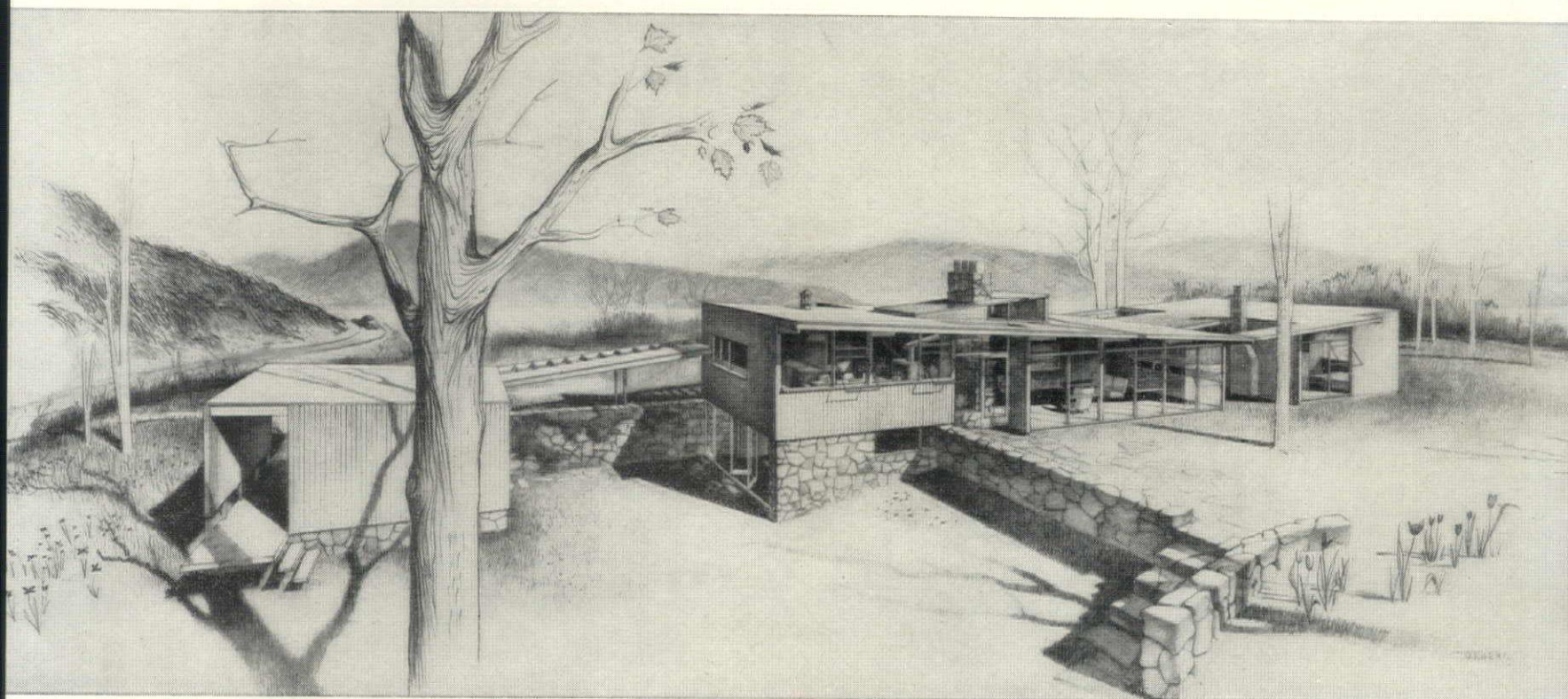


opens up room interiors to light and view

LOCATION: Essex, Conn.

HUGH STUBBINS, JR., Architect

EDWARD P. FOSTER, Contractor



On a gentle ground swell overlooking the Connecticut River, Hugh Stubbins has designed this house for an amateur yachtsman. Its rectangular plan has been manipulated to take best advantage of the undulating site and (budget permitting) has been loosened out to give extra light and greenery to each of the well placed units—dining, living and sleeping.

Prime advantage gained from the sloping site is, of course, the basement area set entirely above ground. A generously lighted workshop, laundry and indoor-drying space are fitted here, as well as a wine cellar, dark room and space for storing the owner's small boat. A covered walk connects kitchen and carport, while the area between the two is utilized as an outdoor drying yard—well-protected and out of sight of the main living rooms.

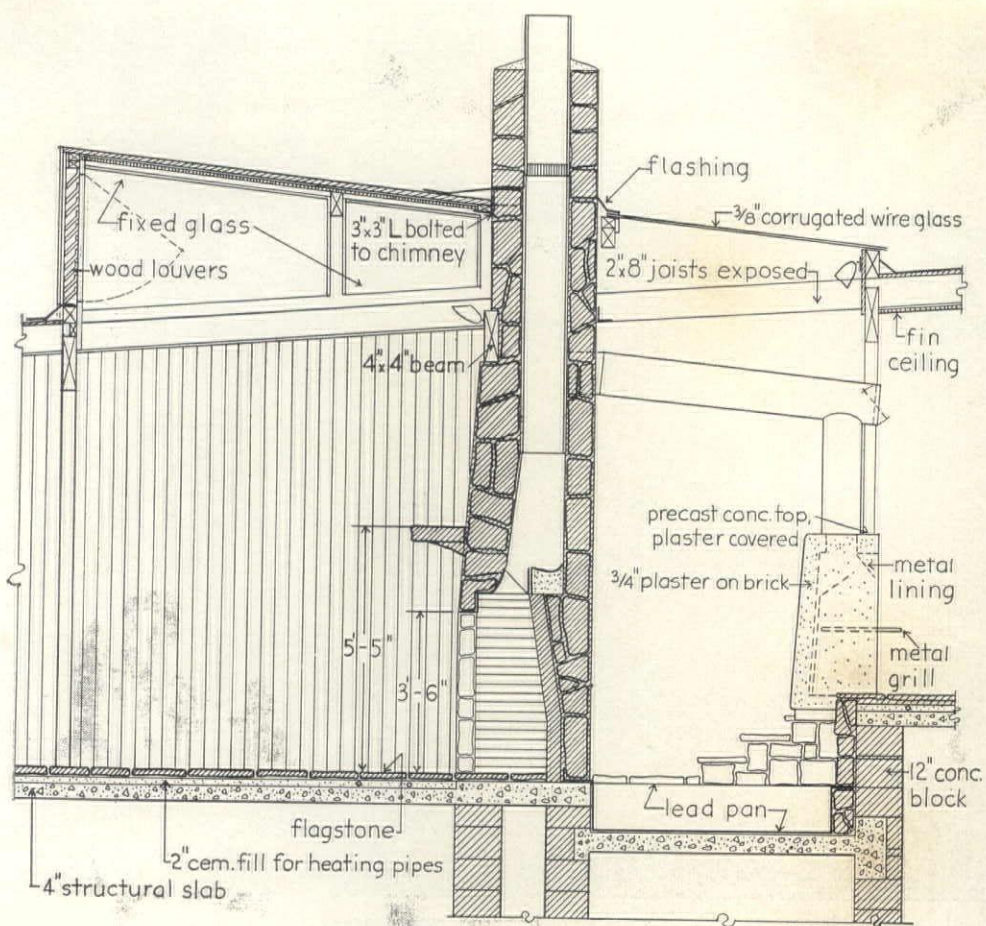
The roof-line which at first glance seems as haphazard as a stretch of the nearby sand-dunes, is actually a deliberately broken contour, rising at one end to accommodate the elevated dining-kitchen area and angled to open up the house to light, air, sun and view. Materials chosen for the house are well in keeping with its site and purpose. Natural white cedar is used for beams; native stone for ballast.



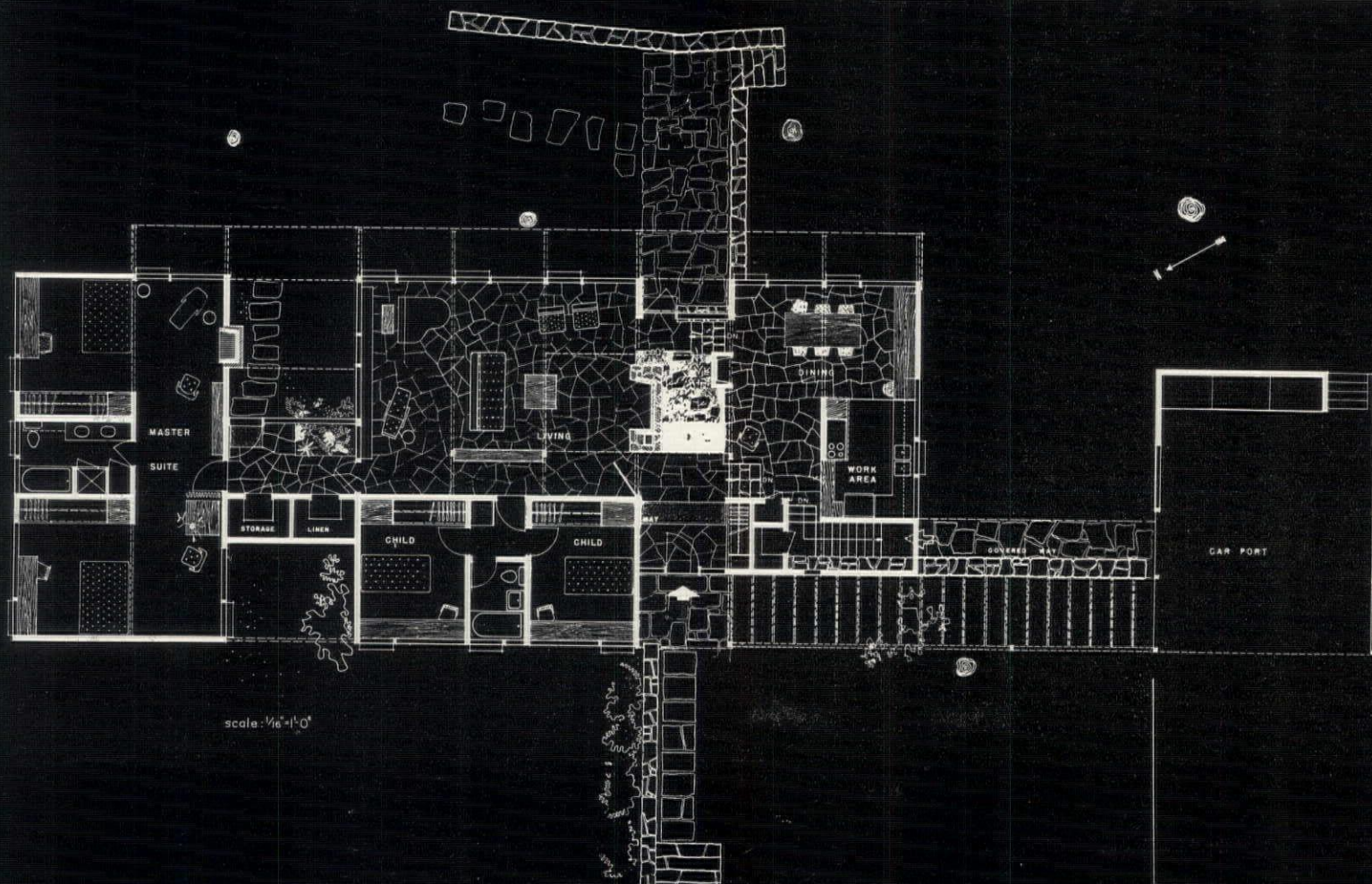
For all its air of vacation ease, the house reveals a firm structural discipline throughout. Nowhere are basic materials or methods camouflaged, and a modular post and lintel system is used (4 x 6 in. posts and 4 x 14 in. girders). Such framing, spanned by 2 x 8 in. joists, leaves the long walls of the house nonbearing.

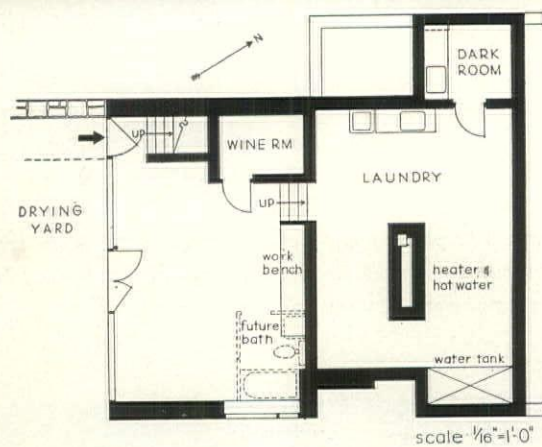
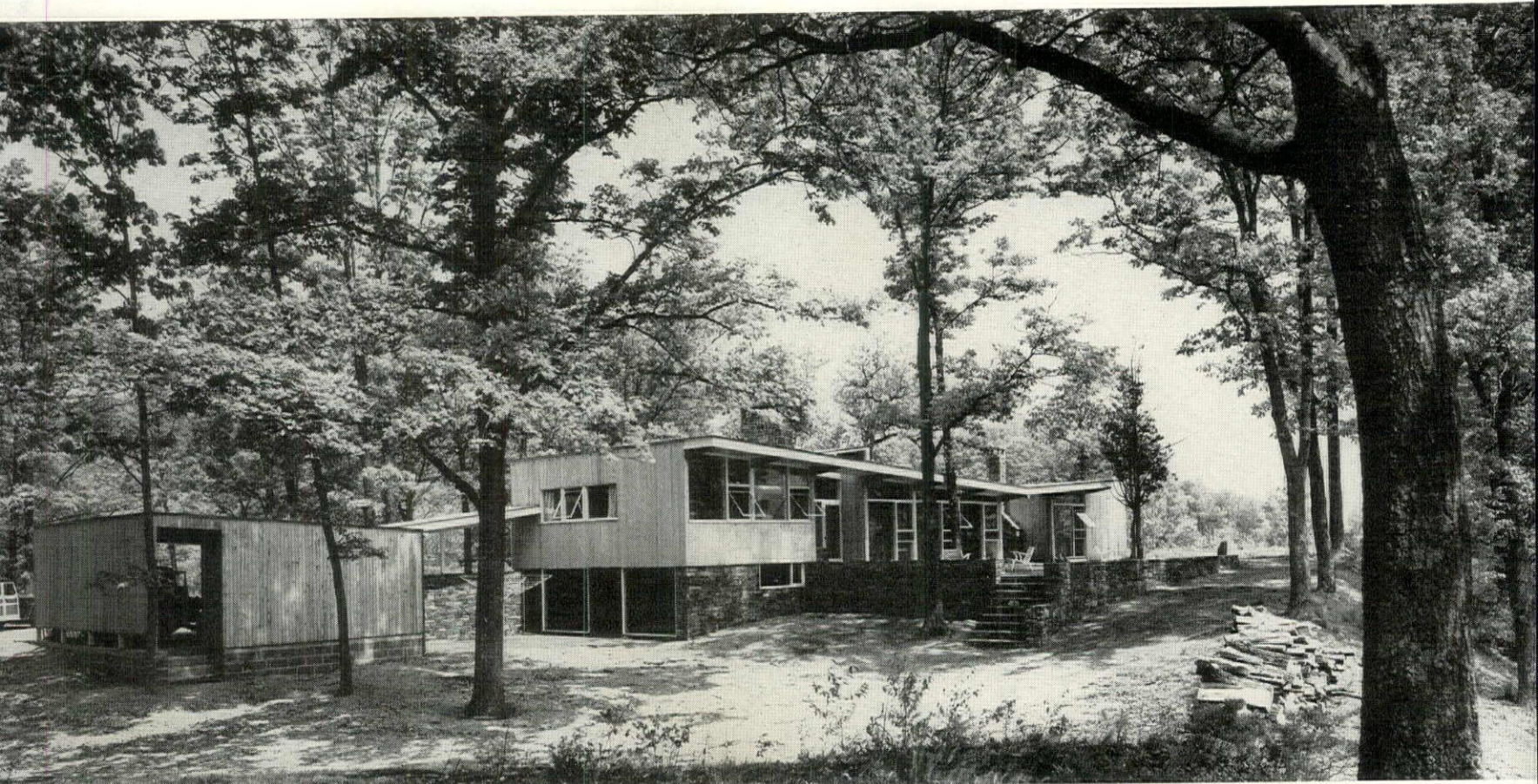
The living area takes full advantage of this freedom with an entire window-wall overlooking terrace and river. Generous ventilation panels invite the river breeze in summer. Extra light is brought around into the music corner by a narrow strip of windows set under the hanging bookshelves (see photo at left). Most dramatic source of natural lighting is, however, the clerestory-skylight set above the massive fireplace.

Two children's bedrooms open directly off the living area, a location which allows them to double as guest rooms when the children are away at school and camp. The large bookcase-radio-phonograph unit (photo above) gives privacy to the bedroom entrance. Door transoms and the open house-plan compensate for lack of cross-ventilation within these rooms.



A little triumph of dynamic balance is revealed in the above detail for double fireplace-garden-stairway-clerestory-skylight. Natural light, desirable for brightening the stairway, also serves to dramatize the handsome stone chimney and bring sunshine to indoor plants. The pleasing and varied textures in this complicated unit (as shown in photo above right) demonstrate the architect's esthetic as well as functional virtuosity.





Basement plan (above) shows possibility of converting multi-purpose room into an extra bedroom by installing a bath.

Covered walk (below) leads from house to carport. It also serves as an outside route to the drying yard and basement.

An in-line kitchen opens directly off the dining area at the east end of the house, and provides a handsome answer to the owners' request for informal serving. It is connected with the basement by a stairway from the adjacent entrance hall. This hall leads also to the covered walk joining house and carport.

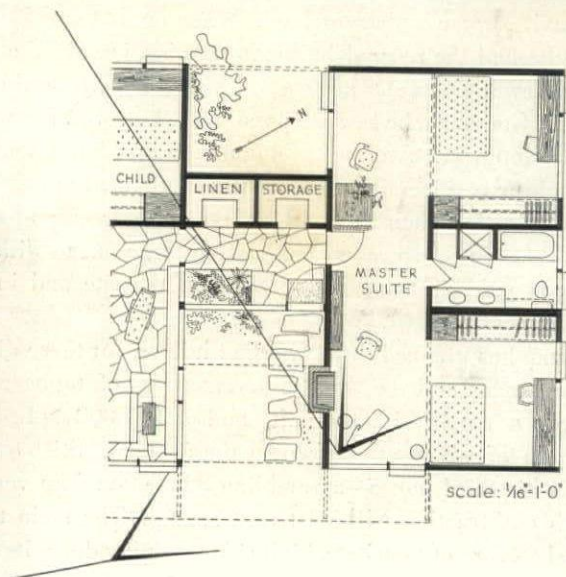
The master bedroom, at the opposite end of the house, is linked to the main house block only by an isthmus-like passage lined on one side with storage cabinets. The other (south) side of the hall opens to allow direct access between the bedroom and terrace. The small courts resulting from this arrangement admit extra light to both bedroom and living areas and give the bedroom suite the privacy of a separate wing. This suite is divided into two munificently fitted sleeping-alcoves by a joint bathroom. The unbroken half of the room forms an inviting living area with fireplace and full view of the river.





The master bedroom's two sleeping alcoves are separated by a bathroom with spacious wardrobes on either side. Exterior view (below) shows chimney for bedroom fireplace, and court giving direct access to outside terrace. The overhang spanning thin air seems to hark back, however, to an era of conspicuous waste.

Photos: Damora



CONSTRUCTION OUTLINE: Waterproofing—Barrett Co. Exterior walls—white cedar, building paper, sheathing, studs, insulation and metal lath and plaster. Floors—concrete. Ceilings—Acoustone, U. S. Gypsum Co. **ROOFING**—5-ply built-up, Barrett Co. **INSULATION**—Baldwin Hill Co. and Aluminum Co. of America. **FIREPLACE:** Damper—Donley Bros. Co. **SHEET METAL WORK:** Flashing and leaders—copper, American Brass Co. **WINDOWS:** Sash—steel, Hope Windows, Inc. Glass—Libbey-Owens-Ford Glass Co. **FINISH FLOORING**—asphalt tile, Armstrong Cork Co. **PAINTS**—National Lead Co. **HARDWARE**—W. C. Vaughn & Co. and Lockwood Hardware Mfg. Co. **KITCHEN EQUIPMENT:** Range and refrigerator—General Electric Co. Sink—stainless steel, Elkay Mfg. Co. **LAUNDRY EQUIPMENT:** Washing machine—Bendix Home Appliances, Inc. **BATHROOM FIXTURES**—Crane Co. Cabinets—Charles Parker Co. **HEATING**—hot water, radiant heating in floors system. Burner—Silent Glow Oil Burner Co. Pumps—Deming Co. Regulator—Minneapolis-Honeywell Regulator Co.

BUILDER'S PROJECT

combines intelligent land planning, handsome house design, a unique merchandising plan. Result: a pace-setting subdivision in the \$10,000-\$25,000 price field

ROBERT C. DAVENPORT, Builder
CHARLES M. GOODMAN & ASSOCIATES, Architects and Engineers

Here is a merchant building operation that is distinguished both in planning and execution. Located near Alexandria, Va., it features good land planning, a series of contemporary house designs and a merchandising set-up which minimizes the speculative risk for both the builder and his customers. Builder Robert C. Davenport's 225-acre Hollin Hills subdivision is a hilly, heavily wooded piece of land. When he first saw it back in 1946, he had the normal builder's reaction i.e. avoid extensive site development at all costs. Aided by his architect, Charles M. Goodman, he saw the possibility, however, for a dramatic development. Architect Goodman pointed out that he could avoid expensive site work by working with the contours of the site, rather than trying to erase them by high-priced grading operations. Davenport's decision to go ahead with the project has paid off handsomely both on the site and in his profit statement.

Goodman has planned three different houses, for three different price ranges and the three different types of topography. They are: a small \$12,000 unit, and a \$17,000 split-level house, both of which are shown in these pages. Still on the boards is his third house—a rambling \$20,000-and-up version on which construction will start next spring. The main topographical feature of the site, a high ridge running down its middle (see plan, p. 82) determined the siting of the different models. The high-priced house gets the high-priced lots on top of the ridge with its view of Virginia valleys and hills. The middle-priced houses are spotted on the side of the ridge, while the \$12,000 smaller houses fill in at the bottom. The air photo above shows how neatly site-planned are the small houses (on the right) in relation to the larger ones. Also shown: the happy results of Builder Davenport's determination to preserve the wooded character of his site. After a year of site development, Davenport has proved to his own satisfaction that grading can be done around most trees rather than over their uprooted sites, also that a house can be built amongst trees without any appreciable delay.

Hollin Hills' layout is further enhanced by the determination of both the architect and builder to eliminate cement curbs, gutters and sidewalks—all over the loud protests from the local FHA office. After several months' discussion, FHA finally agreed to approving a graded, grassy swale alongside the roads. (Streets having a grade higher than 5 per cent will have a concrete valley-type gutter.) Architect Goodman further raised blood pressures of Northern Virginia FHA officials by suggest-



ing that they approve his plan for not paving the roads on the subdivision. His suggestion: gravel-and-tar-mix roads. He lost his fight and, as a result, Hollin Hills roads are blacktopped. But Goodman remains unreconciled: "I regret the necessity for installing a paved road not only because it is a conspicuous expense but also because of its hard city-like character, reflecting great heat in the summer and creating ice hazards in the winter."

For construction simplicity and economy, Goodman has restricted all his houses to large plain structural units, mainly glass and solid masonry. All the glazed casements throughout the 350-house tract are fabricated on the site, have a modular height (3 ft. 1 in.) and only three different widths (2 ft. 2 in., 3 ft. 2 5/8 in., 4 ft. 2 5/8 in.). Roof trusses, doors, shelving and closet fronts are also standard throughout. Such standardization, Goodman feels, is the only effective means of construction economy in a relatively small development like Hollin Hills which will probably be completed at the rate of about 75 houses a year. A more provocative cost-cutting decision was to reduce interior storage space in his small houses to a bare minimum (see plan, opposite). "Any excess storage space in a little house is expensive and cuts down needed living space," says Goodman in defense. To meet the storage problem he has designed an outdoor "storage increment" which is nothing more than a 4 x 8 ft. shed whose cost (\$300) is less than half that for similar space within the house structure. Another "outdoor increment" combines storage with a car shed (\$700) that is neatly connected to the house with a series of 2 x 4 ft. vertical louvers.

Having established his land and house planning, Builder Davenport next took a hard look at his financing. He conceived a development in which he acted as the building agent, at a firm price, for a client who bought a piece of land in his subdivision. By thus having a "guaranteed" sale on a contract arrangement, he could bail some of the speculative water out of his price. Says Davenport: "It's essentially a cost-plus operation, falling into my concept of the builder as a service agent for his customers."

Davenport starts out by selling a Hollin Hills lot to a prospective housebuyer. His price range, for one-third acre and up, varies from \$1,800 to \$3,000. This gives him some initial working capital. The customer then signs a contract for the construction of his house, making a down payment with provisions for further payments at various stages of construction. On a typical small house, the down payment will be around \$500. This

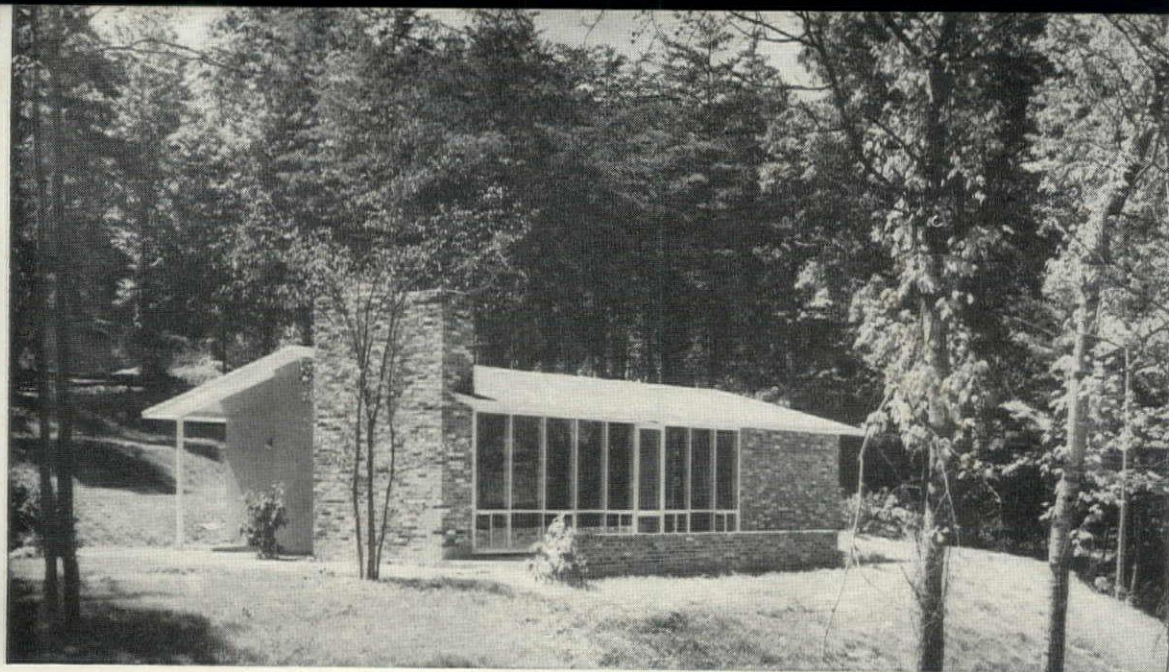
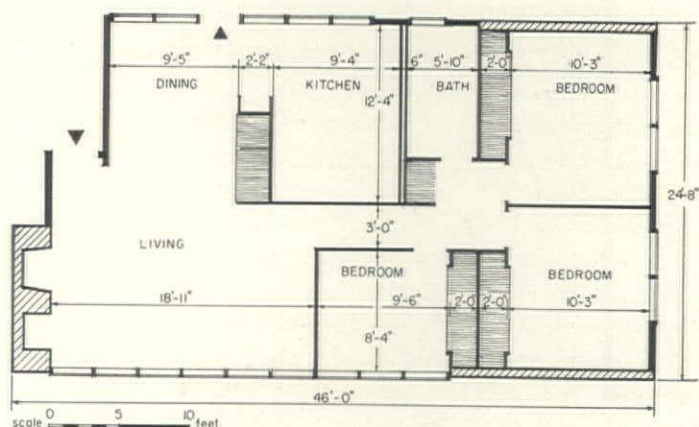
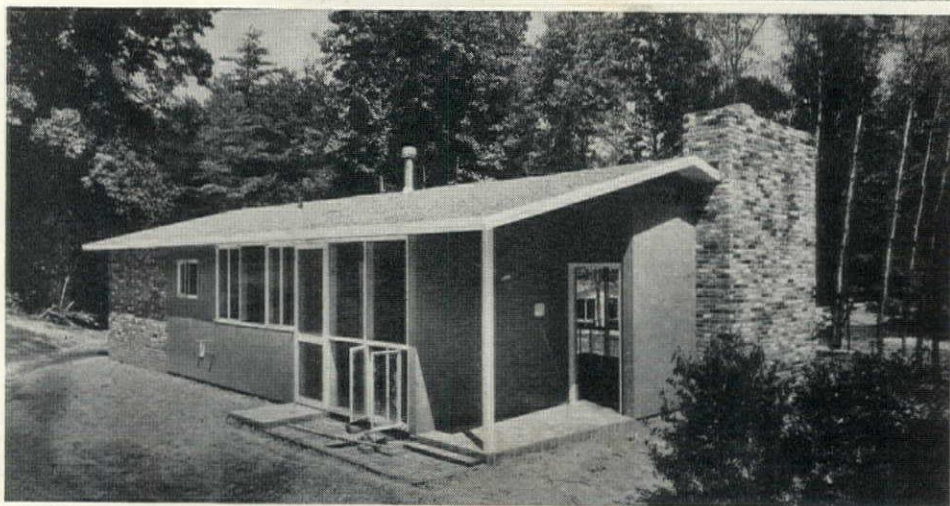


Photo: Robert C. Lautman



House plan (left) demonstrates Architect Goodman's theory that interior storage space should be limited to large closets with bulk storage in inexpensive outdoor shed.

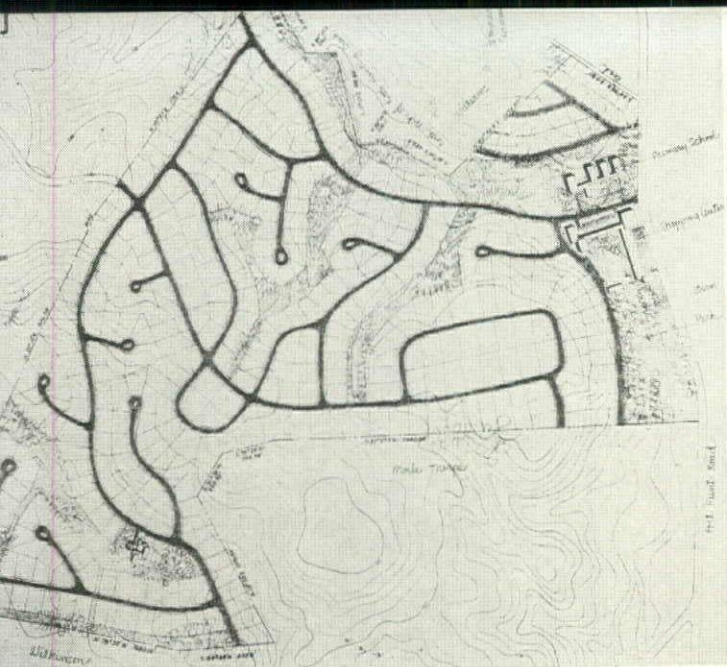
CONSTRUCTION OUTLINE (both houses): Exterior walls—cinder block, furring, gypsum lath and plaster, U. S. Gypsum Co. Floors—concrete slab. **ROOFING**—4-ply built-up. **INSULATION**—Sisalkraft Co., Celotex Corp. **FIREPLACE**: Dampers—Heatilor Co. **WINDOWS**: Sash—steel, Hope's Windows, Inc. **FLOOR COVERINGS**: Asphalt tile—Armstrong Cork Co. Ceramic tile—United Quarry Tile Co. **PAINTS**—Pittsburgh Plate Glass Co. and Benjamin Moore, Inc. **HARDWARE**—Schlage Lock Co. **ELECTRICAL FIXTURES**—Kurt Versen, Inc. **KITCHEN EQUIPMENT**: Ranges—Tappan Stove Co. Refrigerators—General Electric Co. Sinks and cabinets—Midwest Mfg. Co. Washing machines—Bendix Home Appliances, Inc. **BATHROOM EQUIPMENT**—Crane Co. and American Radiator-Standard Sanitary Corp. **HEATING**—hot air, gas fired Luxaire units, The C. A. Olsen Mfg. Co. Water heaters—Hoffman Specialty Co. Ventilating fans (optional)—Lou Blower Co.



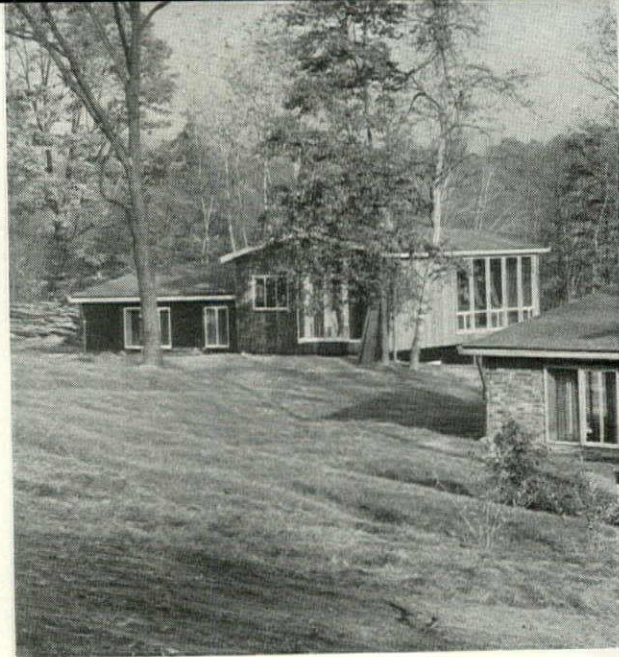
Sheltered main entry is tucked under simple gable roof. House is so designed that 4 ft. increments can be added to living room or bedroom at \$500-\$600.



Modern furniture in dining area (right) is one of several types which are sold at discount by builder to his customers under unique plan.



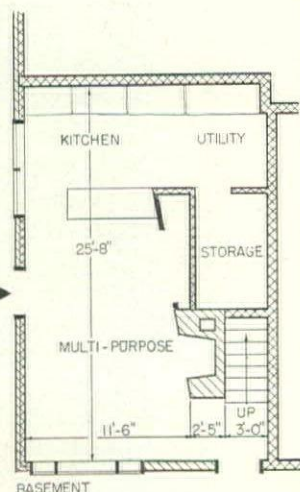
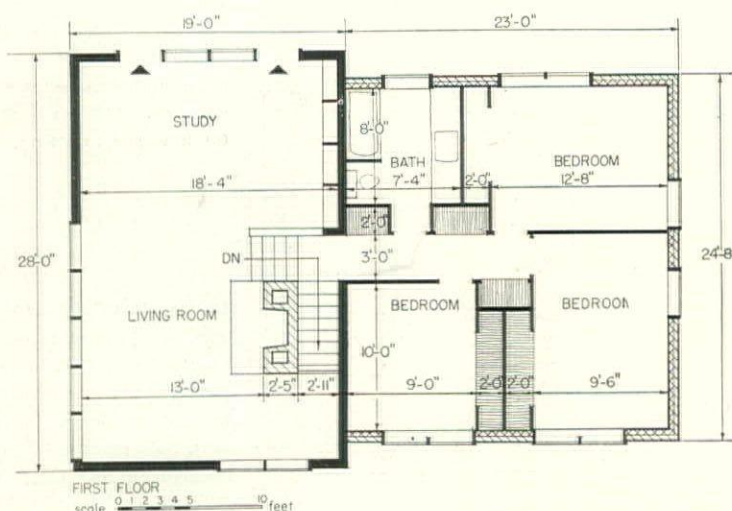
Site planning was guided by three considerations: existing contours, economic utility distribution and capitalization on scenic vistas which are a big selling point for Builder Davenport. Dedicated park areas (shaded area on map, left) are an important part of storm drainage system, also will include pedestrian walkways to future shopping center.



means, of course, that Davenport's customers have to have at least \$2,300 in equity for the house and land before they move in. Davenport points out that it is a good investment, also that they are saving on the service charges which accompany interim financing. A VA mortgage for \$10,000—the Fannie May limit—is arranged when the contract is signed. Davenport gets all but \$3,000 of this in construction payments from the mortgage house with the balance being paid off at the mortgage closing.

Davenport has extended his financing plan to cover something that is seldom seen on subdivisions—good modern furniture. Since most of his customers have already collected some period-style furniture that is ill-adapted to his contemporary houses, Davenport has arranged to sell contemporary pieces at the builder's discount. Among the firms participating in his plan: Knoll Associates for furnishings, Kurt Versen for fixtures and the Glass House of Washington for china and glassware. "It's the next best thing to getting them into the mortgage," Davenport points out. "The best thing, of course, would be to include them." Strangely enough, he also carries this discount plan over to two items—washing machines and refrigerators—which *can* be included in a package mortgage. Davenport's reasoning is that many of his customers already have these items, that the others might want to keep their mortgage costs down.

Davenport's use of VA mortgage financing is the result of his unsuccessful attempts to work out an equitable arrangement with FHA. Despite their pious talk about the value of planning, FHA's conduct in handling this subdivision shows its officials often fail to recognize a good planning job when they see one. Since the Hollin Hills project was totally different from the distilled-colonial shoeboxes they were accustomed to insuring, local officials gave Builder Davenport an appraisal of only \$9,500 on his big house, \$9,100 on the small one. Davenport therefore took his business to VA for the 40 houses he is building this year. The GI-financing appraisal: \$12,250 for the small house, with land; \$17,250 for the big one. Recently, FHA had some contrite second thoughts about their treatment of Davenport's project, have indicated to him that they will give him an appraisal more in line with the true value of his subdivision and its houses. As a result, Davenport's 1950 program of 75 houses will probably have the better-late-than-never advantage that comes with FHA-insured financing.



COST BREAKDOWN

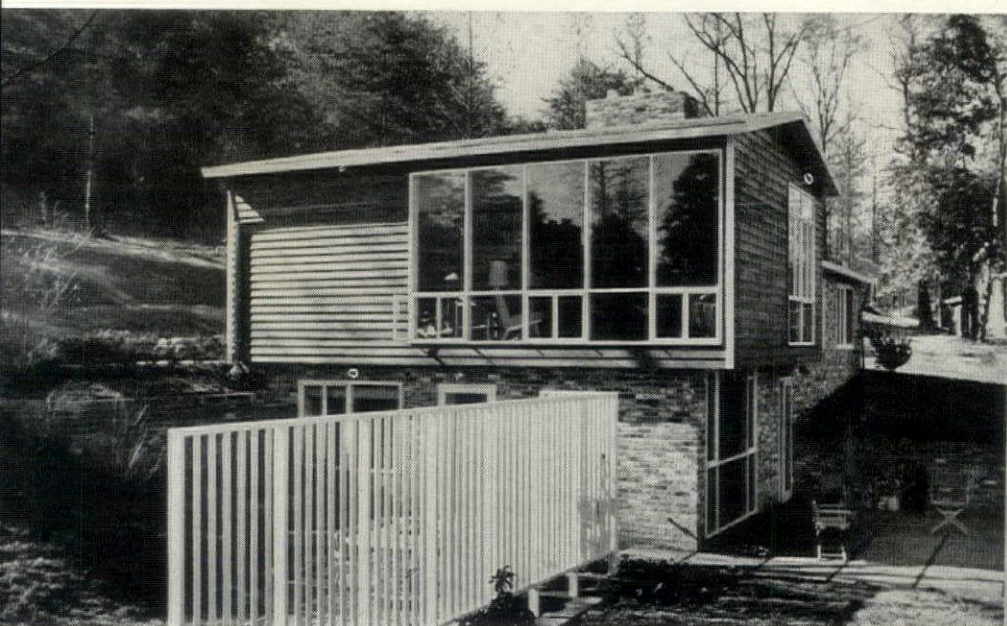
	Split-level house	One-level house
Survey	\$30	\$20
Clearing & grading site	100	85
Clearing & grading lot	50	40
Footings	275	175
Slab	475	425
Masonry & materials	2,450	1,210
Lumber & millwork ...	1,200	725
Carpentry labor	1,300	1,090
Doors, frames & fronts	525	425
Windows & glass ...	550	425
Plastering	475	600
Heating system	600	525
Plumbing	650	500
Electrical work	200	165
Roofing & sheet metal	450	225
Insulation	180	150
Painting	485	350
Bath & fixtures	250	150
Weatherstripping	50	30
Kitchen cabinets	275	240
Appliances	375	150
Flooring	375	180
Finish hardware	60	30
Iron & nails	140	100
Grading & seeding ...	400	175
Utility connections ...	100	100
Terraces & slabs	100	25
Driveway & walks ...	100	75
House clean up	50	50
General project labor ..	100	100
Overhead	750	600
Contingency items	200	100
	\$13,320	\$9,240
Building fee	1,500	1,000
Lot	2,100	2,000
Total	\$16,920	\$12,240



Split-level units, above, show calculated integration of site and house on side of hill.

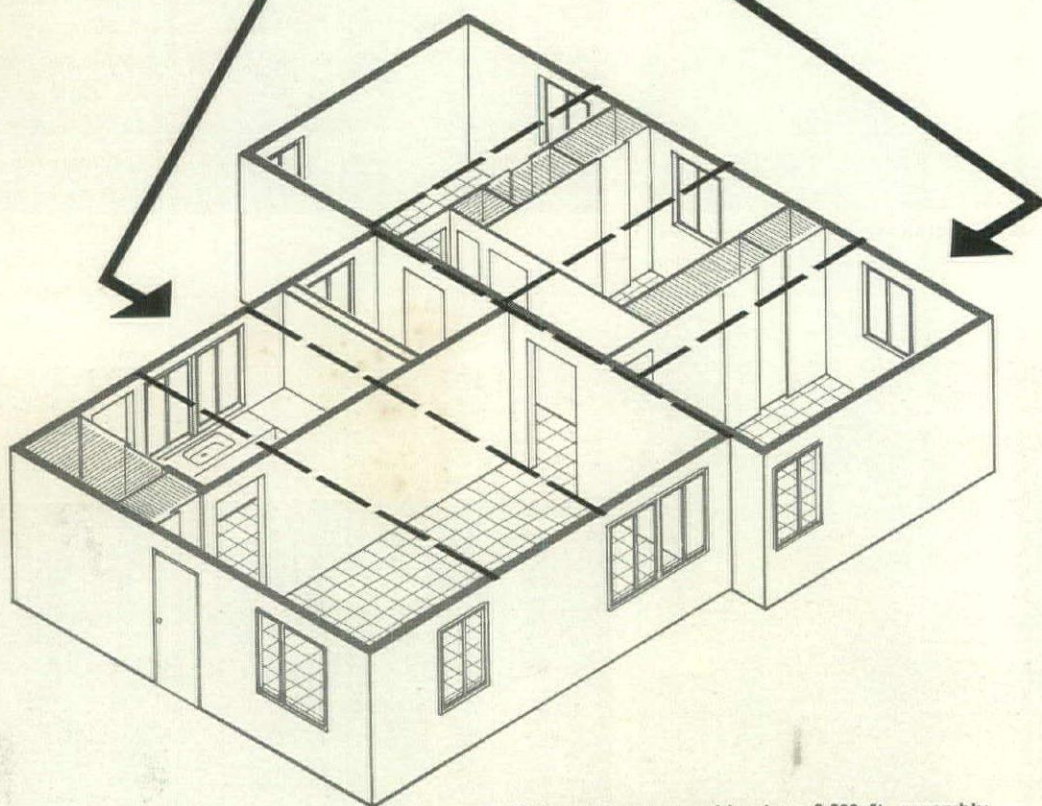


Big floor-to-ceiling windows are a dramatic feature of the house's living area. Hopper windows near floor provide ventilation.

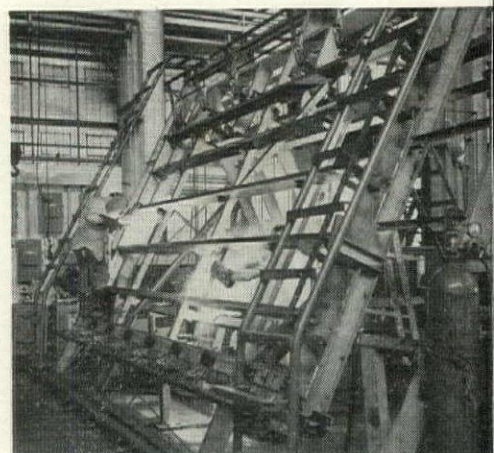


Photos: Robert C. Lautman





Reliance houses rumble along 2,300 ft. assembly line (above) in seven-piece "packages." Present production rate is a house an hour. Bolted together, sections form compact three-bedroom unit.



First operation is welding 16-gauge steel channels into wall and roof frames on large jigs. Overhead crane then moves frames to assembly line.

STEEL HOUSE, factory-built in seven pieces, sets new standard in industrialized housing

The basis for most factory-built homes has been a big package of panels of one sort or another which are assembled on the site. Reliance Homes Inc. has pushed this concept considerably further by factory producing a five-room, steel-framed house in only seven big pieces. Each section is not only structurally complete but also has all mechanical equipment, wall finishes and fixtures in place. Site operations are limited, therefore, to preparation of the slab floor, hooking up utilities and painting and wallpapering the interiors and exteriors. Resembling the TVA-prefabricated home of a decade ago in both design and production technique, Reliance's 947 sq. ft. model is now being produced at the rate of six a day in a converted war plant in Lester, Pa. on the industrial outskirts of Philadelphia.

Kingpin of the Reliance operation is its president, shrewd affable Harry Nagin. He came to this country in a steerage 40 years ago, worked his way to a civil engineering degree at Cooper Union and, during the twenties, became a vice-president of a middle-sized steel fabricating firm, Reliance Steel Products Inc., in McKeesport, Pa. An assiduous inventor who is credited with developing the steel airport landing mats of World War II fame, Nagin began working on a steel house back in 1935 as part of the steel company's development program. During the war, he worked at it harder with the idea of creating a new postwar market for the company. Like many another doodler in factory-built housing schemes, he went to Washington during the house-hungry spring of 1946 when Wilson Wyatt announced that his veteran's housing program would include a lot of prefab houses. Nagin and his sectional steel house, however, got short shrift from the Wyatt planners. He retreated to McKeesport and made what for a postwar prefabricator was a radical decision, i.e. to build his house with his own money. Reliance Homes Inc. was formed with a capitalization of about \$1 million, all of it supplied by Nagin, his friends and some officers of Reliance Steel Products.* Since then, Nagin's notions of financial independence have been amended somewhat by two RFC loans—one for \$355,000 granted in October 1948 and another for \$3,200,000 granted last June.

To supplement his steel background with expert house design and engineering, Nagin called in Architect William Lescaze and Engineer Paul Weidlinger. The resultant house went into limited production in September 1948. Although Lescaze's original design (see p. 87) has been changed somewhat by Reliance engineers, the initial production idea has remained the same.

* Although technically the two companies are separate, all of the six and a half tons of steel in the Reliance house comes from Reliance Steel Products, Inc.

A rigid frame in steel

Nagin's approach to house building is that of a steel engineer (which he is) who knows a great deal about industrial production (which he does). The Reliance production line is, in his mind, a means for attaching things to a welded steel frame. That seven of these rigid frames, with their attachments, will form a house when bolted together is probably less important to Nagin's engineering mind than the fact that he has produced each frame as simply as possible. The Reliance process is so simple as to deflate the still-current belief that production of houses in a factory must involve a lot of expensive equipment.

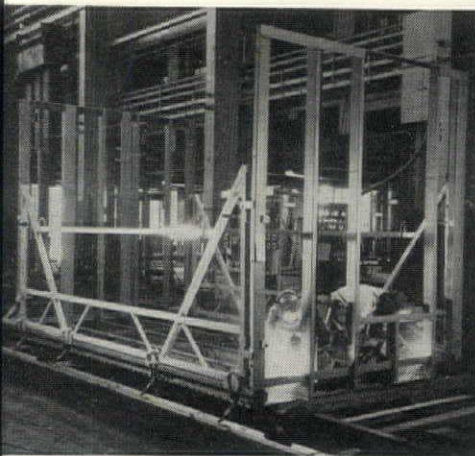
The fact is that company's tooling-up was accomplished for the impressively low figure of \$400,000. Most of this was spent on the jigs used to form the rigid frame and on the conveyor system which moves the assembly line itself. All in all, it is a bargain-basement price for a production line that has a rated capacity of 25,000 houses a year. Nagin is nonplused, however, pointing out that his use of simple production methods and orthodox materials made the line intrinsically simple. "You only spend money tooling up when it means that the job can be done simpler and cheaper as a result." It is apparent that the Lustron house violates this rule of simplicity. Produced with over \$15 million worth of machinery, the Lustron still leaves the factory in over a thousand pieces—all of which must be assembled on the site.

Because he has no high fixed equipment charges, Nagin claims that he can cut his production down to four houses a day and still make a profit—an important point in the present touch-and-go-period when his dealer organization is shaky and orders are uneven.

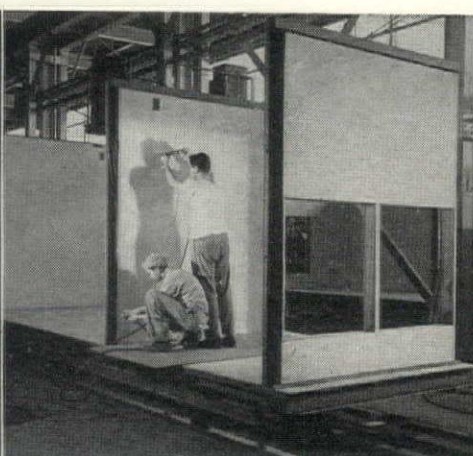
A.F.L. tries the new look

The production simplicity of his steel house has permitted Nagin to give careful attention to his labor costs. Instead of trying to work out a labor contract, with the major A.F.L. housebuilding trades, as Lustron did, he signed an overall contract for all his 250 factory workers with the A.F.L. International Association of Structural & Ornamental Workers. With his contract, he has dumped the fiction that assembly-line workers in a house factory must be recruited from the old A.F.L. building-trade unions. Since it is axiomatic that factory-built houses have to be built at factory-labor prices, the Reliance contract has hopeful implications for the new industrialized housing

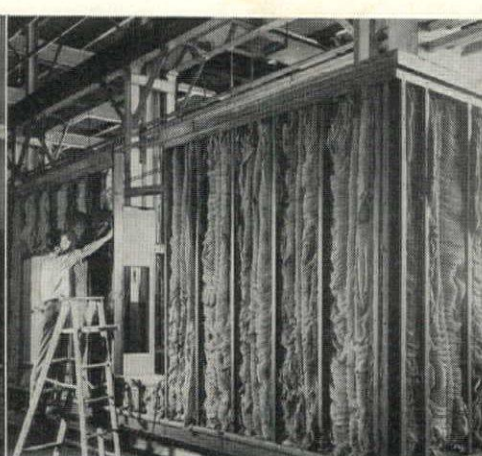
Photos: William M. Rittase



On line, individual frames are welded together to form walls and roof of one house section. Jig clamped to frame assures exact fit.



Large precut wallboard sections are screwed to frame after rough wiring. Sections are mounted roof-side down on dollies for convenience in applying ceiling panels.



Insulation is applied, followed by exterior wallboard and corrugated aluminum facing. Section is then flipped over on dolly by overhead crane and tar roofing applied.



Bathtubs and other equipment are installed. Only items not hooked up: heater; stove, washer, sink.

industry. Equally important, in terms of production costs, is the fact that most of the Reliance production can be handled by unskilled or semi-skilled "assemblers." Over two-thirds of the 300 man-hours of labor required to make a Reliance house is performed by assemblers with a maximum pay scale of 1.27 an hour.

\$4,590 F.O.B., Lester, Pa.

These production economies are all reflected in Reliance's \$4,590 f.o.b. price for its 947 sq. ft. three-bedroom model. (Lustron's f.o.b. price is \$5,700 for a 1,050 sq. ft. two-bedroom model.) Although this represents a square-foot cost of \$4, Nagin knows that it is the final price-on-a-lot that counts. He is convinced, however, that he couldn't have produced a house that was much more adaptable to a quick site operation. After being carried to the site on three trucks, the house is closed in as quickly as a crane can lift the sections off the trucks and place them on a concrete slab. Reliance time-study engineers estimate that 40 man-hours over a five-day period should be sufficient to handle the remaining operations: hooking up the utilities and mechanical equipment laying the asphalt tile floor, applying the three-ply built-up roof, painting the exterior and wallpapering the interior. Nagin, wise to the vagaries of site operations, will settle for 100 man-hours in a 10-day period. It hurts his engineering sensibilities, however, to think that it takes even this much time. In his early houses, he tried to eliminate one of the biggest site jobs—interior decorating—by applying wallpaper at the factory. The results were efficient from an engineer's view, but he was stopped by a problem that has moved many another builder to quiet desperation. No matter how expensive and how tasteful a decorating job the factory did, the wives of his buyers always wanted another color scheme. Factory efficiency soon deferred to feminine whim.

However, after examining another factory operation—installation of a heating system—Nagin made a shift from factory to site operation on economy and efficiency factors alone. The first Reliance houses had a hot air system with bulky tin ducts which gummed up an otherwise simple structure. Reliance engineers eliminated the ducts, specified instead a radiant heating system to be installed in a concrete slab on the site. The slab itself eliminated the factory-installed steel floor which was part of the original house. By eliminating the floor, over three tons of steel were saved.

The Reliance factory may produce a house that can be site-erected in jig time but it is up to its dealers to do the job efficiently. The dealer

organization is still small: only about 25 have been franchised. All are within 400 miles of the factory—a self-imposed shipping limit.

Perhaps the most important decision that Reliance has made in setting up its merchandising operations is to concentrate the sale of its houses in subdivisions rather than individual lots. (It is interesting to note that Lustron is now making a latter-day attempt to do this.) In the first place Nagin figures that his best market is with the vast majority of house-seekers who do not already own land. Secondly, he figures that his flat-topped houses look better when grouped together rather than in the uneasy company of Victorian and Colonial units. But most important is his belief that the houses can be put up more efficiently in large groups. Example: the high-boomed crane which is necessary to move the house sections from the trucks to the slab can handle eight houses a day. Thus, its flat daily rental (\$100) can be prorated in a subdivision operation with resultant economies. Although dealers are not prohibited from selling houses on individual lots, Nagin tells them that he considers this a pastime only for slack periods. Or to use his pointed phraseology: "Between subdivisions."

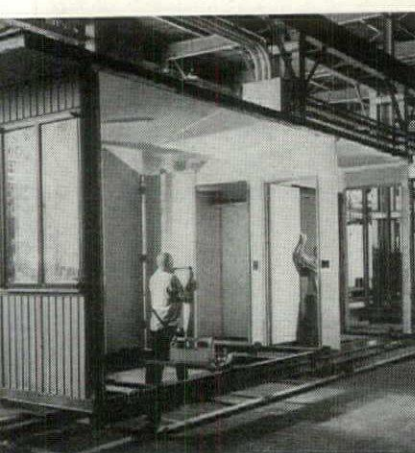
The Dealer's Dilemma

Typical of the Reliance dealers, who sell both on and off their subdivisions is Charles Lawrence, a former government housing official who holds the Reliance franchise in the Washington, D. C. area. Lawrence has been erecting Reliance houses in Fairfax County, Va. for over a year. In that time, he had filled a small 30 lot subdivision and put up about a dozen houses on buyers' own properties.

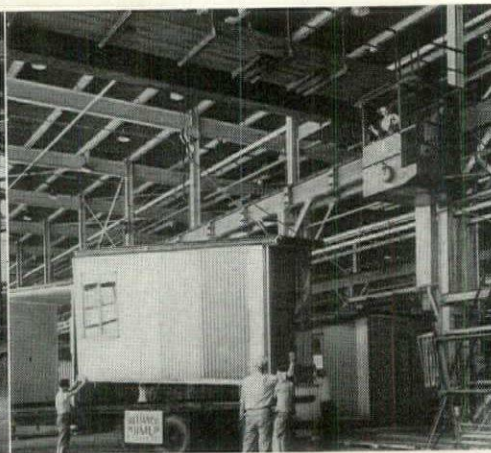
On his small red-clay subdivision just outside of Alexandria, Lawrence is selling his house for \$10,490. The difference between this figure and the \$4,590 price he paid for the house at the factory is perhaps the best evidence of how site costs mount up even on a house as completely factory-finished as the Reliance. The biggest item is the 60 x 100 ft. lot and its improvements, including streets, walks, utility lines and the concrete slab with its embedded radiant heating coils. Lawrence figures this at \$3,000. Finishing the house after it arrives on the site accounts for another \$1,200. These costs, plus transportation charges at \$2 per mile (\$278), almost double the original cost of the house. The rest of his selling price (\$1,422) covers his overhead and profit. Lawrence agrees that his price is high, but he points out that, dollar for dollar, he is selling more house for the money (\$11 per sq. ft.) than the great majority of builders in his area. The solution to lower priced houses, he points out, is to build

(Continued on page 110)

Robert C. Lautman



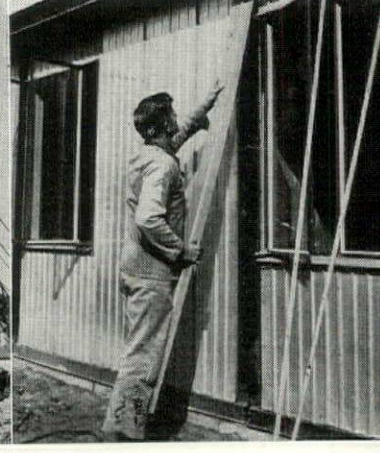
Installation crews walk along with section as it moves down the line at a 5-ft.-a-minute pace. Here doors are hung and hardware set.



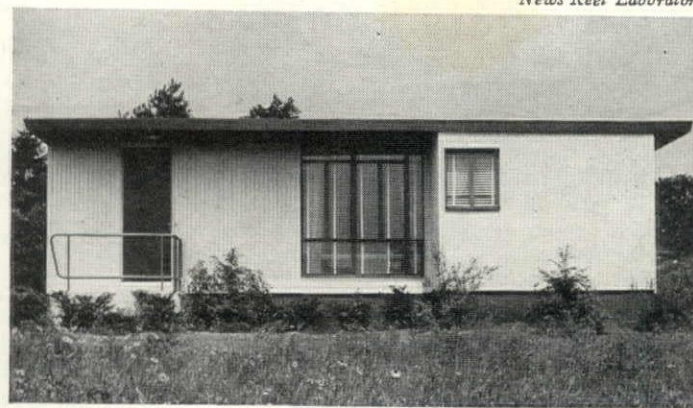
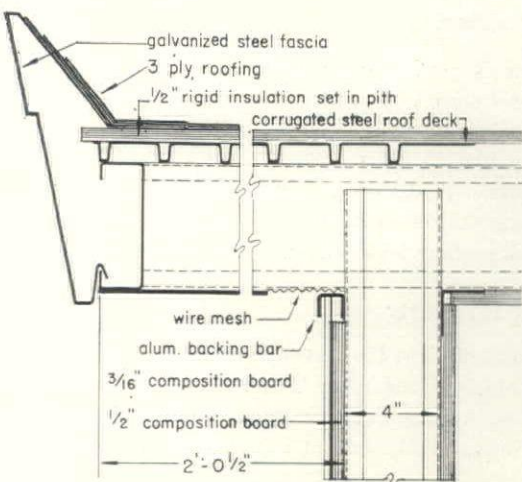
After final inspection, seven sections which will form a complete house are loaded on three-and-a-half trailer trucks. To utilize half load, houses go out in even lots.



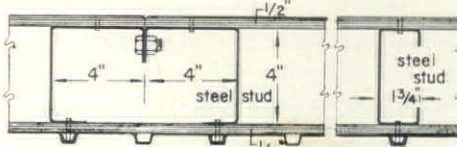
On site, high-boomed crane puts sections in place, with five-man crew, in an hour. House above is older model, rests on piers instead of slab used with 1950 version.



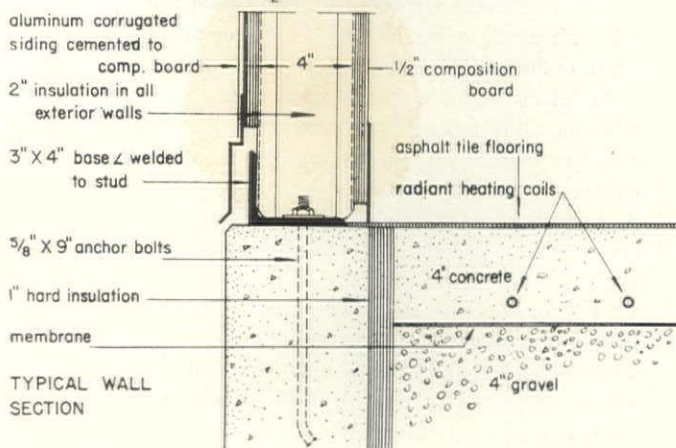
Exterior aluminum battens are snapped into place over joints after sections have been bolted together.



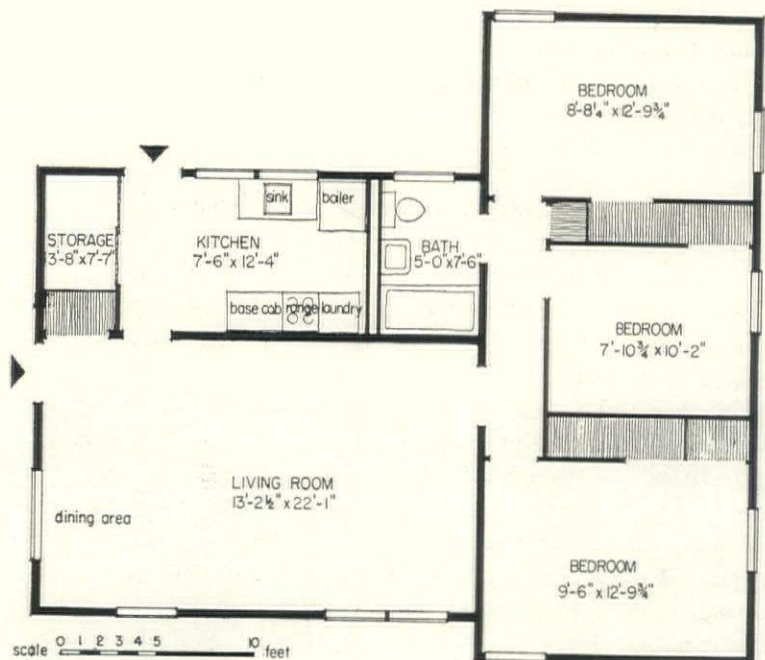
Architect Lescaze's well-proportioned facade (left) was changed by the company's engineers during the planning of their 1950 model, now in production. The result: a less attractive exterior (below). The house's simple corrugated-aluminum siding clearly reflects, as indeed it should, its industrial origins.



PLAN OF TYPICAL STRAIGHT WALL CONNECTION BETWEEN SECTIONS

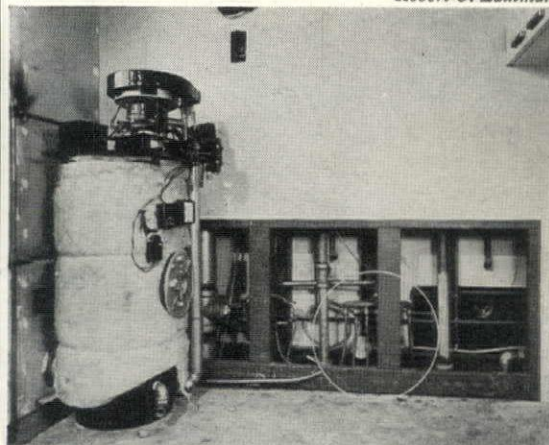


TYPICAL WALL SECTION



Although the Reliance house is factory-produced, it does not lose to more conventional houses in its concern for family living requirements. In fact, it provides more living space than orthodox houses of the same exterior dimensions because of its factory engineering. Example: the compact heating and plumbing space. Also noteworthy are the three bedrooms, the large living room and the size of the closets and storage room. An additional bedroom section can be included for about \$300.

Robert C. Lautman



Utility hook-ups are concentrated in simple plumbing wall. Concrete slab, with embedded radiant heating coils, must be carefully prepared to mesh with factory-installed pipes.

William M. Rittase



BUILDING REPORTER

--a quick look at many new ideas featured by many new buildings

This is a new department which has borrowed an old name. It will serve two purposes: 1) Whereas, heretofore, the FORUM has had to confine its monthly report to a dozen or so new buildings of outstanding design, this new "short story" department will make it possible to keep FORUM readers informed on the new departures and other interesting features of all important new projects. 2) Whereas the News department at the front of each issue is limited to news of Building, as opposed to buildings, this new department will make a place for many brief news items about buildings and about the people who design, engineer and operate them.—Ed.

100 Park Avenue

Michael Miller



Updating with air conditioning

Rockefeller Center is getting ready to meet competition from the horde of new office buildings (all of which are air-conditioned) by offering air conditioning to all its present tenants at something like 45 cents a sq. ft. additional rent. One-third of the Center's 4,000,000 sq. ft. is already air-conditioned. Air conditioning the other 2,500,000 sq. ft. will be one of the biggest air conditioning jobs to date.

New York City's new skyscraper

From a quality point of view, the best of New York's post-war office buildings outside Rockefeller Center is the 35-story tower which 100 Park Avenue Corp. has just completed on the site of the old Murray Hill Hotel at Park Ave. and 40th St. (photo, left).

Like all the others (see *News*), it has taken advantage of air conditioning and modern lighting to fill every cubic inch permitted inside the zoning envelope, with the result that some of the office space is 60 ft. from the nearest window. And like almost all the others, the air conditioning is a split system with units under every window to take care of the outside zone. (The air conditioning cost \$2,250,000 or approximately \$5 a sq. ft. of floor area.)

Architects Kahn & Jacobs wanted to design the building with an all-metal and glass exterior, but compromised on columns faced with brick. Continuous windows run from column to column above aluminum spandrels backed up with 8 in. of brick. (The original specifications called for stainless steel mullions but an aluminum fabricator "stole" this business from the steel companies by volunteering a bid of \$36,000, or approximately \$12 a mullion, below the best stainless steel quotation.) The casual observer might think all the windows and spandrels are alike, but actually 14 different widths had to be fabricated, with the widest less than 2 in. wider than the narrowest. This lack of standardization added considerably to the cost of the aluminum windows and spandrels. (The aluminum fabricator assumed \$56,000 of the difference.)

Inside finishes underline the careful attention given to maintenance: where marble walls turn a corner, the corner is rounded off to prevent chipping; walls meet floors in a curve instead of a dust-catching, difficult-to-clean right angle; lavatory walls are tiled to the ceiling instead of to the usual half-way point.

The building is 80 per cent rented with the tower rents running up to \$6.25 a sq. ft. The biggest block of space was rented to American Can for 20 years at a rate somewhere between \$4.25 and \$4.50 a sq. ft.

General Contractor: George F. Fuller Co.

A new use for high ceilings in old buildings

New York City's smart department store, Saks Fifth Avenue, has just been air-conditioned from top to bottom without sacrificing an inch of floor space on any of its seven sales floors. This was done by taking advantage of the generous story height (14 ft.) to hang 34 similar shop-prefabricated central stations from the ceiling, each 6 ft. high and about 12 ft. square; each containing a mixing plenum, a stationary filter, an electrostatic filter, dehumidifying coils, fans, and all the other necessary equipment.

Where this hung ceiling trick has been used before, the result has usually been a very tough maintenance problem, with the maintenance men crawling around the machinery on all fours and carting filter dirt out by hand. At Saks, on the contrary, Engineer Charles S. Leopold claims that maintenance will be almost ideally simple. The 6 ft. height of the units enables maintenance men to work standing up, and dirt from the filters can be piped out through the central vacuum system. Vibration of the fans is picked up by a three-point suspension for the fans and the motors. The plenum is lined

with air acoustic sheets behind perforated metal pans, with the result that no noise from the air conditioning machinery reaches the work and sales areas immediately below.

Store design which bucks the trend

Bonwit Teller's new \$2 million women's specialty store in Chicago challenges all of the generally accepted principles of contemporary store design (photos, right). It has no open front, no blank, windowless walls, no open planning, no flexible partitioning, no showcases, no modern furniture, no new lighting fixtures. Instead, Bonwit's six stories are subdivided into separate specialty shops by permanent ceiling-high partitions comprised of stock storage facilities. These shops are sumptuously furnished in period furniture, lighted by ornate chandeliers and recessed ceiling spots, and decorated in quiet colors (gray, pink, canary yellow, light blue, etc.) and even wallpaper.

Thirty-seven large windows are punched out of the building's two limestone facades. Some of them have no relation to the interior plan since they light fitting rooms which are not as wide as the windows. Others are curtained and draped to add to the parlor-like atmosphere of the salesroom which they light. One of these (top photo) is two stories high, flanked by office mezzanines over the second floor fitting and stock rooms. On the ground floor, only one of these windows is a real show window (and a small one, at that); the others are used to daylight the salesrooms.

Bonwit's new store is highly successful. Its design, like its merchandise, caters to a highly fashionable clientele which apparently prefers to shop in a quiet, plush environment reminiscent of "home." (In purpose and design, it is strikingly similar to the I. Magnin's store in San Francisco—FORUM, May '48). Architects: Shaw, Metz & Dolio. Interiors by William Pahlmann, Associates. General Contractor: George A. Fuller Co.

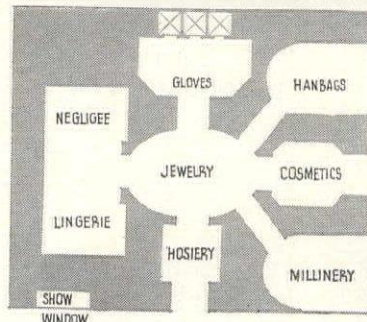
New ideas amid New England conservatism

In many respects, including its overall appearance, the new 26-story John Hancock Building in Boston is a 20-year-old office building. Indeed, some of its details date back 20 centuries, for it demonstrates the traditional concept that, for some reason or other, insurance company stability must be equated with Greek temples and Egyptian pyramids. (The columned temple is at the bottom; the corbelled pyramid, on top—see photo right.)

Hidden within John Hancock's thick, traditional skin, however, are several new ideas in office building design and construction:

- ▶ The skin of sandstone is insulated with 2 in. of foam glass. It is claimed not only to cut down annual heating and air conditioning costs but to pay its way by lowering the required capacity and initial cost of the heating and cooling equipment.
- ▶ All windows are double glazed and set in horizontally pivoting aluminum sash to permit washing from the inside. (Their insulating properties are claimed to produce savings in heating and air conditioning which more than offset their higher initial cost.) Windows and aluminum spandrels were prefabricated units and raised into place in one piece.
- ▶ Windows are fitted with cotton-wool mohair draperies, instead of the usual Venetian blinds, because John Hancock figured that they are cheaper to install, easier to maintain (they will be dry cleaned every year or two and replaced every ten years), more colorful in appearance and, when pulled, they will cut interior sun heat by 50 per cent giving the shielding effect of Venetian blinds tilted at a 45° angle.
- ▶ The 18 passenger elevators are supplemented by two sets of reversible electric stairways running from the basement to the eighth floor to help carry John Hancock's 5,000 employees

(Continued on page 112)



Bonwit Teller's Store

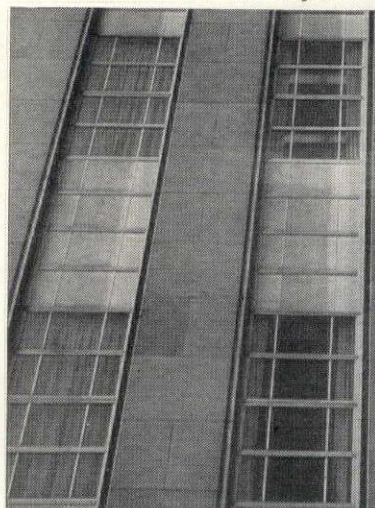


Photos (above) Hedrich-Blessing Studio



John Hancock Building

A. F. Lydiard



Newspaper plant with a view

One of the minor requirements of a newspaper is to satisfy the public's curiosity as to how the paper is printed. This function has been admirably provided for in the new "Minneapolis Star & Tribune" plant by means of a public observation gallery. Here visitors may watch the presses without getting in the way of pressmen and without suffering from the terrific din of the rolling presses. The partition glass is of the double, insulating variety—one of the few instances in which this exterior weather-insulating material has been put to use as an interior sound barrier. Architects: Larson & McLaren. General Contractor: C. F. Haglin & Sons, Inc.

Haskell



SHOE PLANT—light industry takes a new stand in the center of Chicago

SHAW, METZ & DOLIO, Architects and Engineers

CAMPBELL, LOWRIE, LAUTERMILCH, General Contractor

In the present ebb tide of industry from America's big cities, this building is an occurrence of note. The Florsheim Co.'s new 2½ million dollar structure houses: two complete and separate shoe factories; a cutting factory, shipping, receiving, and storage facilities; and general administrative offices—and it is built in a location near the heart of Chicago.

There are three tangible reasons for Florsheim management's decision to build in Chicago rather than to follow other light industry to the clover fields:

1. Convenience to Chicago's important terminals (and Chicago's convenience to the nation) are important factors for sales and purchasing for this national operation.

2. This location enjoys a good labor supply, which has been explored and developed over a period of years at Florsheim's old location in this area, a rented building across the street.

3. There is easy access from administrative offices to banks and other offices in the downtown business district of Chicago.

A fourth advantage—less tangible but no less deliberate—is the advertising value in the location of this obviously new, obviously modern, obviously efficient plant right next to Union Station where it will be seen every day by thousands of people.

There are six floors of above-ground space in the building plus a ground floor which utilizes the sloped site to include a private parking area and a protected shipping dock wider than the average Chicago street. When the building was first contemplated, the owners had searched for a flat site, but the architects converted the slope of this parcel into an asset.

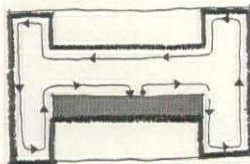
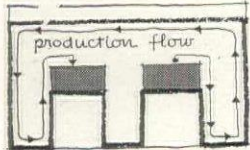
The first floor is office space, and on the five upper floors manufacturing operations are lined up on the perimeter of the building to take advantage of natural light and air. Processing of leather, the basic manufacturing material, is planned in a series of operations which progress around the perimeter

of the building, starting on each floor at the elevators and moving around the entire perimeter, ending again at the service core. This emphasis is born in the importance of daylight in matching leathers and other colored materials.

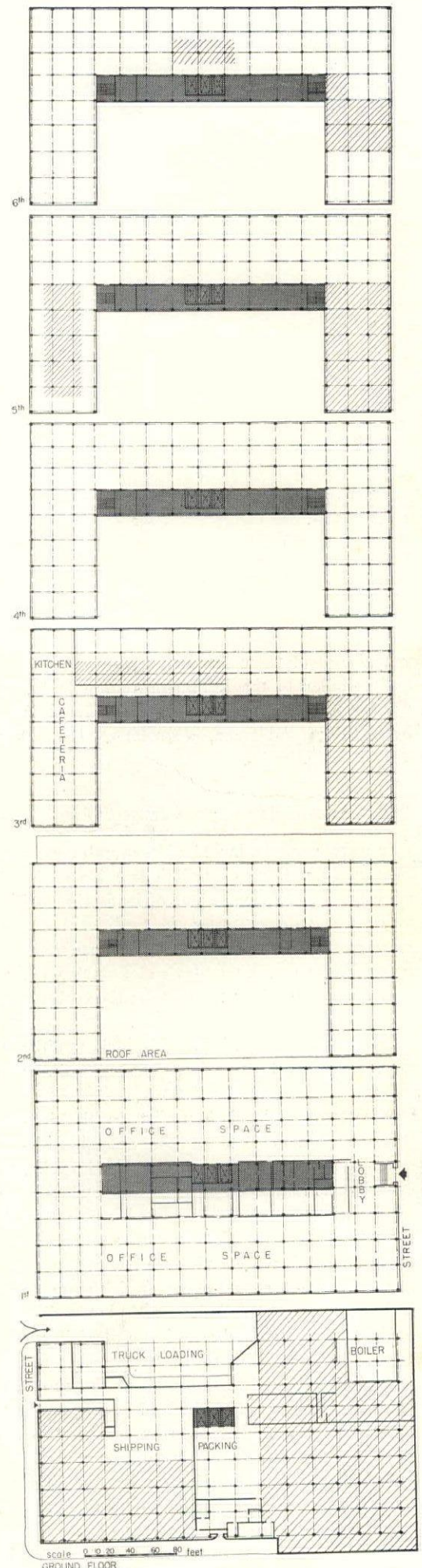
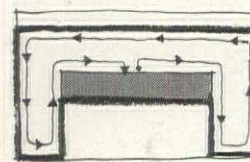
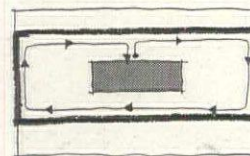
Four shapes were considered for the structure (see sketches at left). The E plan was discarded because of the narrowness of the courts, high square foot area, and large number of angle turns in the production flow. The H had the same faults and in addition lacked the long north exposure to efficient light. The U produced the proper relation of daylighted perimeter to minimum area—200 ft. more perimeter than the rectangle with about 3,000 sq. ft. more area (none of it interior waste space) and good cross ventilation.

In order to be sure that the north light would not be blocked by future building on that side of the Florsheim plant, the factory portion above the first floor was set back 23 ft. from the lot line. Similarly, the mechanical core, which is fundamental to all floors and which would have floated in the center of the rectangular plan, is placed on the exterior also, gaining natural ventilation and daylight for lockers and toilets.

The tall ribbon windows in this light-thirsty building are neatly detailed, flush with the brick facing. Behind them the concrete frame takes the form vertically of round mushroom columns, a happy switch from the usual four-cornered fireproofing of set-back columns.



Photos: Hedrich-Blessing Studio

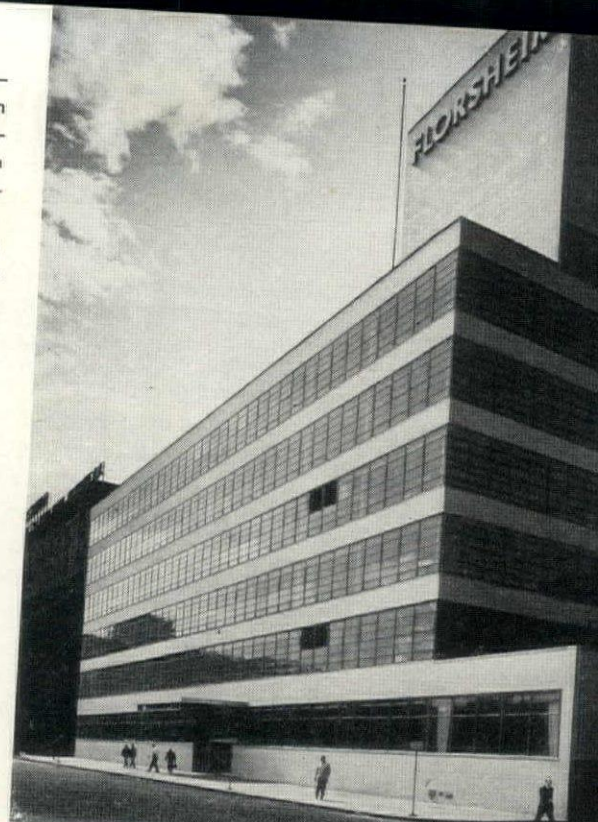


Hatched areas in plans above are storage. Shaded areas are services, elevators, stairs, toilets, and locker facilities.

COST BREAK-DOWN

Excavating & backfill	\$ 33,189
Concrete piles	185,141
Masonry, concrete work & misc. items	1,037,860
Structural steel	9,914
Miscellaneous iron	40,546
Precast concrete roof slabs..	621
Steel sash	46,253
Roofing	8,535
Waterproofing, metal flashing	7,384
Calking sidewalks	1,443
Fire escapes	7,020
Doors	25,936
Ornamental Metal	12,648
Plastering	18,522
Partitions	85,303
Cabinet & millwork	44,802
Hardware	7,213
Acoustical ceiling	28,670
Painting	29,775
Rubber & asphalt tile	16,799
Asphalt, marbelette floors ..	35,418
Ceramic tile	3,239
Glass & glazing	55,832
Plumbing	88,924
Heating	164,827
Electrical	217,447
Air conditioning	121,555
Process exhaust	34,513
Sprinkler work	77,553
Pipe covering & insulation...	52,310
Freight elevator, dumbwaiter	75,811
	\$2,575,021

CONSTRUCTION OUTLINE: Exterior walls—reinforced concrete spandrel beams faced with brick. Steel—E. F. Hauserman Co. Ceilings—reinforced concrete or Acoustone, U. S. Gypsum Co. ROOFING—Koppers Co. INSULATION—Celotex Co., Zonolite Corp. and U. S. Gypsum Co. WINDOWS: Sash—projected steel, Truscon Steel Co. ELEVATORS—Westinghouse Electric Corp. FINISH FLOORING: Lobby—Marbelette, Marbelette Co. Office area—rubber tile, Hood Rubber Co. Plant area—industrial mastic, The Flintkote Co.; installed by Cemansco Co. Private offices—carpet. WALL COVERINGS—wood paneling. DOORS—Dahlstrom Metallic Door Co., The Kinnear Mfg. Co., Pittsburgh Plate Glass Co. ELECTRICAL INSTALLATION: Wire and cable—General Cable Co. Fixtures—Mitchell Mfg. Co., Electric Mfg. Co. and Benjamin Electric Co. Switches—Square D Co. and Wurdack Mfg. Co. Conduit—General Electric Co. Switchboard—Wurdack Mfg. Co. TIME CLOCKS—Edwards & Co. PLUMBING FIXTURES—Crane Co. Toilet partitions—Sanymetal Products Co. Pumps, etc.—Weil Plumbing Co. Water heater—American District Steam Co. KITCHEN EQUIPMENT—Imperial Restaurant Supply Co. HEATING AND AIR CONDITIONING—two-pipe vacuum steam system with Carrier Corp., year round air conditioning. Radiators—Vulcan Mfg. Co. and Trane Co. Fans—American Blower Co. Filter units—American Filter Co. Coils—Trane Co. Controls—Johnson Service Co. Compressors—Worthington Pump & Machinery Corp.



Above, view of east side of building. Enormous sprinkler tanks and dust collectors are gathered together in tower which rises 50 ft. above the roof and is used as an effective name plate for the structure. Below is view of south side of building.



THREE SHOE STORES

In recent years competition among shoe stores has been so keen they have been forced to do the very best planning of their space equipment. As a result, there is no type of store which has shown better progress in developing improved design. All of three of the best new shoe stores are shown on these pages. All of them have been notably successful, though it would be hard to imagine how three stores could be much more different. Their variety ranges all the way from the almost monastic simplicity of the Coward store in Brooklyn to the Hollywood lushness of the Innes store in Los Angeles; from a stern steel mesh wall to an all-glass facade and on to "open-air plan" in which it is hard to tell where the outdoors ends and the store begins. There is still no one best plan for shoe stores. There is still plenty room for individualism, imagination and creative planning.

Located in the base of the new Prudential Building in Los Angeles, the store pictured at the right is designed as an enticing customer trap, baited with \$3,000 worth of ornamental vegetation (some growing, some dead) which serves as the backdrop for shoes priced at \$8 to \$70 a pair. Various optical tricks are used to pull the customer's eye—and, indeed, the customer himself—into the store. At the main entry (large photo) a kidney-shaped showcase rolls right out onto the sidewalk and exterior showcases and planting are carried into the store—right through the glass front which, during store hours, is rolled out of sight. Thus, the window shopper is led into the store without knowing it—the epitome of the open-front idea.

A second entry on this Wilshire Boulevard front features heavy redwood frames built in perspective to entice men into their half of the store. Its front is a thin all-glass showcase which is revolved 90° during business hours to open the store to the street. A third entry at the rear, opposite a huge parking lot, is equipped with another disappearing glass wall. By manipulating the three movable fronts, the store manager controls the breeze which comes from the sea each afternoon and, during hot weather, provides natural air conditioning.

Inside the store, the mezzanine, carrying rest rooms, lounge and executive offices, is screened with a translucent glass front facing the main entry. It is decorated with a back-lighted floral motif and serves the dual purpose of attracting sidewalk observers and lighting the center of the shop.

Although admirers of stark simplicity will probably raise their eyebrows at the store's jungle-like decor, and its somewhat confusing subdivision of interior space with huge floating planes, no one can deny the store's success. Says the manager: "we are doing better than twice the volume of business we anticipated."

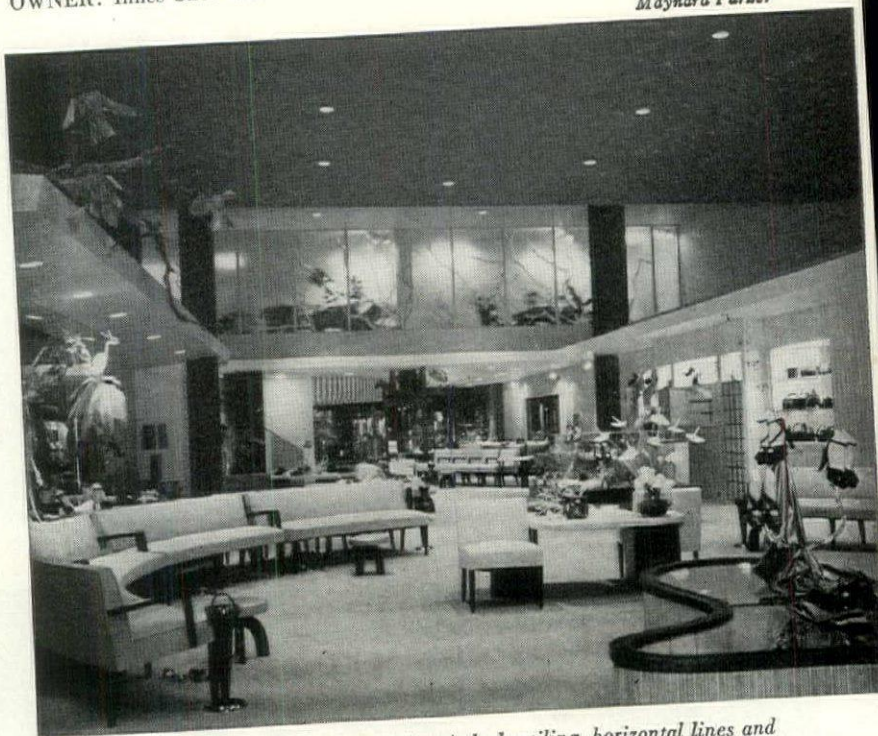
Total cost: \$159,000, excluding carpet and furniture. The three store fronts cost \$20,000, including the sliding glass panels at \$1,100 each, the revolving showcase at \$2,100 and the exterior display cases at \$5,655. Vertical scoring of plaster for decorative effect added 50 cents per sq. ft. of wall. Recessed ceiling spotlighting cost about the same (\$1.50 per sq. ft.) as regular commercial incandescent lighting but required one-sixth as many fixtures and produced a better, more attractive installation.

FINISHES AND EQUIPMENT: STRUCTURE—metal lath and plaster, Flag-crete veneer. Interior partitions—scored plaster and scored wood with redwood stripping, gunmetal mirror top and clear mirror sides. **FINISH FLOORING**—carpets and asphalt tile. **WALL COVERINGS**—cork insulation, Armstrong. **FURNISHINGS:** Chairs and tables—Paul Co.; Sanitas—Interchemical Co. **METAL TRIM AND HARDWARE**—Kawneer Co. **ELECTRICAL INSTALLATION**—Rudolph Wendel. Wood nymphs—Mel Hoffman. Circus mural—Tony Duquette. Glass screens—Mississippi Glass Co.

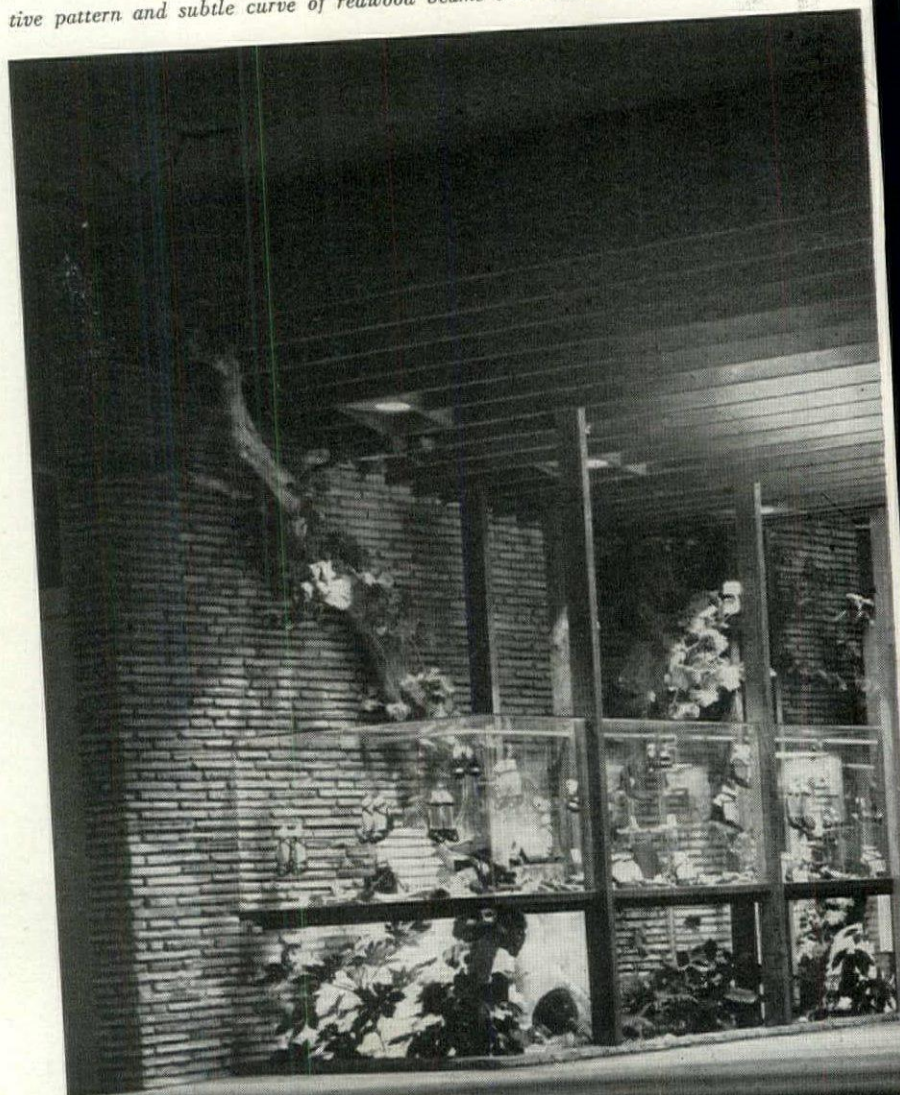
1. Open front store in Los Angeles

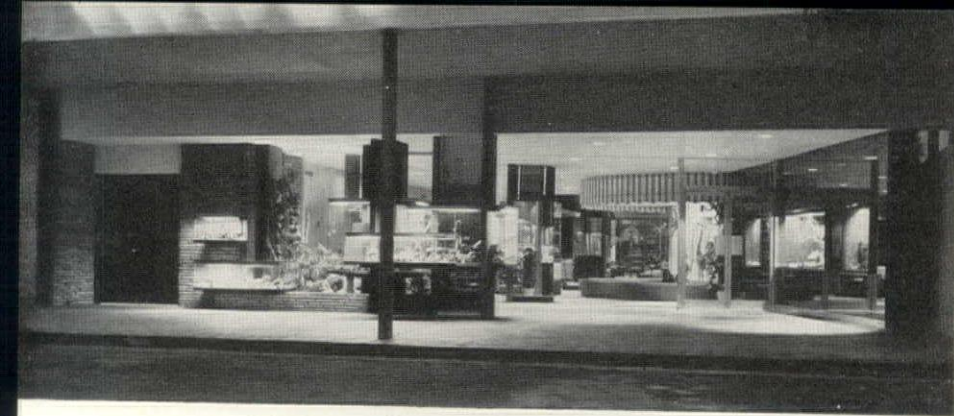
BURTON A. SCHUTT, Architect
BURKE & WATT, Interior Contractors
OWNER: Innes Shoe Co.

Maynard Parker

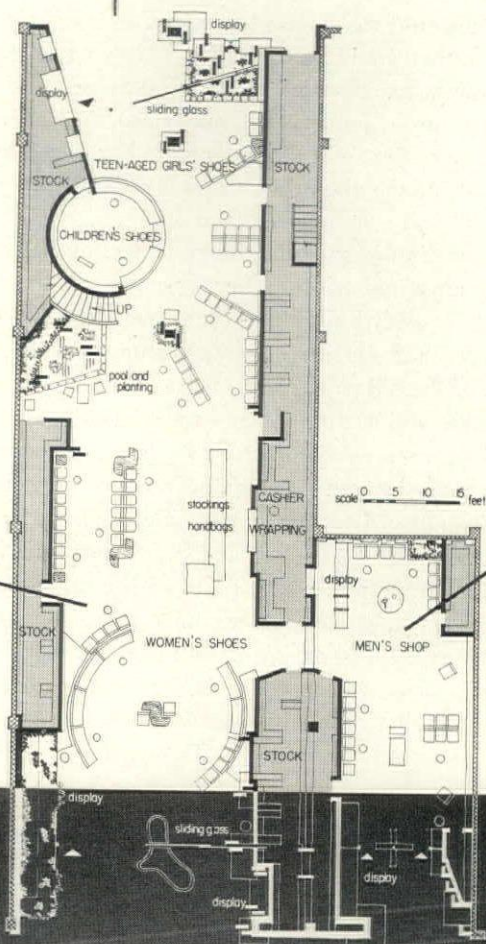


In the two-story ladies' department (above) dark ceiling, horizontal lines and furniture arrangement draw shopper's eyes deep into the store, as does repetitive pattern and subtle curve of redwood beams over main entry (below).



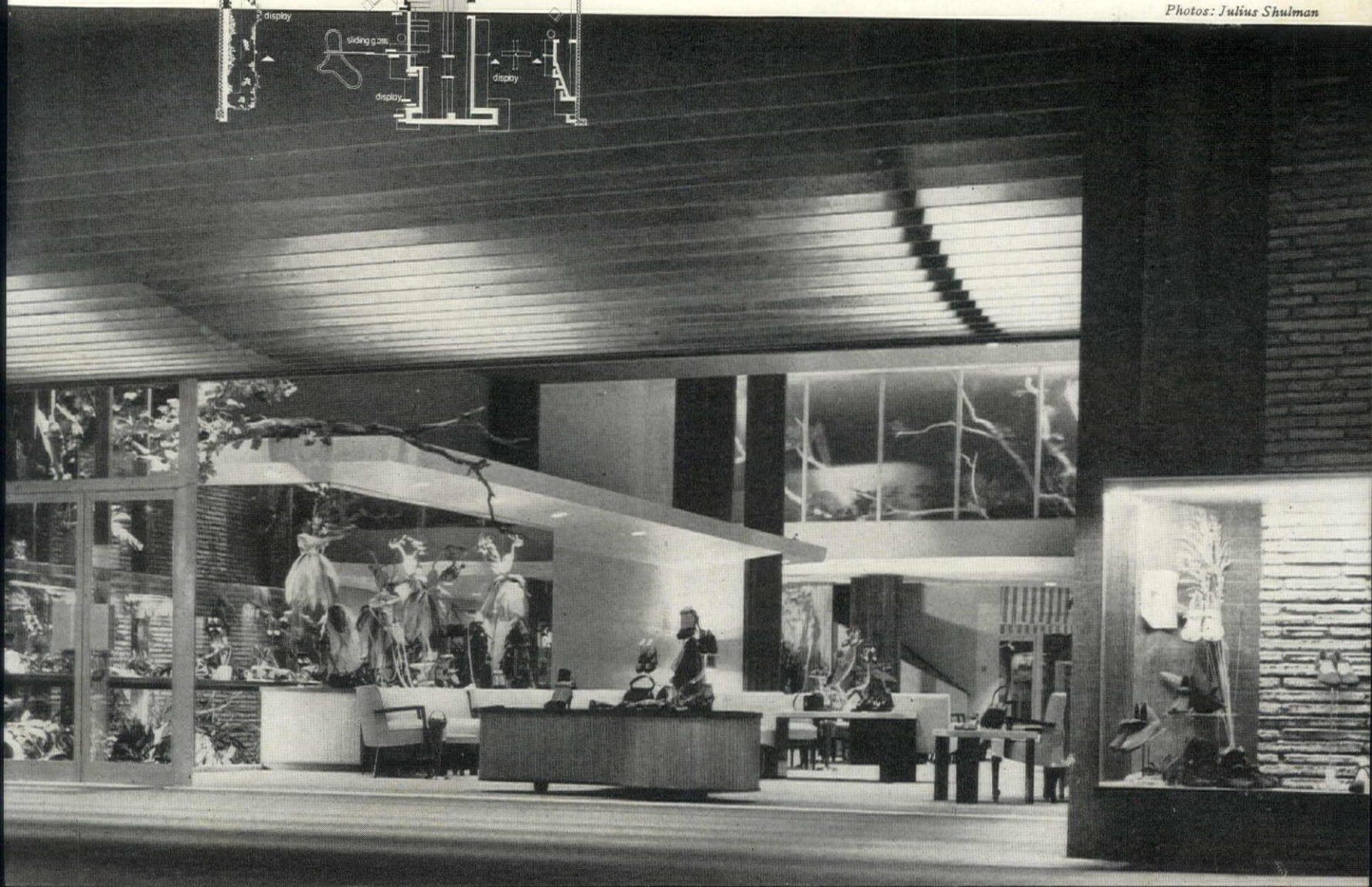


Half of the front opposite the rear parking lot is completely opened (by a disappearing glass wall) to the children's department which features a depressed circus ring complete with a rug of saw-dust-like appearance and hobby horse chairs.



Cork and redwood walls give a rich, warm feeling to men's department. Cork panels of various thickness (1 to 6 in.) and sizes cost only \$175.

Photos: Julius Shulman



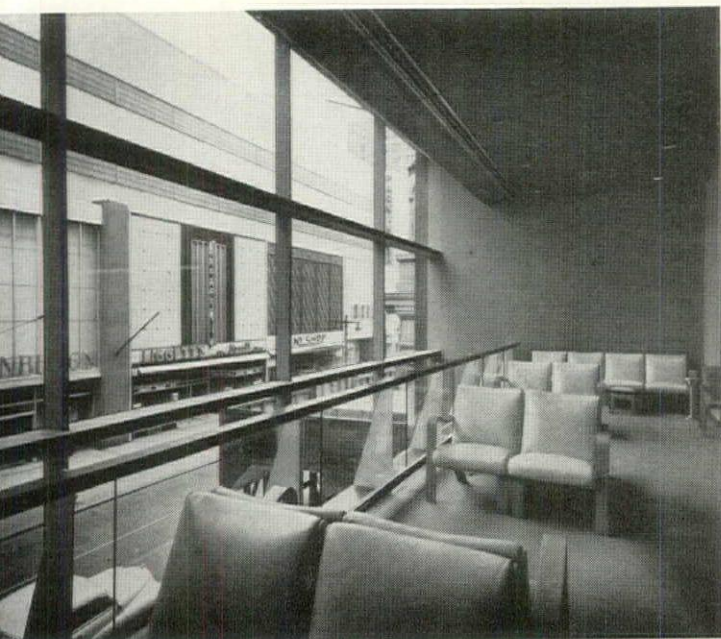
2. Glass front store in Philadelphia

OSCAR STONOROV & LOUIS I. KAHN, Associated Architects

CRONHEIM & WEGER, Mechanical and Structural Engineers

JOHN A. ROBBINS, INC., General Contractor

OWNER: Coward Shoe, Inc.



Clearly visible from the street is the women's department on the second floor (above). The angle of vision, however, gives privacy to the fitting process.



Stairway (above) visible from all first floor departments leads up to the women's section. Wrapping and other services are grouped around it.

Men's department (right) is divided from children's and accessories sections by columns and specially-designed showcases. Lighting combines incandescent down-fixtures with trough lights using exposed fluorescent strips.

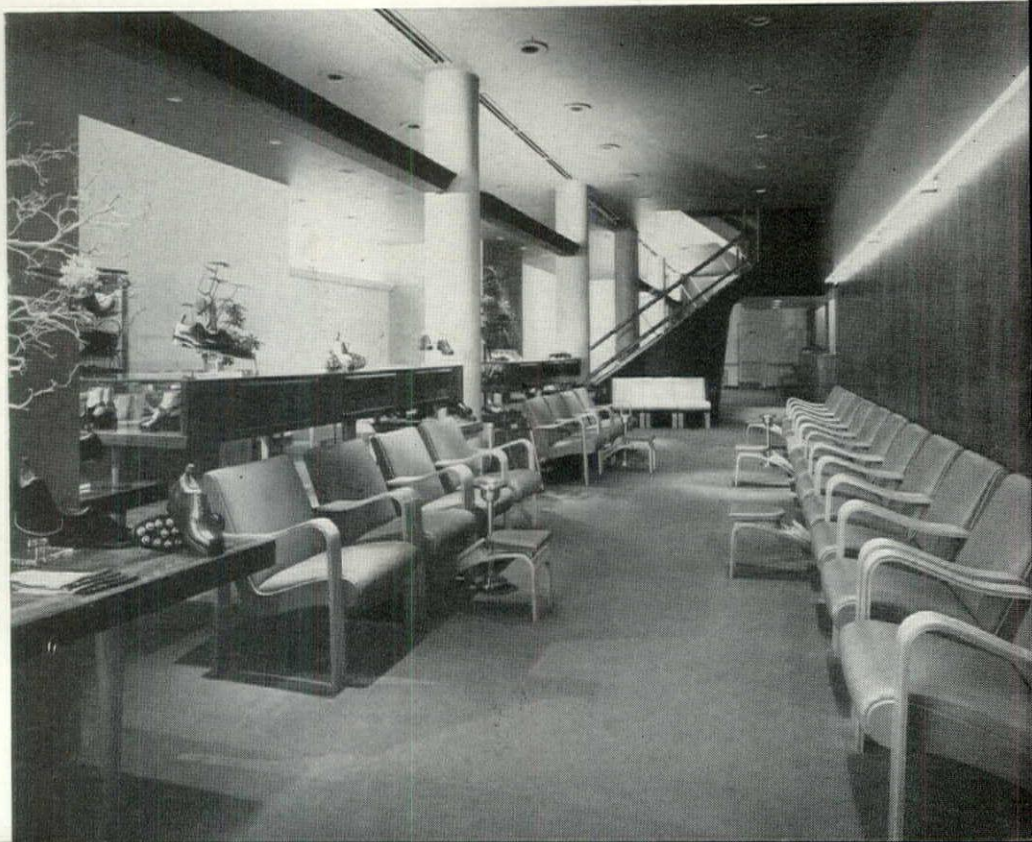
With a facade of large glass panels—immediately revealing the organization of the two sales floors within—this store uses surprisingly direct design to introduce the wares of a conservative chain of shoe stores to the conservative city of Philadelphia. The far-sighted owners, however, were planning on a 20-year basis and had no wish for a store that would be outmoded within a few seasons. The architect's formula made sound commercial sense in terms of their own business policy—"modern without tricks." Intelligent conservatism resulted, moreover, in a design bonus. For once, the neon name-sign is hung behind the glass wall where it can be clearly seen without disrupting the well-proportioned framing lines.

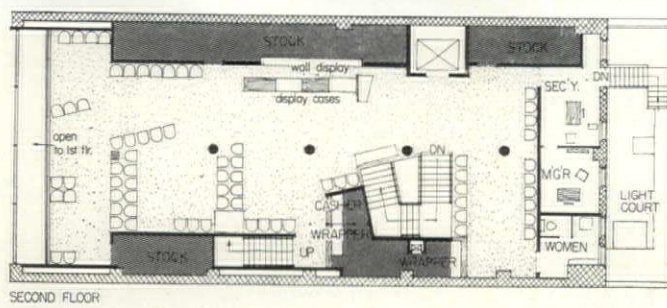
The very simplicity of the design is due, of course, to a whole bagful of architectural tricks. They were needed, first, to pare down an obsolete nine-story building to the present three floors (thus avoiding a fire-tower and outside stairs). Columns, walls, and all possible material of the old store had to be salvaged. Complete air conditioning, lighting and heating systems were introduced and integrated in a single duct running from front to back. Departments for men's, women's and children's shoes and accessories were all coordinated without rigidity. Decoration was limited, both by budget and conviction, to carefully-planned color schemes and handsome cabinet work. The draperies, drawn partway behind showcases on the first floor, manage to satisfy two entrance requirements that are usually found contradictory—an open front plus generous display space.

Another store-front puzzler—how to emphasize a glass door set in a glass wall—has been ingeniously solved by setting three spotlights directly above the door frame. These are reflected by sinuous teakwood doorpulls and a sparkling black granite panel bearing a small white marble plaque with the owner's name.

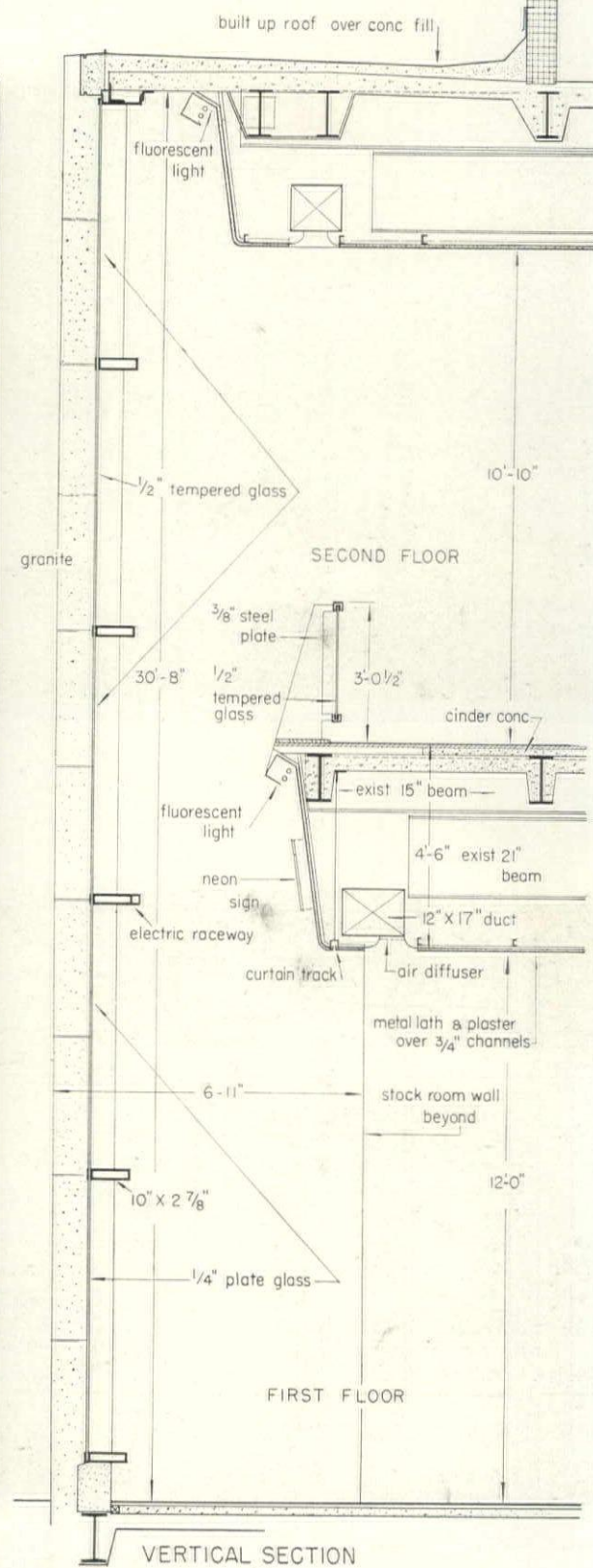
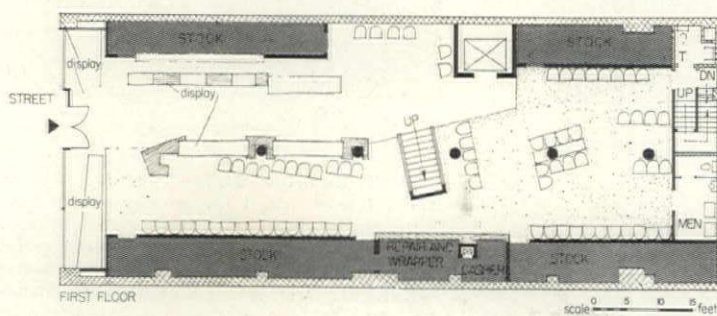
The glass front cost \$14,000; the rest of the store—\$81,000, excluding alterations to the building.

CONSTRUCTION OUTLINE: Foundations—concrete. Exterior—steel and Herculite glass, Pittsburgh Plate Glass Co. **ROOFING**—5-ply tar and gravel. **FLOOR COVERINGS**—rubber tile, carpet or linoleum. **HARDWARE**—Schlage Lock Co. **PLUMBING FIXTURES**—American Radiator-Standard Sanitary.





Cortlandt V. D. Hubbard



This open front stretches to unusual proportions revealing the second-story as well as ground-floor sales department. The three upper rows of glass panels (as shown in the vertical section above) are of tempered glass in accordance with fire regulations; the two lower ones are of heavy plate.

3. Steel front store in New York

SANDERS & MALSIN, Architects; DON REIMAN, Associate

KENNERLY CONSTRUCTION CO., General Contractor

OWNER: Coward Shoe, Inc.

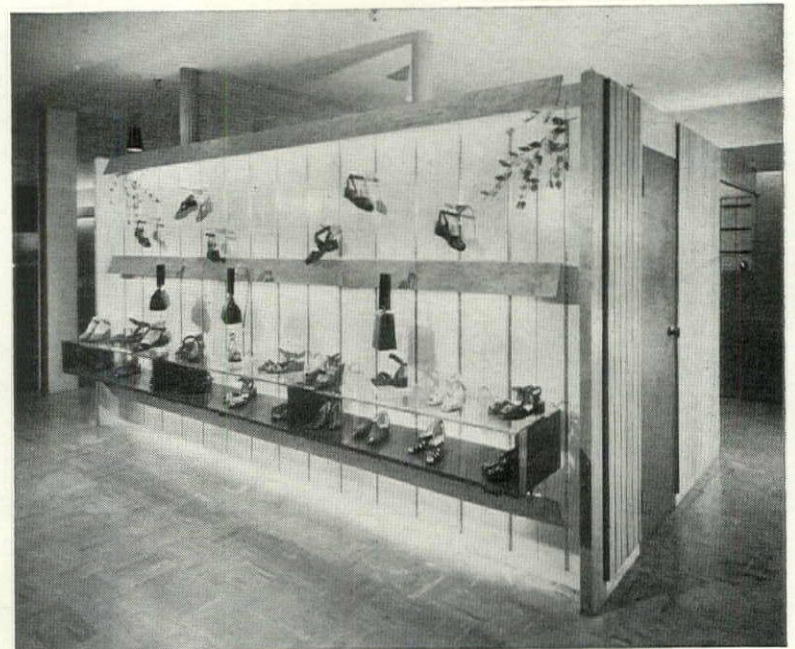
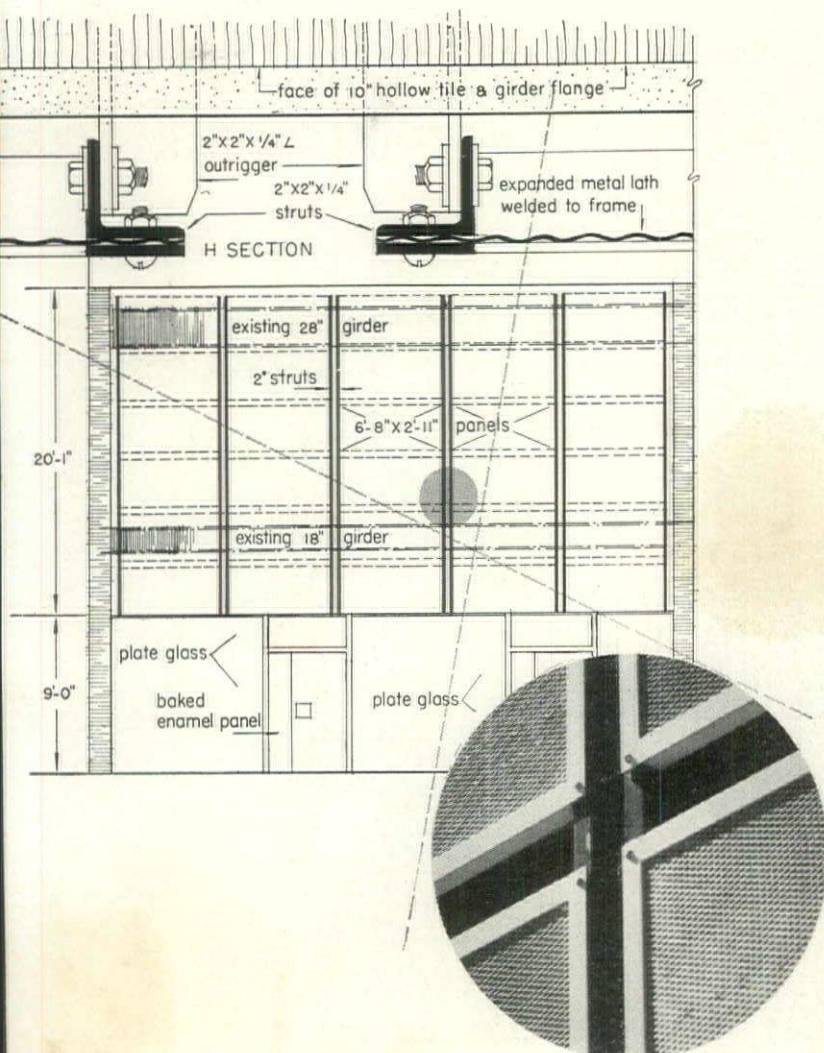
Bargain design of the year is this ingenious, good-looking storefront. Its assembled panels of expanded metal lath on steel frames (see detail drawing), took only three men and one day's work to install. Its cost—including fabrication, finishing and shipment—was only \$550! Another advantage of the paneled front is its flexibility: the panels may be refinished in different colors or temporarily replaced with panels designed to promote sales and seasonal trade.

The design of this store was not intended to gain prestige but to serve customers already convinced—it was a well-established chain store in need of renovation. Work had to start from the bottom up. The building's inadequate frame was bolstered by a load-bearing wall (8 in. brick) which separates sales and stock areas in the basement. Three stories were lopped off the old building and new sprinkler, air conditioning and heating equipment was installed. Inside this improved shell, the new store, its equipment, finishes and fixtures were completed at a cost of \$65,000.

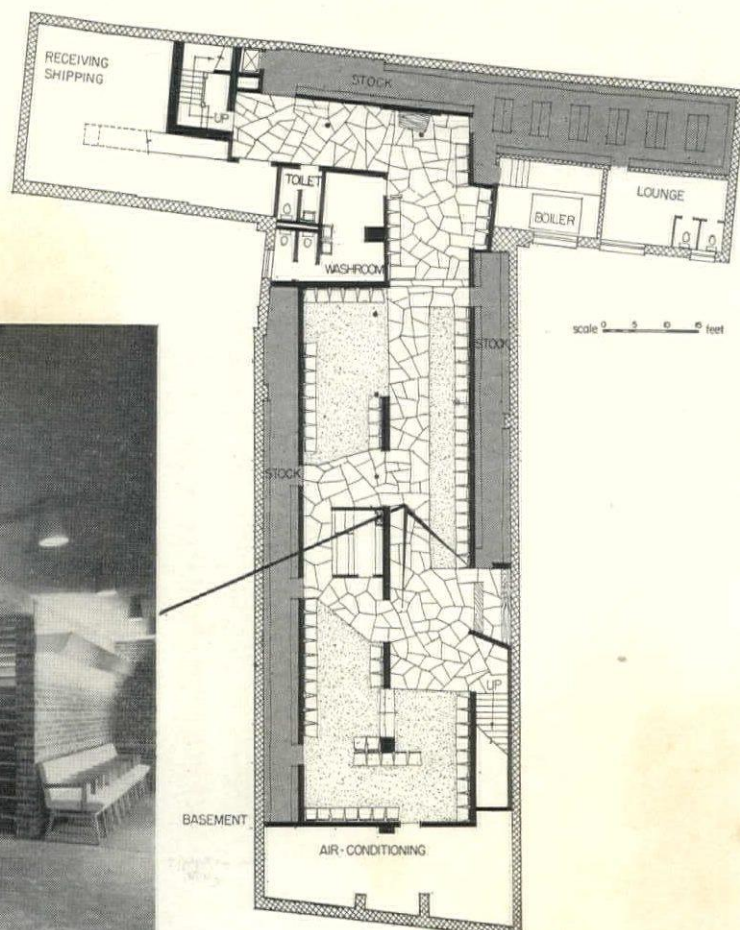
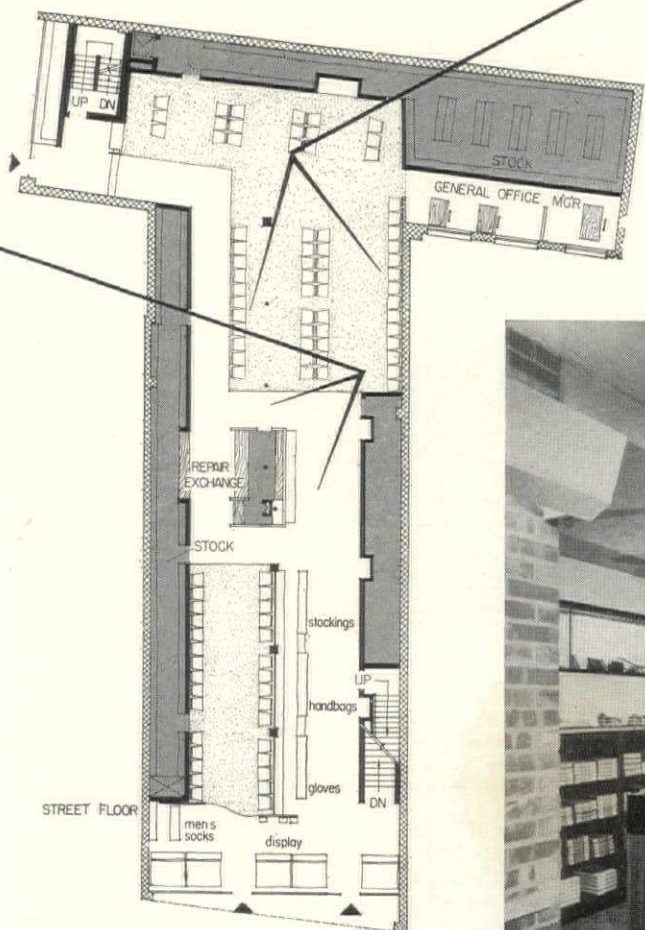
The existing floor plan was retained as extremely workable—men's and women's shoes on the first floor with separate entrances on adjoining streets; children's shoes in the basement. The addition of an accessories bar running behind the men's department allowed placement of an auxiliary women's entrance on the main street. Stairs down to the children's department were set right inside the principal women's entrance. Its separate basement location is satisfactory since 90 per cent of children's shopping is done on Saturday, leaving the department gloomily empty most of the week. The clean-cut severity of the store allows for the addition of other display cases and decoration later on. Straight chair rows, moreover, are efficient for salesmen who may be called on to serve six customers at a time.



Photos: Ben Schwall



CONSTRUCTION OUTLINE: Exterior walls—expanded mesh panels on angle framework, 1 in. cement stucco over hollow tile block; inside—metal lath and plaster. Ceilings—Vermiculite, Zonolite Corp. **ROOFING**—5-ply built-up, Barrett Co. **STAIRS**—steel, terrazzo treads. **FINISH FLOORING:** 1st.—rubber tile and carpet. Basement—flagstone and carpet. **SHOWCASES**—Korngold Brothers. **EXTERIOR DOORS**—Herculite, Pittsburgh Plate Glass Co. **PLUMBING FIXTURES**—American Radiator-Standard Sanitary Corp. **HEATING**—split system, filtering, humidifying and cooling. Grilles—Tuttle & Bailey. Regulators—Minneapolis-Honeywell Regulator Co.

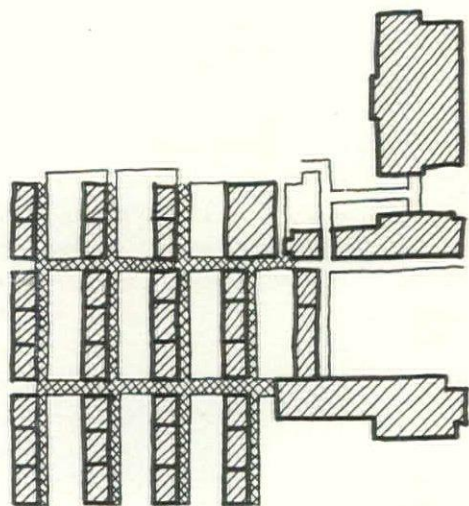


schools

second thoughts on FORUM's October reference number

by Architectural Editor Douglas Haskell

As FORUM's school issue went from concept into actual execution, it became more evident to those in charge of the assignment that there was a hiatus between some of the earlier and some of the later pages. We started off in the thought that the progressive architects of the thirties and forties had found a valid school form, and that the next assignment was to put it into efficient production at large scale. We ended in the belief that the fifties would produce a school form of their own, as different from the "finger plan" of the thirties as that was from the stacked-up monumental plans of the twenties. Starting off our case studies, we revisited the most remarkable of all U. S. schools of the past ten years—Acalanes High School, east of San Francisco—remarkable because of the foresight and consistency with which it set forth and carried out the advanced pattern of the late thirties, the so-called "finger plan." But, 20 pages further on, we introduced a scheme as different from this as it could be. It was not a shredded-out affair of one-room-wide finger wings, but a rectangle all compact and completely regular in outline. The one major similarity was that both schemes were only one story high and had the same list of classrooms and other facilities. Another contradiction: although the discussion throughout the magazine spoke most favorably of "temporary" programs, and said that the development of a superior "temporary" school was a major assignment, the "FORUM school" was outstanding for the fact that the structure, once built, could well stand where it was for a very long time, with changes in *type of use* taking the place of changes in *structure*. If a district changed from a residential to an industrial one, the school would not move with the children but could easily be changed over to light industrial or office use.

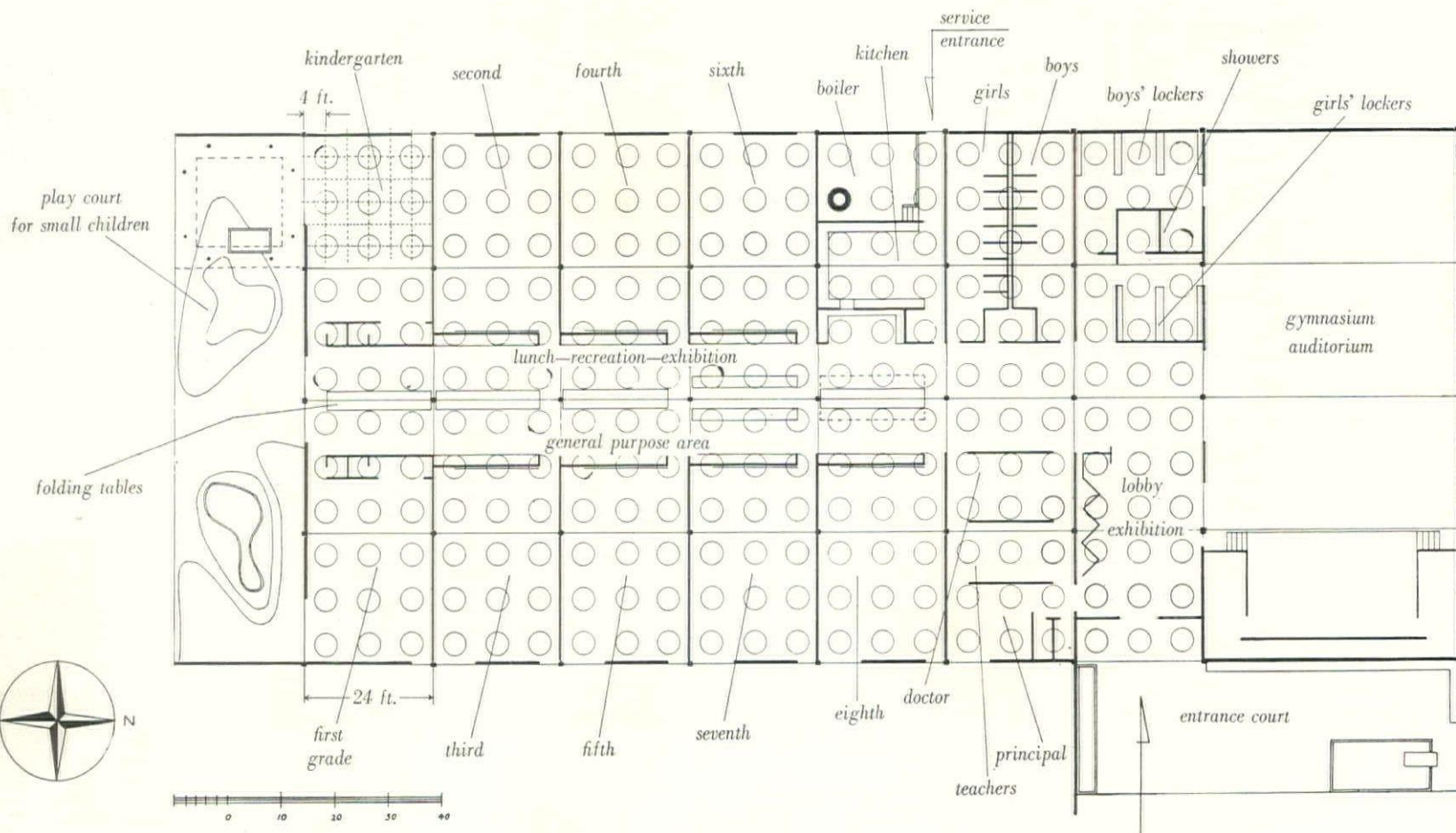


Finger plan

Dilemma in California

There is reason to believe that even in California the heyday of the spread-out finger plan type of school is past, even though some of the best practicing school architects of the state vehemently deny it. Finger plan schools—sprawling spread-out affairs with open corridors racing alongside single-depth strings of classrooms—will no doubt continue to be built in profusion. But not in the larger cities.

FORUM school



It turns out that one of the great necessary favoring factors is plenty of land—but in neither San Francisco nor Los Angeles is there plenty of land to be had. The sites which Consultant Nicholas Engelhardt was finally able to obtain in San Francisco when he came in to guide a major program indicate only that he was prepared finally to grab one horn of a dilemma. In order to get ample acreage for school grounds, he had to accept bad and expensive building sites. It will be surprising indeed, on some of those rocky slopes, if the architects do not have to reach for multi-story plans, not only to justify the expensive foundations, but to find space for the requisite classrooms. Had Engelhardt chosen the other horn of his dilemma, he would have been compelled to condemn existing buildings—most of them row houses on compact 25 ft. lots—and to obtain his land at higher initial cost besides creating a problem of displaced persons. On those flat but more limited sites (which some of the best San Francisco architects would have preferred to see chosen), a school type of the sort forecast by FORUM would offer the nearest possibility of saving the advantages and economies of a one-story school while still conserving land as compared to the finger plan.

In Los Angeles there is a prevailing opinion that there is still plenty of land, but this is only because a big factor of general ecology is the responsibility of no one individual and passes unnoticed. In semi-desert land reclaimed at great cost in irrigation, there is the same essential conflict between agriculture and urban development that exists in crowded England, where spacious garden cities collided with the needs of agriculture during the war. The orange groves that have been wiped out by developers cannot be replanted high on the sides of canyons; somewhere the process will have to come into balance.

In New York City, another dilemma

In relation to New York, FORUM made an error and is seeking to learn from it. By arithmetic which showed no flaw, FORUM came to the conclusion that one-story schools would be possible and economical even in Manhattan Island's expensive congested areas, because of the great saving in nonfireproof materials and simple lightweight construction. The school board replied quite correctly that, in view of the vast numbers of children per acre in the new dense 13-story private and public housing projects, it "would have to fill the Hudson River" to find the requisite space. "Who would not like to have one-story schools?" asked the board. What FORUM had actually stumbled on was a fact pertinent indirectly to schools and directly to congestion. The erection of these great building-canyon areas, to densities of 400 to 600 people to the acre, may be profitable to the proprietors and may superficially appear to be the best way out for the city, but is a most costly undertaking for the community as a whole, in other words to the taxpayers, in terms of city services.

On the subject of the school plan, it seems that the dominant factor, overriding differences of climate and cultural temperament, is the increasing scarcity and costliness of land, especially in large cities. Where cities are sensibly consistent in their density, and density is consequently not too high, the one-story school of compact plan, such as FORUM offered for consideration as the school of the '50s, would seem to be the optimum plan for low cost and for maximum benefit to the children. But where special conditions obtain, it would be foolish to demand the exact same plan. On rocky slopes and narrow ledges in San Francisco, two- or three-story wings with balcony-type side corridors, would seem the most probable candidate. And for a congested area like New York's Manhattan, the appropriate researches have not yet been made.

There is another aspect of the school program—the time aspect—on which we stirred up the new ideas only to find, in the end, that we wanted something still better. The old idea of a school was something monumental and everlasting without change—an obsolete idea. The new approach has been to try for a superior temporary school, and

so long as city development continues in its present day wild manner—whole towns of 25,000 to 50,000 people springing up, inside the city framework, virtually overnight—FORUM will continue to favor the development of decent and agreeable temporary schools in place of the shabby eyesores of the usual "temporary" program. But what fails to make sense is an unplanned and unreasoned rushing back and forth of people and neighborhoods forever. Still better than a building that can be moved as its use moves with the neighborhood is a building that can stay put and *still* remain useful over a long time.

Temporary schools or multi-purpose buildings

No one watching building operations over an extended period of time can fail to notice the strenuous efforts to conserve past labor (and the cost of it) by converting existing buildings not only from one to another arrangement within the same kind of use (as a brownstone house might be cut up into apartments) but, more important, the frequent conversion of an old building from one kind of use to an entirely different one (as a brownstone might be converted into a group of offices). The success of this effort has been mild at best. It is well enough to say, as advanced thinkers have said, that we would be better off if the old building had been so designed that it could either be moved away or reduced to scrap with high salvage value. But there is yet another possibility that might be even more economical.

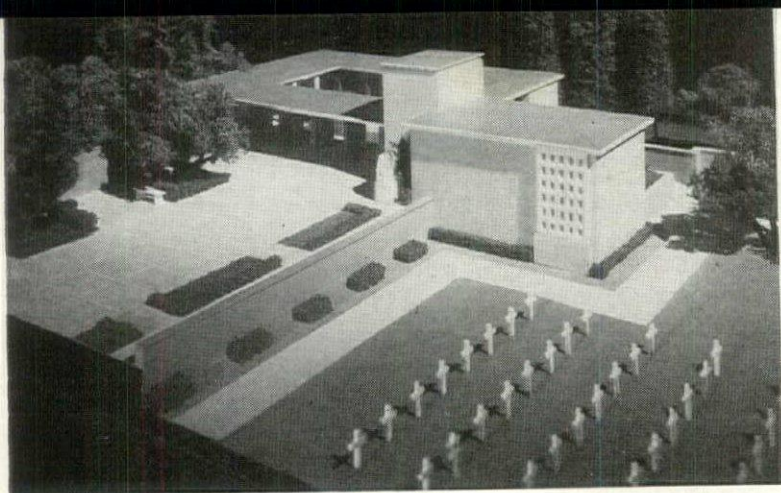
If we could think our way through the jungle of different uses and group these uses, we might find some large related groups among which an interchange would be relatively easy because of a major overlap of common factors. For example, schools and industrial offices and light industrial plants all provide for large numbers of people to work steadily under conditions favorable to close visual tasks. If a building were flexibly enough designed in the first place, it might be convertible with relatively small loss from one of these uses to another. In that case, we would not need to worry about permanent building materials outliving a "temporary" school in which they have been installed under the theory of quick obsolescence, for fear the neighborhood might move and the school board have a large investment stranded. Instead, the building could stay, if the neighborhood changed from a residential to an industrial or commercial one, but the use of the building would change from school use to industrial or commercial use.

From schoolhouse to factory

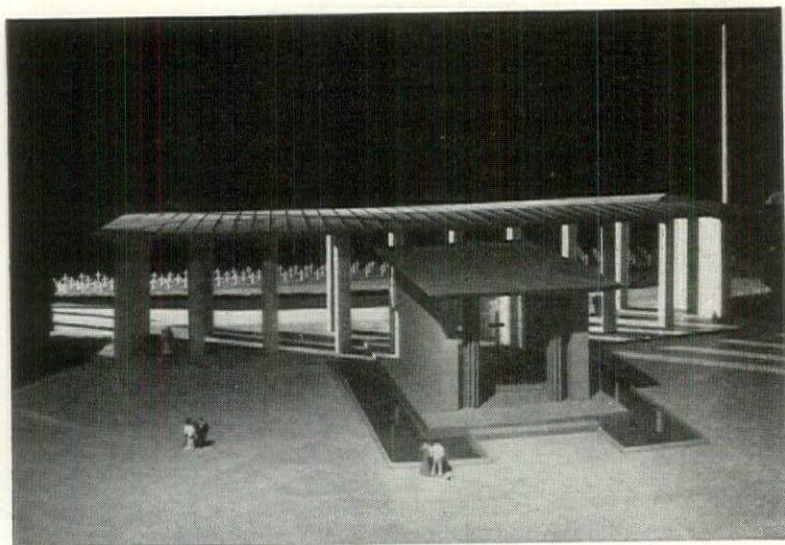
If the plan drawn by Nowicki for FORUM is re-examined, it will be found that such conversion would be quite feasible. The "school" is built entirely of 24 x 24 ft. bays, well suited to commercial office or light industrial use, and the interior is entirely independent of windows for its lighting, and every partition is completely movable.

Another advantage of the method of design is that the square bays, built as economical individual units, can be erected or removed individually at will. In other words, *the entire site* of the building becomes a vast checkerboard, on which any desired square or combination of squares can be put under shelter. So, in case conversion is made into office use, the interior area can be converted into a series of the most charming garden patios.

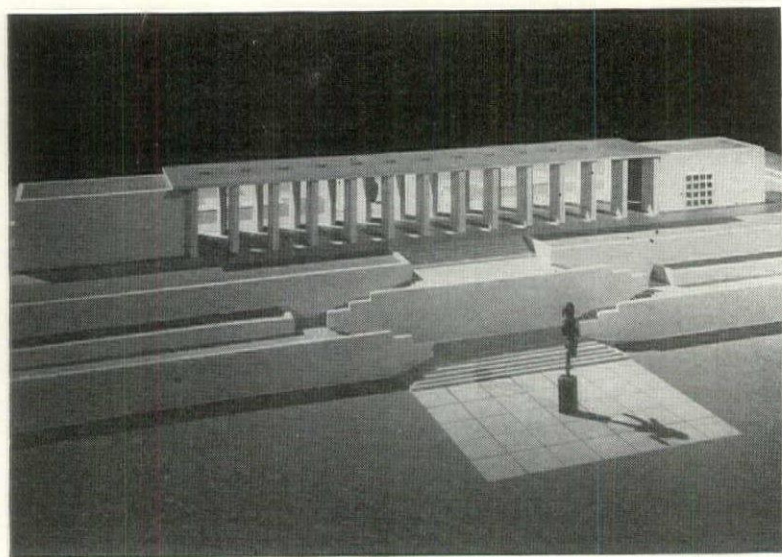
This idea of interconversion between one kind of building use to another is not to be lightly dismissed. We are already using the "loft" type as a basic type which is usable either for industrial or commercial purposes; the loss of functional refinement is offset by the economy. We might well start thinking through our building types, not as "schools, churches, auditoriums, offices, lofts" but more abstractly according to numbers of people accommodated, "traffic flow, requirements of light and sound control, electric current" and all the other functional features. There might emerge some astonishing cross-combinations, such as Nowicki has hit upon in the case of his FORUM school, convertible to commercial or industrial purposes.



Memorial for Tunis, Africa by Moore & Hutchins

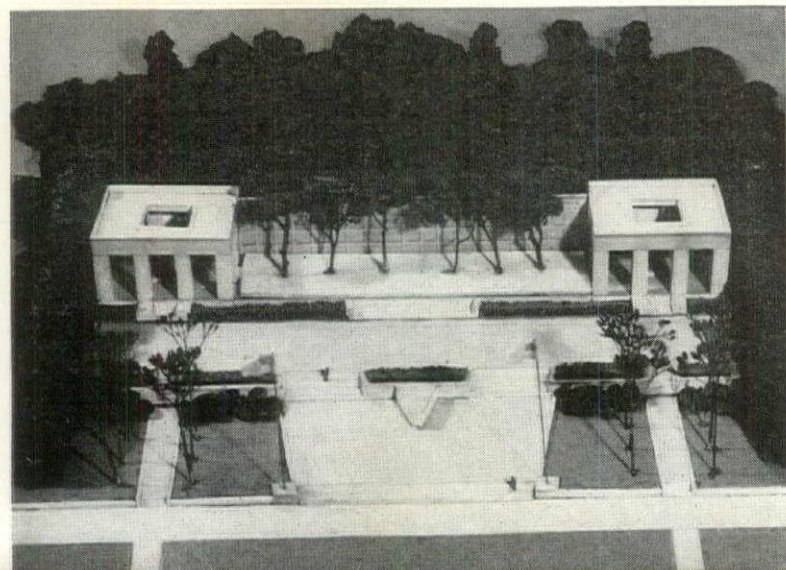


... Hamm, Luxembourg by Voorhees, Walker, Foley & Smith



... Henri Chapelle, Belgium by Holabird, Root & Burgee

... Florence, Italy by McKim, Mead & White



WAR MEMORIALS

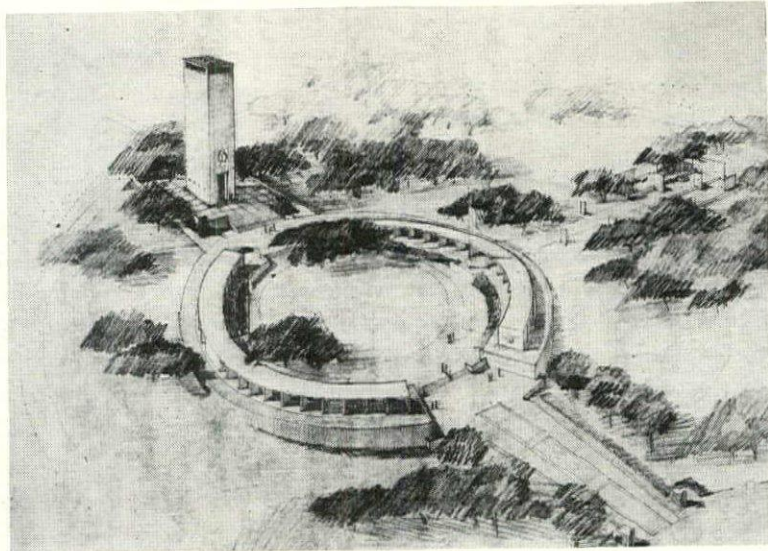
A review of their first public showing

"Dignified . . . durable . . . somewhat monumental . . . with special care against the penetration of water . . . and against condensation . . . Chapels in raw climates should be heated"—these were the salient directives which produced the 15 memorial designs (six typical ones are shown) that will commemorate the soldiers killed in World War II. They will be erected within the next two years to mark the 15 permanent U. S. cemeteries throughout the world. The architectural firms privileged to execute this great task were chosen by the American Battle Monuments Commission, with the Philadelphia firm of John Harbeson as architectural consultant. Chosen architects were approved by the National Fine Arts Commission.

In November, the designs for these monuments were exhibited publicly for the first time at the Philadelphia Art Alliance, which had collected models and plans. Topography and layout of graves were shown, as well as the small undenominational chapels which serve to mark the axis of each design. The museum bulletin summed up the project in a somewhat cryptic sentence: "The war memorials exhibition," it said, "is the absolute expression of American architecture designed to memorialize our dead on foreign ground."

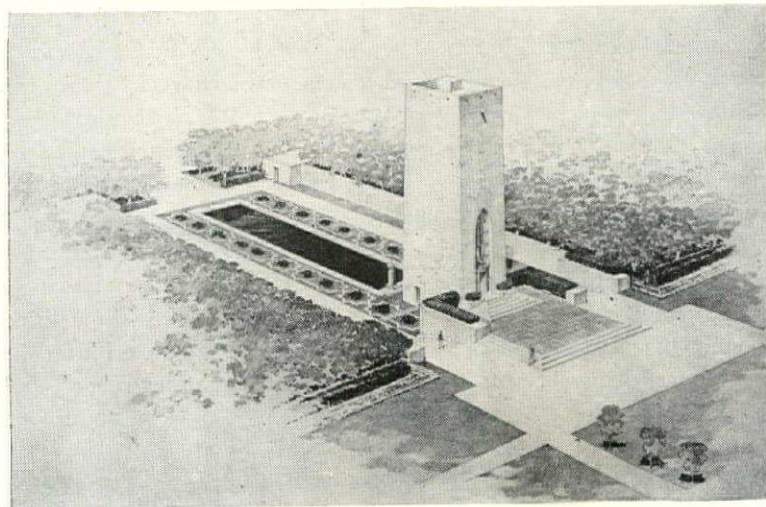
Some might find in these words a view too cynical and pessimistic—but no one was likely to claim that these cemeteries had matched the sad triumph of war by any comparable triumph of art. *(Other reviews appear on page 116)*

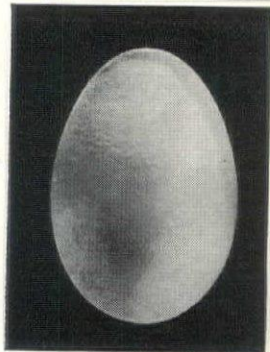
Photos: C. V. D. Hubbard



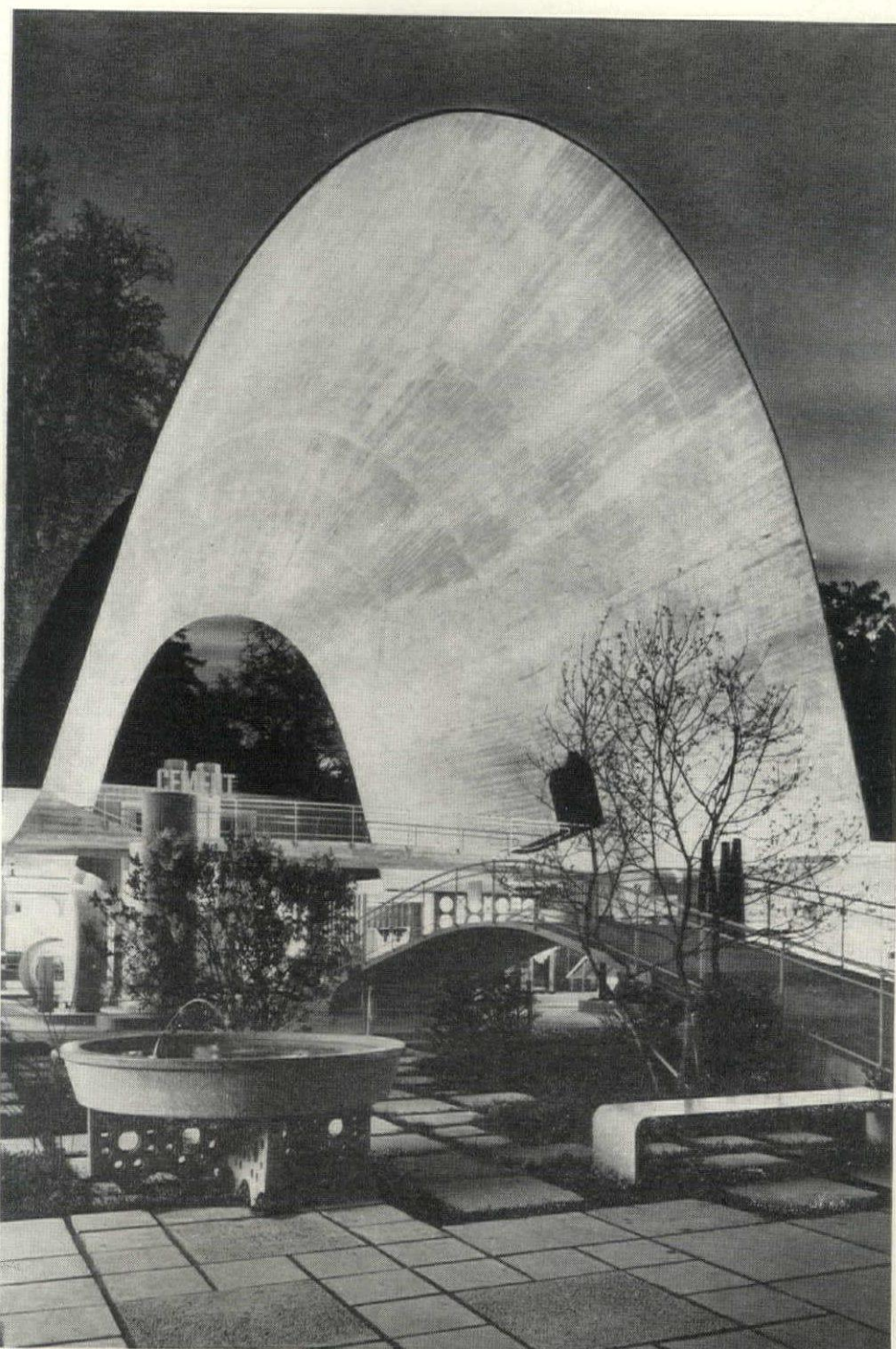
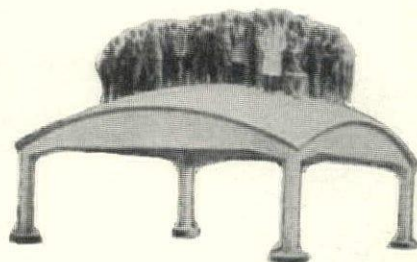
... Manila, the Phillipines by Gardner Dailey

... Margraten, Holland by Coolidge, Shepley, Bulfinch & Abbott





SHELL CONCRETE for spanning large areas



The four photographs on this page at first glance may seem to have as little resemblance in family as in scale. In descending order they are: a hangar in Chicago engineered by Ammann & Whitney (Aymar Embury, architect) in 1948; a recent chicken egg; a test factory bay erected at Biebrich in Germany in 1931; and Robert Maillart's famous Cement Industries Hall at the Swiss Exposition in Zurich, 1939.

What these structures have in common is the principal of their strength, which lies in shell concrete construction. Shell construction can be thin because its shape makes it very strong; the material used can be very light, with a remarkably low ratio of dead weight to span, because the distribution of the stresses is over the entire membrane . . . a piece of paper, flat, cannot support even itself, but when the same piece of paper is curved, and held in the curve, it is very stiff in certain directions.

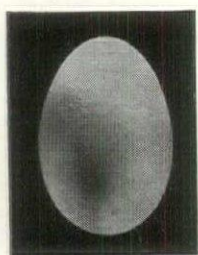
The clear span of the hangar above is 257 ft.; its shell is $3\frac{1}{2}$ in. thick. The egg is as big as most chicken eggs and its shell is as thick. The test factory bay was 24 x 24 ft.; the thickness of the shell was $\frac{19}{32}$ in. at the crown, increasing to 1 in. at the edges—and there are 50 people standing safely on it in the photograph. The Zurich Exhibition hall was 52 ft. 10 in. wide, 37 ft. high, and 70 ft. long. The shell thickness was $2\frac{3}{8}$ in.—tested to failure, it had to be demolished partly by explosives.

Historically the thin shell owes something to the great domes and arches of antiquity, but not very much. The Romans were, in their day, masters of concrete and of the arch but they never began to appreciate the spanning possibilities in the plastic nature of concrete. Some remarkable domes and vaults were built later of stone, but they were thick and heavy compared with what is possible with shell design. The dome of St. Peter's spans 131 ft., weighing 10,000 tons. The shell concrete domes in the market hall in Leipzig (1929) span 240 ft., weighing 2,160 tons.

Development of techniques in the use of reinforced concrete as a shell membrane, which started in Germany in the 1920's, have come a long way and have been proved in practice. Some concrete shells have been refined beyond the dimensions of the egg shell in thickness compared with span.



*Sewage Disposal Plant
Hibbing, Minn., J. C. Taylor,
Architect. Roberts &
Schaefer, Consulting Engineers*



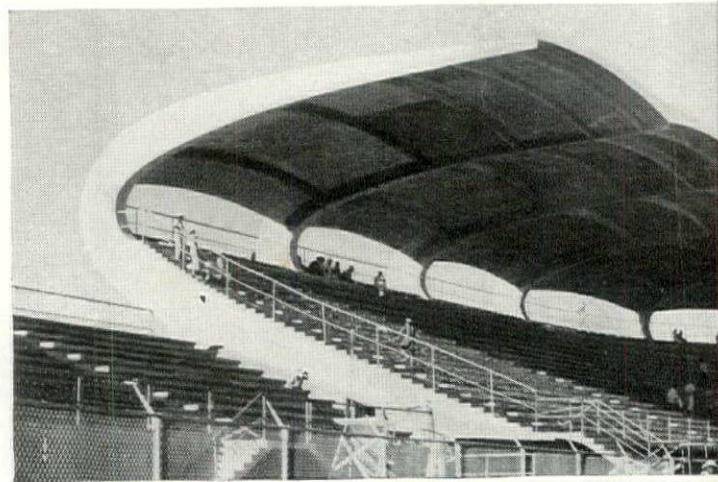
These techniques are not widely known in this country, however, where there is great opportunity to apply them in structures like assembly halls, markets, auditoriums, terminals, hangars, garages, factories, arenas, gymnasiums—any of the many single story buildings where there is a problem in spanning.

The three most usual types of shell concrete construction are domes, cross-barrels, and longitudinal barrels. Although there are invariably ribs in the longitudinal barrels, where the arch of the shell has a long span, cross-barrel shell roofs are composed of series of cylindrical barrels of comparatively short radius without ribs. Other types are rectangular shells curved two ways, and polygonal domes formed of cylindrical shells.

The technical advantages of shell concrete may be appreciated by comparing the design of a shell cross-barrel vault and the traditional vault. Almost all forces in a traditional vault are directed down and outward from the sides in thrust. The shell cross-barrel, on the other hand, acts lengthwise as a beam to a great extent—held in shape by stiffening ribs at the ends and edge beams—and so supports its own dead weight and any applied load with comparatively little thrust. Stresses are *distributed* . . . the analogy of the curved piece of paper is a valid one.

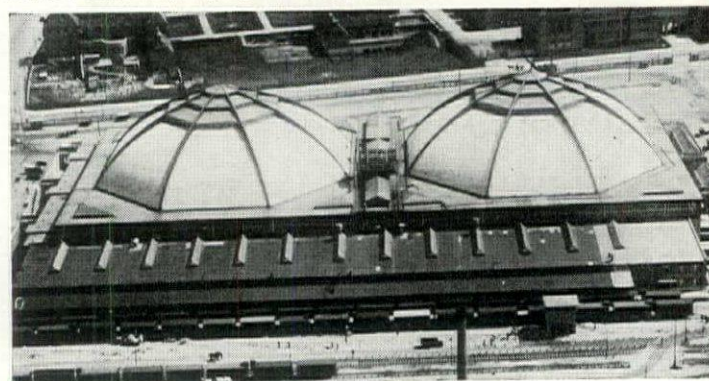
Longitudinally, tension occurs at the lower edge of the shell and compression at the crown, connected by shear in the barrel of the shell. When a shell barrel is cantilevered longitudinally, the stresses reverse themselves as they would in an ordinary cantilevered beam—there is tension at the crown and compression at the springings.

Shell domes can be remarkably flat, as compared with traditional domes. The dome built at the Electricity Works, Frankfurt A. M., Germany, in 1928, rises only 11 ft. on a span of 85 ft. The shell is $1 \frac{9}{16}$ in. thick. The great advantage of shell construction is apparent

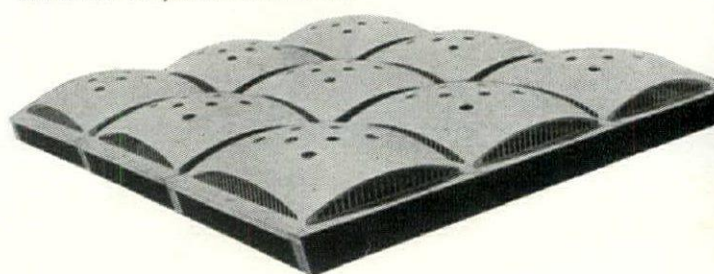


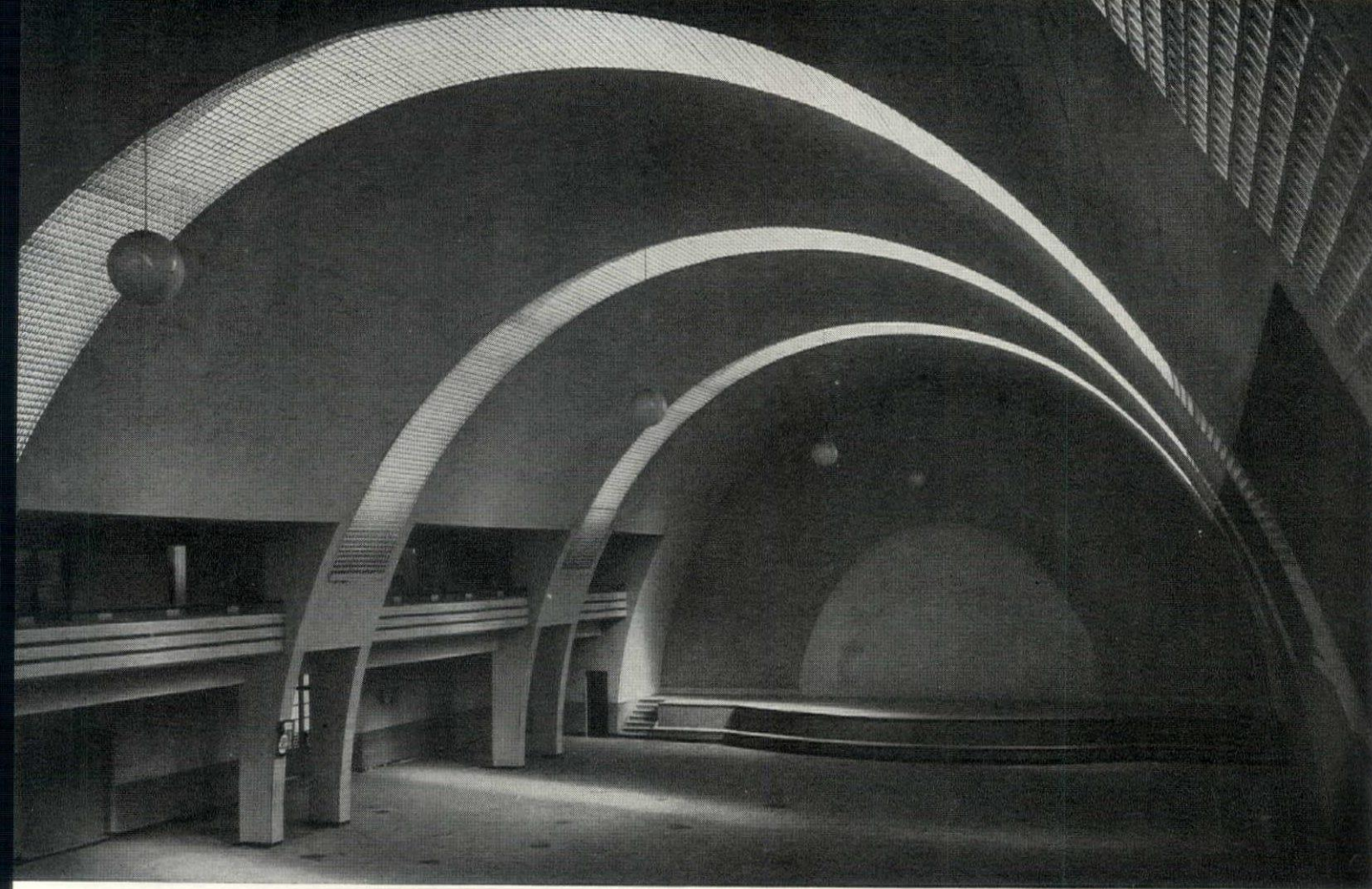
Baseball Stadium, Colombia by Solano, Gaitan, Ortega & Burbano

Market Hall, Leipzig, by Deschinger & Ritter



*Model of factory building, England
Architects' Cooperative Partnership*





in the fact that increased spans do not materially increase either the thickness required in the shell or therefore the total dead weight of the spanning roof.

More conventional skeletal spanning materials are very strong, but their own weight usually rises alarmingly as the span lengthens until they reach the limit of usefulness when they carry only themselves and cannot be loaded.

Advantages of shell construction to the building owner are immense. The list begins with maintenance.

Shell roofs do not have great steel trusses to be cleaned and painted periodically; the ceiling is clear . . . and, if the shell is located at the bottom of the stiffening ribs, the ceiling may even be entirely smooth. The absence of trusses also means that the full ceiling height can be utilized within the building.

The curved surfaces of shell concrete structures are easy to light artificially, making a good reflective surface with no shadows. Shells may be insulated against both heat and reverberation by the application of thermal insulation and sound absorptive materials; the thermal insulation sometimes is provided in the use of lightweight concrete as the structural material. The acoustics may be difficult in a space roofed by a single large shell. A series of smaller cross-barrel shells is often better.

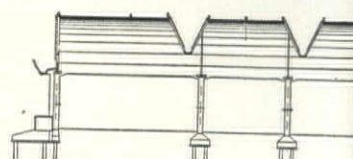
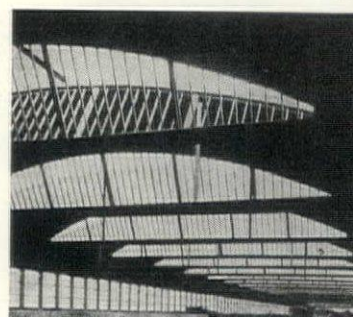
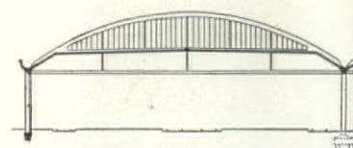
The opportunities for natural lighting are excellent. Shell roofs may be pierced for glazing without interrupting the simple shapes, or can be planned to admit light by building various special shapes. One such shape, for

continuous roof lighting, is the unsymmetrical barrel, with a north strip window. Cantilever or butterfly shell roofs can also be designed for continuous windows. Once the daylight is inside, the unobstructed curves of the shell roof make an excellent surface for reflecting and diffusing it.

But the biggest advantage to the owner of a shell concrete structure, especially among wide span structures like arenas, rollerskating rinks, hangars, and some factories, is the fact that his structure is a very good bet in a fire. Even if the building is burned out the structure likely will survive. Severe fires in a shell concrete textile factory in Buenos Aires and a shell concrete hangar in the U. S. both failed to collapse the structures, which almost surely would have gone down had they been conventionally steel framed.

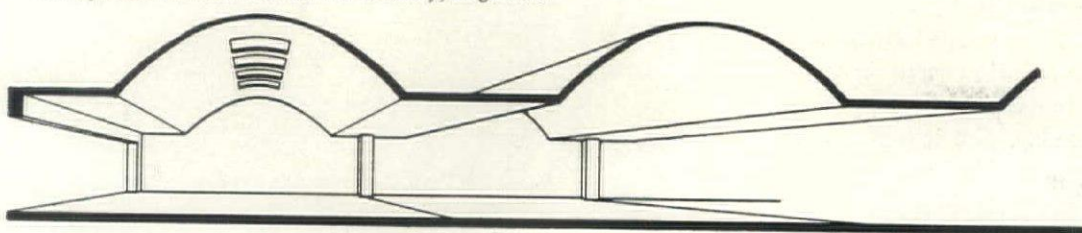
Two wars have tested concrete shell structures. In the Spanish Civil War, the famed shell roof of the Fronton Recoletos in Madrid was hit by a shell which knocked a 6 ft. hole in it, but left the structure still standing, otherwise unaffected. A team of assessors sent to Germany by the British Ministry of Works in 1946 reported that shell concrete was the most impressive modern building form found in Germany, according to *Building Digest*, the English magazine. Many of the barrel vault roofs examined had been damaged by bombing, but demonstrated the high resistance of shell concrete to blast. Although damage was sustained by buildings in heavily-hit areas like Essen and Hamburg, the structures survived.

Market Hall, Vevey, Switzerland.
Architects: Schobinger, Tavernier
& Getaz

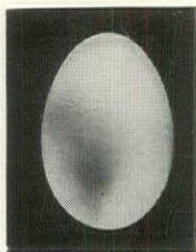
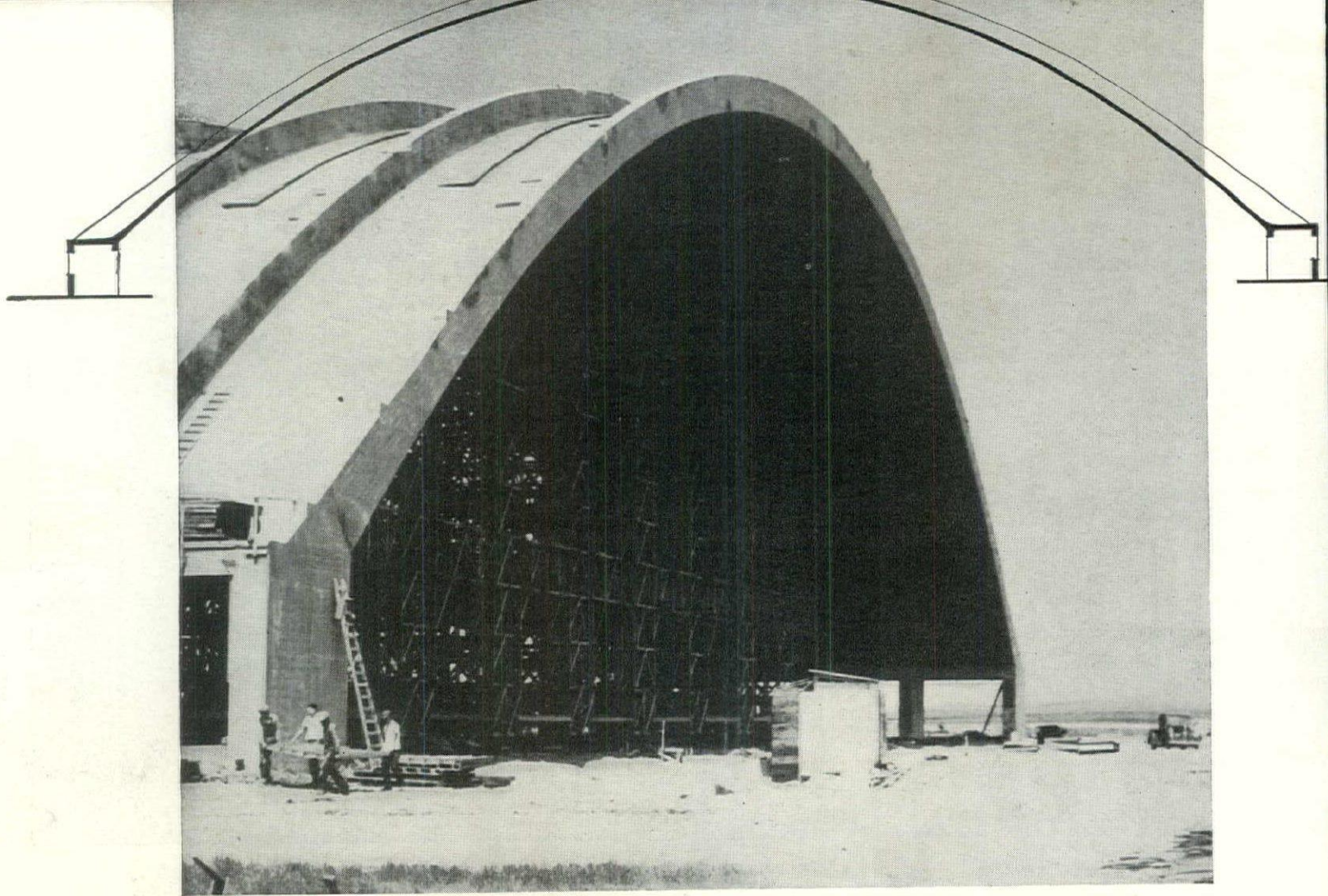


Factory, France
by Peirani & Levi

Multiple barrel-shell. Ammann & Whitney, Engineers



Photos: John Ebstel, Museum of
Modern Art, G. E. Kidder Smith,
Lehigh University, Fred G. Korth
and Architects' Year Book.



Clear span, 340 ft.—that is the record of this enormous shell concrete hangar just completed at the Rapid City Air Force Base in South Dakota for the U. S. Army Air force. It will house for repair two of the army's huge B-36 bombers, or six B-29's. Length of the hangar is 300 ft., leaving a covered area of 102,000 sq. ft. uninterrupted by columns. The crown of the hangar is generally 5 in. thick but commencing 60 ft. from the springing lines increases to 7 in. at the spring line—the diagrammatic cross section of this vast structure at the top of the page shows the shape of the barrel, if not its scale. Reinforced concrete stiffening arches are spaced 23 ft. apart, resting on heavy 14 ft. long pedestals which double as partitions in the flanking service wings. Engineers for this \$1.8 million hangar, and a twin now under construction in Limestone, Me., are Roberts & Schaefer, who have designed shell structures in the last 16 years roofing a total of almost 10,000,000 sq. ft. Their biggest single job, in area covered, was the general depot (air view below) at Columbus, Ohio, for the Army Quartermaster Corps. Built in 1941, it covers 2,676,000 sq. ft.

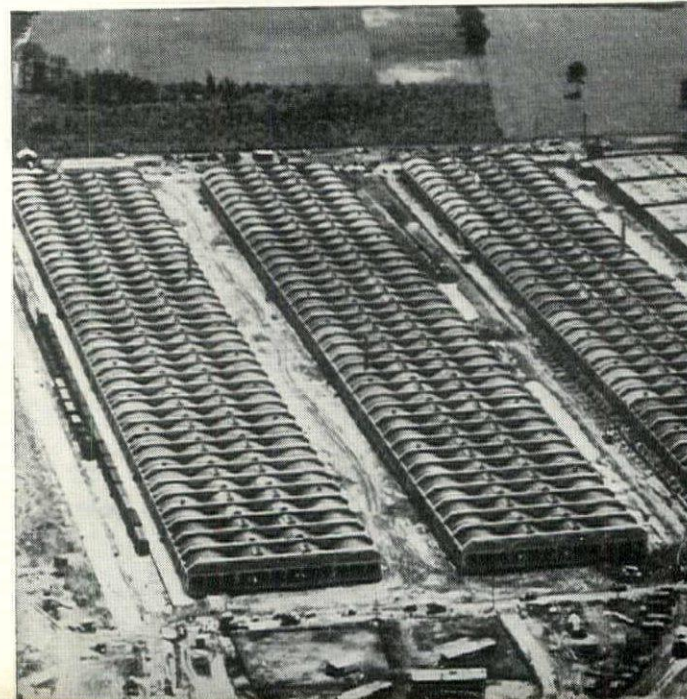
The concrete design of the depot was originally bid as an alternative to a basic design of steel trusses with wooden decking; the concrete shell cost only about 1 cent per sq. ft. more than the low bid based on steel and wood deck. Each warehouse unit is approximately 180 x 1,600 ft. The roof structure for one of these complete units was constructed in 38 calendar days.

When future architecture historians settle down in their libraries to write about shell concrete in the U. S. and the rest of the world, economic differences may not be so evident as they are today. But it is the economic



Completed hangar, Rapid City Air Force Base

Army Quartermaster Corps Warehouses, Columbus



situation which for some years has held the U. S. behind other nations in the development of highly refined designs in shell concrete.

The U. S. has more materials but does not have so much time. In other countries this situation is reversed in varying degrees. They have less of industrial materials like steel, and their labor-time is much cheaper. So it has been to their economic advantage, but not ours, to build with painstaking precision in order to conserve. Since it is estimated that spanning even small areas with shell concrete uses only about 40 per cent of the steel necessary to frame the same spans completely in steel, shell construction has been worth a great deal of study abroad.

There are three major time-consumers in the more complicated shell concrete techniques as opposed to other structural methods: design, placing of steel reinforcing, and formwork.

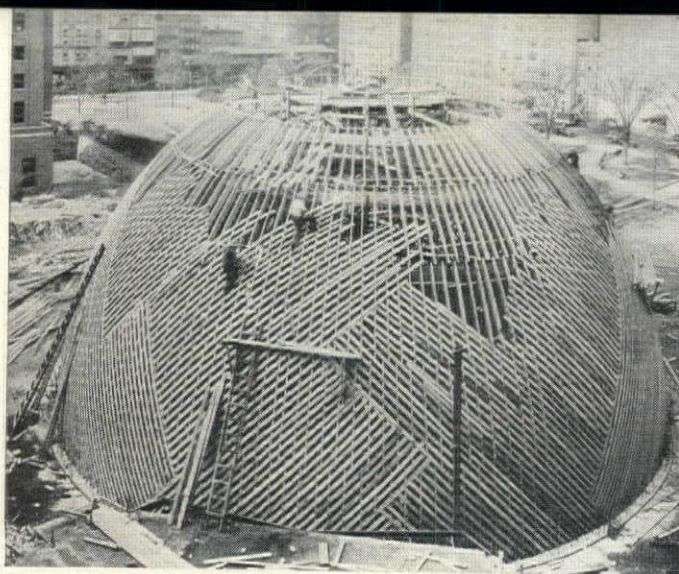
A good example of the first is the fan-shaped double-curved concrete shell roof of architect Vilhelm Lauritzen's broadcasting station concert hall in Copenhagen. The design calculations for this roof reputedly required the full time work of four engineers for six months. Design procedures in this country for less complicated shell structures have been well ironed out, however, and the design-time problem is not excessive for many types of shell structures.

Placing the reinforcing mesh and bars for delicate shell structures has also been in the past a time-consuming operation of importance. (See photos and partial chart for reinforcing for domed market hall in Algeciras, Spain right below.) But engineers now are overcoming this objection also in the U. S.; use of welded wire mesh has reduced the number of bars necessary and cut down on time for this part of the operation.

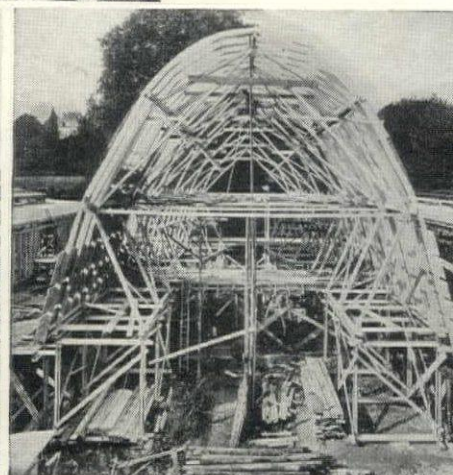
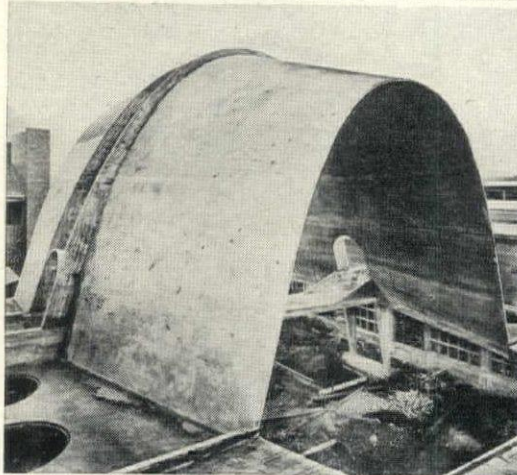
The formwork has been the biggest obstacle to making shell concrete structures comparatively as economical in the U. S. as they are abroad. Photograph (right) of forms for the Hayden Planetarium built in New York City in 1934, one of the country's first shell structures, are an indication of the care which must go into their shaping. Below that are photographs of formwork for Maillart's exhibition shell at Zurich, and the shell after removal of forms (see also page 101). It is doubtful whether the financial problem of such domed forms and intricate barrel forms, used only once, will soon be overcome in the U. S.

The problem of forms for simple barrels has been mastered, however, through use of traveling formwork, standard practice in constructing hangars like the immense structure at Rapid City. In this system a wooden form is built large enough to cast one or two bays at a time, and the shell of the structure is poured progressively section by section. The economy of this construction depends principally on repeated use of the formwork. The movable timber formwork at Rapid City was 50 ft. long, 340 ft. wide, and 90 ft. high, and cost about \$85,000 to build, including the skin. It involved 280,000 board feet of timber weighing 500 tons. (A windstorm completely demolished this scaffolding during the job, and delayed completion of the hangar four months.) An even more efficient type of formwork is now being planned, using steel arches instead of scaffolding.

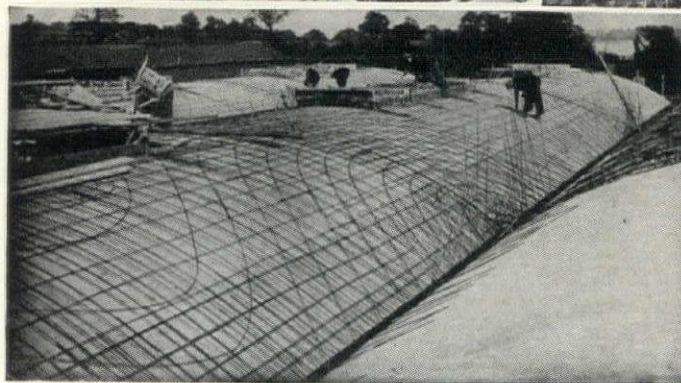
The three deterrents to shell construction in the U. S. are not unconquerable. Now that the time-money equation is being tampered with by our engineers, prospects



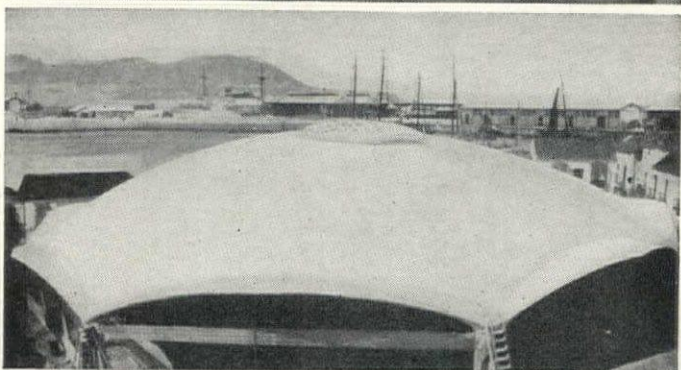
Formwork for Hayden Planetarium, New York. Trowbridge & Livingston, Architects. Robert & Schaefer, Consulting Engineers.



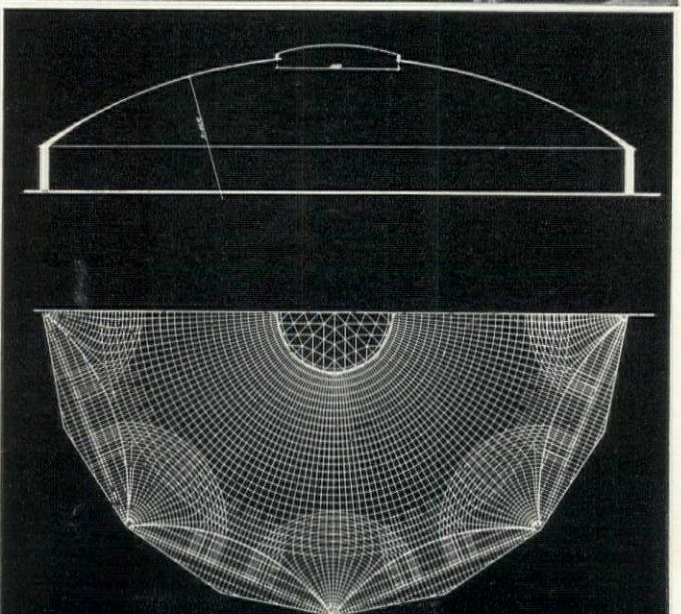
Exhibition Building, Zurich. Left, shell; right, scaffolding. (See also page 101.)

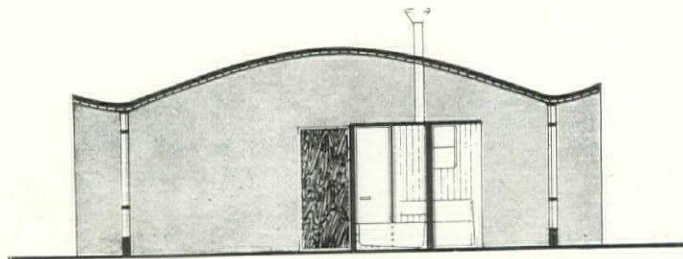


Placing reinforcing for shell cross-barrel in England. Clifford, Tee & Gale, Architects.

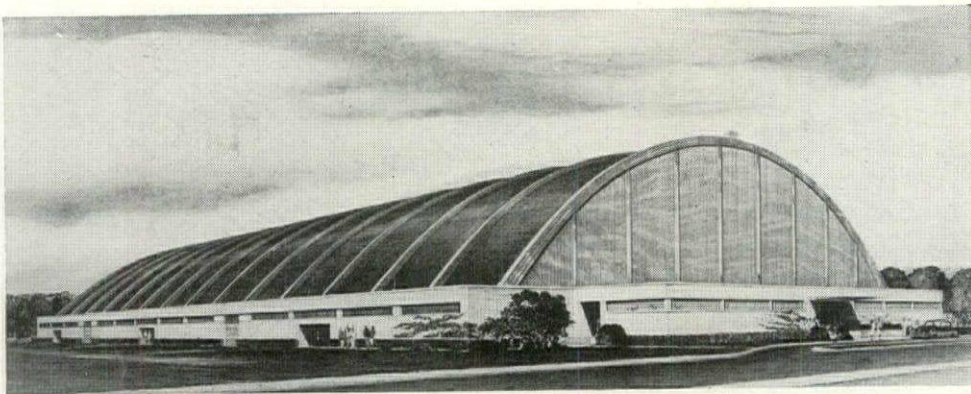


Market Hall, Algeciras, Spain: dome; section; partial reinforcing plan. D. M. S. Arcas, Architect.





Experimental prefabricated house, cross section above, has precast shell concrete roof with no beams, spanning 42 x 25 ft. Side walls are concrete frame with prefab insulating panels made of pressed corn fiber. Kitchen-bathroom unit of steel frame construction is placed near the center of the house, with separate subroof and ventilating stack up through shell roof. Precast concrete panels are joined with bolts.



are good for much more of this type construction, taking further advantage of European developmental work.

Here are two examples of favorable cost factors in concrete shell construction, and of the use of shell concrete not in monumental structures, but to meet common building problems. That is not to say that either of these projected buildings are prosaic solutions.

The model (see cross section left) is of a prefabricated house now being tested in Colombia, South America. Its architect, Alvaro Ortega, has used a very light shell roof over the simple structure, which is designed to sell for \$2,500. (A future issue of FORUM will feature details).

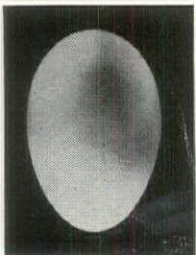
The rendering is of an Athletic Practice Building for the University of Wisconsin, designed by Amman & Whitney, who were given the first annual award for the development of reinforced concrete design by the Concrete Reinforcing Steel Institute this year for their work in shell concrete. The engineering firm made a cost study (condensed below) of various methods of constructing the required 190 x 400 ft. clear span. Included in the cost estimates are roof framing, roofing and insulation, abutments and foundations, and additional end and side wall areas required in the different layouts. Concrete shell construction was the choice. Another job now under construction, an arena in Montgomery, Ala. (FORUM April 1949) is an even more convincing demonstration. Comparative roof bids were taken on alternate designs in structural steel and reinforced concrete. The steel bid was \$599,000; concrete bid was \$577,500. Time for completion was 500 days for concrete against 730 for steel, a saving of 230 days in the use of shell concrete.

Continuation of events such as these may shortly work a great change in the American roof line, as shell concrete takes a firm place in U. S. building.

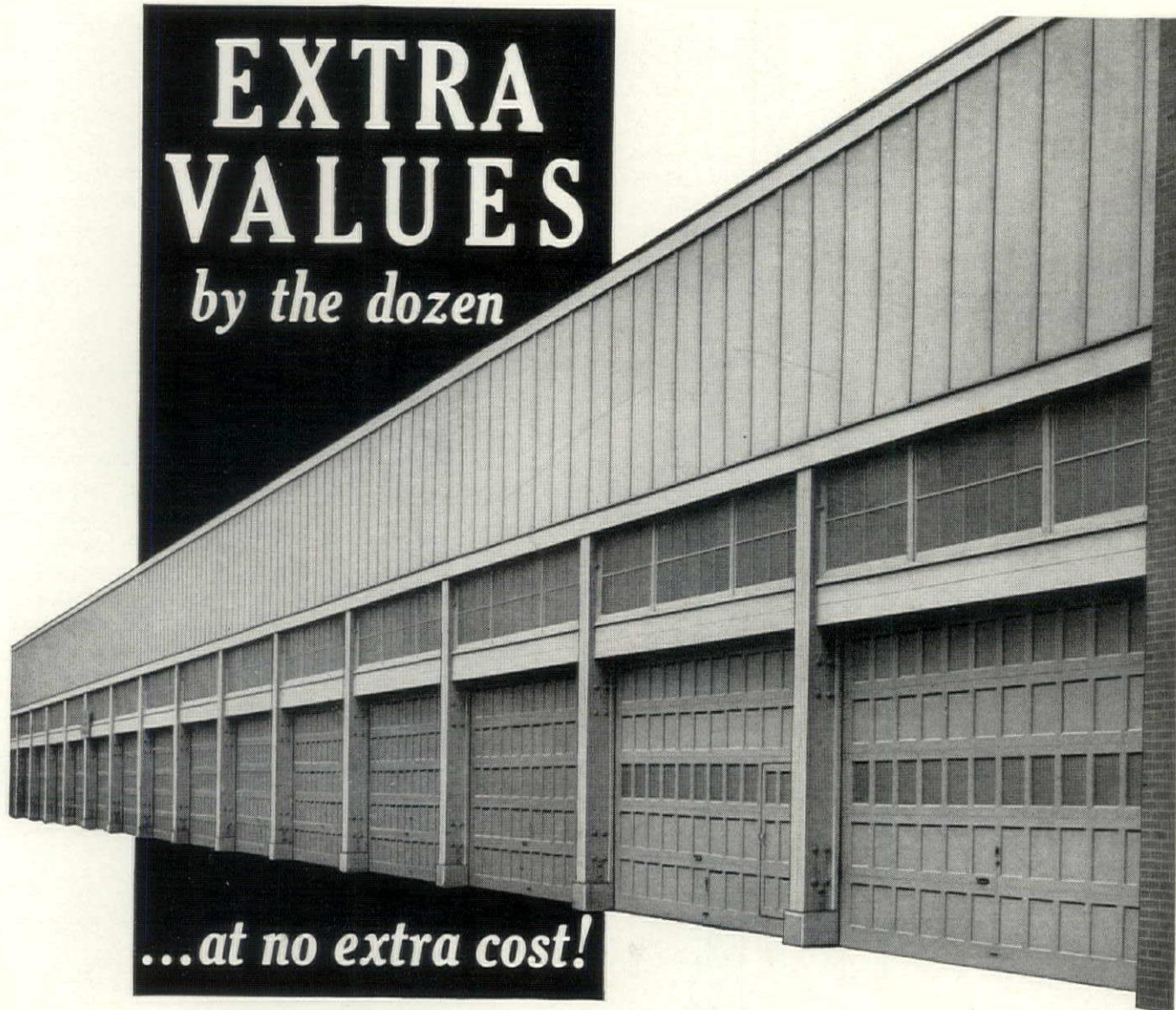
COMPARATIVE COST ESTIMATE OF METHODS OF ROOFING FIELD HOUSE, UNIVERSITY OF WISCONSIN

FRAMING TYPE	WOOD			STEEL		CONCRETE
	LAMINATED RIB	BOWSTRING	ARCHED TRUSS	ARCHED TRUSS	ROLLED BEAM	SHELL
SECTIONS						
MAINTENANCE	high	high	high	medium	medium	very low
FIRE RATING	non-fireproof	non-fireproof	non-fireproof	non-fireproof	non-fireproof	fireproof
SUPERSTRUCTURE	ROOFING	88,000 sq. ft. @ .25=\$22,000	82,000 sq. ft. @ .25=\$20,500	97,600 sq. ft. @ .25=\$24,400	91,840 sq. ft. @ .25=\$24,400	88,000 sq. ft. @ .25=\$22,000
	INSULATION	88,000 sq. ft. @ .15= 13,200	82,000 sq. ft. @ .15= 12,300	97,600 sq. ft. @ .15= 14,640	91,840 sq. ft. @ .15= 13,776	88,000 sq. ft. @ .15= 13,200
	SHEATH, PURLINS	98.5 M @ 180= 19,150	150 M @ 180= 27,000	67.6 M @ 220= 14,850	91,800 sq. ft. @ .30= 27,600	88,000 sq. ft. @ .35= 30,800
	RAFTERS, BRIDGING	97 M @ 180= 17,500	95 M @ 180= 17,100	101.5 M @ 180= 18,300	64 T @ 350= 22,400	31 T @ 300= 9,300
	SUBFRAMING, BRACING		35 M @ 350= 12,300	136 M @ 280= 38,200	64 T @ 350= 22,400	185 T @ 300= 55,500
	CONCRETE					1,514 C. Y. @ 35= 52,990
	REINFORCING STEEL					123 T @ 200= 24,600
	FORMWORK & TRAVELER ..					Orig. + 7 moves= 78,200
	RIB FRAMES	169 M @ 625=105,000	76,000 sq. ft. @ 1.37=104,200	111 M @ 450= 50,000	250 T @ 300= 75,000	175 T @ 300= 52,500
	ADDED WALL		20,750 sq. ft. @ 2= 41,500	9,440 sq. ft. @ 2= 18,000		
TOTAL		\$176,850	\$234,900	\$178,390	\$184,136	\$183,300
SUBSTRUCTURE	CONC. ABUTMENTS	320 C. Y. @ 20= 6,400		510 C. Y. @ 20= 10,200	415 C. Y. @ 20= 8,300	460 C. Y. @ 20= 9,200
	CONC. FOOTINGS	405 C. Y. @ 15= 6,075	150 C. Y. @ 17= 2,550	320 C. Y. @ 15= 4,800	526 C. Y. @ 15= 7,890	320 C. Y. @ 15= 4,800
	ABUTMENT FORMWORK	17,000 sq. ft. @ 1.00= 17,000		16,980 sq. ft. @ 1.00= 16,980	21,900 sq. ft. @ 1.00= 21,900	14,820 sq. ft. @ 1.00= 14,820
	REINFORCING STEEL	99 T @ 200= 19,800	3.5 T @ 200= 800	44 T @ 200= 8,800	128 T @ 200= 25,600	44 T @ 200= 8,800
	EXCAVATION	2,000 C.Y. @ 2.30= 4,600	345 C. Y. @ 2.30= 800	1,136 C. Y. @ 2.30= 2,613	2,170 C. Y. @ 2.30= 4,990	1,136 C. Y. @ 2.30= 2,613
TOTAL		\$53,875	\$4,150	\$43,393	\$68,680	\$40,233
TOTAL COST		\$230,725	\$239,050	\$221,783	\$252,816	\$223,533
UNIT COST (total per sq. ft.)		\$3.04	\$3.20	\$2.92	\$3.32	\$2.94
						\$3.14

Note: All figures are exclusive of contractors profit, insurance and contingencies.



EXTRA VALUES *by the dozen*



...at no extra cost!

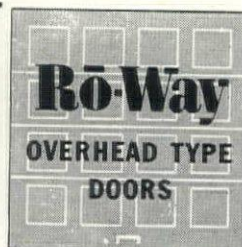
Not one or two . . . not five or ten . . . but a round dozen "Extra Value" reasons why Ro-Way Overhead Type Doors are better built, better finished, better all around. Twelve reasons why . . . and here they are:

1. Only high quality lumber is used. Personally selected by our own buyer at west coast mills.
2. Panels are made of 3-ply, exterior grade Douglas Fir plywood for maximum resistance to moisture.
3. Multiple mortisers are used to assure accuracy, uniformity and good fit.
4. Tenons are cut on both ends in one operation for efficient construction.
5. Muntins, rails and stiles are accurately squared up.
6. Sections are drum-sanded to a fine preliminary finish.
7. Ro-Way's own workmen then do the final finishing with hand sanders.
8. All sections are rabbeted carefully to assure weather-tight joints.
9. All mortise and tenon joints are glued and then steel doweled for strength.
10. Ro-Way springs are made in our own plant, and power-metered to the weight of the door on which they're used.
11. Special machines make Ro-Way track rollers with a double-thick tread that wears twice as long.
12. After all Ro-Way hardware has been fabricated, it is Parkerized and painted for extra protection against rust and streaks that spoil the looks of a door.

Ro-Way Overhead Type Doors are better built—last longer—look better and cost no more. Insist that your commercial, industrial and residential doors be Ro-Way. ROWE MANUFACTURING CO., 958 Holton St., Galesburg, Ill., U. S. A.

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See your classified telephone directory for names and addresses of Ro-Way Distributors

of course you'll choose
MILCOR
Super-Ex



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For easy installation and lasting plaster beauty

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- ▶ Extra rigidity — strengthened by corrugations
- ▶ Perfect plaster bond — provided by staggered perforations, and expansion flange.

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Cleveland 14, Ohio • Detroit 2, Mich. • Kansas City 8, Mo. • Los Angeles 23, Calif.
New York 22, N. Y. • Rochester 9, N. Y. • St. Louis 10, Mo.

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takes Guesswork out of Expense of Operating Air Conditioning Systems

OWNER SATISFACTION in the system *you* recommend or install is important. To maintain full efficiency at all times and reduce overall operating costs, York offers owners of York air conditioning systems exclusive Certified Maintenance Contracts. These contracts assure satisfactory performance and result in better care of equipment.

YORK'S CERTIFIED MAINTENANCE PROGRAM is time-tested. Today thousands of these contracts are in effect—a remarkable tribute to a priceless service. Don't forget that in addition to superb quality of product, York offers this service to insure your client's satisfaction throughout the years.

York Recommends Your Services

That's basic philosophy with York. Wherever practical, York believes in channeling air conditioning work through *you* as representative of the ultimate user. To back up your recommendations and services, York provides this balanced program:

- a complete line of equipment
- competitive prices
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- a national organization
- continuous product research and development
- certified maintenance

If you are "planning" any job requiring air conditioning or refrigeration, call your York District Office. Experienced Sales Engineers are available to give you *complete and personal* assistance at all times. York Corporation, York, Pennsylvania.



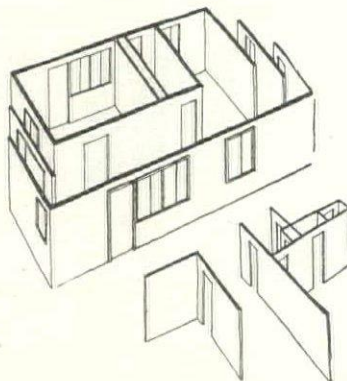
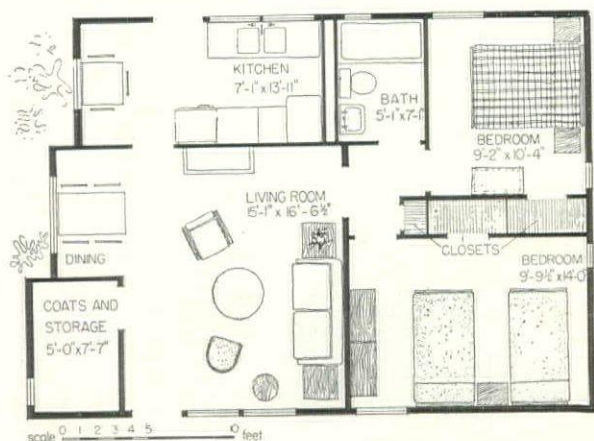
PIONEERS IN INVENTION AND DEVELOPMENT SINCE 1874

Refrigeration and Air Conditioning

HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885

STEEL HOUSE

(Continued from page 86)



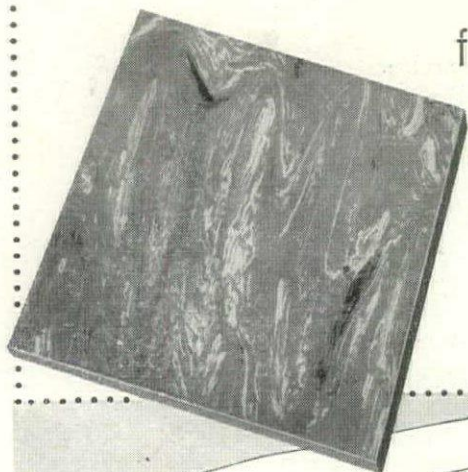
Reliance's bid for the low cost housing market is this compact two-bedroom model, factory-priced at \$3,500. Unit's three sections can be nested and shipped on one truck by removing three interior partitions, (see sketch, right).

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RUBBER FLOORING

is the modern floor that's right

for every style

of architecture?



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AMERICAN TILE & RUBBER COMPANY
TRENTON 2, N. J.

Specializing in the Manufacture of Rubber Flooring Exclusively for Over 30 Years.

them on a larger subdivision in greater volume. But this depends upon a solution to his current house financing difficulties.

Nagin sums up the prefabricator's financing picture succinctly: "We can make our houses in a hurry, we can erect them in a hurry but we can't finance them in a hurry." For both himself and his dealers, the question of arranging financing in a mortgage pattern geared almost completely to orthodox house construction is a crucial one. The great virtue of the factory-built house—speed of erection—is its greatest handicap when it comes to mortgage financing. In simple terms, Reliance wants to be paid for each house 30 days after it leaves the factory. But Dealer Lawrence can't pay for it until a mortgage is processed through the local FHA office—a process which takes anywhere from six weeks to three months.

Up to now, GI loans have formed the basis for most Reliance sales. In the Washington area, Lawrence gets a VA \$10,500 appraisal on his house which equals the sales price and permits him to sell to veterans with no down payment except for minor settlement charges. A VA mortgage is only helpful, however, once the house is on the site. Unlike FHA, the VA program offers no means of providing money for site development. This means the dealer-erector must put up his own money for the streets and utilities as well as the slabs. And most dealers don't have that kind of money. To assist its dealers over this hurdle, Reliance has established a revolving site development fund with some of its RFC loan. In order to keep the bookkeeping straight, the dealer sets up a separate subsidiary company to prepare the sites and erect the houses. Reliance headquarters at the factory advances the subsidiary sufficient money from the fund to complete the site work. When the dealer gets his money at the mortgage closing, he pays his subsidiary for the site work and Reliance for the house. The payment to the subsidiary then goes back into the Reliance's revolving fund, and the cycle starts all over. The net result is that the erector-dealer gets some capital to help him along during the crucial days between the time he begins preparing the site and the time the sale of the completed house is closed.

However, neither the VA with its diminishing GI market nor this small revolving fund is going to be sufficient to help Reliance mass-produce enough houses to pay off its RFC loans and start making real money. One possible aid: Section 102-A of the Sparkman bill, now on the Senate calendar for consideration when Congress re-convenes in January which includes funds for financing the marketing of prefab houses.

Because of the molasses-slow pace of mortgage financing on the houses, the Reliance factory last month had an inventory of 70 houses, all on firm order from buyers. To correct this situation and prevent a slow-down of the production line, the company is out hustling for big-order business from public agencies. It already has a 350-house firm commitment under Pennsylvania's veteran's housing program and hopes to participate in the Federal government's new military housing program. Moreover Reliance is dickering with a big New York syndicate which claims it can market the house at a record sales price of \$6,500.

In anticipation of a break-up of the mortgage blockade, the production line next month will shift to a two-bedroom house for the economy-housing market (see plan, above). This 728 sq. ft. house, designed for shipment on a single truck, will have an F.O.B. price of under \$3,500, and, when erected on an East Coast lot, should make housing news with a sales price well under \$6,000.



You're on the beam

when you're working on Truscon Metal Lath Products

Bill Scullz of Morelli Brown Plastering Co., Inc., knows how easily you can lay on the plaster and do a bang-up job with Truscon Metal Lath backing you up. He's one of the gang that did such beautiful plastering in the Astoria Housing Project shown here.

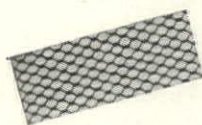
Tons of Truscon Diamond Lath, Corner Bead and Galvanized Tie Wire went into this tremendous group of apartments, assuring fine appearance of walls and ceilings for many years.



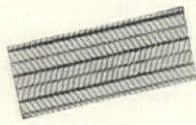
*New York, City Astoria Housing Project,
Halletts Cove, Astoria, New York.
Contractor: Corbetta Construction Co., Inc.
Plasterer: Morelli Brown Plastering Co., Inc.
Architect: Harrison & Abramowitz*

Truscon Diamond Lath is a flat metal lath, uniformly expanded throughout the entire sheet. Its use is almost universal, for it is adaptable for practically all classes of work—as a base for walls, partitions, ceilings, as a reinforcement for stucco, as a protection for steel beams and columns, and for protecting hazardous points in wood frame construction—such as ceilings under inhabited floors, especially over heating plants and coal bins, around flues, and back of kitchen ranges, stair wells, and under stairs. Diamond Lath has more openings in a given area,

with a proportionate increase in the area of steel. The increased proportion of steel gives the sheets great rigidity. They are easily handled and quickly erected, and less time is taken in applying the scratch coat and truing up the wall than with ordinary diamond lath. The small openings prevent excess penetration of plaster, thus minimizing droppings. The larger number of openings permits the formation of more keys to give efficient bonding of the plaster to the lath. Write for catalog on Truscon Metal Lath and Accessories.



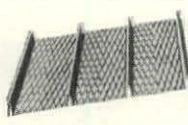
Diamond Lath



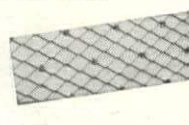
Herringbone
Doublemesh Lath



$\frac{3}{8}$ -inch
Ribplex Lath



Self-
Sentering Lath



Stucco Mesh



No. 8 Rib
Steel Corner Bead

TRUSCON STEEL COMPANY

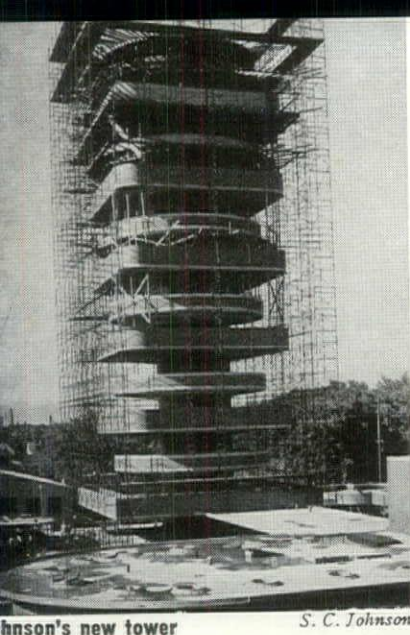
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SALES OFFICES AND WAREHOUSES IN PRINCIPAL CITIES

Subsidiary of Republic Steel Corporation

**TRUSCON
SERVES
THE PLASTERING
INDUSTRY**

(Continued from page 89)



Johnson's new tower

S. C. Johnson

Flatiron's new point



who simultaneously enter and leave their offices on the building's first 20 floors. (The lower 42,000 sq. ft. floors are occupied by as many as 500 employees each.) The largest moving stair installation in the world, it is said to have eliminated 16 elevators which would have occupied more space and would have cost more to install, operate and maintain. An alternate method of reducing the need for vertical transportation facilities—the staggering of employees' hours—was apparently vetoed as impractical. (The 7th floor is a huge company-operated cafeteria; the 8th is occupied by an employee's lounge, library, store and other recreation facilities.)

► Heating coils are embedded in the sidewalks to achieve automatic snow and ice removal (see FORUM, Sept., p. 12).
► A public address system throughout the building may be used to "pipe" music to any individual department.

Architects & Engineers: Cram & Ferguson. General Contractor: Turner Construction Co.

Selling wax with architecture

Frank Lloyd Wright's famous Johnson Wax building in Racine has proved such a public relations booster for the manufacturer that he has commissioned Wright to add to the attraction. Last month the new attention-getter neared completion. It is a 156 ft. research and development tower comprised of 15 square and circular office floors of brick, concrete and glass tubing stacked alternately atop one another and supported by a central stem containing elevators and utilities—see photo, left, above.

As it must to all buildings...

The historic Hollywood Hotel in the movie capital is slated for demolition and replacement by a \$10 million business center to include a hotel, press building, apartment building and retail mart. Architect William L. Pereira is designing the new "Hollywood Center."

* * *

In New York City the historic Flat Iron Building is to have its base "lifted." As shown in the combination photo-rendering above, Architect George Cooper Rudolph and Associate Designer Basia Benda are dramatically modernizing the Flat Iron's point with a new store for the Walgreen drug store chain.

Meeting of merchandise and museum

An *entente cordial* between art and business has been established by the Museum of Modern Art in New York and the Merchandise Mart in Chicago. Under a program called "Good Design," the sponsors will select and set up three exhibits of home furnishings a year (in January, June and November) at the Mart, whose 4,023,400 sq. ft. of floor space lay claim to the title of world's largest commercial building. All new or radically improved home furnishing designs are eligible for submission, to be judged according to "usefulness . . . production methods and materials . . . and the progressive taste of the day." "Good Design" cards of approval will be issued to all manufacturers whose products are chosen for exhibit.

Offices without windows

Contractor Walter C. Guest of Anderson, S. C. is so pleased with the many windowless plants he has built for the south's new textile manufacturers that he is now building completely windowless offices for his own staff.

LUDOWICI

ROOFING TILE

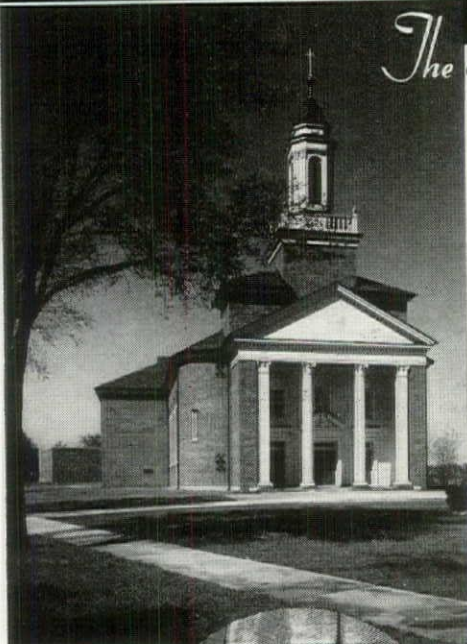
The outstanding name in roofing

The classical beauty of this Colonial-Georgian church, dignified by its spatial setting conforms to the traditional in a significant modern way with a Ludowici roof of Shale Tile.

Here, the architect has achieved in texture and color a true reproduction of the early colonial "shakes". The soft grays and greens and the weathered surface are simulated with remarkable fidelity in the enduring quality of "Williamsburg" Interlocking Tile by Ludowici.

Modern churches too, as shown below, use roofs of Shale Tile to complement the architectural concept with attractive permanence.

Ludowici offers architects assistance in the preparation of plans and specifications and will gladly submit samples upon request.



St. Dominic Church, Cleveland, Ohio
Wm. Koehl & Thos. F. Koehl, Architects.

Detail of Ludowici "Williamsburg" Interlocking Shale Shingle Tile.



St. Joan of Arc Church, Minneapolis, Minn.
Architects: Hills Gilbertson & Hayes.

We also invite your consideration of Ludowici Shale Slabs; a beautiful quarry tile for floor and walls.

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New York 17, N. Y. Washington 5, D. C. Cleveland, Ohio
565 Fifth Avenue 740—15th Street, N. W. 12728 Woodland

A SINK FOR ANY TASTE

**A PRICE FOR ANY BUDGET
SEE CRANE**

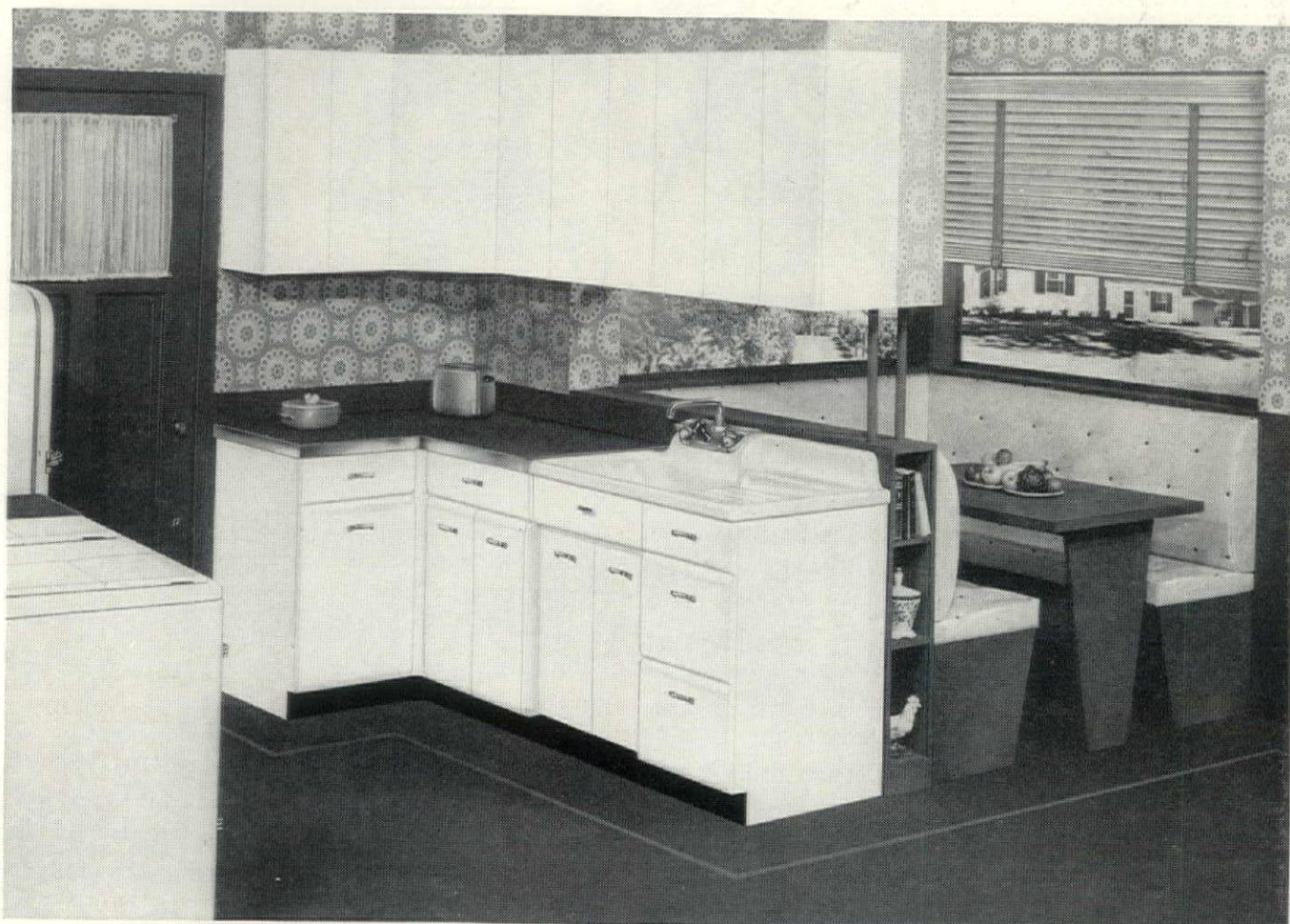
THE HOMEMAKER. *This compact sink is ideal for small kitchens—basin, drainboard, and plenty of storage in a 42" space. Outlet accommodates General Electric Disposall.*

As to the name, there is no question . . . *your own customers* have established Crane as the favorite name in plumbing.

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This breadth of line is typical of Crane wherever you see it. In bathrooms, too, where Crane offers complete groups in every price bracket. Again in home heating, where Crane supplies every requirement for any system . . . hot water, warm air, or steam . . . coal, coke, oil, or gas.

When making selections from the complete Crane line, you'll find it helps to check your plans with your Crane Branch or Crane Wholesaler.



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

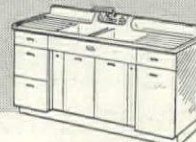
CRANE KITCHEN SINKS range all the way from 38" to 72" in width, include such popular features as retractable hose spray . . . swinging mixing spout . . . fingertip Dial-ese controls.



ALL-AMERICAN
38 in.
wide



KITCHEN PRIDE
38 in. wide



KITCHEN QUEEN
72 in. wide



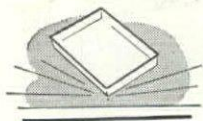
SUNNYDAY
54 and 60 in. wide

Teamed Up to Boost Your Sales



WEARS LIKE IRON . . . CLEANS LIKE GLASS

An ideal surfacing material, combining beauty with durability — that's General Electric's Textolite, now distributed by Roddiscraft.



TEXTOLITE is scratch-resistant, beautiful but tough. It resists scratching better than low-carbon steel!



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TEXTOLITE is stainproof— food acids, alcohol and household chemicals won't discolor it.

And besides that, G.E. Textolite is easy on the eye. Easy to clean, too, with its smooth, lustrous finish.

Now's the time to sell Textolite. You'll find dozens of applications where durable Textolite will fit your customers' needs—kitchens, dinettes, hotels, soda fountains, restaurants, cocktail lounges. Available in a wide variety of standard colors and patterns.

Textolite sales go hand-in-hand with plywood sales. Here's a real team to boost your profits, backed by two great names, General Electric and Roddiscraft.

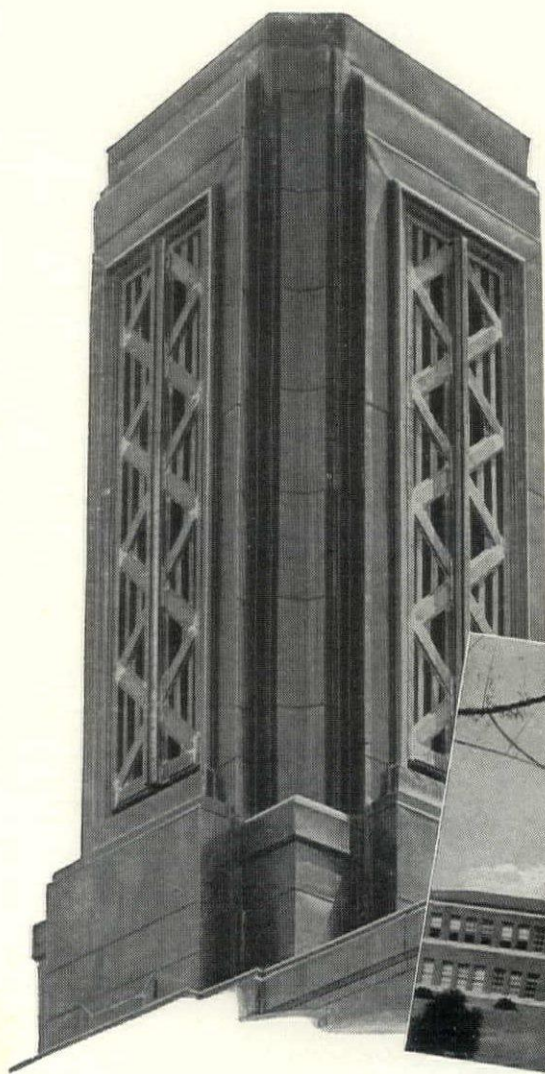
Ask your Roddiscraft salesman for color card and samples.

*Reg. U. S. Pat. Office

Roddiscraft
RODDIS PLYWOOD CORPORATION
MARSHFIELD, WISCONSIN

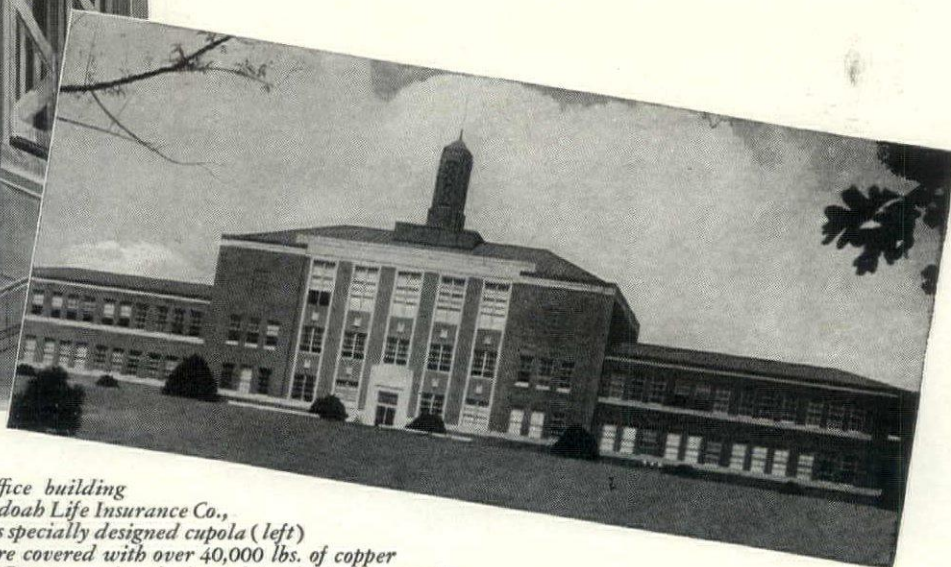
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Dallas 10, Texas 2800 Medill St.	New York 55, N. Y. 920 E. 149th St.
Detroit 14, Mich. 11855 E. Jefferson St.	Port Newark 5, N. J. 103 Marsh St.
Houston 10, Texas 2425 Sabine St.	Philadelphia, Pa. Pier 5, N. Delaware Ave.
Kansas City 3, Kan. 35-53 Southwest Blvd.	St. Louis, Mo. 4453 Duncan Ave.
L. I. City, N. Y. Review & Greenpoint Ave.	San Antonio, Texas 727 N. Cherry St.
San Francisco 24, Cal. 345 Williams Ave.	



FOR LONG ROOF LIFE

Shenandoah Life Insurance Company uses COPPER and Common Sense!



On the new home office building (right) for the Shenandoah Life Insurance Co., Inc., Roanoke, Va., this specially designed cupola (left) and the hipped roof are covered with over 40,000 lbs. of copper for lasting protection. Gutters, coping, fascia and inside drains are also constructed of copper. Architects and Engineers: Smithey & Boynton; General Contractor: B. F. Parrott & Co., Inc.; Sheet Metal Contractor: Valley Roofing Corp.

Monumentally situated on a high knoll in Roanoke, Virginia, the new home office building for the Shenandoah Life Insurance Co., Inc. is an inspiring combination of functional design and architectural beauty.

This building's all-copper roof and cupola have made history in Virginia's construction field. Gutters, coping, fascia and inside drains are also all of copper—and all constructed in accordance with the scientific principles of sheet copper construction developed in the Revere Research Laboratories.

You will find complete information about these new principles in Revere's 96-page manual entitled *Copper and Common Sense*. This book is filled with data that enable you to design or install roofs, gutters, flashing, etc. that give extra years of service. By making full use of these data you can always be sure of fine and durable sheet metal construction based on sound engineering principles.

This book has been widely distributed to architects

and sheet metal contractors, and probably is in your office files. Be sure to refer to it; and if you do not have a copy, write for one now on your office letterhead.

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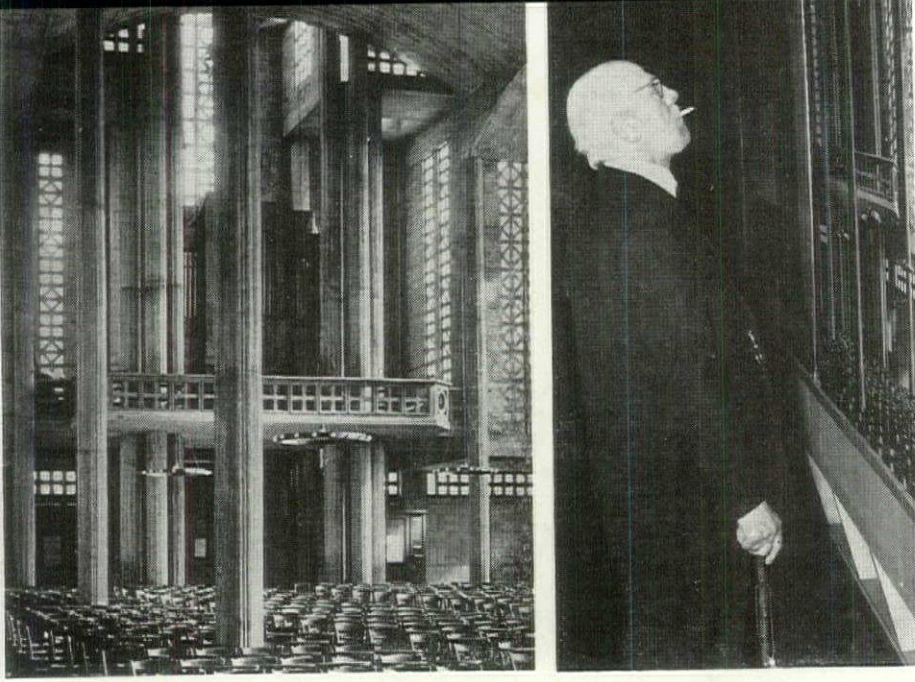
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REVIEWS

U. S. WELCOMES AUGUSTE PERRET

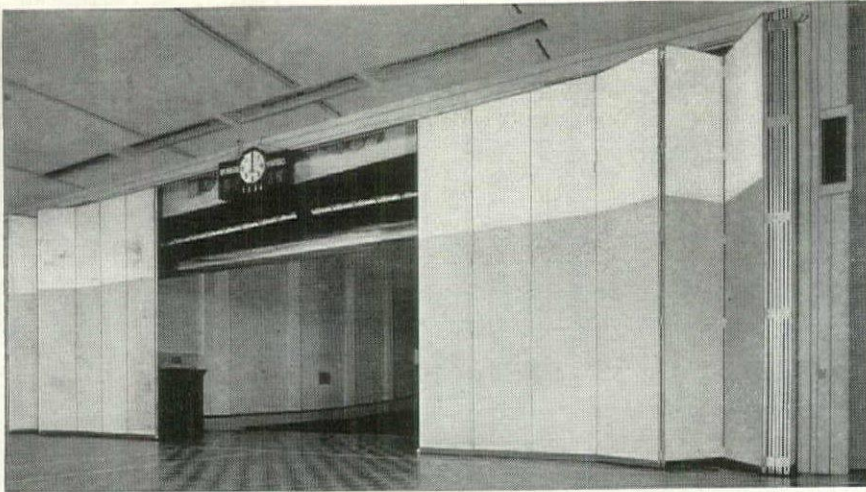
For almost 50 years, reinforced concrete has had a constant and powerful champion. Auguste Perret, dean of French architects, was undoubtedly the first to demonstrate, not only the versatility of this material but also its drama and delicacy. The great success of his efforts was celebrated last month at the University of Illinois by a photographic exhibit of the most noted of his many designs. In conjunction with this exhibit the French government sponsored a U. S. visit for Perret—the first the 75-year-old architect has made here.

To U. S. architects and engineers who have shown increasing interest in reinforced concrete, the great variety of Perret's work becomes more and more important. From his first building in Rue Franklin (1903), Perret has been a pioneer in testing the possibilities of the concrete slab. The École Normale of Music, in Paris, showed its adaptitude for excellent acoustics (it has been termed by musicians "a Stradivarius"); the docks of Casablanca introduced the thin concrete slab for roof construction; the Notre Dame Church at Raincy (interior view at right above) showed its unexpected dignity in decoration as well as construction.

Since the war the services of Perret have been more in demand than ever and he has now been put in charge of reconstructing the port and city of LeHavre, which were almost completely demolished by bombs. One of its apartment units is shown below. The reserve and restraint of much of Perret's design (coldness, it has sometimes been called) is partially due to the demands of concrete itself. It also reflects, however, Perret's sympathy with classic traditions and forms. His chosen goal is that most difficult one in art—"to create from new materials buildings that would seem to have existed always."—S.K. (Continued on page 120)



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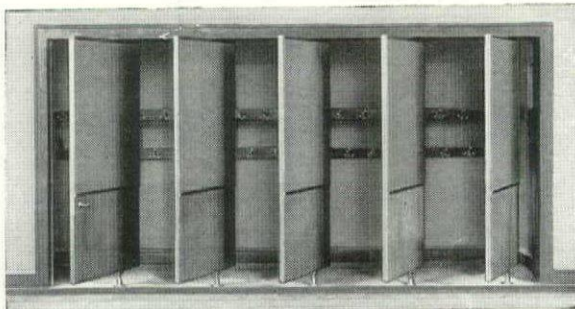


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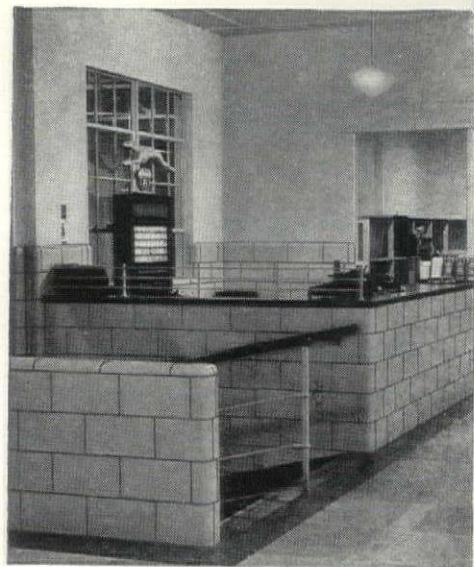
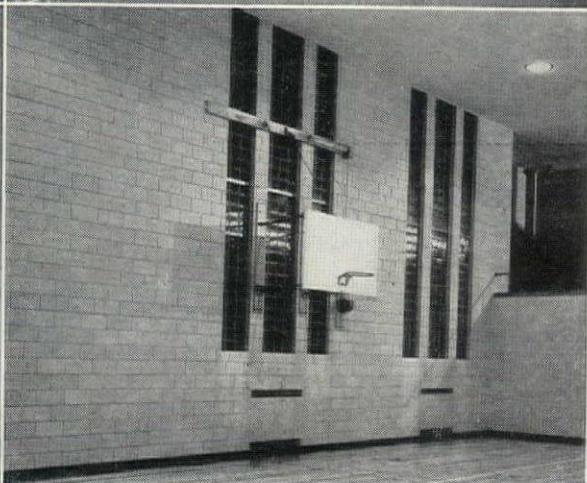
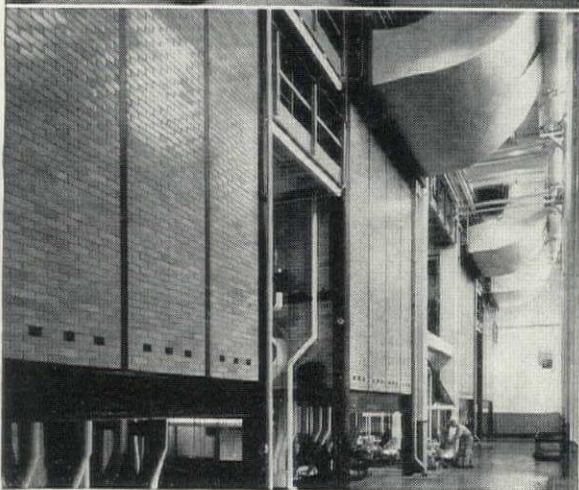
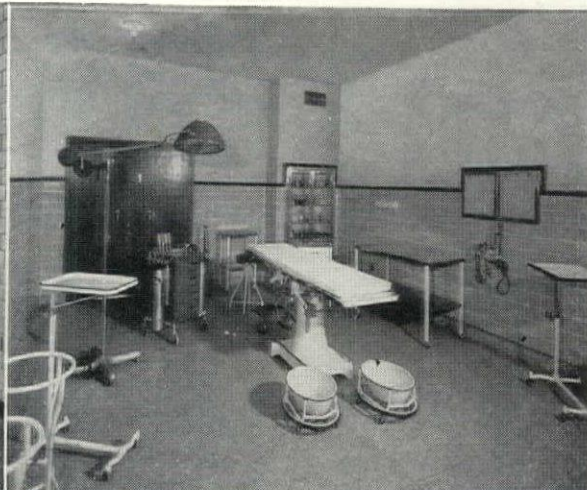
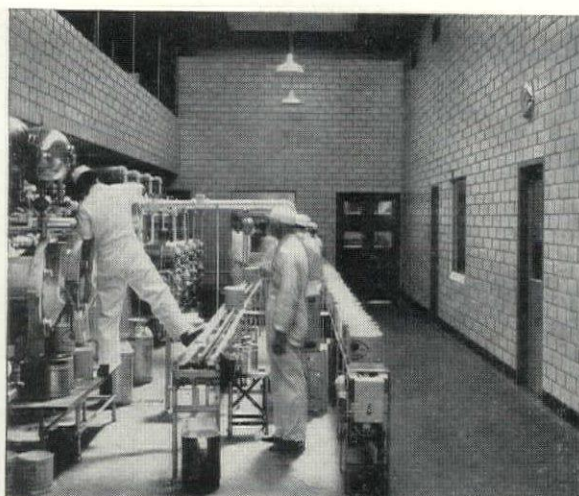
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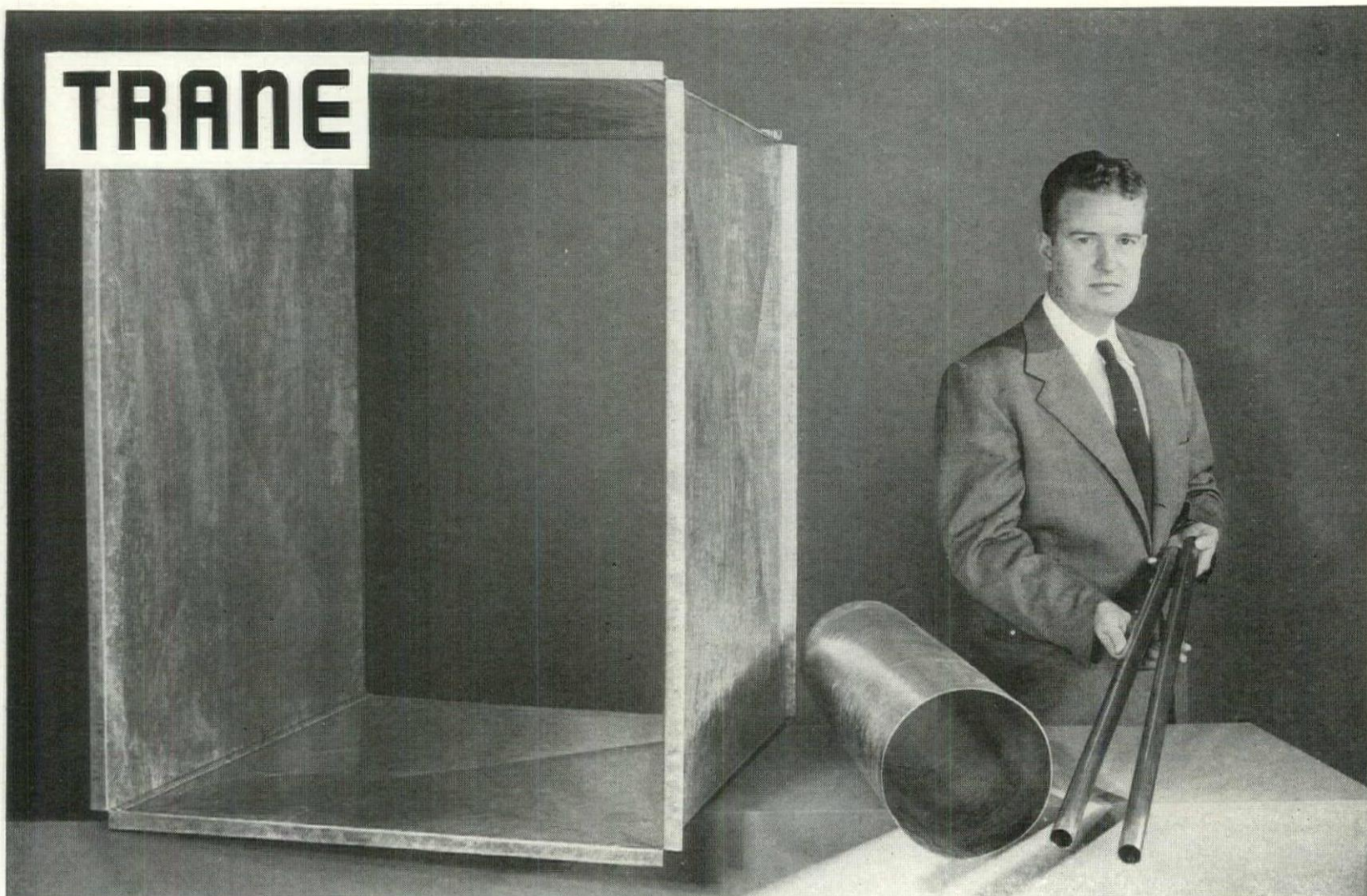
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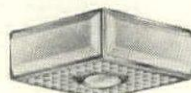
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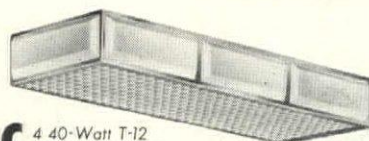
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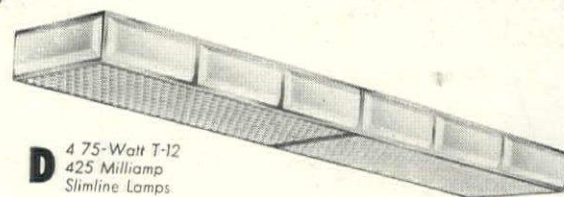
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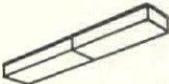

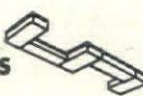
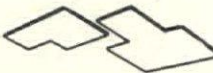

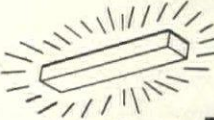



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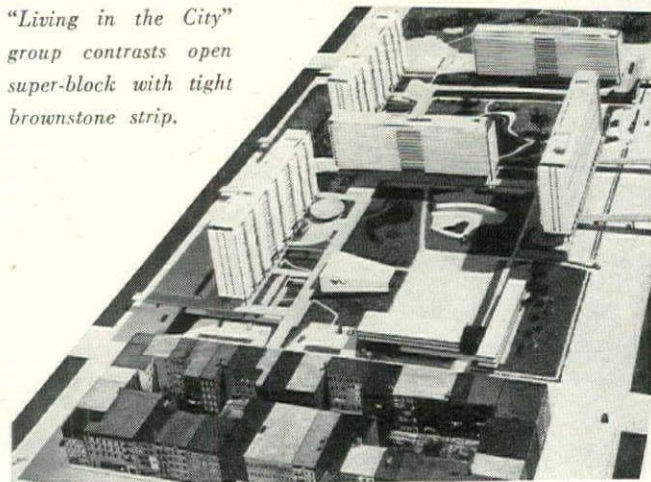
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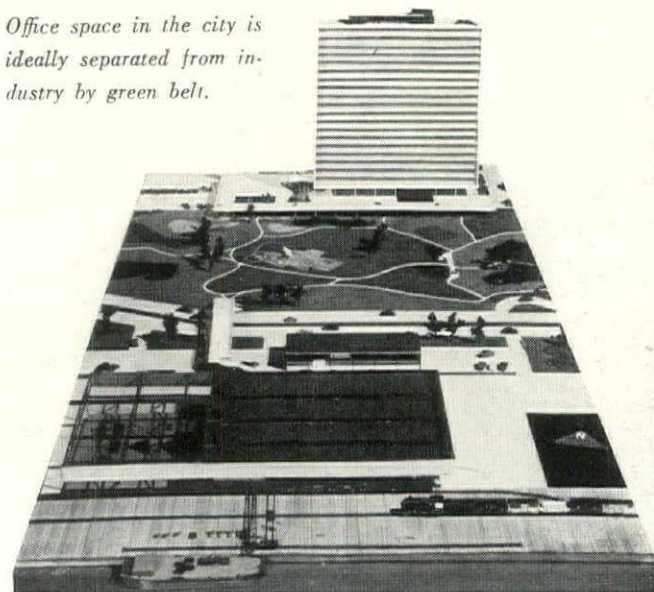
MODERN ARCHITECTURE COMES OF HIGH SCHOOL AGE

A far-sighted program has been undertaken in New York City—its aim, to acquaint high school students in that troubled town of the planning problems and possibilities which they will soon have to face. A thoughtfully-planned exhibit of text-panels, photographs and four handsome models will tour the city's 54 high schools, remaining a month at each school. This five-year plan was made possible by the tripartite cooperation of the New York Chapter of the A.I.A. which awarded its Brunner Scholarship to defray expenses; the work and ingenuity of Olindo Grossi (Chairman of the Department of Architecture at Pratt Institute) and a group of his students;

"Living in the City"
group contrasts open
super-block with tight
brownstone strip.



*Office space in the city is
ideally separated from in-
dustry by green belt.*



Walter Ciaraldi

and the New York City Board of Education which will ship the exhibit from school to school and coordinate its showing with the curricula of various student groups.

In planning the exhibit, Mr. Grossi and his assistants have admirably avoided talking down to their audience. Teachers and parents will admire and learn as much from the show as will the students for whom it is primarily intended. "Living in the City" (top photo) contrasts the familiar block of brownstone houses with a spacious, safe, well-balanced super-block. "Living in the Country" illustrates the various factors that compose a suburban community—industry, stores, school, housing of various types. A large shopping center and a group combining a modern factory and a park-surrounded office building (lower photo) complete this view into the world of tomorrow.

(Continued on page 121)

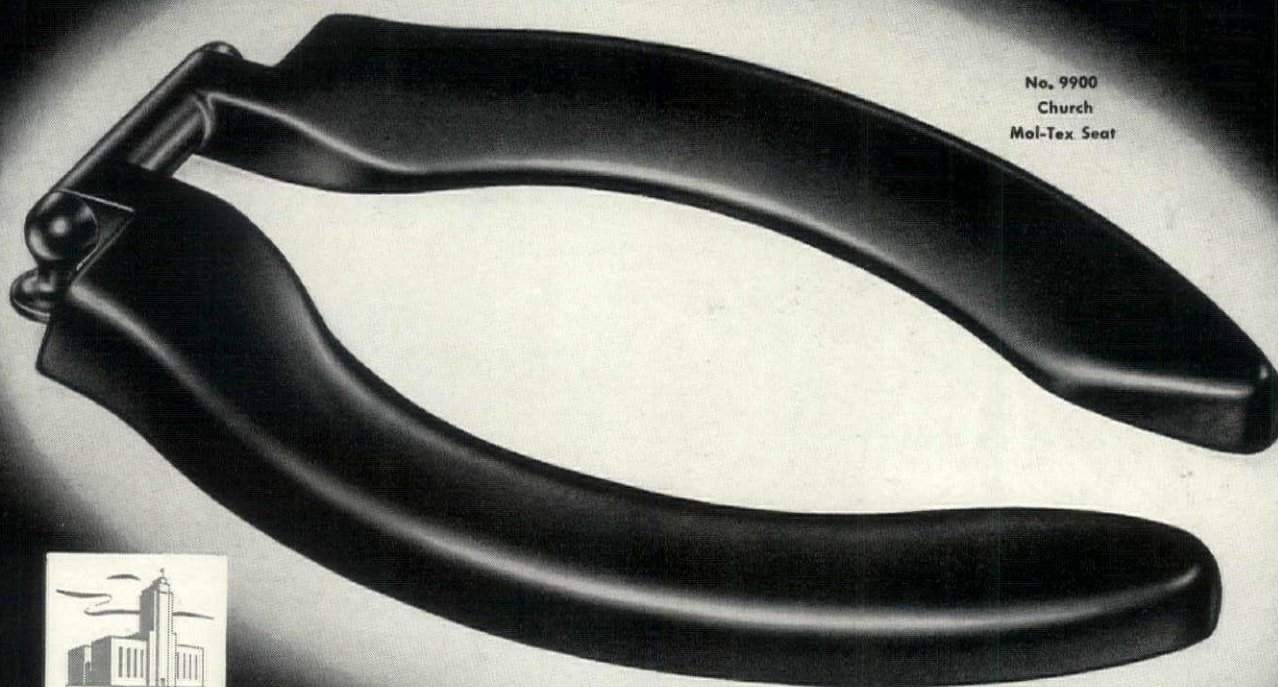
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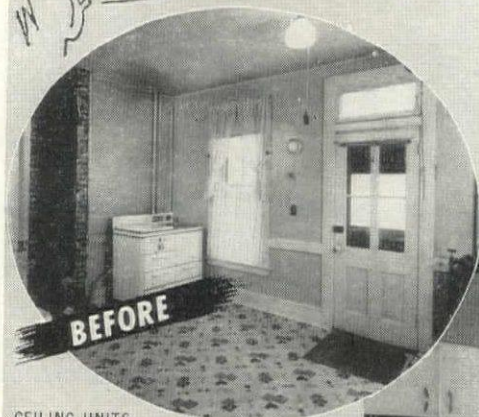
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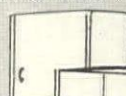
540 North Michigan Avenue, Chicago 11, Illinois

Winter Time IS THE RIGHT Time FOR KITCHEN REMODELING

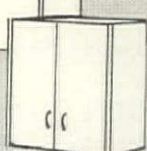


BEFORE

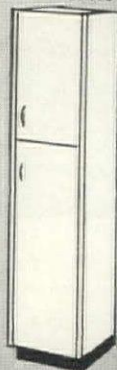
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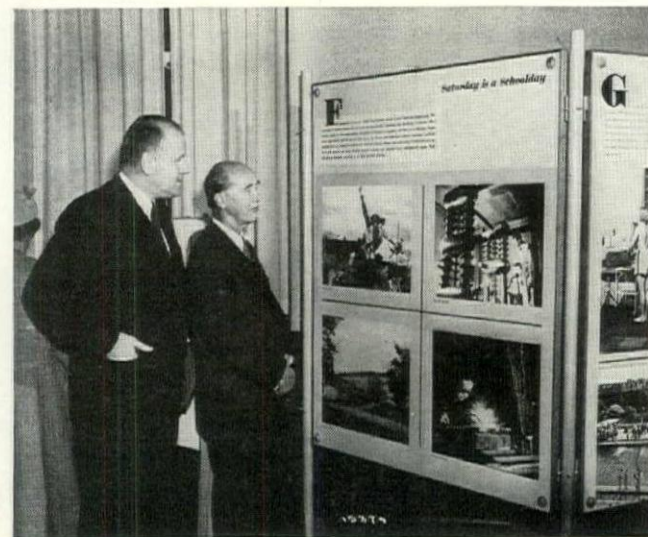
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WRIGHT RUBBER TILE

FLOORS OF DISTINCTION

The exhibit was greeted by immediate enthusiasm which spread its influence to 35,000 other New Yorkers via television (Chuck Trantum's *Manhattan Spotlight*). At last hearing, local colleges were signing up the show for summer months when high schools would be closed.—S.K.

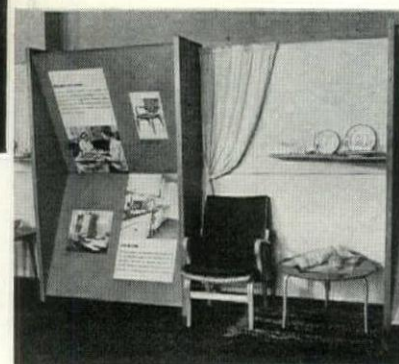
SCHOOLS WILL SEE THE WARES OF SWEDEN



Consul General Lennart Nylander and Gov. Rickart Sandler (former Prime Minister of Sweden) look at panels portraying Swedish life.



Actual chairs, textiles and china pieces allow students to feel and experience the use of Swedish wares, as well as see them.



Sweden, too, launched an exhibit this fall in New York secondary schools. "The A-B-C of Sweden," assembled and financed by various departments of the Swedish government, began a five-year circuit this October—with a two-month stop-over at each school. Ten compact room-corners will bring young Americans into immediate touch with the fine and assured design which has been admired here for several decades. More than 60 designers and manufacturers contributed to its collection of furniture, lamps, textiles, china and silver. Eleven photo-mural panels supplement these actual objects by giving a glimpse into the manufacturing, farming and seafaring activities most characteristic of Swedish life.

This exhibit (as well as the architectural one described above) is circulated by the School-Museum Program of the New York Board of Education, headed by Charles F. Beck. Originally planned to handle exhibits drawn from nearby museums, it has intelligently broadened its scope to include as wide a field as possible. Student-practice in analyzing the design and utility of these products of Sweden, and in comparing them with similar articles sold locally, will provide first-rate object lessons in everyday craftsmanship.—S.K.



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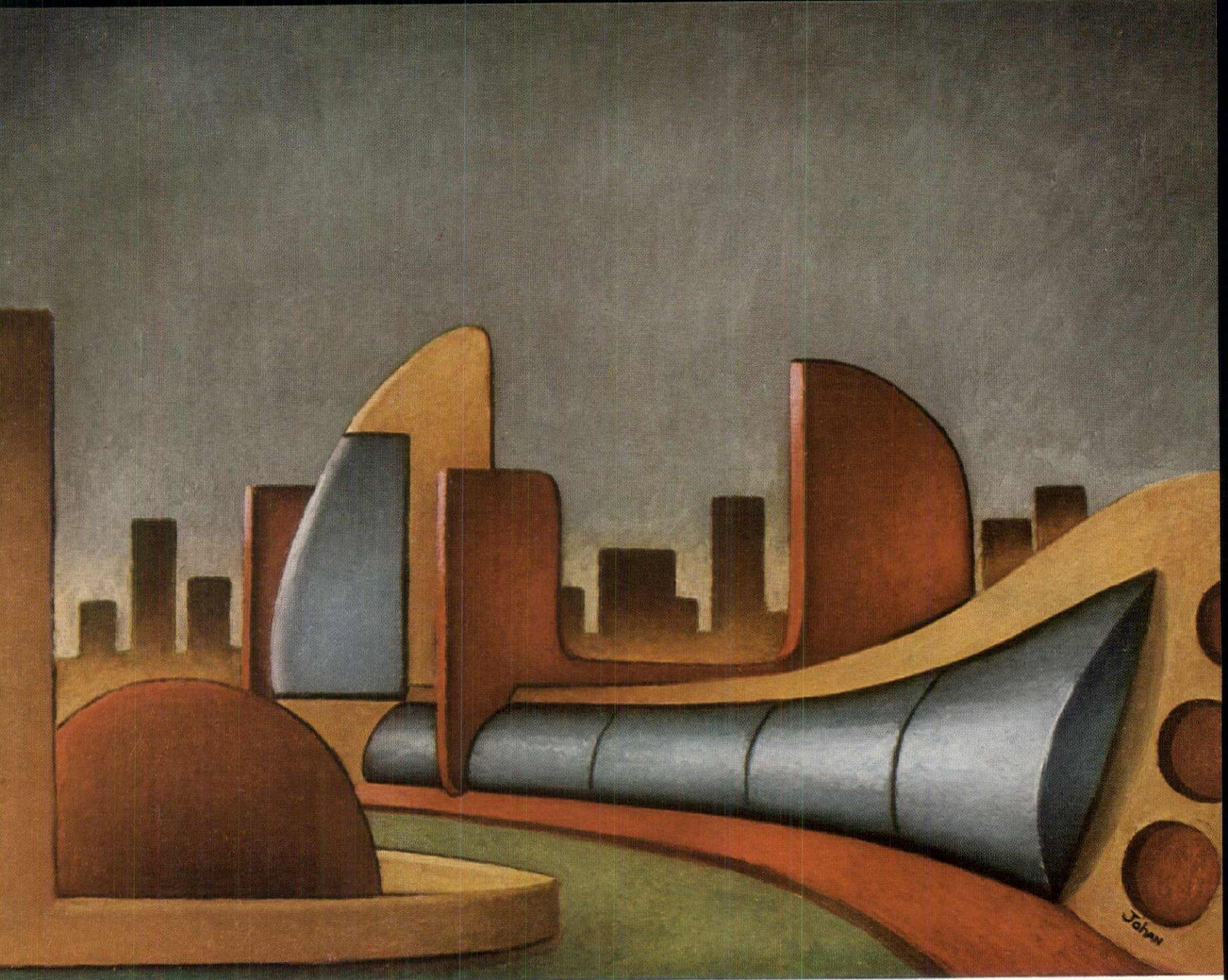
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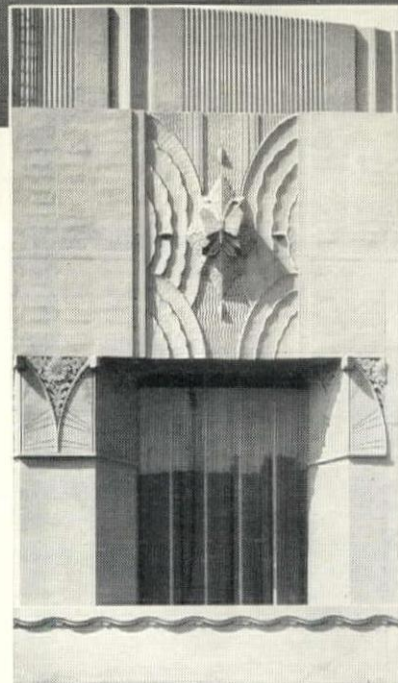
Architectural Concrete

theater resists severe weathering

SPokane's FOX THEATER was built in 1931. For 18 years it has been exposed to frequent freezing and thawing cycles and extremes of temperature that range from -30°F. to 108°F. Yet this severe weathering has had no effect on the architectural concrete. Arrises remain as sharp as when the forms were stripped.

Architectural concrete buildings like this that are designed and constructed to resist any weather conditions maintain their original good appearance and remain structurally sound indefinitely. Such durability is the result of applying the well-defined principles and procedures of quality concrete construction.

The beauty and durability of architectural concrete also make it ideal for apartments, hospitals, schools, factories, office and commercial buildings. Having long life and requiring little or no maintenance, architectural concrete renders *low-annual-cost* service, the true measure of construction economy. That's important to owners, investors and public officials.



Illustrations above show a general view of the Fox Theater, Spokane, with (inset) a close-up of large ornamental bas-relief butterfly panel cast integrally with the wall against a plaster mold built into the forms. R. C. Reamer and Frank Wynkoop were the architects. Alloway & George were the contractors.

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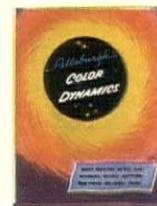
Pittsburgh Plate Glass Co., Paint Div.
Dept. AF-129, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your new revised and enlarged Booklet, "Color Dynamics."

☐ Please have your representative call for a Color Dynamics Survey without obligation on our part.

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PITTSBURGH PAINTS
PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

Silbraz joints are leakproof, vibration-proof, and corrosion-resistant. They make the ideal connection for all piping systems where "B" copper tubing or brass pipe is used.

Threadless, Silbraz joints are permanent . . . will not creep or pull apart . . . save trouble and cost by eliminating leaks . . . literally join with the pipe to form a "one-piece pipe line." No properly made Silbraz joint has ever been known to fail under any condition which the pipe itself can withstand. If you are looking for maintenance-free pipe lines — for either new construction or remodeling — specify Silbraz joints.

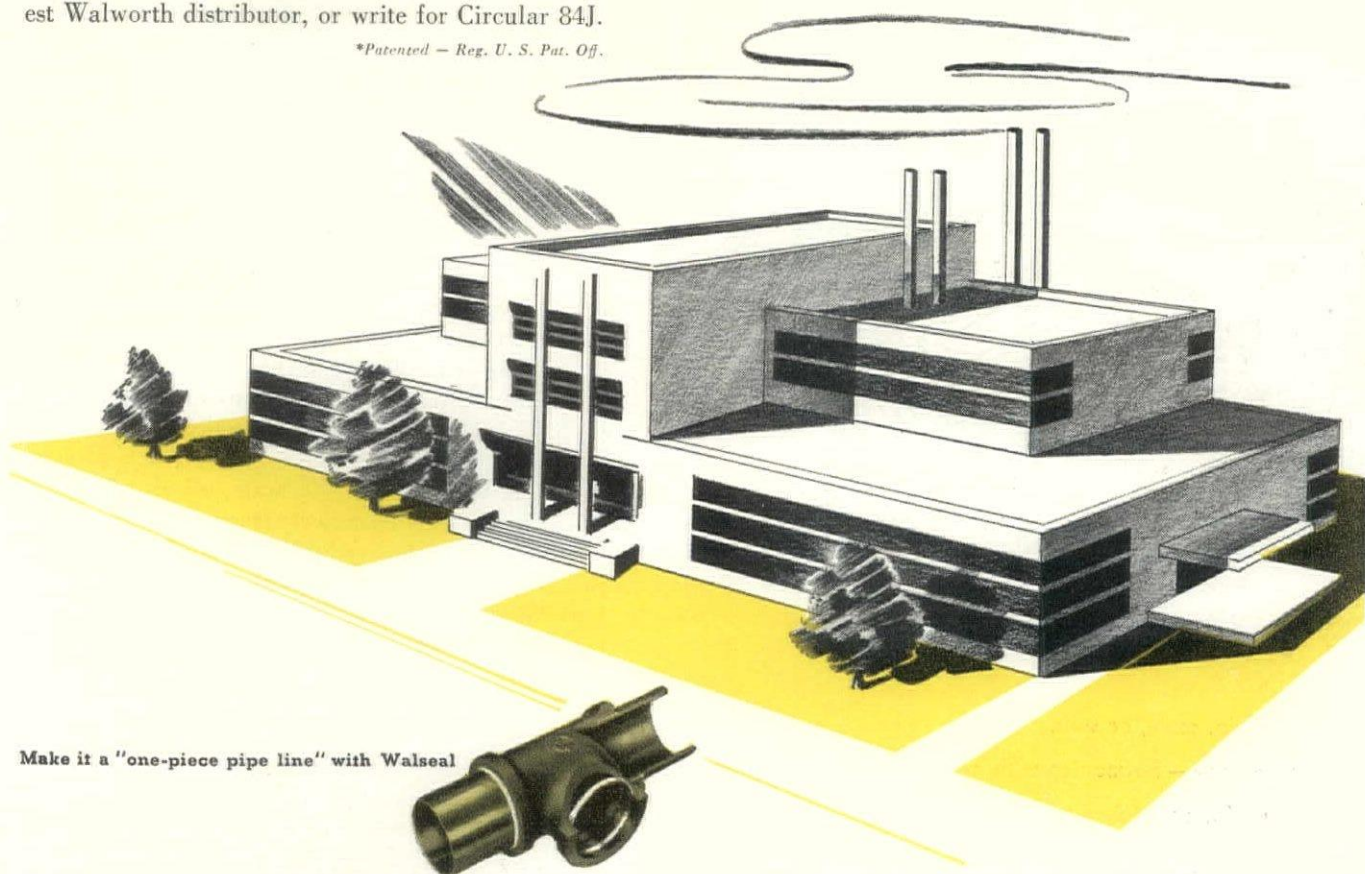
Walseal* Valves and Fittings for Making Silbraz Joints

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

*Patented — Reg. U. S. Pat. Off.

*a modern building
is truly modern...*

when pipe joints are SILBRAZ*



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

WALWORTH
valves and fittings

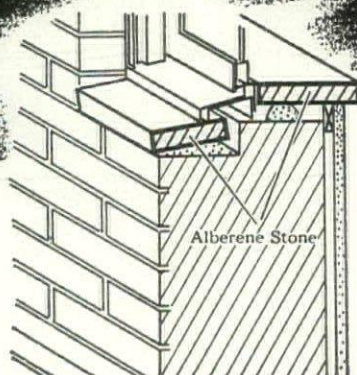
60 EAST 42nd STREET, NEW YORK 17, N. Y.



DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

Window sills and stools by

ALBERENE



- They never chip, scale, or split.
- They're blue-gray — harmonize with any color.
- They're free of maintenance costs — for all time.

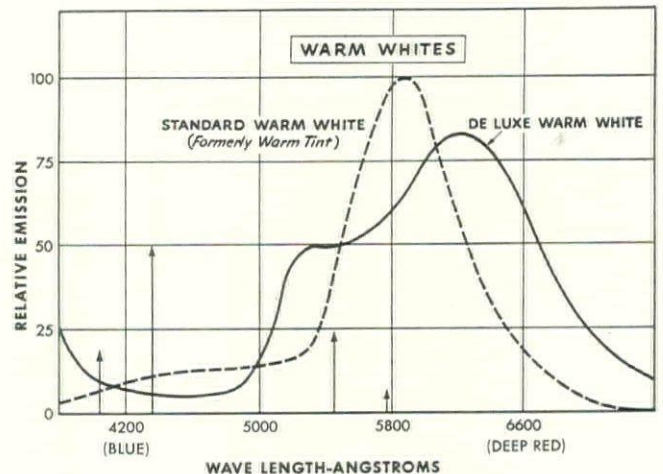
Alberene stone may also be used on copings, spandrels, exterior and interior trim. Write today for complete data and samples to —

ALBERENE STONE CORP.

419—4TH AVENUE • NEW YORK 18, N. Y.

FLUORESCENT LAMPS WITH NEW PHOSPHOR cover wider range of spectrum for truer illumination of colors.

For eleven years the popularity of fluorescent lighting has grown like Topsy. High lighting efficiency, long life, coolness and operating economy are reasons. Its biggest shortcoming up to now has been the coldness of the quality of light because fluorescent lamps on the market are weak at the red end of the spectrum. But General Electric's recent development of a special fluorescent powder—the DR phosphor, composed of double-activated calcium phosphate—moves against that dis-



advantage. Revealing a wider range of the color spectrum, especially in the red tones, these lamps treat red roses and the human complexion much more kindly than previous phosphors. Householders who have confined their use of fluorescent lighting to the kitchen and shopkeepers who have hesitated to inflict efficient but unflattering light on products and customers will be able to adapt these new lamps to living room and salesroom.

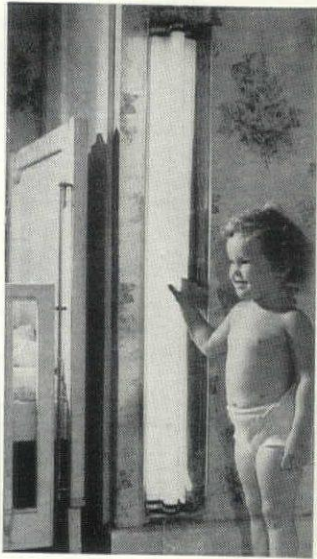
By adding the Deluxe Warm White and the Deluxe Cool White to two lamps already on the market—the Standard Cool White and Standard Warm White (formerly known as Cool Tint and Warm Tint but renamed to simplify specification)—GE believes they have a line which meets all general lighting needs. Here is how the new lamp line is planned:

In working areas—factories, offices, schools, most stores—where highest lighting efficiency, cool atmosphere with reasonably good color rendition are desirable, Standard Cool White is recommended; for warmer atmosphere, the Standard Warm White. The latter combines the color impression of filament lighting with the modern appearance and efficiency of fluorescent, and so is best for minimizing color contrast between light sources in combination fluorescent-incandescent systems.

Where color needs are the primary consideration, Deluxe Cool White is said to be most suitable. Although the lighting efficiency of this lamp is not as high as the Standard Cool, its influence on atmosphere is the same and its over-all color rendition is far superior. Although emitting less light than Standard Warm White, the Deluxe Warm offers vastly improved color range. It is particularly applicable in social environments where appearance of colors and people have utmost importance, such as in beauty shops, restaurants and homes. Two decisions therefore govern the consumer's choice of lamp in this line: does he want a warm or cool atmosphere and does he prefer high lighting efficiency or optimum color rendition. The Deluxe lamps in 40 watt sizes are scheduled to join the Standard on dealers' shelves in January.

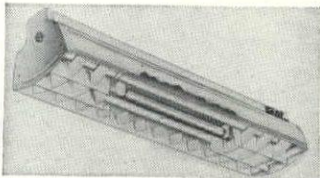
Manufacturer: General Electric Co., Nela Park, Ohio.

HIGHLY EFFICIENT FLUORESCENT SUN LAMP emits healthful ultraviolet rays without heat or glare.



Bringing simulated sunlight indoors to an entire classroom, office or factory is now feasible—and economically so—with this Westinghouse development. By transmitting a continuous concentrated band of mid-ultraviolet radiations (rather than an established wavelength as do other types of sun lamps) through a special glass tubing, the new fluorescent lamp renders the closest duplication of the sun's ultraviolet rays yet attained in a commercial sun lamp. Because it produces only a cool blue light and the invisible 2,800-3,200

Angstrom band (the most effective region biologically) it cannot cause the discomforts of hot and glaring lamps. It may be adapted for personal or space irradiation. Used for individual exposure and sun tanning, the lamp's long tubular shape gives broader, more uniform coverage. Installation for large areas can be controlled so that the intensity of ultraviolet is maintained at just below the level at which reddening of the skin will occur during a specified period, such as a workday. No special controls are needed; the lamp is identical in dimensions and electrical operation to a standard fluorescent bulb. It starts and restarts immediately without any warm up period and is said to last 4,000 hours, about four times as long as other sun lamps. Retail price for the 20 watt lamp is about \$4.50 and a 40 watt size sells for \$7.



The first fluorescent fixture for large area use to incorporate Westinghouse's sun lamp is the Sunlighter, produced by Leader Electric Co. In this fixture the sun lamp, which gives

a soft light of low visibility, is combined with two lighting lamps. Specular Alzak reflectors direct the ultraviolet rays over a large area. Price is somewhat higher than comparable conventional fluorescent fixtures.

Manufacturers: Lamps—Westinghouse Electric Corp., Bloomfield, N. J. Sunlighter—Leader Electric Co., 3500 N. Kedzie Ave., Chicago 18, Ill.

SPACE SAVING DISHWASHER, CLOTHES WASHER, SINK COMBINATION costs less than separate units.

Ideally suited for basementless homes where the kitchen must be a compact work center, Thor's new Automagic sink combines three essential functions. It washes dishes automatically, washes and damp dries clothes, and serves as a utility sink. In addition, when closed, it provides work table and storage space. Designed to take hard wear, the sink top is acid-resistant porcelain enameled steel.

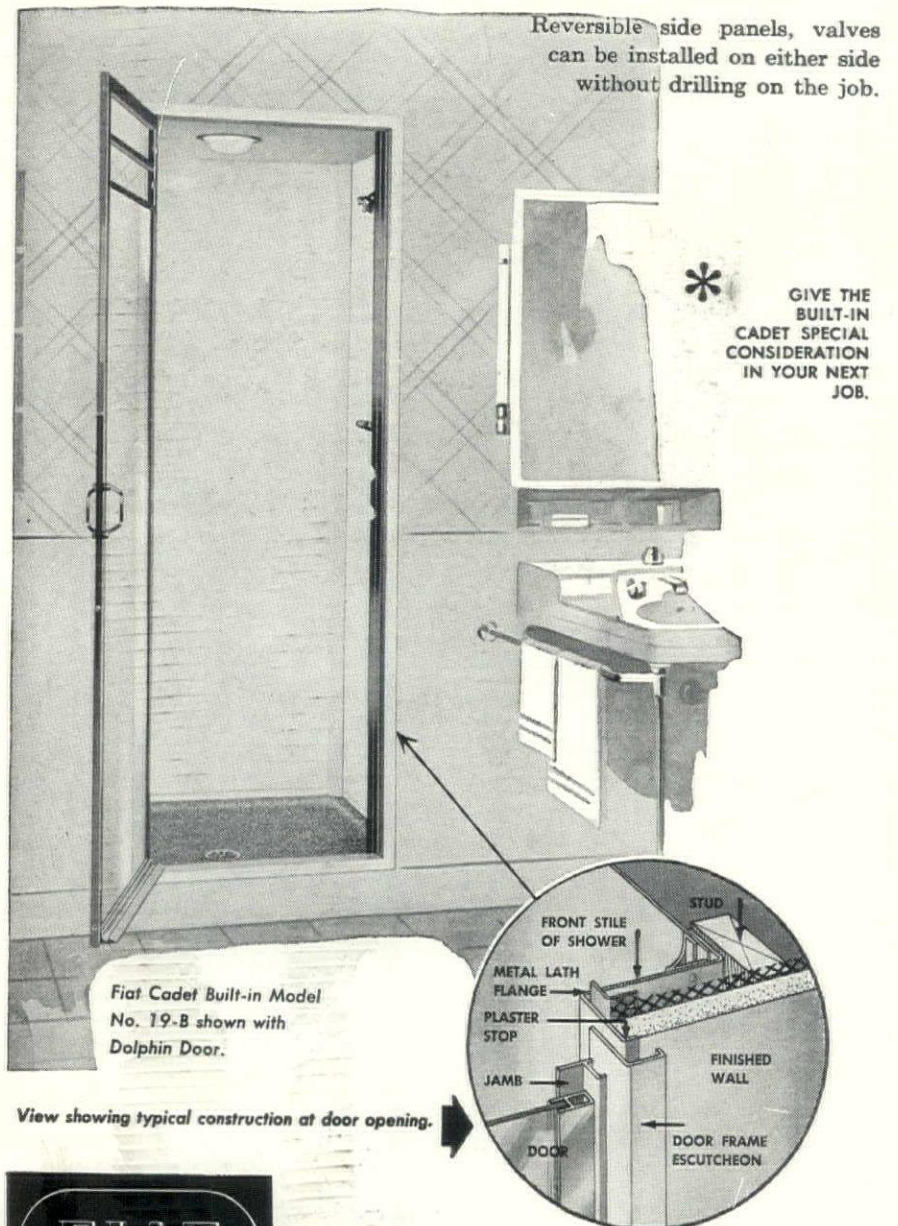
A single dial conveniently located at the sink top controls both dishwashing and clothes washing operations. Equipped

(Continued on page 130)

A shower unit designed for
BUILT-IN INSTALLATION
in bathrooms

* At last . . . a moderately priced shower unit expressly created for recessed installation . . . the only prefabricated metal shower cabinet that provides for continuity of the bathroom wall material. By the elimination of all apparent cracks or joints it becomes an integral part of the structure rather than merely a fixture.

The result is a rich, ultra-smart, custom-built appearance. Yet, the installed cost is considerably less than that of a built-up tile shower. It makes a permanently water-tight installation, will not crack and develop leaks with settling of the building, as often occurs when mortar joints are depended upon for water-tightness.



FIAT METAL MANUFACTURING COMPANY

Three Manufacturing Plants
Chicago 13, Ill. Long Island City 1, N.Y. Los Angeles 33, Calif.

In Canada: Fiat showers are made by Porcelain and Metal Products, Ltd., Orillia, Ontario

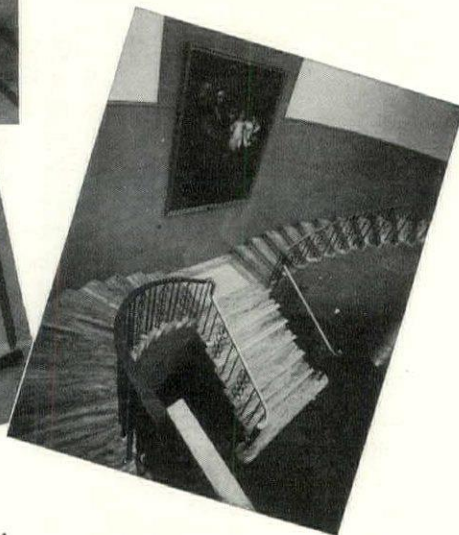
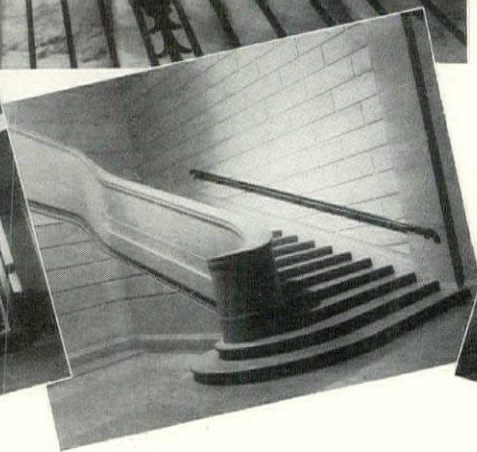
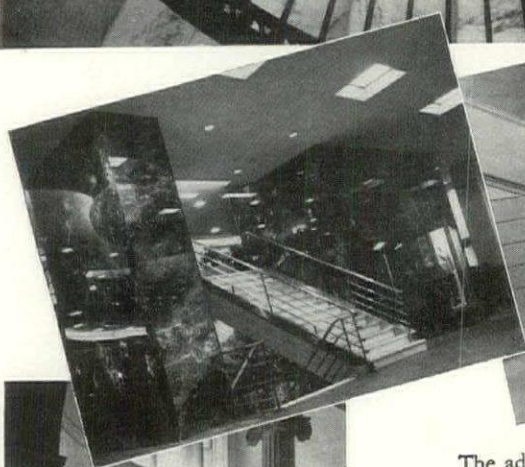
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imposing beauty

that is *safe* underfoot!



Marble gives substance to the magic of good design. It is a practical, economical material, noiseless underfoot, safe, sanitary. No other material so completely unites essential, enduring beauty with long life and low maintenance.



The adaptability of Marble to every new trend in good design and its appropriateness for every type of building, makes Marble unique among flooring materials.

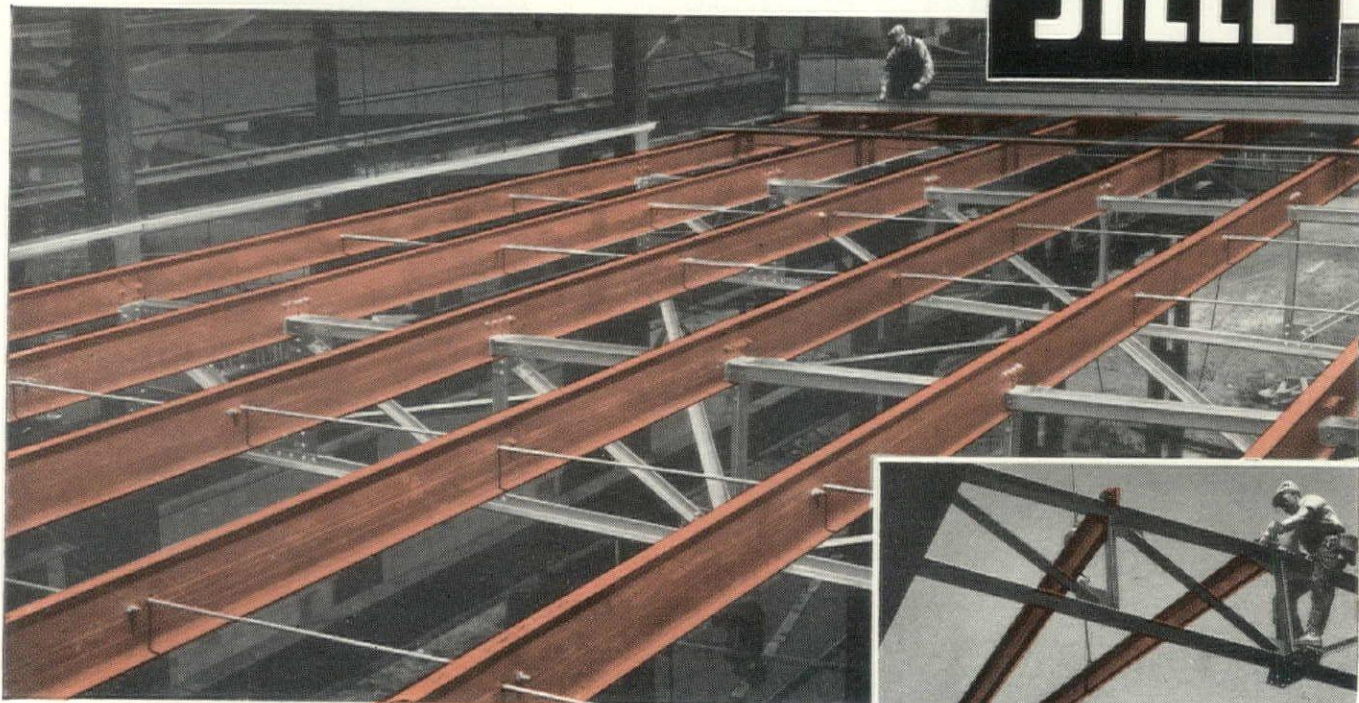
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108 FORSTER AVENUE, MOUNT VERNON, N. Y.

J&L JUNIOR BEAM ROOF PURLINS SAVE TIME AND MONEY ON STEEL INSTALLATION AT WARREN, OHIO



**Light-weight, easy to handle Junior Beams
give better job in less time at lower cost**

J&L Steel Junior Beams for roof purlins for industrial structures save both time and money. This was clearly demonstrated recently in a building designed for Standard Transformer Co., Warren, Ohio, by Keich & O'Brien, architects, fabricated by J. A. McMahon, Ltd., Niles, Ohio, and erected by Warren Engineering Co.

As the building progressed, the purlins were bolted directly into place without any secondary handling or joining operations. Sag rods were installed and bolted in position, and steel roof decking was welded directly to the beams.

The speed of erection, elimination of secondary operations and ease of handling the light-weight Junior Beams, effected considerable savings on steel installed.

Junior Beams, made *exclusively* by J&L, are the lightest weight, hot rolled steel beams commercially available. Used as roof purlins, floor joists and for other applications, they have these advantages:

LIGHT-WEIGHT—for easier handling. (10" beam weighs 9 lbs. per ft.)

STRUCTURALLY EFFICIENT—safe load uniformly distributed for a 10" beam on this building is over 3 tons.

FIRE-SAFE—affects insurance rates favorably on buildings.

NO SETTLING—minimizes plaster cracks, sagging doors and sticking windows.

ALSO—Vermin-proof . . . Termite-proof . . . Shrink-proof . . . Rigid and free of vibration.

J&L Junior Beams are available through your favorite steel warehouse—or through J&L warehouses at Chicago, Cincinnati, Detroit, Memphis, New Orleans, New York and Pittsburgh.

**ARCHITECTS!
CONTRACTORS! BUILDERS!**

Send for descriptive literature and engineering data on J&L Junior Beams and J&L Junior Beam floors.

USE THIS COUPON!

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401 Jones & Laughlin Building
Pittsburgh 19, Pa.

Please send me complete data on J&L Junior Beams and Junior Beam floors.

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COMPANY _____

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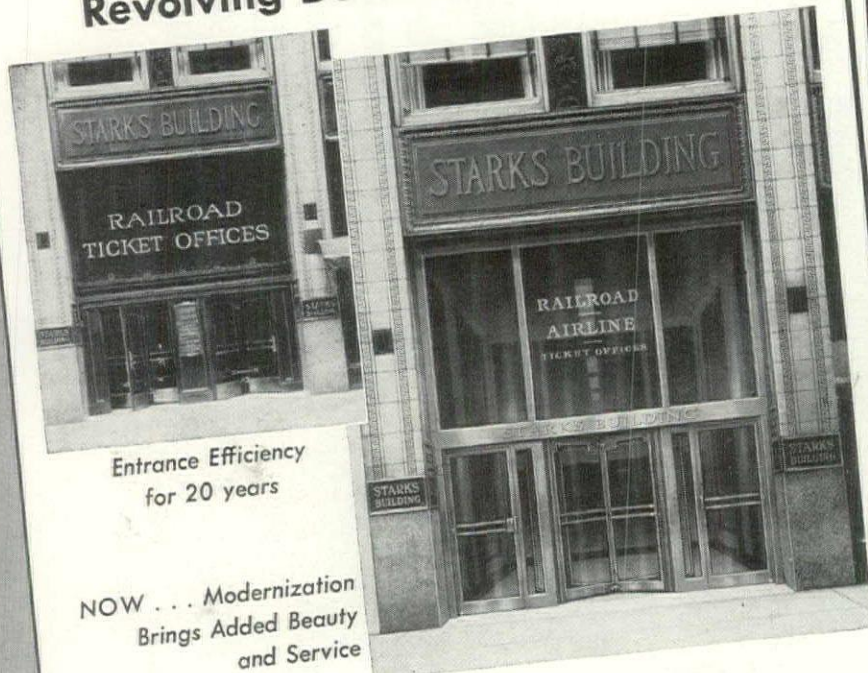
JONES & LAUGHLIN STEEL CORPORATION

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

PRINCIPAL PRODUCTS: HOT ROLLED AND COLD FINISHED BARS AND SHAPES • STRUCTURAL SHAPES • HOT AND COLD ROLLED STRIP AND SHEETS • TUBULAR, WIRE AND TIN MILL PRODUCTS • "PRECISIONBILT" WIRE ROPE • COAL CHEMICALS

OFFICE
BUILDINGS

Revolving Door Case File #194



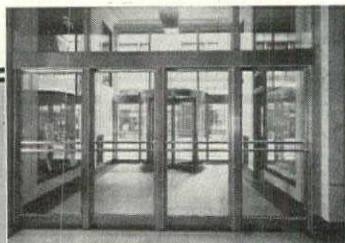
IT HAPPENED IN LOUISVILLE!

In 1929, four International-Van Kannel revolving doors were installed at the Starks Building in Louisville . . . three at the street level and one in the basement. All replacing swing doors. Each of the doors has given uninterrupted service for 20 years.

This long satisfactory experience made revolving doors a natural selection for the recently modernized street entrances. Architect Joseph H. Kolbrook chose International-Van Kannel stainless steel crystal model revolving doors — with matching swing doors and trim — as the ideal modern entrance.

Incidentally, the 1929 basement wood revolving door was not replaced and still gives highly efficient service . . . even though it was under water for 3 weeks during the 1937 flood.

Elimination of drafts, dust and dirt from outside plus control of traffic and true operating economy make revolving doors the best possible entrance for your building. Write today for details.



STARKS BUILDING ENTRANCE
INTERIOR VIEW

**REVOLVING
INTERNATIONAL-VAN KANNEL
DOORS**
1709 EDGAR STREET
EVANSVILLE 7, IND.

with a Soft Flow Aerator to eliminate splashing, the chrome plated faucet swings to the right for use in the sink bowl or to the left to fill the washer. It moves freely and does not



interfere with the hot and cold water valves or washer control. The cover to the washing unit is hinged and counterbalanced for safe and convenient access.

In the dishwashing drum, snugly covered with a flanged lid, tubular scoops direct water upward through the dishes. With the stainless steel dish racks in place this washer can accommodate six table settings; racks are removed to wash pots and pans. So that dishwater never will contact clothes or clothes washing parts, or clothes water touch dishwashing parts, the water distributor is completely separate from the clothes washing assembly. All parts are self cleaning and corrosionproof.

A two-minute change of tubs converts the machine from dishwasher to automatic laundry ready to take 8 lbs. of



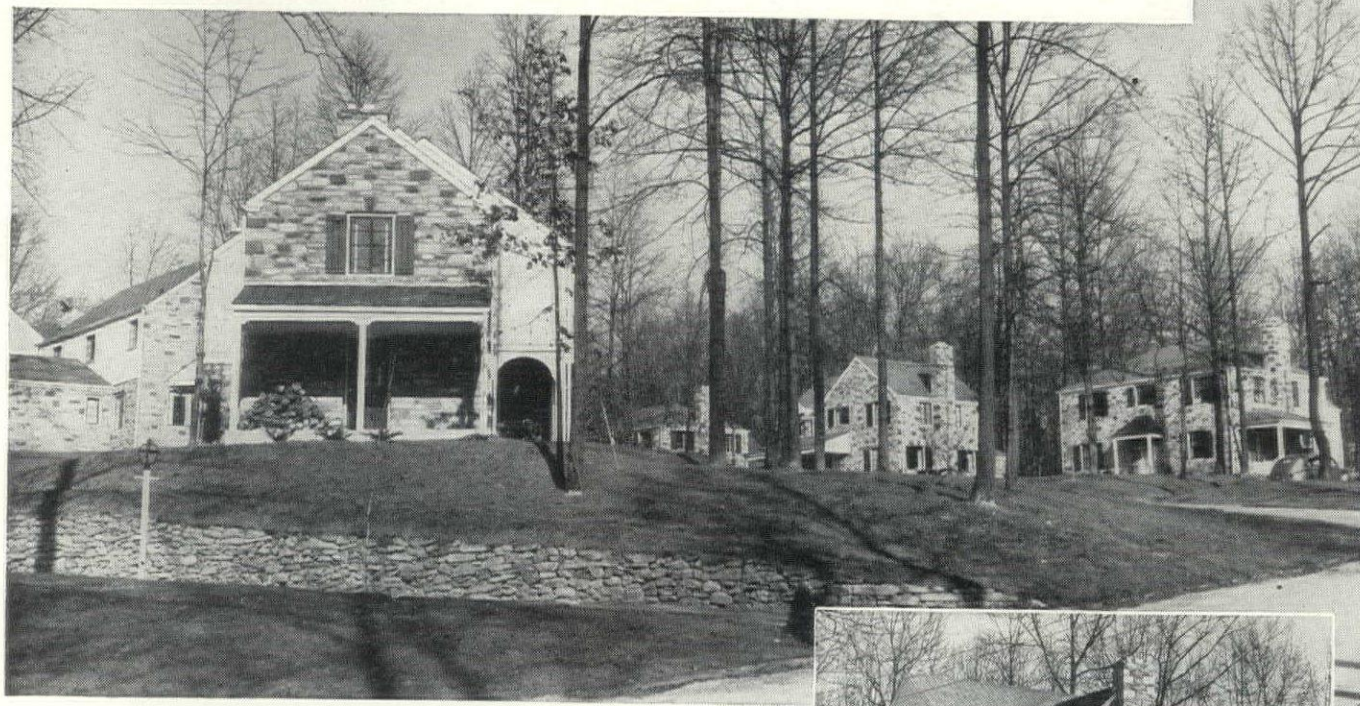
clothes. (For easy placement or removal the tub not in use is stored on a swinging arm in a special cabinet under the sink.) Action of the nonrattling Bakelite agitator keeps clothes untangled, and a gyro-disc balancer reduces vibration to an unnoticeable minimum. Clothes are spun to better-than-wringer dryness.

The sink itself is exceptionally large, measuring 22 in. long, 21 in. wide and 6¼ in. deep. Its drain is placed so that the owner may install a food waste disposer without losing cabinet storage space. Overall dimensions of the Model 500 are 60 in. wide x 36 in. high (plus a 4 in. back guard) and 27 in. deep. The complete unit is priced at \$450; with only the clothes washer it is \$370; or, with the dishwasher alone, \$390. If desired the conversion unit may be purchased separately at a later date.

Manufacturer: Thor Corp., 54th Ave. and Cermak Rd., Chicago 50, Ill.

(Continued on page 132)

"the more expensive the house . . .



**the more important
the roof . . ."**

**writes Pennsylvania builder about
choice of Dubl-Coverage Tite-Ons
for swank Main Line development**

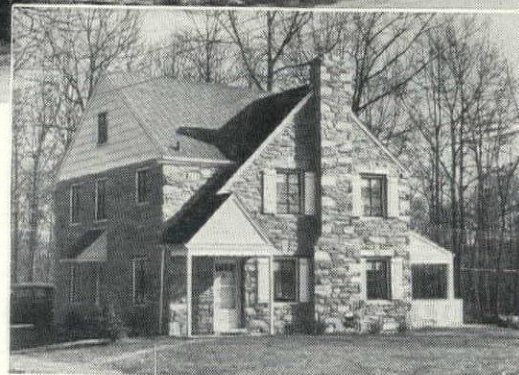
"When homes sell for between \$19,000 and \$35,000—roofing materials must meet two key requirements," writes Stephen Schifter, Inc., Upper Darby, Pa.

"First is appearance . . . the shingles must look as if they belong on an expensive house. Second—they must provide the trouble-free service expected from quality roofing materials.

"On both counts, Dubl-Coverage Tite-Ons filled the bill. Their basket-weave beauty is in keeping with the finest traditional architecture. And their *proved* wind and weather resistance promise more roofing years for the home-owners dollar.

RUBEROID

Dubl-Coverage
TITE-ON SHINGLES



Note how perfectly Dubl-Coverage Tite-Ons blend with the architectural style of these fine homes in this beautiful development at Strafford Village, Wayne, Pa. 35 homes, selling from \$19,000 to \$35,000—and all roofed with Ruberoid Dubl-Coverage Tite-On Shingles.

"Builders like us prosper to the extent we keep home-owners happy. So, from our point of view, also, the choice of Tite-Ons was an ideal one."

More and more builders are coming to the same conclusion. Wouldn't it be smart to check the Dubl-Coverage Tite-On story yourself?

The RUBEROID Co.

Executive Offices: 500 Fifth Ave., New York 18, N. Y.
Building Materials for Home, Farm and Industry



RICH, RED CEDAR!

For shingles and siding, cedar can't be beat! It is durable, easy to work and holds paint well. The play of light and shadow on cedar shingles gives to a house a rich and interesting texture.

WOOD . . . treated with penta-chlorophenol

assures your client a home of lasting beauty

PENTA holds forth great promise for the architect!

FOR PENTA makes his work *more permanent*. PENTA protects wood against termites and decay. Preserves the beauty and originality of architectural design indefinitely.

Today PENTA water repellent solutions are available that practically eliminate wood's warping and checking. No more unsightly, ill-fitting trim and sticking sash!

PENTA is applicable to all building. Commercial and factory building, where repair and replacement are costly and often interfere with production, benefit enormously when wood is PENTA-PROTECTED.

ARCHITECTS!—wherever wood is used consider using PENTA-PROTECTED WOOD.

THE DOW CHEMICAL COMPANY
Midland, Michigan

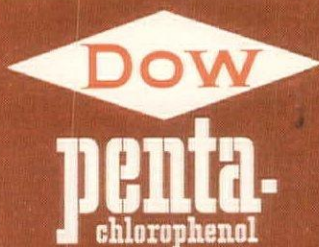
FOR MORE INFORMATION ABOUT "PENTA" PROTECTED WOOD

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The Dow Chemical Co.
Midland, Michigan

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Address _____

City _____ State _____



ROCKWOOL INSULATION WITH ALUMINUM FOIL costs little more than ordinary batts with paper backing.

Combining two noncombustible materials—a 2½ in. thickness of rockwool and pure aluminum foil—in one highly effective insulation. Seal Foil is priced competitively with ordinary full thick batts. The foil backing not only acts as a good vapor and condensation barrier but, equally important, stops 95 per cent of radiated heat. Because it does not tarnish, the aluminum will not lose its reflective qualities. Passage of conducted and convected heat is effectively halted by the specially compounded rockwool. The batt itself is clean, odorless and verminproof. It will not settle, pack down or cake. One man can tack or staple about 2,000 sq. ft. of this lightweight material in a day.

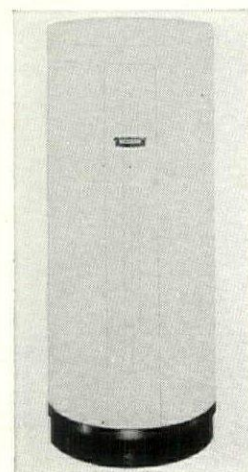
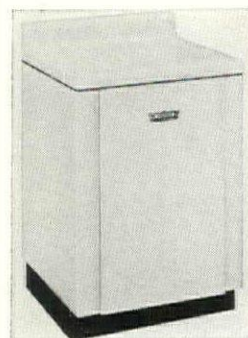
Manufacturer: Sealtite Insulation Mfg. Corp., Waukesha, Wis.

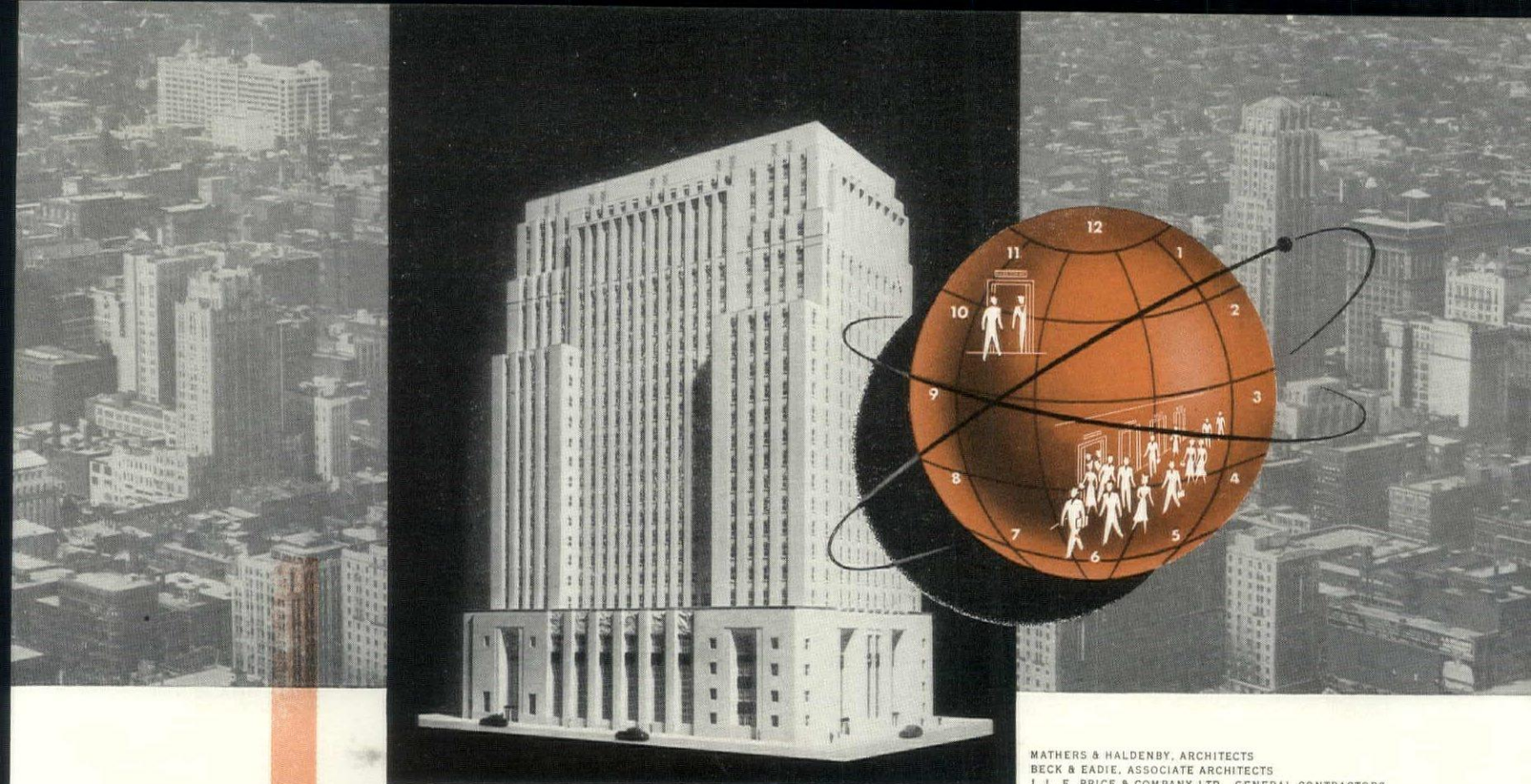


WATER HEATERS now manufactured by Avco in tabletop and round models.

Electric water heaters designed for efficient and economical operation through thermostatic control have been added to the Crosley appliance line made by Avco Mfg. Corp. Both custom and *deluxe* heaters will be available in tabletop and round models. Prices will range from \$89.95 to \$189.95 in the round units and from \$129.95 to \$154.95 in the tabletop models. All heaters are completely automatic, equipped with controls that keep water at exact preset temperatures. Immersion type heating elements heat the water directly, and a thick blanket of glass fiber insulation between the storage tank and outer jacket greatly reduces heat loss. The tanks are of extra heavy duty steel manufactured under a special galvanizing process. Custom models are equipped with a magnesium anode rod that combats corrosion. Both tabletop and round types are attractively styled and finished in durable baked enamel. Tabletop models are available in 30 and 40 gal. capacities. They have recessed toe space and a porcelain work surface. The round tank models are made in 12, 20, 30, 40, 52, 66 and 82 gal. capacities. Both types are available with single or double heating elements.

Manufacturer: Crosley Div., Avco Mfg. Corp., Arlington and Colerain, Cincinnati 25, Ohio. (Continued on page 134)





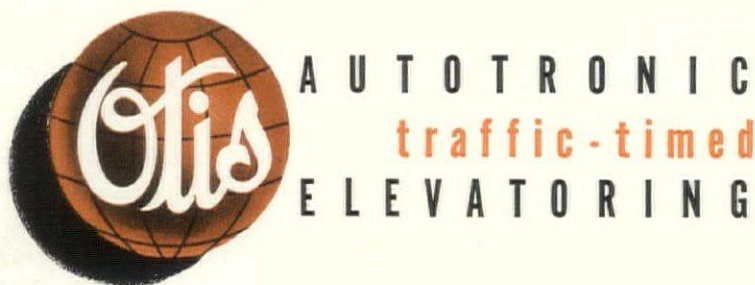
MATHERS & HALDENBY, ARCHITECTS
BECK & EADIE, ASSOCIATE ARCHITECTS
J. L. E. PRICE & COMPANY LTD., GENERAL CONTRACTORS

THE BANK OF NOVA SCOTIA TORONTO, CANADA buys **OTIS AUTOTRONIC ELEVATORING**

The Bank of Nova Scotia Building will add still another note of modernity to the fast changing skyline of Canada's commercial and financial capital. And its elevating will add an advanced note of electronics to tenant service. For Otis AUTOTRONIC Traffic-Timed ELEVATORING is the only system that is timed to the 6 traffic patterns of the entire business day. It is the only system that measures passenger waiting time during rush hours, and automatically gives special service to the "forgotten man." It reduces passenger waiting time during all types of traffic.

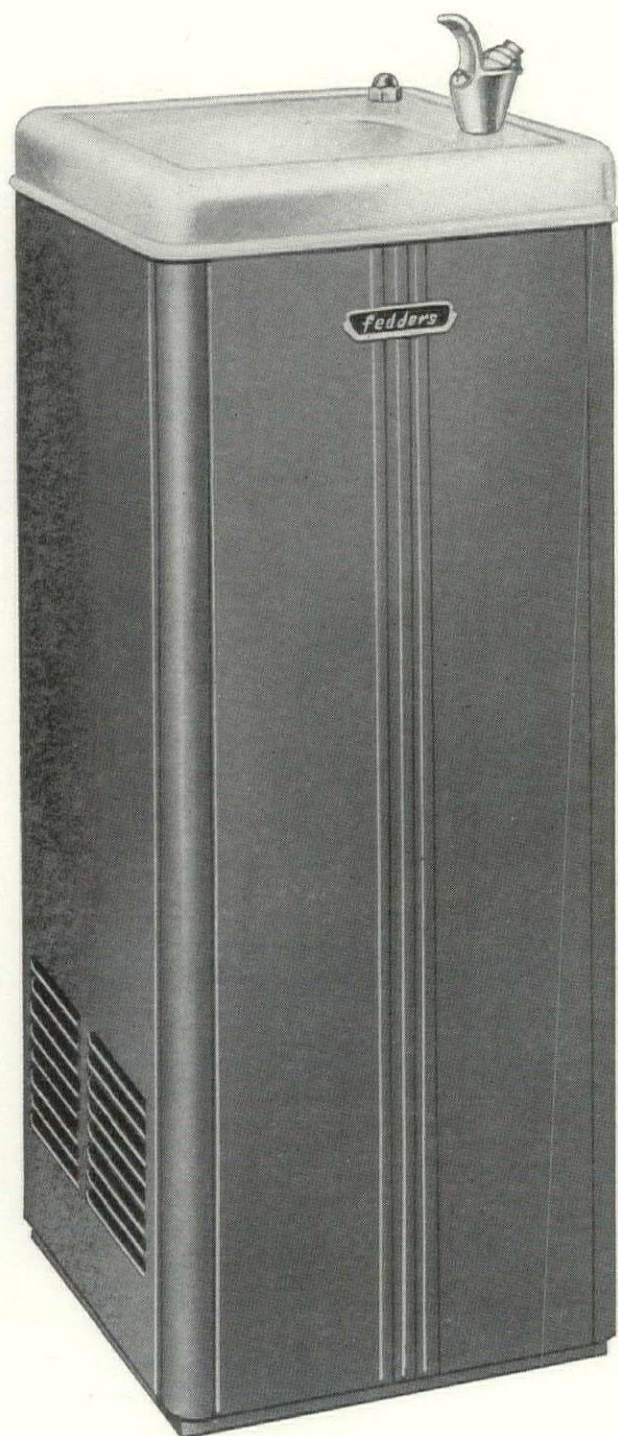
In addition, Otis AUTOTRONIC Traffic-Timed ELEVATORING is dramatic. A passenger merely "touches," not pushes, an electronic directional arrow in the landing fixture. The arrow glows, the call registers, and a car arrives promptly—as if by magic.

Otis Booklet B-721-A explains how AUTOTRONIC ELEVATORING will increase the service prestige of NEW and MODERNIZED buildings and help to hold tenants at profitable rentals for years to come. Otis Elevator Company, 260 11th Avenue, New York 1, N. Y.



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

PRODUCT NEWS



fedders

A GREAT NAME SINCE 1896

Proved By Performance

● Architects, contractors and building owners approve the compact size, quiet operation and simple installation of Fedders Electric Water Coolers. The world-wide performance record of thousands of Fedders-built Electric Water Coolers speaks for itself.

Available in Bubbler and Bottle types to suit your requirements.

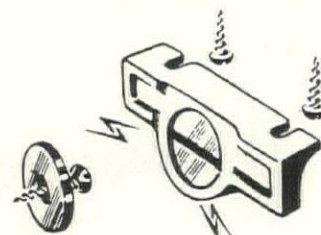
Write for catalog

FEDDERS-QUIGAN CORPORATION
BUFFALO 7, N. Y.

MAGNETIC CATCH holds cabinet doors firmly shut, releases them gently, good for 250,000 openings.

Designed for small hinged doors, Magnecatch is ideal for new cabinet equipment or for replacing weary mechanical catches. An Alnico magnet, working on a simple phosphor bronze spring mounted in a 2 in. rustproof housing, is the heart of the latch. When the door is closed the magnet contacts a small disc and grips it firmly, but releases easily when door is opened. Installation consists of setting three screws. Price for the Magnecatch is \$1.25.

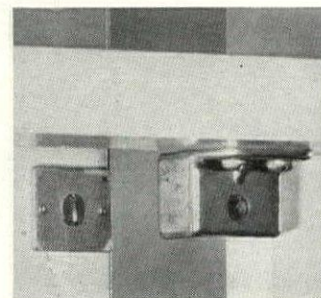
Manufacturer: Engineering Achievements, Inc., 1227 Tchoupitoulas St., New Orleans 13, La.



SIMPLE MAGNET LATCH AND PLATE cannot stick or fail to hold small doors shut.

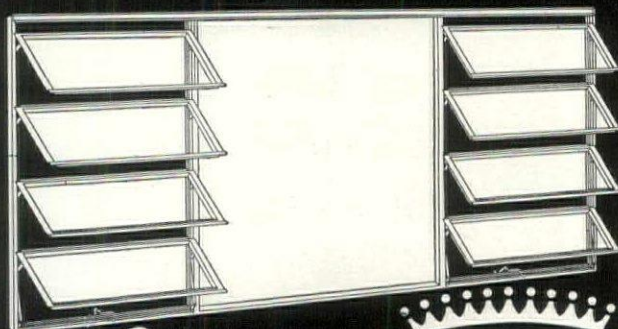
Another lifetime magnetic fastener, Leco-Latch, consists of an ice-cube size polished metal latch and strike plate. This inobtrusive catch costs only 80 cents and is also very easy to install on cabinet and other small doors. It is available through local lumber dealers.

Manufacturer: Laboratory Equipment Corp., St. Joseph, Mich.



(Continued on page 136)

LEMCO Monumental



Series 62

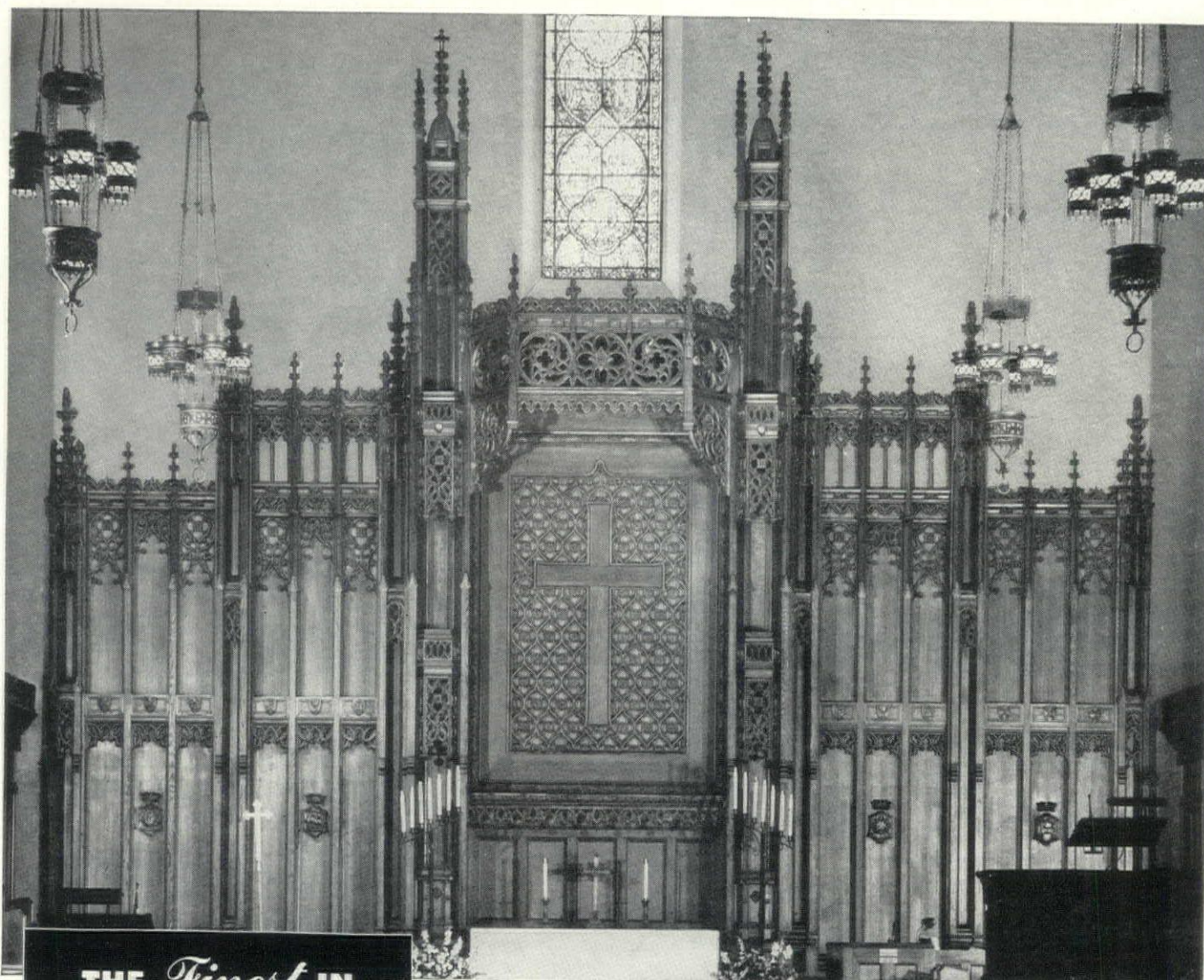
● **AWNING TYPE** ●
EXTRUDED ALUMINUM
WINDOWS

● *Especially designed for use in*
Schools, Hospitals, Public Buildings
and Fine Residences

HEAVY 2 1/8" SECTIONS

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CROFT STEEL PRODUCTS, INC.
16 MARKET STREET • JAMESTOWN, N. Y.



**THE *Finest* IN
WOODWORK
BUILT, FINISHED
AND INSTALLED
BY ONE GROUP OF
CRAFTSMEN**

REREDOS, FIRST CONGREGATIONAL CHURCH, LOS ANGELES. ARCHITECTS, ALLISON AND RIBLE, LOS ANGELES

The beautiful new reredos in the First Congregational Church of Los Angeles is a striking example of the complete job of cabinet-work that Woodwork Corporation does. The entire structure was built in the Woodwork shops precisely to the architects' specifications. In the completely equipped Woodwork Finishing Department skilled craftsmen gave the reredos the richly beautiful finish the designers specified. Woodwork Corporation's factory-trained experts installed the job as carefully as it was built and finished.

By thus controlling and coordinating construction, finish and installation, Woodwork Corporation assures more efficient service as well as more beautiful work. For Woodwork's one-group control eliminates errors and delays and guarantees completion of work on schedule. Whether your plans call for custom woodwork on a large or small scale, you will be interested in knowing how economically Woodwork Corporation can serve you. To find out, simply send plans and specifications. An estimate will be promptly furnished.



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**CEILING SPACE
NOW
PAYS DIVIDENDS**

WITH THE FAMOUS

Palmer

**GAS FIRED
SUSPENDED
HEATER**



Architects, builders, distributors and dealers all agree this is the finest, most efficient unit heater ever produced. Truly "the design of tomorrow."

PALMER is equipped with automatic controls and embodies exclusive high performance features. Customers receive "heating comfort plus" without so much as lifting a finger.

Yes, with a PALMER suspended heater, ceiling space pays dividends in trouble-free heating efficiency, appearance and economy.

Dividend-wise, PALMER will pay you *too* and many-fold. Simply SPECIFY PALMER. There's a model and size for every heating need.

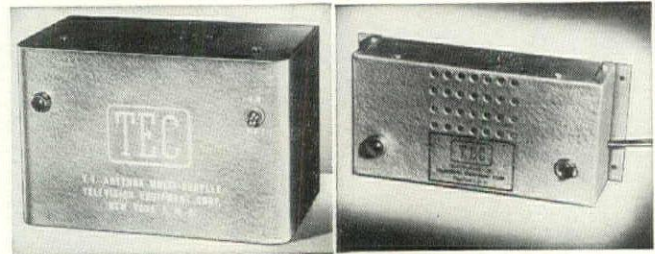
Write for free literature today Dept. F-2.



PALMER MANUFACTURING CORPORATION
manufacturers of the famous Sno-Breeze air coolers
PHOENIX, ARIZONA

LOW COST TV ANTENNA COUPLER eliminates metallic maze on apartment house roof tops.

Working on a party wire principle but allowing for individual channel selection the Telecoupler provides a means of operating a number of television sets from a single antenna at a reasonable price. The Model S-501, listing at \$99.50 not installed, is effective in almost all TV receiving locations. It feeds up to eight television or FM sets and three of these units may be cascaded to serve 24 sets from the same antenna. The



system, recommended for garden apartment installations, provides a high degree of isolation between two adjacent sets without appreciably diminishing the signal obtained by any one receiver. Consuming no more power than a 20 w. bulb, it may be installed at any location between the antenna and television receivers. For convenient installation in vertical type city apartment buildings, 24 Telecoupler Jr. units may be placed in individual apartments. Installed cost of this model, the S-502, ranges from \$35 to \$50 each, depending upon the number used and complexity of the installation.

Manufacturer: Television Equipment Corp., 238 William St., New York 7, N. Y. (Continued on page 138)

Just Line Radiluxe Equipment for every Institutional Need

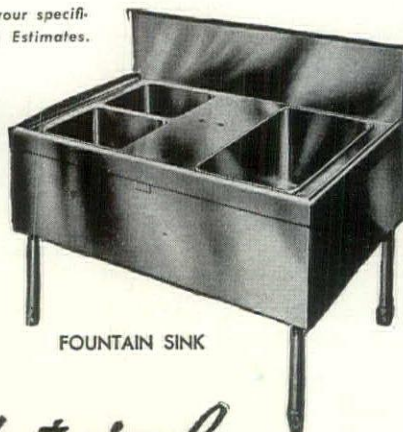
Whether your specifications call for some special type of equipment or for a standard size stainless steel sink, we can fill your needs.

Our many years' experience in the fabrication of built-to-specifications stainless steel equipment for hospitals, schools, laboratories, mass feeding institutions and industrial plants is your assurance that your equipment will be precision built to your requirements.

Write today for Literature F-12 and send us your specifications. We will gladly submit Details and Estimates.



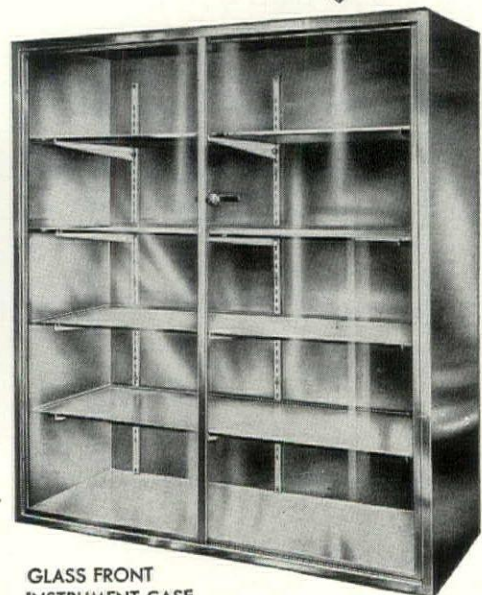
FOOD SORTING
TABLE



FOUNTAIN SINK



STAINLESS
STEEL
LAVATORY

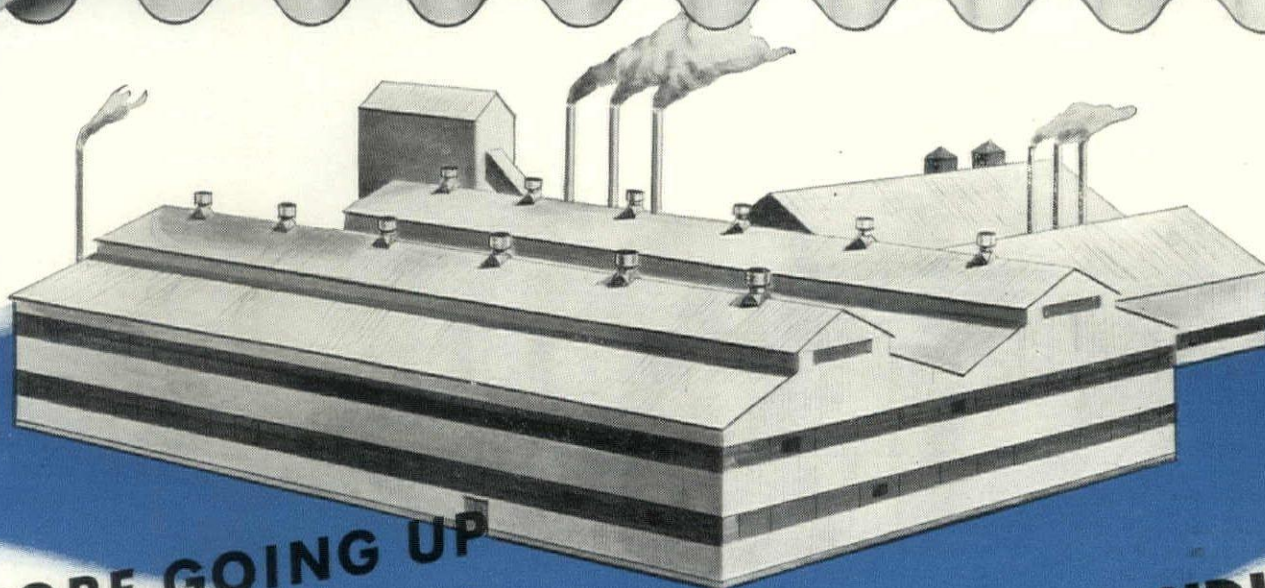


GLASS FRONT
INSTRUMENT CASE

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

FIGURE IT IN
ALUMINUM

THE METAL THAT *Lasts*

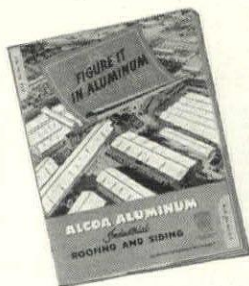


MORE GOING UP
EVERY DAY!

ALCOA INDUSTRIAL ROOFING AND SIDING

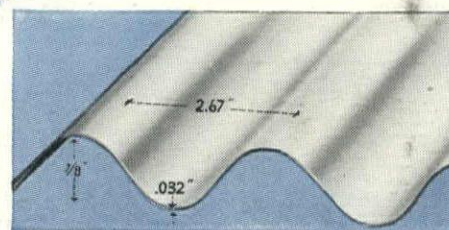
Most enthusiastic boosters for Alcoa *Industrial Roofing and Siding* are the contractors who have erected it; the plant owners who have tried it. They have found through experience and cost analysis that aluminum-clad buildings are quick and inexpensive to erect; that exterior maintenance costs are practically eliminated.

Alcoa *Industrial Roofing* can't rot, warp or shatter. It needs no protective painting. Light in weight, it goes up fast, makes for lighter dead load. Tough, corrosion resistant, it will support heavy live loads; will last for years without regular maintenance or heavy upkeep costs.



WRITE FOR ENGINEERING AND APPLICATION DATA

This free book gives detailed information on engineering and erecting buildings using Alcoa *Industrial Roofing and Siding*. Call your nearby Alcoa Sales Office or write, ALUMINUM COMPANY OF AMERICA, 1866M Gulf Bldg., Pittsburgh 19, Pennsylvania.



Here are the Details

THICKNESS: .032 inches.

LENGTHS: 5, 6, 7, 8, 9, 10, 11, and 12 feet.

WIDTHS: Roofing sheet, 35 inches. Siding sheet, 33 $\frac{3}{4}$ inches, coverage 32 inches.

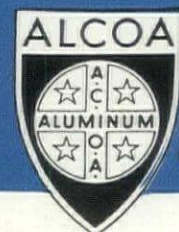
CORRUGATIONS: $\frac{7}{8}$ inch deep. 2.67 inches, crown to crown.

Load-Carrying Capacity

PURLIN SPACING	CLEAR SPAN	UNIFORM LOAD p. s. f. (Safety Factor, 2)
6'6"	76"	29
6'0"	70"	35
5'6"	64"	41
5'0"	58"	50
4'6"	52"	63
4'0"	46"	80

ALCOA

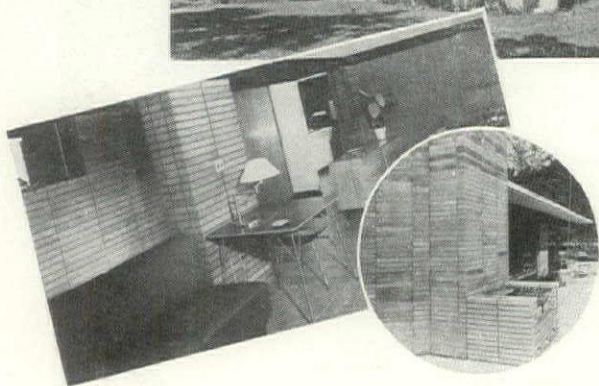
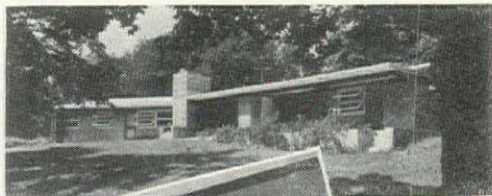
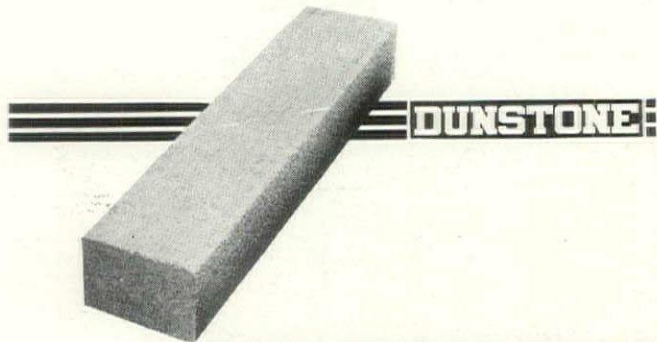
INDUSTRIAL ROOFING AND SIDING



INGOT • SHEET & PLATE • SHAPES, ROLLED & EXTRUDED • WIRE • ROD • BAR • TUBING • PIPE • SAND, DIE & PERMANENT MOLD CASTINGS • FORGINGS • IMPACT EXTRUSIONS
ELECTRICAL CONDUCTORS • SCREW MACHINE PRODUCTS • FABRICATED PRODUCTS • FASTENERS • FOIL • ALUMINUM PIGMENTS • MAGNESIUM PRODUCTS

PRODUCT NEWS

The "New Look" in Masonry is **STREAMLINED**



WHERE DARING RENDERING

is the Objective

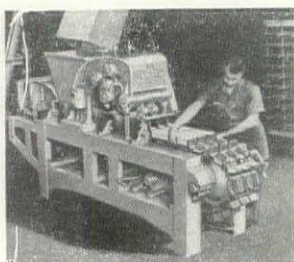
DUNSTONE is the MASONRY

With Dunstone, brick goes modern. With newness expressed in size, proportion, symmetry . . . and COLOR. Directly in line with contemporary design. Recreates opportunity for masonry artistry. An exacting balance between the traditional and functional.

Dunstone has special appeal for builders who are masonry minded but cost-conscious. For Dunstone is not only the ultimate in quality and eye-appeal, but is available at a lower-than-lumber price. Low cost being due to its being made in a chain of local plants from local basic materials. Write for new brochure "Tomorrow's Silhouettes—Today".

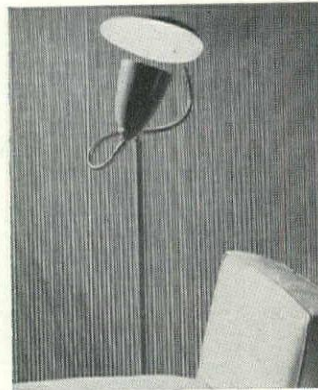
Outstanding Manufacturing Opportunity

Dunstone ties in with today's demands for smart, colorful, low cost masonry for homes and other buildings. As a local manufacturing business it has broad market possibilities and opportunity for excellent returns. We supply all necessary plant equipment. Write for "Blueprints for Profit".



W. E. DUNN MFG. CO.
620 W. 24th Street
Holland, Mich.

LAMP LINE features flexibility, moderate prices.



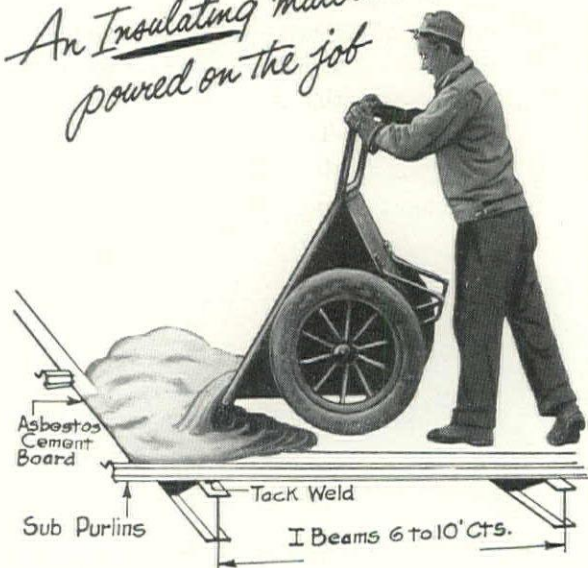
In these lamps, Greta Grossman has adapted two pleasing forms in four different ways. The coordinated line

consists of a shell shaped wall fixture with flexible arm, a similar desk model, another desk lamp with shell on gooseneck plus a bullet shade on a swivel joint, and a floor model with both forms on adjustable arms stemming from an elongated metal rod. The goosenecks are brushed chrome and shades and bases are finished in subtle smoke gray to blend with most contemporary interiors. Wall and desk models with single shell are priced at \$14.95 each. Desk lamp with both shell and bullet shades sells for \$23; floor model for \$35. Having almost limitless flexibility these fixtures may be positioned to offer either direct or indirect light. Because of their simple components, electrical or mechanical failure should be negligible.

Manufacturer: Greta Magnusson Grossman, 1659 Waynecrest Dr., Beverly Hills, Calif. (Continued on page 140)

PORE THERM

*An Insulating material
poured on the job*



Poretherm, a high-grade, permanent insulating cellular concrete is poured on top of asbestos cement boards, laid on Sub Purlins. This makes a fire-proof roof deck—weight, only 10 lbs. per sq. ft., provides the same heat insulation as 1½ inches of cork, at lower cost. Write today for complete information.

PORETE MFG. CO.
N. ARLINGTON, NEW JERSEY

PROVIDENCE WAREHOUSE WITH 22,000 SQ. FT. FLOOR AREA USES CHASE COPPER TUBE FOR RADIANT HEATING!



Pouring concrete over 12,000 feet of Chase Copper Tube. Installation also included 5500 feet for office ceiling and 1200 feet for sidewalk and drive snow removal. Architect: Charles A. Maguire & Associates, Providence, R. I. Building Contractor: A. F. Smiley Construction Co., Pawtucket, R. I. Heating Contractor: J. F. Higgins Heating Co., Providence, R. I.



BIG jobs . . . little jobs, Chase Copper Tube has the advantages that mean fast, economical installation . . . dependability! For instance: you reduce costly, time-consuming connections because Chase Copper Tube is available in coils up to 100 feet long. Its flexibility means quick, easy hand-bending! And no fittings are needed at bends.

In floor installations, as illustrated, there's no need for accurate leveling of Chase Copper Tube. For ceilings, its light weight makes this overhead work easier . . . and its small diameter does not require extra plaster for coverage. Send for instructive, informative booklet that discusses radiant heating in theory and practice. Write Dept. AF-129.

Send for **FREE** book
"Suggestions for Designing
RADIANT PANEL HEATING
with Copper Tube."



MAIL THIS COUPON TODAY!

Chase Brass & Copper Co., Dept. AF129
Waterbury 20, Conn.

Please forward your book "Suggestions for Designing
Radiant Panel Heating with Copper Tube."

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Address _____

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Chase



the Nation's Headquarters for
BRASS & COPPER

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SUBSIDIARY OF KENNECOTT COPPER CORPORATION

THIS IS THE CHASE NETWORK . . . handiest way to buy brass

ALBANY ATLANTA BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DALLAS DETROIT INDIANAPOLIS KANSAS CITY, MO. LOS ANGELES MILWAUKEE MINNEAPOLIS
NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER ST. LOUIS SAN FRANCISCO SEATTLE WATERBURY (Sales Office Only)

The RUSCO PRIME WINDOW

VERTICAL SLIDE

... the only ready-to-install window unit that provides year 'round, all-weather window conditioning

RUSCO gives you the most complete unit ever offered... glass, screen, weather stripping, wood surround... with or without insulating sash... all in one factory-assembled unit... ready for quick installation... costs no more than you're paying today



Now... for the first time, you can specify and use a factory-assembled window unit that is extremely practical, durable and trouble-free... is simple to install... that reduces field painting and installation costs... that provides for year 'round safety, convenience, comfort and economy.

The Rusco Prime Window is the result of over 12 years of field experience... it is an adaptation of the basic engineering principles that have made Rusco all-metal, self-storing combination windows today's most widely accepted unit of its kind.

RUSCO LEADS IN DESIGN, CONSTRUCTION AND ADVANTAGES... All working parts of tubular Armco Steel, hot-dipped galvanized Ingot Iron Zincgrip... Bonderized and finished with baked-on outdoor enamel... All installation members of toxic-treated wood... Waterproof felt weather stripping assures weathertight closure... Requires no field painting... All glass and screen panels removable from inside... No weights, balances or cords... Smooth, trouble-free operation... Automatic positive locking in closed or ventilation positions... Easier window cleaning... Available with or without self-contained insulating sash... Complete unit offers the combined, year 'round advantages of windows, screens, storm sash and weather stripping.

Send coupon for complete information and specifications

THE F. C. RUSSELL CO.

DEPARTMENT 7-AF129 • CLEVELAND 1, OHIO

© FCR

THE F. C. RUSSELL COMPANY
Dept. 7-AF129, Cleveland 1, Ohio

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

(please check) I am ☐ Architect ☐ Building Contractor
☐ Building Supply Dealer

Name

Company Title

Address

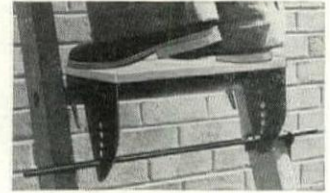
City Zone State

OPENINGS FOR DISTRIBUTORS ARE AVAILABLE IN SELECT TERRITORIES



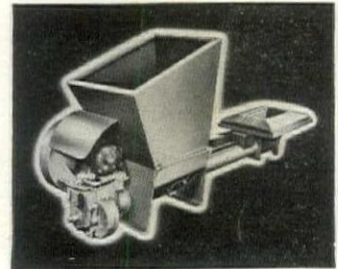
LADDER ATTACHMENT provides comfortable and safe footing on any style ladder.

This practical new device affords a wider, more comfortable footing on ordinary ladders. It can be adjusted to any style or size ladder in less than a minute without any tools. The platform, or step, is 7 in. wide x 11 in. long and is made of sturdy 1/2 in., 5-ply water resistant plywood. Bolted securely to heavy gauge steel that fits over the rung of the ladder, the Add-A-Step is held in place by a steel rod which may be inserted to tilt the step to any desired angle. A safety lock fits over the rail of the ladder, giving additional stability to the step. Factory tested to carry 500 lbs., the apparatus retails at \$3.75. Manufacturer: Machinery Sales & Equipment Co., 626 Broadway, Cincinnati, Ohio.



WORM FEED STOKER has oil level cup to warn of water in the gear case.

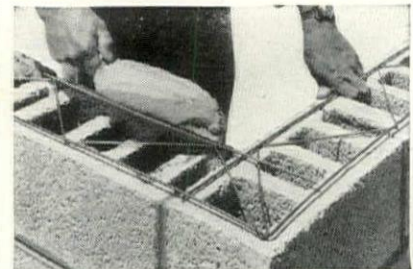
Because water in the gear case impairs lubrication and is often the reason for stoker failure, Brownell developed its Type F stoker with a channel running from the bottom of the case to an oil level cup. If water accumulates, it forces a



(Continued on page 142)

PROVE IT FOR YOURSELF

One job will prove how fast Dur-O-wal works — how inexpensive it is — how you can be sure of crack-proof walls.

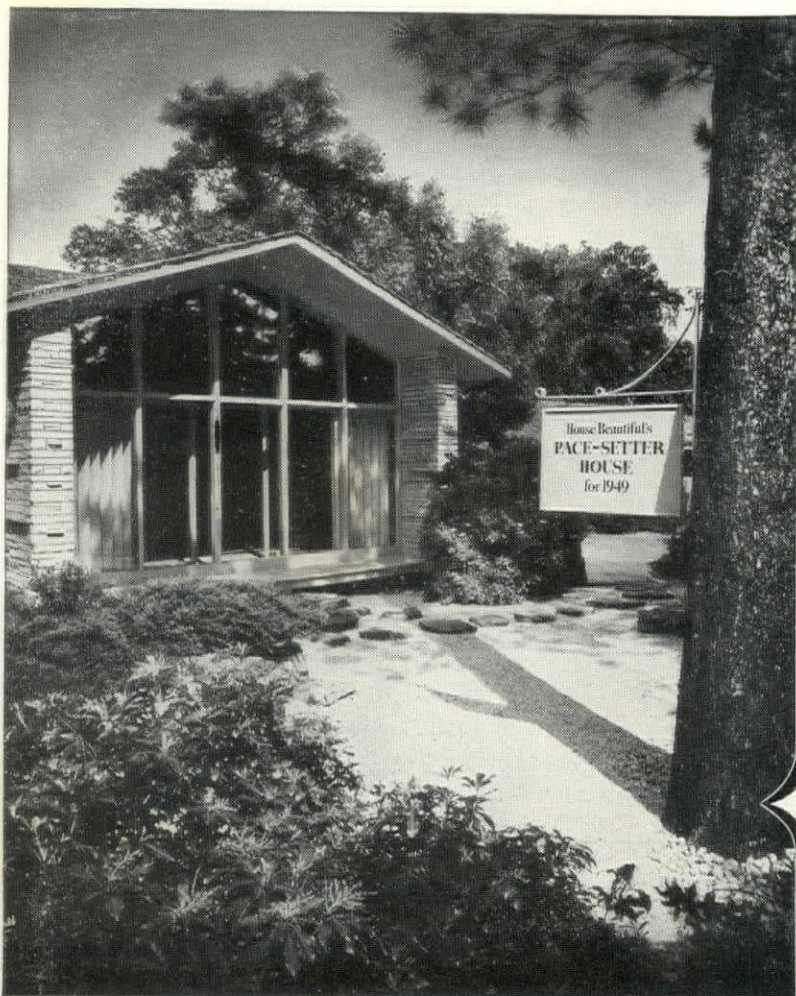


ADD STRENGTH OF STEEL TO EVERY MASONRY WALL

With concrete block the most widely used wall-building material in America today, builders must be alert to avoid cracks which sometimes occur in walls. The answer to this problem is new, patented Dur-O-wal, the steel reinforcing member that makes block or tile walls crack-proof. Low-cost Dur-O-wal gives masonry walls a backbone of steel. For lasting satisfaction on every job, recommend Dur-O-wal. Write or wire for free sample. Dur-O-wal, Div., Cedar Rapids Block Co., 678 12 Ave. S. W., Cedar Rapids, Ia.

DUR-O-WAL

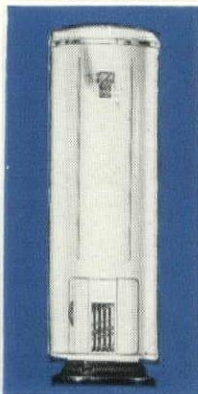




A.O. Smith HOT WATER MAGIC FOR HOUSE BEAUTIFUL'S 1949 PACE-SETTER HOUSE

Permaglas Automatic Gas
Water Heater selected for this
model home

PERMAGLAS WATER HEATERS CANNOT RUST BECAUSE GLASS CANNOT RUST



The diamond-tough inner surface of A. O. Smith *Permaglas* Water Heater tanks provides the strength and durability of steel plus the rust-resistance of mirror-smooth glass. This glass-surfaced steel will not crack or chip under even extreme shipping, installation, and operating conditions. Extreme thermal shock will not crack or chip the special glass. Actual tests, plus the performance of hundreds and thousands of installed units, prove it. That's why a *Permaglas* Water Heater provides completely satisfactory hot-water service.



A.O. Smith

AUTOMATIC WATER HEATERS

Permaglas • Duraclad • Milwaukee

The House Beautiful magazine 1949 Pace-Setter House, East Orange, N. J., designed by Emil A. Schmidlin, is plentifully supplied with automatic hot water by a basement-installed 75-gallon *Permaglas* Gas Water Heater. It will not need replacing every few years because its tank, of glass-surfaced steel, cannot rust.

FOR HOT WATER MAGIC
GAS has got it!



A. O. Smith Corp., Dept. AF-1249
Water Heater Division, Kankakee, Ill.
Without obligation, send us full information
on A. O. Smith Water Heaters:

☐ Gas ☐ Electric ☐ Both

Name _____

Firm _____

Street _____

City _____ State _____

Atlanta 3 • Boston 16 • Chicago 4 • Clayton 5, Mo. • Philadelphia 3 • Denver 2 • Detroit 3 • Houston 2 • Los Angeles 14 • New York 17 • Dallas 1 • Midland 5, Texas
Phoenix • Pittsburgh 19 • San Francisco 4 • San Diego 1 • Seattle 1 • Tulsa 3 • International Division: Milwaukee 1 • Licensee in Canada: John Inglis Co., Ltd.

PRODUCT NEWS

CHOOSE FROM *Two* of the finer acoustical tiles

1

FIR-TEX PERFORATED ACOUSTICAL TILE

The serviceability, economy, cleanliness, paintability, and washability of Fir-Tex Perforated Acoustical Tile have made this type one of the most popular. Made of sound wood fibers, felted and pressed into rigid tile. Exposed surface perforated for maximum acoustical properties.

2



DANTORE INCOMBUSTIBLE ACOUSTICAL TILE

For sheer beauty, Dantore tile can be put at the top of the list. Its fissured travertined surface provides character and distinction as well as unexcelled acoustical properties. Being incombustible, Dantore tile is ideal for use in such public institutions and buildings as hospitals, schools, hotels, theatres, restaurants.

**DANT
& RUSSELL
SALES CO.**

205 W. Wacker Drive, Chicago, 6, Illinois

Gentlemen: Please send me name of nearest applicator-distributor.

Name _____

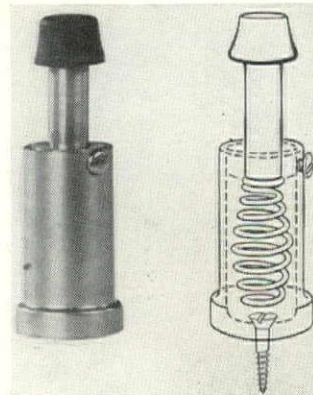
Street No. _____ City _____ State _____

slug of oil out of the cup to warn that the water must be drained and the proper oil level re-established. Other features of the new model are a speed adjustment whereby the belt may be easily shifted from one pair of sheave grooves to another, and a gas repellent valve, said to assure freedom from gas and smoke blow back. The Type F is manufactured in seven capacities with three kinds of retorts and with either manual or automatic air volume control.

Manufacturer: Brownell Co., 428 N. Findlay St., Dayton 1, Ohio.

SPRING-CUSHIONED DOOR-STOP prevents damage to woodwork.

Anyone can mount this neat little gadget on baseboard or door to prevent the noise and damage that result from doors being slammed open. Measuring $2\frac{7}{8}$ in. long by 1 in. in diameter, the new door-stop has a soft rubber bumper and an internal spring. It is available in brass, nickel or chromium finish, and retails at 49 to 69 cents. It should prove useful in offices and hospitals as well as homes.



Manufacturer: Wesco Electric Co., 5310 Milwaukee Ave., Chicago 30, Ill.
(Technical Literature, page 146)



The Sunny South Comes North

BY THE MAGIC OF **PHOTOMURALS**

When you check in at Delta's Windy City office you can almost feel the soft balmy breezes and brilliant sunshine of the deep South... beautiful Photomurals portray so invitingly the scenes of the Southland that even Delta's super-speed equipment seems slow to the eager passenger! That's the power of the Photomural... and it can be applied to a multitude of purposes... one of which will serve your needs amazingly well.

WRITE FOR FULLY DESCRIPTIVE BROCHURE

KAUFMANN & FABRY CO.

DEPT. FL. 425 SO. WABASH AVE., CHICAGO 5, ILL.



Before you specify your next floor...

See **NEW** RUBBER TILE

by the makers of

KENTILE®



All Rubber Tile is not alike...

New Rubber Tile by the makers of Kentile gives *more* luxurious beauty... *more* practical advantages at no extra cost... exclusive features in color and design. Molded under great pressure, this rubber tile is unusually tough, remarkably resilient. It resists chipping, cracking, marring... does not support combustion. Dirt, moisture cannot penetrate the smooth non-porous surface.

IMPORTANT: Rubber Tile by the makers of Kentile contains no oils... no ingredients to dry out and leave the tile brittle.

NEW!

Exclusive Colors

in rich vibrant tones created and harmonized by *Carl Foss*, nationally recognized color expert. No other rubber tile can offer you all these beautiful colors... delicately veined, marbled effects.

Exclusive Themetile

Only Rubber Tile by the Makers of Kentile offers these decorative low-cost factory-made inserts, suitable for a wide variety of installations... unequalled for giving a "custom-made" touch to the floors you specify.

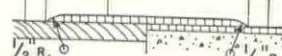
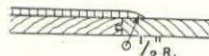
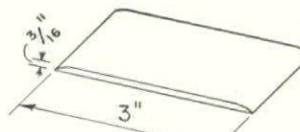
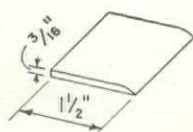
TECHNICAL DATA you'll want to keep on file...

COLORS

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Piastra.....	426
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Medoux.....	430
Vert Maurin.....	431
New England.....	432
Lilas.....	433

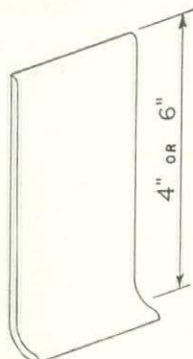
FEATURE STRIPS

1" Wide, 36" long..... Black,
Red, Green, White, Yellow



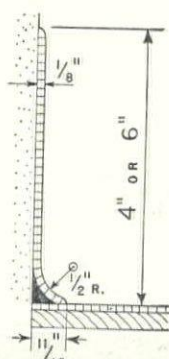
EDGING (Black Only)

Double beveled edging... 36" long, 3/16" thick, 3" wide
Single beveled edging... 36" long, 3/16" thick, 1 1/2" wide



COVE BASE

(Black, Onyx, Connemara, Rouge Royal, only) 42" long, 1/8" thick, 4" high, and 6" high (black only)



SIZES

1/8" and 3/16" thick

Stock Sizes: 9" x 9"

18" x 36" (Black,

Onyx, Connemara, Rouge Royal, only)

Made To Order Sizes:

6" x 6", 12" x 12", 6" x 12",
9" x 18", 18" x 36"

THEMETILE

9" x 9" Tiles

Fish..... Green and Yellow
Dots..... Yellow and Red
Petals..... White and Red
Ivy..... White and Green
Spoon and Fork.. Red and White

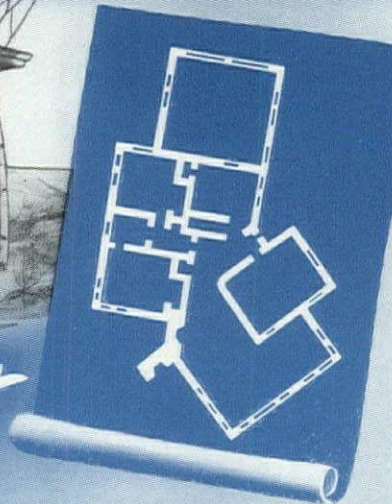
FOR FURTHER DETAILS
CONTACT THE OFFICE
NEAREST YOU

DAVID E. KENNEDY, INC., 58 Second Avenue, Brooklyn 15, N. Y.
350 Fifth Ave., New York 1, N. Y. • 705 Architects Bldg., 17th and Sansom St., Philadelphia, Pa. • 1211 N.B.C. Bldg., Cleveland 14, Ohio • 225 Moore St. S.E., Atlanta 2, Ga. • Kansas City Merchandise Mart Inc., 2201-5 Grand Ave., Kansas City 8, Mo. • 1440 11th St., Denver 4, Colo. • 4532 South Kolin Ave., Chicago 32, Ill. • 4501 Santa Fe Ave., Los Angeles 11, Calif. • 452 Statler Bldg., Boston 16, Mass.

HONEYWELL COMFORT...



...begins with the *Blueprint*



WHATEVER a house may cost, it will not be a real *home* unless it is comfortably heated. So, in Honeywell national advertising we are urging home builders to consult you about their heating system while plans are in the blueprint stage.

Here are some of the Honeywell controls and control systems that can be selected, depending upon the size and type of home.

CHRONOTHERM* Electric Clock Thermostat



Every home should have the convenience and economy of automatic clock thermostat regulation. Chronotherm automatically switches to lower fuel-saving temperature at bedtime. Then in the morning, before the family gets up, it restores daytime comfort temperature. Chronotherm will save 10% or more fuel and will give far greater heating comfort and convenience.

ELECTRONIC MODUFLOW* Control Systems

The new Honeywell Electronic Moduflow control system will give an entirely new conception of even, continuous heating comfort. Electronic Moduflow combines the magic speed and sensitivity of electronics with the Moduflow principle of continuous heat flow. It does away with drafts and cold floors caused by intermittent heat supply.



Electronic Relay



Electronic Thermostat

ZONE CONTROL

In larger homes and ranch-type homes, more uniform temperatures will be obtained throughout the house by an Electronic Moduflow system with two or more thermostats located in different sections of the house. In basement recreation rooms, for example, a separate thermostat will maintain just the desired temperature without affecting the rest of the house.

RADIANT PANEL HEATING

Because of its extreme sensitivity and dependability, an Electronic Moduflow control system will insure best results from radiant panel heating installations.

For further information about Honeywell Controls and Control Systems, contact the Honeywell branch office in or near your city. Or, mail the coupon for the 3 free booklets, "Electronic Moduflow;" "Electronic Moduflow for Radiant Panel Heating;" "Zone Control and Individual Room Control."

*Trade Mark

MINNEAPOLIS
Honeywell
CONTROL SYSTEMS

MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
2600 Fourth Avenue South • Minneapolis 8, Minnesota

Please send me the 3 free booklets on
Electronic Moduflow and Zone Control.

Name _____
Address _____
City _____ Zone _____ State _____

Not only for its beauty but for its unsurpassed utility... choose **U·S·S Stainless Steel**

ARCHITECTURALLY, Stainless Steel offers infinite possibilities that up to the present have been only meagerly exploited.

That is because many architects still regard Stainless Steel as a luxury material, which it emphatically is not. The important thing to remember is that Stainless Steel is probably the most *permanent* of all building materials. While it has decorative values that are universally recognized, its functional versatility, its long-time economy, its ability to reduce maintenance to the very minimum should not be overlooked. With Stainless Steel, first cost is virtually final cost.

U·S·S Stainless Steel has intrinsic merits that give it many unique advantages: Its lustrous corrosion-resisting surface withstands exposure to heat, cold, weather, and time itself. It is easy to clean and *keep* clean. It offers rugged resistance to abuse and wear.

Decoratively, U·S·S Stainless Steel harmonizes well with other materials,

but, more significantly, it can be used to obtain a freedom of design not possible with other materials. Its high weight-strength ratio permits its use in light, easily transportable structural forms similar to those developed for airplanes and streamliners. Its light-reflecting properties can be used to advantage in combination with artificial interior lighting to provide wall surfaces of quickly-changed color. Its superior properties make it ideal for curtain wall construction or in panel frames for radiant heating and radiant cooling of rooms.

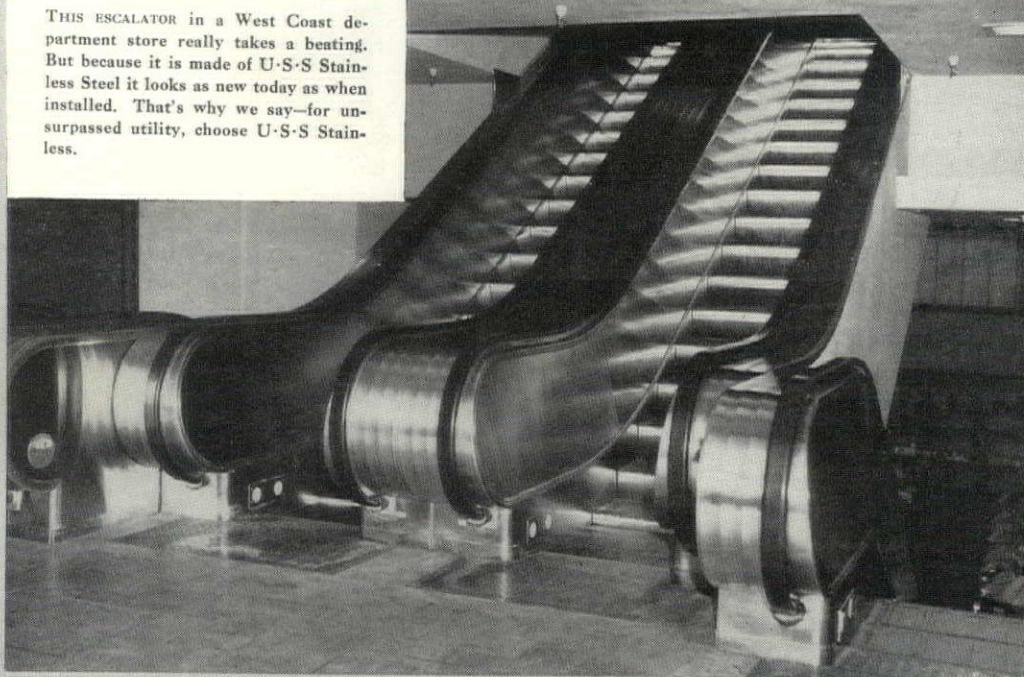
For these and similar applications, U·S·S 18-8 Stainless Steel—a perfected, service-tested Stainless—is available in the widest variety of commercial shapes, forms, and sections, and in the standard finishes used for architectural purposes.

Our stainless steel specialists will gladly cooperate with you in developing your designs to include U·S·S Stainless most economically.



MADE OF U·S·S STAINLESS STEEL, these elevator doors in one of Washington's busiest office buildings combine decorative beauty with permanence. Easy to clean, wear- and abuse-proof, they will retain their gleaming good looks as long as the building stands.

THIS ESCALATOR in a West Coast department store really takes a beating. But because it is made of U·S·S Stainless Steel it looks as new today as when installed. That's why we say—for unsurpassed utility, choose U·S·S Stainless.



**Here's where
U·S·S Stainless Steel will
do a better job**

- Gutters, leaders and flashings
- Copings and cornices
- Window frames, sashes and screens
- Show windows
- Sculpture-relief or free standing
- Elevator doors and cars
- Heating panels
- Stair and door nosings
- Hardware
- Fireplace facings
- Chutes and conveyors
- Multistoried building pilasters
- Parapets and spandrels
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- Store fronts
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- Stair rails
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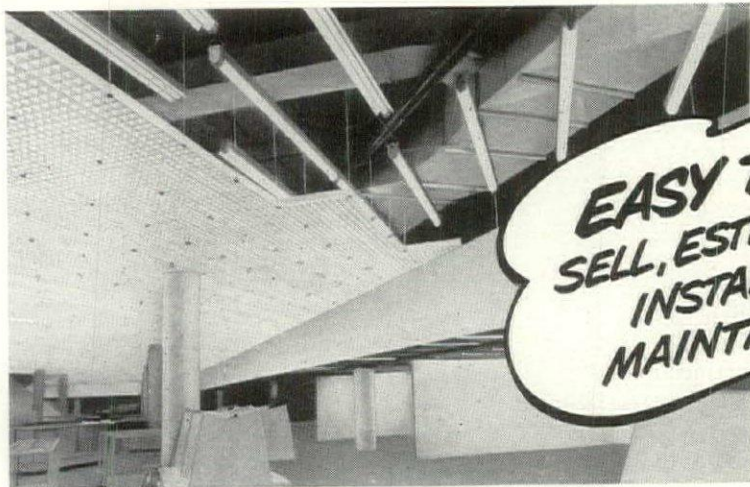


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SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

UNITED STATES STEEL

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SYLVANIA'S "Flexi-Module" LUMINOUS CEILING

**Features an exclusive "STAR"
suspension system!**

EASY AND INEXPENSIVE TO INSTALL

Adjustable hangers for the louver units are easily attached to ceiling or concrete slab on 32" centers. Sylvania's wide experience has resulted in design of special "star" suspension units (see inset) that permit quick louver adjustment from below. Straps of hanger assembly are adjusted to nearest inch. Final height adjustment is made by screwing up on threaded bolt. Requires no expensive subframe of channels or other devices to be leveled or installed!

FLEXIBLE

The Sylvania system is simplicity itself—beautiful 32" x 32" aluminum louver units consisting of cells 3" x 3" remain rigid even when cut to fit around pillars or to fill in at the end of a row.

EASY TO MAINTAIN

Less expensive to maintain than a plaster ceiling. Non-static aluminum is dust-free... and special plastic coating protects from fingerprints! Mirror effects (specularity) are eliminated.

MAIL COUPON FOR FULL DETAILS! ➡

SIMPLE, EFFICIENT FIXTURES

Lighting fixtures used up behind "Flexi-Module" can be of the simplest, most efficient types. No costly addition for appearance reasons! Open gridwork allows air circulation, and lamps operate nearer maximum efficiency!

SAVINGS IN CONSTRUCTION COSTS

All utilities can be out in the open—yet hidden behind "Flexi-Module." No expensive buried-in-concrete construction. All ducts and piping easily accessible. Hidden ceiling doesn't need painting. Utilities can be altered or repaired at any time with no ceiling-work expense.

Sylvania Electric Products Inc.
Advertising Dept. L-7012
500 Fifth Ave., New York 18, N. Y.

Send full particulars on Sylvania
"Flexi-Module" Louvered Ceiling.

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FLUORESCENT LAMPS, FIXTURES, WIRING DEVICES, SIGN TUBING; LIGHT BULBS; PHOTOLAMPS; RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES

REINFORCED STUCCO. The Keystone System. Keystone Steel & Wire Co., Peoria 7, Ill. 44 pp. 8½ x 11 in. \$1. Free to building trade.

To find out the most practical procedures for presentation in this manual on the application of steel reinforced stucco and plaster, leading contractors and tradesmen were consulted. Building associations and research tests conducted by the publisher also served as information sources. The method evolved is a guide for builders, lathers and plasterers said to insure a durable attractive economical finish job. It is not a radically new approach; rather, a combination of recommended practices. In presenting the Keystone System of stucco application, the book reviews—with detailed drawings and photographs—good building design and construction; procedures for applying reinforcement; ingredients, mixing, application, curing and texturing of stucco. Also described and pictured is the Keystone System of plaster reinforcing. The text points out that such reinforcement is a means of counteracting stresses which develop from normal movement of lumber, building framing and vibration. Builders are cautioned that a good plastering job cannot be better than its base. Basic steps advocated are: (1) check structural soundness; (2) apply reinforcement for insured durability; (3) use best suited mixtures properly proportioned; and (4) finish the plastering job with care.

ARCHITECTURAL STEEL. Special Purpose Sheet Steels for Architectural Beauty and Permanence. Armco Steel Corp., 5149 Curtis St., Middletown, Ohio. 12 pp. 8½ x 11 in.

Properties and uses of Armco's stainless steels, enameling iron, Zincgrip and Zincgrip-Paintgrip for commercial and home building are fully described in this booklet. Sections on each of these special purpose steels illustrate their interior and exterior applications. Laboratory and field test summaries included in the brochure indicate that the Zincgrip coating has greater atmospheric corrosion resistance than regular galvanized sheets with equal weight coatings. Also contained are a list of sheet metal products used in the home and a mailing card for obtaining additional information.

WOOD. Idaho White Pine. Western Pine Assn., 510 Yeon Bldg., Portland 4, Ore. 64 pp. 8½ x 11 in.

Properties and characteristics of Idaho White Pine, and its uses in commercial and residential building and in industry are thoroughly reviewed in this book. Full page photographs of typical pieces of each grade are featured, together with descriptions of each piece. Other pictures illustrate the diverse applications of the various grades—from roof sheathing to fine cabinet work. The book also presents an interesting series of photographs taken annually for sixteen years from the same camera spot showing the natural regeneration of a desolate burned timber area into a thriving young forest.

WATER CONDITIONING. Elgin Water Conditioning. Bulletin No. 610. Elgin Softener Corp., Elgin, Ill. 20 pp. 8½ x 11 in.

Following a brief picture story on the deleterious effects of hard water and the economies and benefits of softened water, this bulletin presents complete information on the design and application of the manufacturer's water-conditioning equipment. Products covered include zeolite water softeners, water treating chemicals, water conditioning systems for boilers and processing, taste and odor removers, and aerators.

(Continued on page 148)

Announcing — the Newest in Siding

WELDTEX SIDING



ARCHITECTS: Now you can give your homes smart, modern beauty at reduced cost.

You've already seen the fine effects that have been obtained with Weldtex* when used in large panels.

Now, that same beauty, that same durability, that same uniqueness, is available in Weldtex Siding.

In Weldtex Siding, the warmth and beauty of natural wood have been augmented by grooving the surface with deep, irregularly-cut striations. These cut-in grooves lend a third-dimensional quality to the surface, breaking up the flat plane and creating pleasant highlights and shadows.

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Joint lines are invisible. Face nails are concealed by the deep-cut grooving.

And, the wide 4-foot panels go up fast. Only 20 panels cover a square. Savings as much as \$60 per small house have been reported (*based on a reduction of 70% in labor costs*).

Best of all, the finished job is weather-tight, with a minimum of seams. Weldtex Siding takes paint and other exterior finishes perfectly, making a beautiful job which adds to the value of any house.

FHA APPROVED

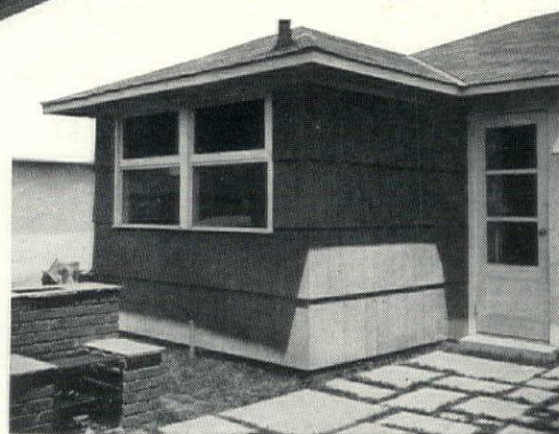
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Write for more information and folder showing typical installation details.

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WELDTEX SIDING can be used over any type sheathing. Fits perfectly on 16" studding. Photo above shows the pleasing effect obtained by using a wood lath to create a deep shadow line. Weldtex Siding is made of 3-ply Weldtex plywood, Exterior Grade, $\frac{3}{8}$ " thick, pre-cut in panels 48" wide, 15 $\frac{7}{8}$ " deep. Packed 20 panels per bundle (1 square).



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Company

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

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PLUMBING FIXTURES. Kohler Plumbing Fixtures for Industrial Plants, Public Buildings, Clubs, Schools. Kohler Co., Kohler, Wis. 28 pp. 8½ x 11 in.

Compiled as a handy reference book for architects, contractors and plumbers, the publication is divided into sections, each dealing with one type of fixture or fitting. Some of the items treated are lavatories, wash sinks, closets, drinking fountains, service sinks and brass fittings. Each fixture is pictured, catalogue numbered and briefly described. This booklet should serve as a useful supplement to the extensive 75th anniversary catalogue issued by Kohler last winter.

VENTILATORS. Penn Ventilators. Penn Ventilating Co., Goodman at Allegheny Ave., Philadelphia 40, Pa. 4 pp. 8½ x 11 in.

Penn's full line of ventilators for all types of buildings are described in this pamphlet, which utilizes halftones and diagrams to illustrate applications of the seven styles manufactured. Also presented are capacity tables, dimensional data charts and exhaust capacities for each piece of equipment.

DUST FILTERS. Industrial Dust Control by Sly. W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, Ohio. 23 pp. 8½ x 11 in.

All industrial processes producing any kind of material in powdered form create dust, and in many instances this dust is a definite economic loss if not collected. Sly's bulletin gives this and other reasons why dust-free plants are desirable. It presents engineering data covering dimensions and capacities of the manufacturer's dust filters. These filters operate like a multiple vacuum cleaner with a number of filter bags. Over 100 different kinds of dust collected by the filters are listed in the publication. It is illustrated with typical installations in industry. (Continued on page 150)

The Eighth of a Series in the interest of more efficient use of steel...a vital American resource.



USE PROPER STEEL STRESSES AND SPECIFY LACLEDE MULTI-RIB REINFORCING BARS

Concrete reinforcing steel design stresses of 20000 psi (f_s) are based upon old type plain bars with 40000 psi maximum yield strength... A safety factor of 2 at the elastic limit.

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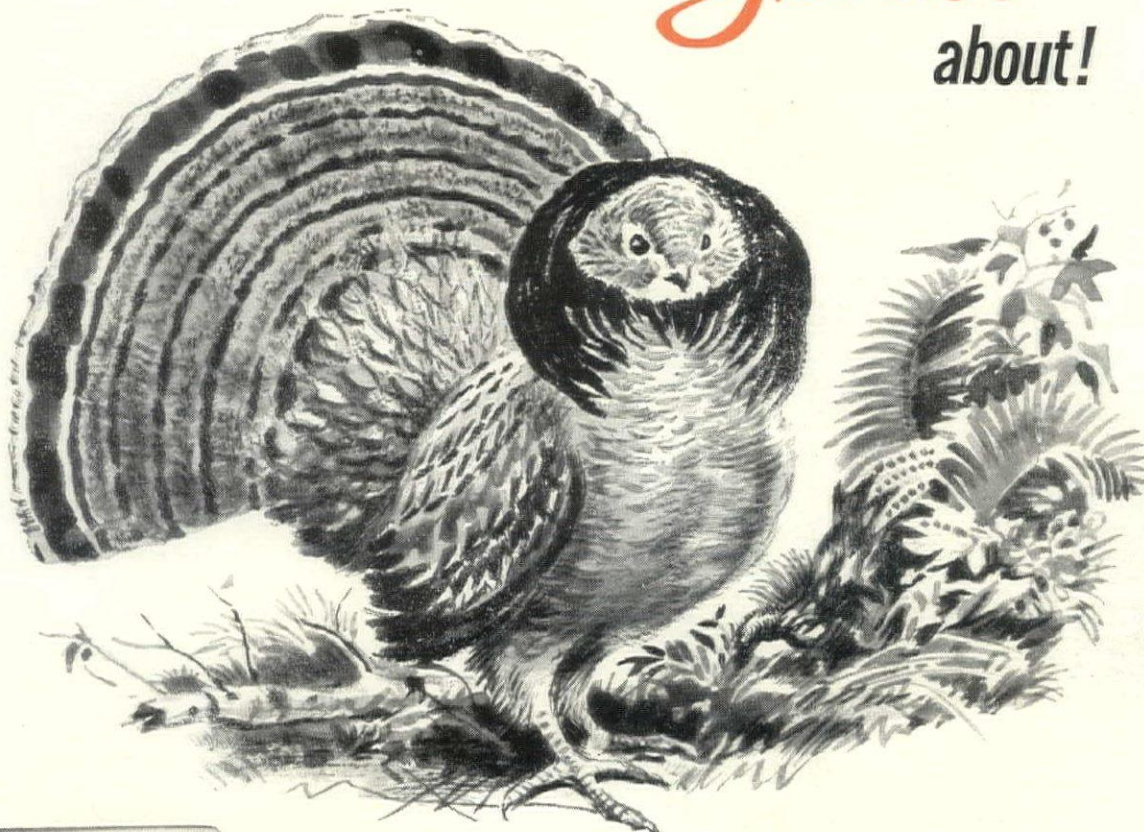
Sound engineering design dictates efficient use of materials... so why waste every third bar?

*IN EXCESS OF ASTM A305 REQUIREMENTS AND
THE LATEST A.C.I. RECOMMENDATIONS.



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St. Louis, Mo.

Don't give them anything to "Grouse" about!



... of course, it's Electric!

Customers being people, they'll "grouse" unless you give them what they want in the new homes you build. Include the kind of cooking equipment more people want—modern Electric Ranges!

The trend to Electric Cooking is proved by the fact that another million American families switched to it last year.

So build houses that are modern today and will stay modern for years to come. During construction, include wiring for an Electric Range, leading to a range outlet in the kitchen. An Electric Range, like electricity itself, is now a "must" in every modern home!

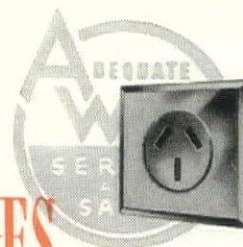
ELECTRIC RANGE SECTION, National Electrical Manufacturers Association, 155 East 44th Street, New York 17, N. Y.

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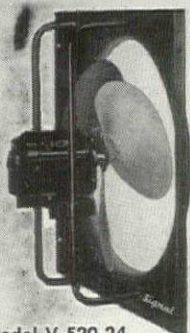
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the trend...

WIFE YOUR HOUSES
FOR ELECTRIC RANGES

Another 1,000,000 American families switched to Electric Cooking last year



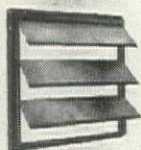
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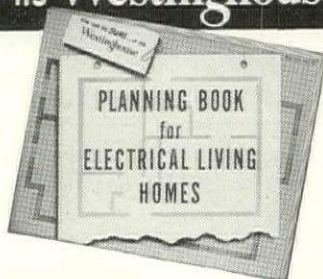
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Gives planning data for wiring and lighting; also sizes and installation requirements of electrical appliances and equipment for the home.

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P. O. Box 868, Pittsburgh 30, Pa.

Gentlemen: Please send me a copy of your
new book, Planning Homes for Electrical Living
—B-4326.

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**SEND FOR
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Booklet**

LIGHTING FIXTURES. Sylvania Electric Fluorescent Fixtures. Sylvania Electric Products Inc., 500 Fifth Ave., New York 18, N. Y. 76 pp. 8 1/2 x 11 in.

The first fluorescent fixture catalogue issued by Sylvania in two years, this publication contains more than 60 photographs of commercial, industrial and troffer fixtures, starters, lamp-holders and starter sockets with complete descriptions of each. Three sections—industrial, commercial-residential and troffers—make up the catalogue and each may be detached as a separate unit. A supplement, *How to Plan a Fluorescent Lighting Installation*, covers fixtures for specific purposes, and methods for determining the number required and their most advantageous arrangement. A chart shows the amount of illumination needed for 80 typical lighting applications from store showcases and window displays to professional offices and dental chairs.

CARPETING. How to Carpet your Home Correctly. The Magee Carpet Co., 295 Fifth Ave., New York 16, N. Y. 13 pp. 8 1/2 x 11 in. 25 cents.

Take your cue from your carpet is the theme of this full-color booklet on planning room interiors. Slanted toward decorator and feminine readership, it suggests that the carpet is the basic costume to be selected first and that curtains, wallpaper, etc. should be chosen with the carpeting always in mind. Swatches of several Magee carpets are included in the booklet to stimulate decorative ideas and aid in carrying them out. A novel feature of the publication, graphically illustrating the versatility of carpeting, is the juxtaposition of contemporary and traditional settings on the same carpet. A color coordinating chart combines various patterns, colors and textures.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 OF ARCHITECTURAL FORUM, published monthly at New York, N. Y. for October 1, 1949.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Joseph C. Hazen, Jr., who, having been duly sworn according to law, deposes and says that he is the Executive Editor of ARCHITECTURAL FORUM and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (section 537, Postal Laws and Regulations), printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, executive editor, and general managers are: Publisher, P. I. Prentice, 350 Fifth Avenue, New York 1, N. Y.; Editor, Henry R. Luce, Time & Life Building, Rockefeller Center, New York 20, N. Y.; Executive Editor, Joseph C. Hazen, Jr., 350 Fifth Avenue, New York 1, N. Y.; General Manager, Robert W. Chastaney, Jr., 350 Fifth Avenue, New York 1, N. Y.

2. That the owner is: Time Incorporated, Time & Life Building, New York 20, New York; that the names and addresses of stockholders owning or holding one per cent or more of total amount of stock are: Henry P. Davison, P. O. Box 1266, New York, N. Y.; William V. Griffin, 20 Exchange Place, New York 5, N. Y.; William Hale Harkness, c/o The New York Trust Company, Income Collection Department, 100 Broadway, New York, N. Y.; Louise H. Ingalls, c/o J. H. Meleher, 1216 Union Commerce Building, Cleveland 14, Ohio; Irving Trust Company, New York City, successor trustee U-W of Briton Hadden for the benefit of Elizabeth Busch Pool, c/o Irving Trust Company, Custodies Department, New York 15, N. Y.; Robert L. Johnson, Temple University, Philadelphia, Penna.; Margaret Zerbe Larsen, c/o Time Inc., Time & Life Building, Rockefeller Center, New York 20, N. Y.; Roy E. Larsen, c/o Time Inc., Time & Life Building, Rockefeller Center, New York 20, N. Y.; Henry R. Luce, c/o Time Inc., Time & Life Building, Rockefeller Center, New York 20, N. Y.; Samuel W. Meek, c/o Greenwich Trust Company, Greenwich, Conn.

Stock to the extent of more than one per cent is registered in the names of the following companies, but in each case the company is a nominee for a number of stockholders, no one of whom is known to own more than one per cent: Brown Brothers, Harriman & Company, 59 Wall Street, New York 5, N. Y.; Cobb & Company, c/o New York Trust Company, 100 Broadway, New York 5, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

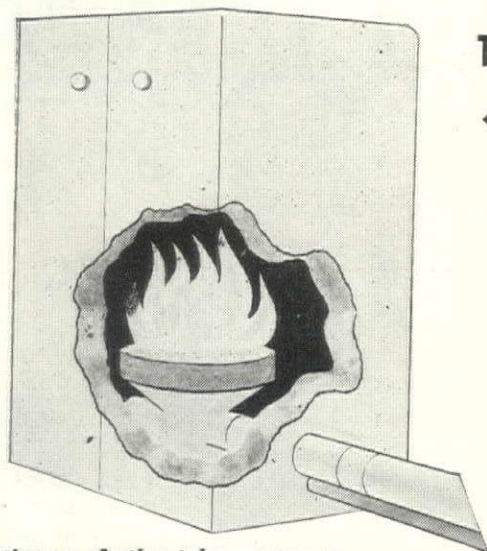
(Signed) Joseph C. Hazen, Jr.
Executive Editor,

Sworn to and subscribed before me this 21st day of September, 1949.

(Signed) Sallie A. McGovern,
Notary Public.

(My commission expires March 30, 1950)

Show your Clients these **3** modern Automatic Anthracite Heating Units



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

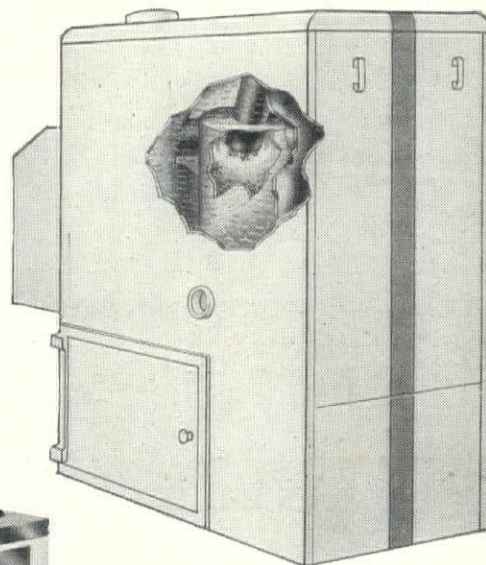


3. Anthra-Flo furnace-burner unit
—An entirely new type furnace-burner which features a simple burner mechanism, attached by two bolts with all working parts easily accessible. Fully automatic, coal feeds direct from bin across single *stationary* perforated plate . . . ashes discharge by gravity into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

They save up to 52% annually on fuel bills

1. Automatic Anthracite Stokers—

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



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

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

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BETTER ROOMS COMPETITION

\$25,000.00 in 145 Cash Prizes

ranging from \$100.00 to \$1000.00 each

for the best ideas for furnishing and decorating seven types of rooms

ALL ENTRIES MUST BE RECEIVED BY 5 P. M. OF FEBRUARY 20, 1950

IN order to bring to readers again this year a full range of ideas for furnishing and decorating various types of home interiors, the Chicago Tribune is conducting its Fourth 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 1947, 1948 and 1949 brought out a wealth of fresh and interesting ideas in this field of high popular interest, so the 1950 competition has been designed to set new standards 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 here is your chance 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 employees 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 recognized authorities of 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 20, 1950. So don't delay. Fill in the coupon below, paste it on a postcard, and mail today.

FILL IN AND MAIL TODAY!

BETTER ROOMS COMPETITION

Chicago Tribune,
Tribune Tower, 435 N. Michigan Ave.
Chicago 11, Illinois

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Without cost or obligation to me, please send by postpaid mail to me at the address below complete details and rules of the \$25,000.00 Chicago Tribune Fourth Annual Better Rooms Competition.

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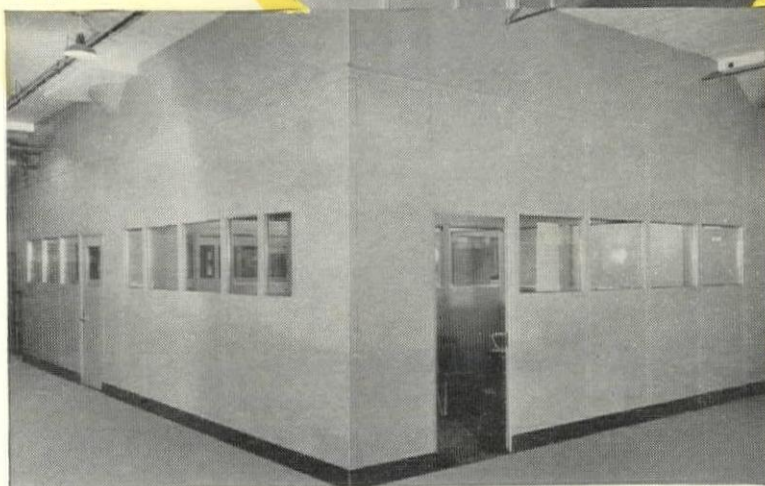
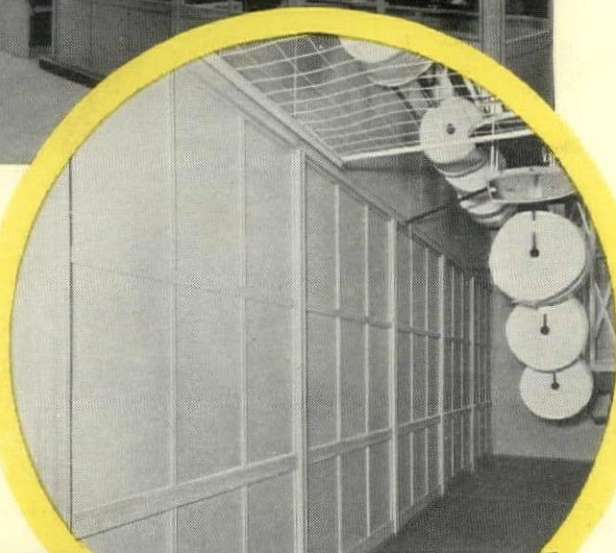
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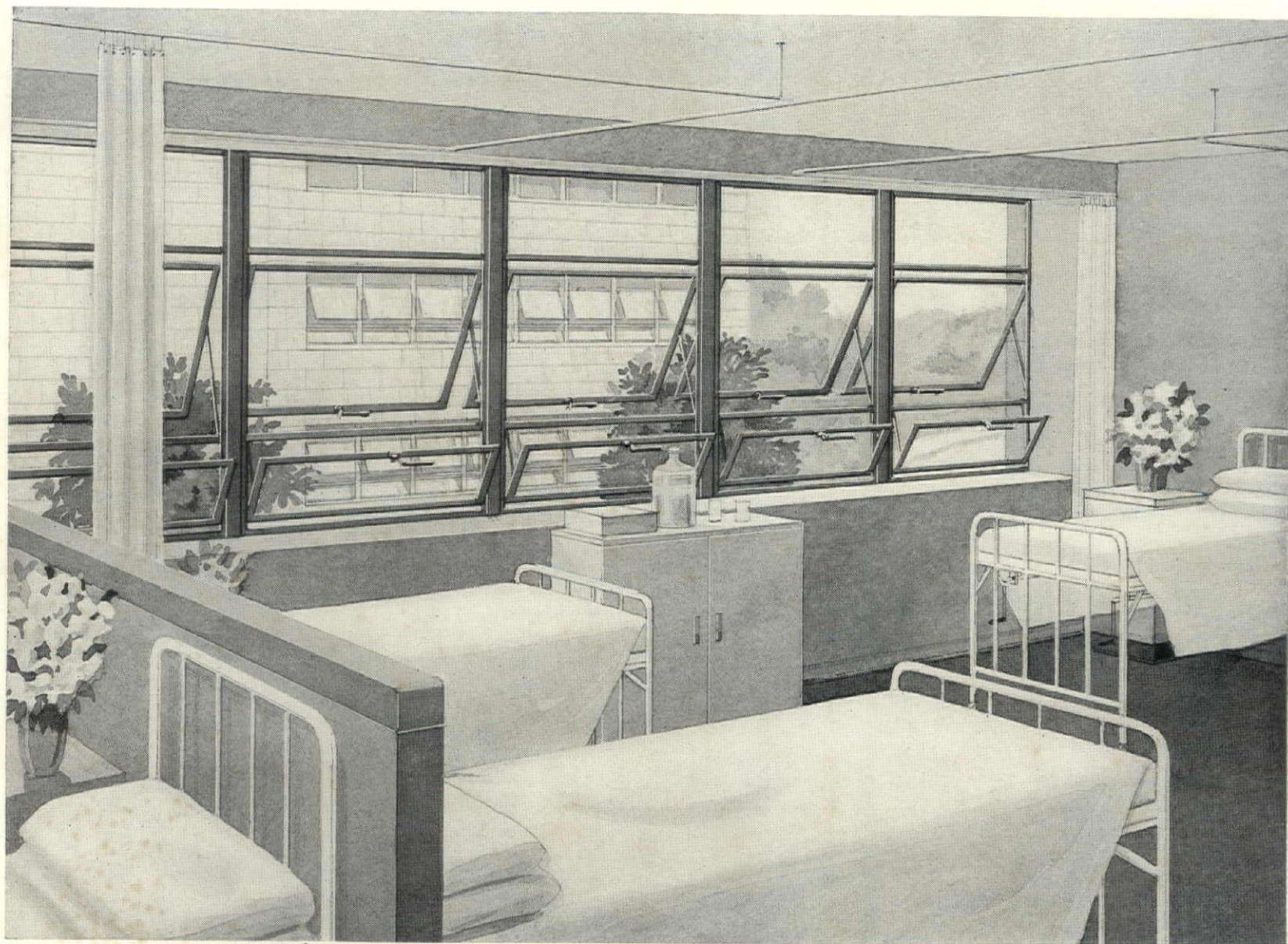
For every commercial, industrial and institutional need

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METAL WINDOWS



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"Durall is simply wonderful! No trouble at all to store or maintain."



Builder: "No frame cutting or fitting. That saves lots of man hours. I've got Durall in my own home."



Architect: "An efficient, low-cost accessory that adds to the good appearance of any building."

Everybody wants **DURALL** **ALUMINUM TENSION SCREENS**



Building Supply Dealer: "One of my fastest selling items. Consumers and dealers call Durall a superior value."



Developer: "They give my houses a valuable 'plus' at a remarkably low cost."



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Today there's a really *NEW* idea for screening windows ...and everybody's going for it.

It's a money-saver and a client-pleaser. It's effective, efficient, economical. The name is Durall.

Building men throughout the industry can tell you that you'll *save dollars per opening* with Durall—in low initial cost, in speedy *inside* installation, in years of paint-free, trouble-free upkeep. Durall goes up in a few minutes and never rusts through or causes stains.

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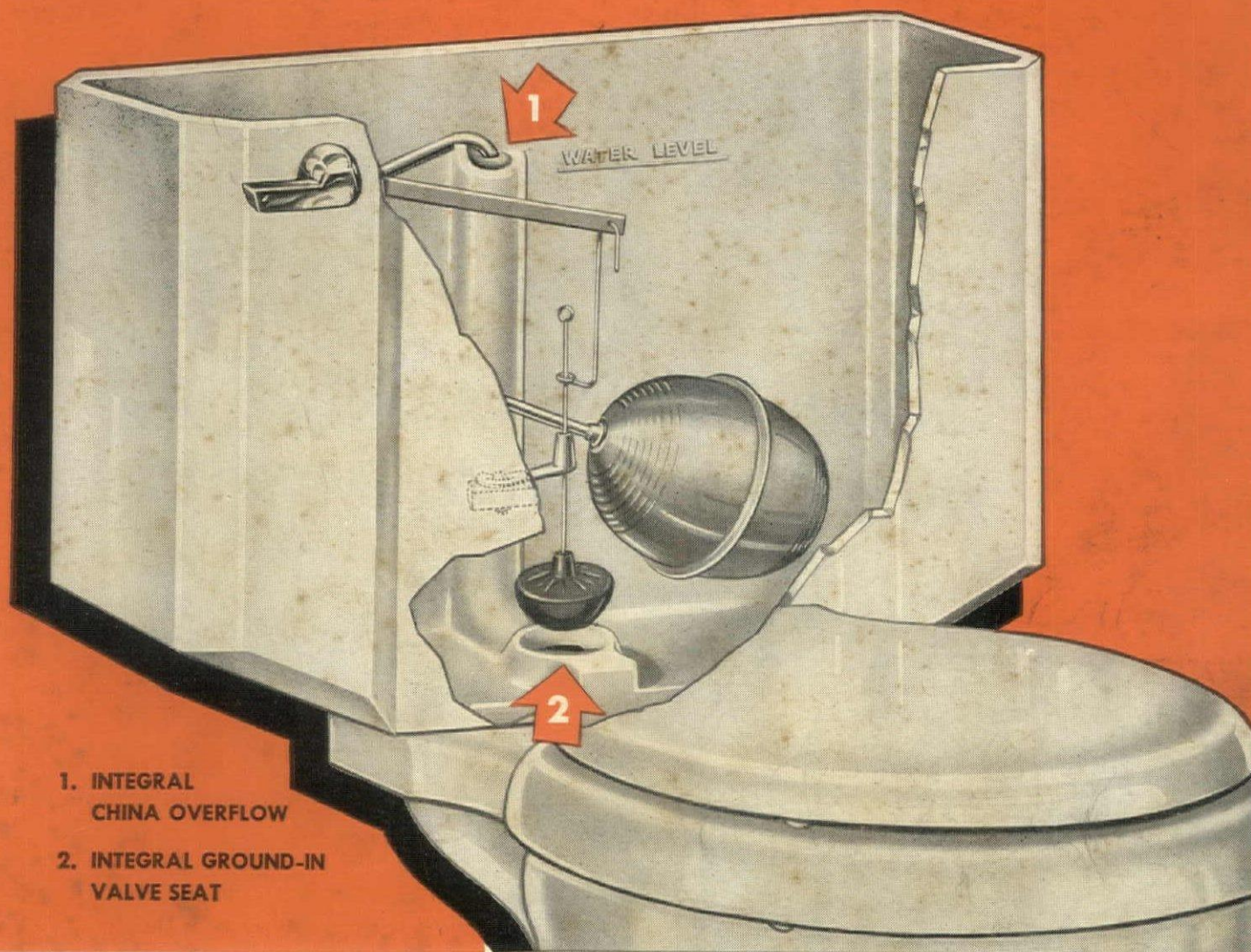
FREE BOOKLET! See Durall at your local dealer's, or, send for free booklet and complete information. Write today, Dept. AF-12.

West of the Rockies ask for Ry-Lock

DURALL
ALUMINUM TENSION SCREEN

Durall Screens in the Tishman Apartments, Fleetwood, N. Y.

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1. INTEGRAL CHINA OVERFLOW
2. INTEGRAL GROUND-IN VALVE SEAT

SELL THESE FEATURES...WIN CUSTOMER SATISFACTION

Your customers can easily see *why* the construction of Eljer Water Closet Tanks is the finest available.

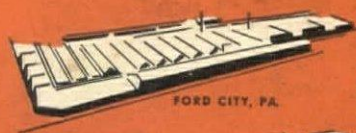
The Eljer *integral china overflow* and *ground-in valve seat* are made of real vitreous china . . . a part of the tank itself. This eliminates thin metal tubes and metal seats that wear and corrode. The construction is *foolproof* . . . built to last the life of the closet. Vitreous china cannot corrode. An Eljer Fixture with

this extra quality costs no more than an *ordinary* fixture . . . even less, considering the resulting savings in maintenance expense.

Any plumber who points out these extra values to homeowners will make extra sales . . . and have satisfied customers. To have quality customers, sell quality plumbing fixtures. Sell Eljer . . . see your Eljer Distributor or write Eljer Co., Box 192, Ford City, Pa.

It pays you, it pays us— because we specialize in Plumbing Fixtures and Brass

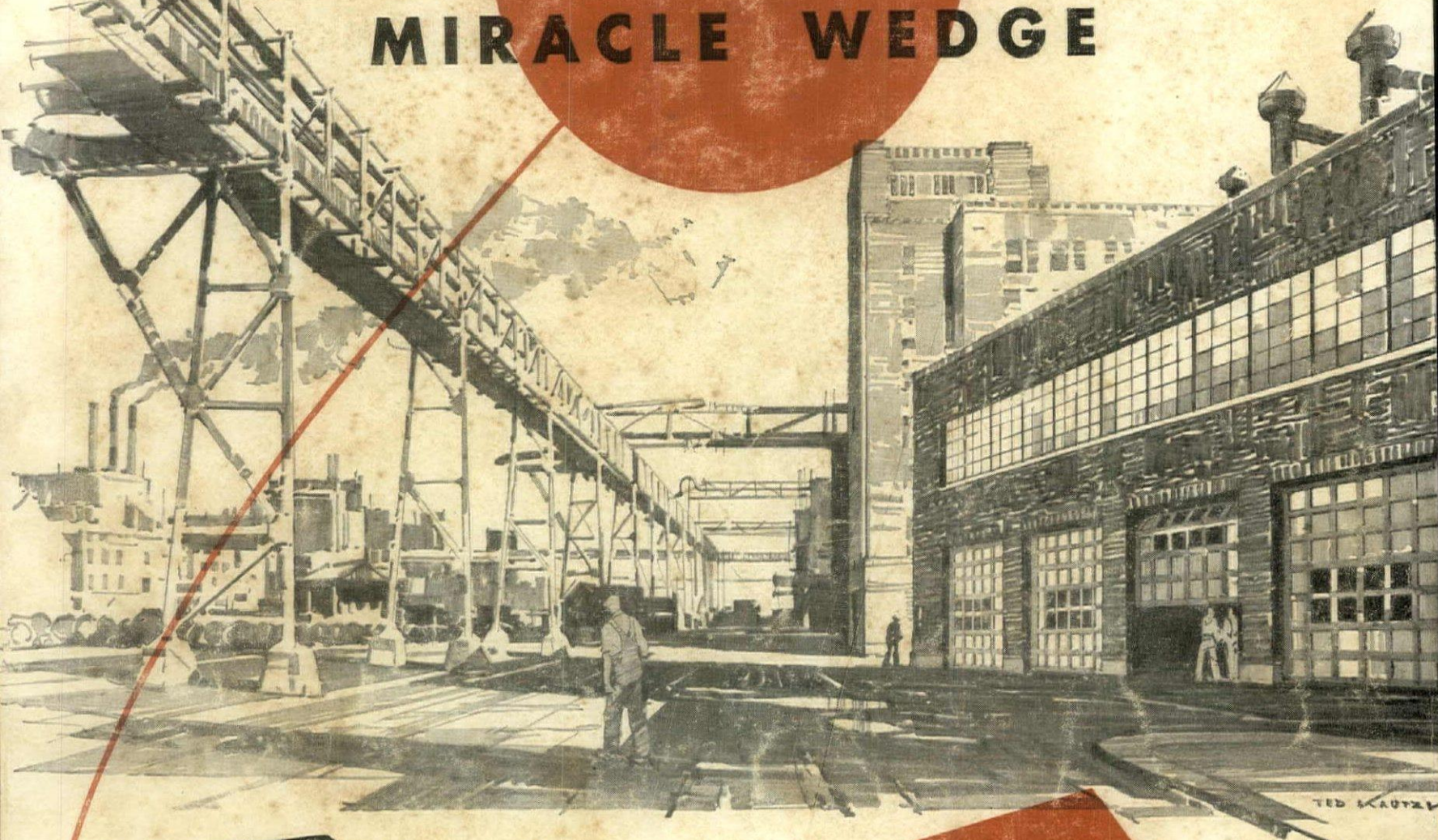
ELJER



THE
17 Feb 65

OVERHEAD DOOR

TRADE MARK
WITH THE
MIRACLE WEDGE



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Specify the **BEST** door for the **BIG** jobs!

● Structures housing equipment and goods of large quantity or heavy weight must be built from best materials throughout in order to have a long and useful life. The door which has proved eminently satisfactory in such structures is The "OVERHEAD DOOR" with the Miracle Wedge. This door combines great strength with light weight and unparalleled ease of operation. It is equipped with durable hardware, is always ready for instant opening, and it provides a weathertight closure. That is why so many builders specify it for every structure. The "OVERHEAD DOOR" is built for industrial, commercial, residential and rural use, and may be manually or electrically operated.

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